BC Geological Survey
Assessment Report
38208

Ministry of Energy and Mines
BC Geological Survey

Assessment Report
Title Page and Summary

TYPE OF REPORT [type of survey(s)]:

TOTAL COST:

AUTHOR(S): Sarah Ryan and Trent Potts

SIGNATURE(S): Sarah Ryan and Trent Potts

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): N/A

YEAR OF WORK: 2018

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S): March 11, 2019, Event # 5733860

PROPERTY NAME: Rupert

CLAIM NAME(S) (on which the work was done): Rupert (1061980)

COMMODITIES SOUGHT: Cu

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 092L-77, 092L-272, 092L-278, 092L-290, 092L-327, 092L-373, 092L-374

MINING DIVISION: Nanaimo

NTS/BCGS: 092L 11W

LATITUDE: 50 ° 35 '20 " **LONGITUDE:** 127 ° 24 '15 " **(at centre of work)**

OWNER(S):

1) Howson Ventures Inc.

2)

MAILING ADDRESS:

890-1140 West Pender St, Vancouver, BC, V6E 4G1

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

1) Howson Ventures Inc.

2)

MAILING ADDRESS:

890-1140 West Pender St, Vancouver, BC, V6E 4G1

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

Upper Triassic to middle Jurassic volcanics and lesser sediments of Vancouver and Bonanza Groups with east-west trending dykes of the Island Plutonic Suite. Few outcrops are visible due to thick overburden. Hydrothermal alteration, Cu/Mo mineralization and diseminated pyrite reported in historic drill core is consistent with calc-alkaline Cu-Mo style deposit.

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 16510, 23276, 33615, 15707D, 16510, 15707E, 00894, 01687, 01693, 01742, 01907, 02659, 02773, 02832, 03474, 05102, 05033, 06056, 06270, 07562, 08150, 08178

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TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping			
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for...)			
Soil	185 MMI Soil samples	Rupert (1061980)	$81,443.75
Silt			
Rock	9 Rock Samples	Rupert (1061980)	$240.30
Other			
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)	15 km^2	Rupert (1061980)	$16,288.76
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
		TOTAL COST:	$97,972.81

LONGFORD EXPLORATION

ASSESSMENT REPORT

On the

RUPERT PROPERTY

NANAIMO MINING DIVISION, BRITISH COLUMBIA, CANADA

Located Within:
NTS Sheet: 092L 11W

Centered at Approximately:
Latitude 50°35'20" North by Longitude 127°24'15" West

Report Prepared for:

Howson Ventures Inc.
890-1140 West Pender St.
Vancouver, BC
V6E 4G1

HOWSON VENTURES

Report Prepared by:

Longford Exploration Services Ltd.[1]
460 - 688 West Hastings Street
Vancouver BC V6B 1P1

Sarah Ryan, GIT
460-688 West Hastings St
Vancouver, BC, V6B 1P1

Trent Potts, GIT
460-688 West Hastings St
Vancouver, BC, V6B 1P1

EFFECTIVE DATE: FEB 15th, 2019

traverse the earth

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1 Summary

The Rupert Claim Block is located on northern Vancouver Island, BC and is centered approximately at UTM 615826N and 5604995E (NAD83, Zone 9) and is covered by the NTS map sheet 092L/11. The claim blocks cover approximately 2,497 hectares and extend 8 km east from the tip of Rupert Inlet and approximately 1.5 km north and south of its geographic centre. This property is located approximately 3 km east of the past producing Island Copper Mine.

Private lands underly a small portion of the claims along the coast of the Rupert Inlet and some managed forest lands lay to the south of the claims, all of which are located outside of the anticipated exploration targets.

The first report on the geology of northern Vancouver Island was published in 1887 by George M. Dawson of the Geological Survey of Canada. Interest in the Rupert Property area began back in 1962, after a joint airborne magnetic survey was conducted over northern Vancouver Island by the British Columbia Department of Mines and the Geological Survey of Canada. This survey identified a northwesterly-trending belt of magnetic highs north of Holberg and Rupert Inlets. Several exploration programs ensued during 1963 and 1964 without significant discovery leading to decreased interest in the area by 1965.
Interest in the area was renewed in 1965 when local prospector Gordon Melbourne staked a magnetic anomaly at Bay Lake near the eastern end of Rupert Inlet, just 3 km west of the current Rupert Property boundary. Chalcopyrite was discovered in the float and later sourced back to bedrock by trenching. In January of 1966, the property was optioned by Utah Construction and Mining Co. and immediately began an intense exploration program involving mapping, soil sampling, ground geophysics followed by drill testing. In February of 1967 the discovery hole was drilled-the 82nd drill hole of the program-and intersected an 88 m interval grading 0.45% Cu. This property was developed into the Island Copper Mine, with production beginning in 1971 and continuing until December of 1995.

In August of 2018, Longford Exploration Services Ltd. mobilized a field crew consisting of Trent Potts, Sarah Ryan, Matt Krukowski and Paul Leach to carry out a short prospecting and rock and soil sampling program. The field program ran from August 16th to 23rd, 2018 and report writing was completed on February 15th, 2019. The MMI geochemical soil survey showed elevated copper values in both the West and Middle Zones, centrally located in the north of the Rupert property. Highest values returned from soil samples was 8,560 ppb Cu.

An assessment credit of $97,972.81 is to be applied to this property for work performed in 2018.

Much of the Rupert property is under explored and it is recommended that further exploration be carried out in these areas. The recommended exploration program for future work consists of a two-phase program contingent on positive results from phase 1. It is proposed to carry out additional geological mapping, prospecting and MMI soil sampling during phase 1 (estimated at $120, 000) and a 17-day drill program for phase 2 (estimated at $200, 000).

2 Introduction and Terms of Reference

2.1 Purpose of Report

This Assessment Report on the Rupert property (the "Property") was commissioned by Howson Ventures (the "Company") and completed by Longford Exploration Ltd. ("Longford") a company incorporated in British Columbia, Canada, with offices at 460 – 688 West Hastings St, Vancouver, BC. The Property is located within the Nanaimo Mining Division of British Columbia near the town of Port Hardy.

The sources of information accessed in preparation of this report are given in the references section at the end of this report (Section 13) as well as information and discussions with the Company's personnel and the property vendor.

The authors are independent consulting geologists and visited the Property for a period of one week, between August 16th and 23rd, 2019 as members of the field exploration team. During this visit the authors were acting as independent consultants to the Company to appraise the Property on its mineral potential and to provide opinion on future exploration plans on the Property. There has been no further exploration work on this Property subsequent to the last site inspection. The scope of the visit included: review of exposed surface geology; verification of access to and within the Property; collection of 9 surface rock samples from outcrop, sub-crop and localized float and 185 MMI soil samples across the property.

The authors have no reason to doubt the reliability of the information provided by the Company. The authors reserve the right, but will not be obliged, to revise the report and conclusions if additional information becomes known subsequent to the date of this report.

2.2 Geographic Terms

The following geographic areas and features are briefly described for orientation with respect to the text, tables, and figures.

2.3 Terms of Reference

In August 2018, Longford Exploration Services Ltd. (Longford) commissioned a prospecting program on the Rupert Property in Northwest Vancouver Island, BC to assess the property's prospectivity for copper mineralization.

This Report is intended to be read in its entirety.

2.4 Abbreviations and Units of Measurement

Metric units are used throughout this report and all dollar amounts are reported in Canadian Dollars (CAD$) unless otherwise stated. Coordinates within this report use EPSG 26909 NAD83 UTM Zone 9N unless otherwise stated. The following is a list of abbreviations which may be used in this report:

Table 2.1 Abbreviations and Units of Measurement

Abbreviation	Description
%	percent
AA	atomic absorption
Ag	silver
AMSL	above mean sea level
as	arsenic

Abbreviation	Description
li	limonite
m	metre
m^2	square metre
m^3	cubic metre
Ma	million years ago

Abbreviation	Description
Au	gold
AuEq	gold equivalent grade
Az	azimuth
b.y.	billion years
CAD$	Canadian dollar
cl	chlorite
cm	centimetre
cm^2	square centimetre
cm^3	cubic centimetre
cc	chalcocite
cp	chalcopyrite
Cu	copper
cy	clay
°C	degree Celsius
°F	degree Fahrenheit
DDH	diamond drill hole
ep	epidote
ft	feet
ft^2	square feet
ft^3	cubic feet
g	gram
gl	galena
go	goethite
GPS	Global Positioning System
gpt	grams per tonne
ha	hectare
hg	mercury
hm	hematite
ICP	induced coupled plasma
kf	potassic feldspar
kg	kilogram
km	kilometre
km^2	square kilometre
l	litre

Abbreviation	Description
mg	magnetite
mm	millimetre
mm^2	square millimetre
mm^3	cubic millimetre
mn	pyrolusite
Mo	Molybdenum
Moz	million troy ounces
ms	sericite
Mt	million tonnes
mu	muscovite
m.y.	million years
NAD	North American Datum
NI 43-101	National Instrument 43-101
opt	ounces per short ton
oz	troy ounce (31.1035 grams)
Pb	lead
pf	plagioclase
ppb	parts per billion
ppm	parts per million
py	pyrite
QA	Quality Assurance
QC	Quality Control
qz	quartz
RC	reverse circulation drilling
RQD	rock quality description
sb	antimony
Sedar	System for Electronic Document Analysis and Retrieval
SG	specific gravity
sp	sphalerite
st	short ton (2,000 pounds)
t	tonne (1,000 kg or 2,204.6 lbs)
to	tourmaline
um	micron
US$	United States dollar
Zn	zinc

3 Reliance on Other Experts

The authors have relied on ownership information and information developed by both the Company and past owners of the Property. The authors have not researched property title or mineral rights to the Rupert Property and expresses no opinion as to the ownership status of the property.

This report is based upon personal examination, by the authors, of all available reports and data on the Rupert Property. The authors visited the Property between August 16th and August 23rd, 2018 to appraise the geological environment and assess the Property. The information, opinions and conclusions contained herein are based on:

- Information available to the authors at the time of preparation of this report;
- Assumptions, conditions, and qualifications as set forth in this report;
- Data, reports, and other information supplied by the Company and other third-party sources;
- Site visit to the Property between Aug 16th and Aug 23rd, 2018; and
- The authors' review of all available reports retained samples and legal documents.

As of the date of this report, the authors are not aware of any material fact or material change with respect to the subject matter of this technical report that is not presented herein, or which the omission to disclose could make this report misleading.

4 Property Description and Location

4.1 Location

The Rupert Claim Block is located in the northern portion of Vancouver Island, BC and is centered at approximately UTM 615826N and 5604995E (NAD83, Zone 9) and is covered by the NTS map sheet 092L/11 (Figure 4.1). The claim block extends 8 km east starting from the tip of Rupert Inlet and extends approximately 1.5 km north and south of its geographic centre. This property is located approximately 3 km east of the past producing Island Copper Mine.

Figure 4.1: The Rupert Project is centred approximately 25 km south east of Port Hardy.

4.2 Mineral Titles

The Rupert property is located in the northern portion of Vancouver Island, BC and is comprised of two cell blocks that cover approximately 2,497 hectares (Figure 4.2). The top northwest corner of the Rupert claim shows some overlap with a Mining Lease belonging to the former Island Copper Mine site which results in a slight decrease in the actual total area, as reported on the BC government Mineral Titles Online (MTO) system.

Private lands underly a small portion of the claims along the coast of the Rupert Inlet and some managed forest lands lay to the south of the claims, all of which are located outside of the anticipated exploration targets.

Table 4.1 Rupert Project mineral tenures.

Title Number	Claim Name	Issue Date	Good to Date	Status	Area (ha)
1061980	Rupert	2018-27-07	2019-27-07	Good	2,026
1061981	Rupert South	2018-27-07	2019-27-07	Good	471
				Total	2,497

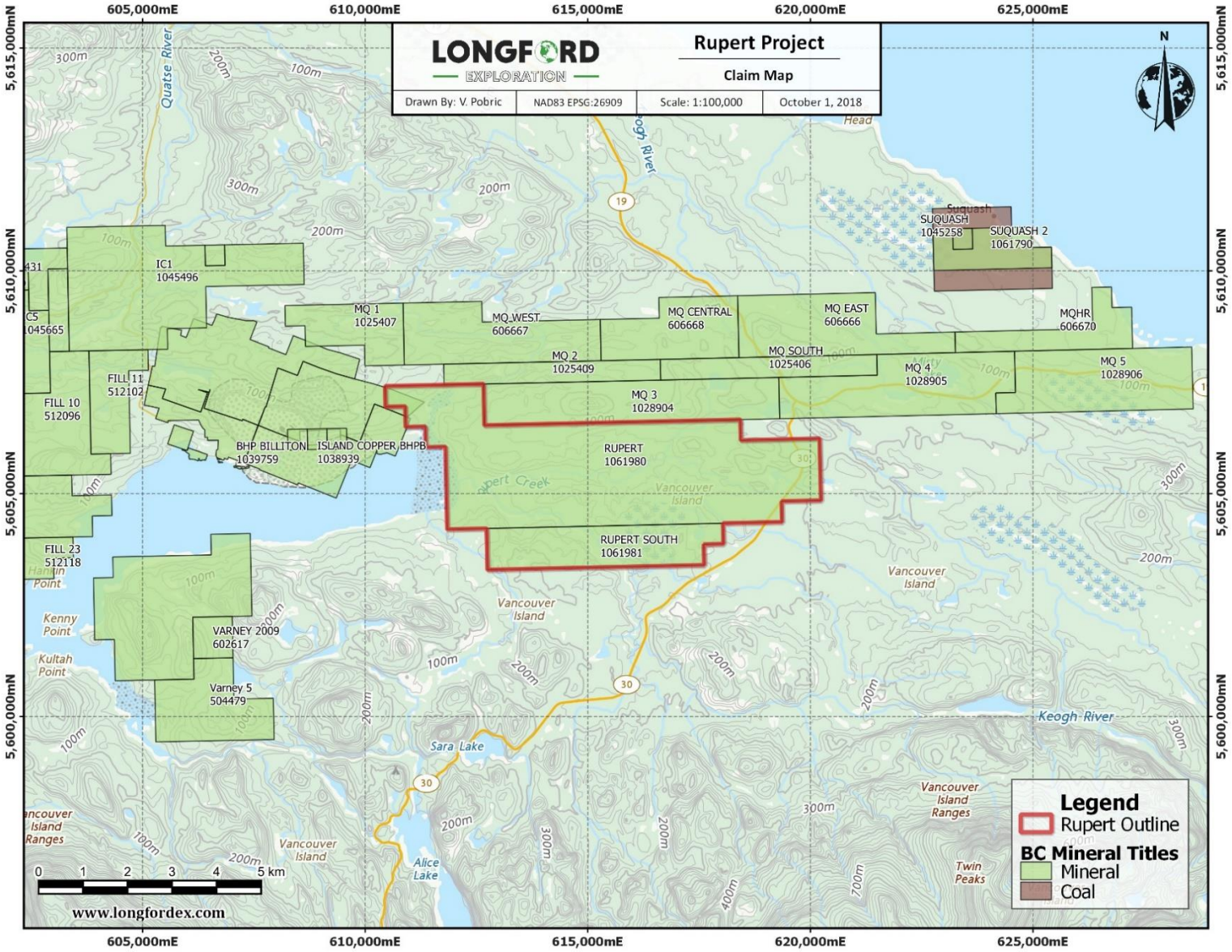

Figure 4.2: Claim map of the Rupert project.

4.3 Mineral Rights in British Columbia

Mineral Claims in British Columbia are subdivided into two major categories: Placer and Mineral. Both are acquired using the Mineral Titles Online (MTO) system. The online MTO system allows clients to acquire and maintain (register work, payments, etc.) mineral and placer claims. Mineral Titles can be acquired anywhere in the province where there are no other impeding interests (other mineral titles, reserves, parks, etc.).

The electronic Internet map allows you to select single or multiple adjoining grid cells. Cell sizes vary from approximately 21 hectares (457m x 463m) in the south to approximately 16 hectares at the north of the province. Cell size variance is due to the longitude lines that gradually converge toward the North Pole.

MTO will calculate the exact area in hectares according to the cells you select and calculate the required fee. The fee is charged for the entire cell, even though a portion may be unavailable due to a prior legacy title or alienated land. The fee for Mineral Claim registration is $1.75 per hectare.

Upon immediate confirmation of payment, the mineral rights title is issued and assigned a tenure number for the registered claim. Email confirmation of your transaction and title is sent immediately.

Rights to any ground encumbered by existing legacy claims will not be granted with the cell claim except through the Conversion process. However, the rights held by a legacy claim or lease will accrue to the cell claim if the legacy claim or lease should terminate through forfeiture, abandonment, or cancellation, but not if the legacy claim is taken to lease. Similarly, if a cell partially covers land that is alienated (park, reserve etc.) or a reserve, no rights to the alienated or reserved land are acquired. But, if that alienation or reserve is subsequently rescinded, the rights held by the cell expand over the former alienated or reserve land within the border of the cell.

Upon registration, a cell claim is deemed to commence as of that date (“Date of Issue”) and is good until the “Expiry Date” (Good to Date) that is one year from the date of registration. To maintain the claim beyond the expiry date, exploration and development work must be performed and registered, or a payment instead of exploration and development may be registered. If the claim is not maintained, it will forfeit at the end of the “expiry date” and it is the responsibility of every recorded holder to maintain their claims; no notice of pending forfeiture is sent to the recorded holder.

A mineral or placer claim has a set expiry date (the “Good to Date”), and in order to maintain the claim beyond that expiry date, the recorded holder (or an agent) must, on or before the expiry date, register either exploration and development work that was performed on the claim, or a payment instead of exploration and development. Failure to maintain a claim results in automatic forfeiture at the end (midnight) of the expiry date; there is no notice to the claim holder prior to forfeiture.

When exploration and development work or a payment instead of work is registered, you may advance the claim forward to any new date. With a payment, instead of work the minimum requirement is 6 months, and the new date cannot exceed one year from the current expiry date; with work, it may be any date up to a maximum of ten years beyond the current anniversary year. “Anniversary year” means the period of time that you are now in from the last expiry date to the next immediate expiry date.

All recorded holders of a claim must hold a valid Free Miners Certificate (“FMC”) when either work or a payment is registered on the claim.

Clients need to register a certain value of work or a "cash-in-lieu of work" payment to their claims in MTO. The following tables outline the costs required to maintain a claim for one year:

Table 4.2 BC work requirements for mineral tenures.

Anniversary Years	Work Requirements
1 and 2	$5 / hectare
3 and 4	$10 / hectare
5 and 6	$15 / hectare
7 and subsequent	$20 / hectare

Table 4.3: BC cash-in-lieu for mineral tenures.

Anniversary Years	Cash Payment-in-Lieu of Work
1 and 2	$10 / hectare
3 and 4	$20 / hectare
5 and 6	$30 / hectare
7 and subsequent	$40 / hectare

4.4 Property Legal Status

The Mineral Titles Online website (https://www.mtonline.gov.bc.ca/mtov/home.do) confirms that all claims of the Rupert property as described in Table 4.1 were in good standing at the date of this report and that no legal encumbrances were registered with the Mineral Titles Branch against the titles at that date. The author makes no further assertion with regard to the legal status of the property. The property has not been legally surveyed to date and no requirement to do so has existed.

There are no other royalties, back-in rights, environmental liabilities, or other known risks to undertake exploration.

4.5 Surface Rights in British Columbia

Surface rights are not included with mineral claims in British Columbia.

4.6 Permitting

Any work which disturbs the surface by mechanical means on a mineral claim in British Columbia requires a Notice of Work (NOW) permit under the Mines Act. The owner must receive written approval from a Provincial Mines Inspector prior to undertaking such work. This includes but is not limited to the following types of work: drilling, trenching, excavating, blasting, construction of a camp, demolition of a camp, induced polarization surveys using exposed electrodes, and reclamation.

Exploration activities which do not require a NOW permit include prospecting with hand tools, geological/geochemical surveys, airborne geophysical surveys, ground geophysics without exposed electrodes, hand trenching, and the establishment of grids. These activities and those that require Permits are outlined and governed by the Mines Act of British Columbia.

The Chief Inspector of Mines makes the decision if land access will be permitted. Other agencies, principally the Ministry of Forests, Lands and Natural Resources (FLNRO), determine where and how the

access may be constructed and used. With the Chief Inspector's authorization, a mineral tenure holder must be issued the appropriate "Special Use Permit" by FLNRO, subject to specified terms and conditions. The Ministry of Energy and Mines makes the decision whether land access is appropriate and FLNRO issue a Special Use Permit. However, a collaborative effort and authorization between ministries, jointly determine the location, design and maintenance provisions of the approved road.

Notification must be provided before entering private land for any mining or exploration activity, including non-intrusive forms of mineral exploration such as mapping surface features and collecting rock, water or soil samples. Notification may be hand delivered, mailed, emailed or faxed to the owner shown on the British Columbia Assessment Authority records or the Land Title Office records. Mining activities cannot start sooner than eight days after notice has been served. Notice must include a description or map of where the work will be conducted and a description of what type of work will be done, when it will take place and approximately how many people will be on the site.

The issuer does not currently have any permits pertaining to exploration on the property.

5 Accessibility, Infrastructure and Climate,

5.1 Accessibility

The Rupert property is located east of Rupert Inlet in the Nanaimo Mining Division, approximately 25 km southeast of Port Hardy. The claims are accessible from Port Hardy or Port McNeil using any type of vehicle by following the Rupert Mainline logging road from the Island Highway-Port Alice road junction onto Beaver Mainline; or from the Port Alice road or by the Coal Harbour and mine roads and M&B main to the end of Rupert Inlet. The entire claim block property is easily accessible via an extensive network of logging roads; Route 30 cuts through the eastern portion of the claim block and Rupert Rd. cuts through the norther portion of the property.

5.2 Climate and Physiography

This region is characterized by an oceanic or maritime climate, typical of western coasts in higher middle latitudes of continents. This type of climate generally produces cool summers (relative to its continental mid latitude counterparts) and winters, significant annual rainfall, and few extremes of temperature. Average daily temperatures in the summer range from 12-14 °C, and 4.0-5.5°C in the winter. The total average annual rainfall for Port Hardy is 1865.7 mm with the most significant amount precipitation occurring between October and February. Spring and summer months are considerably drier, therefore provide ideal conditions for the entire exploration season.

The nearest active weather station to the property is 25 km northeast at the Port Hardy Regional Airport.

Table 5.1 Climate Data for Port Hardy Regional Airport Station (Environment Canada).

Temperature	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total
Daily Average (°C)	4.2	4.4	5.5	7.3	10.1	12.3	14.3	14.4	12.2	8.8	5.5	3.7	8.6
Record High (°C)	6.5	7.3	8.9	11.2	13.9	15.9	17.8	18.1	15.8	11.8	8.1	6.0	11.8
Record Low (°C)	1.8	1.4	2.0	3.4	6.1	8.7	10.7	10.7	8.5	5.7	3.0	1.3	5.3
Avg Precipitation (mm)	247	160.2	159.7	125	79.3	80.7	53.7	73.1	109.6	256.7	311.7	250.9	1907.6
Avg Rainfall (mm)	235.0	151.9	154.8	123.5	79.2	80.7	53.7	73.1	109.6	256.5	307.9	239.9	1865.7
Avg Snowfall (cm)	12.4	8.8	4.9	1.5	0.1	0.0	0.0	0.0	0.0	0.1	3.9	10.8	42.7
1981 to 2010 Canadian Climate Normals station data; Port Hardy, BC; 50°40'49.000" N 127°21'58.000" W 21.60 m													

The property is located in the foothills of the Vancouver Island Ranges and is characterized by low lying, gently undulating, till covered areas with very subtle relief. The area is well timbered, swampy in some regions with generally deep overburden and very few outcrops. Elevations within the property area range from sea-level to 100 m.

This area is populated by second and first-growth forest of predominantly fir, hemlock, spruce and cedar trees and has been the site of active logging for several decades. As a result, second-growth areas have variable age, density, and ease of access with roughly 50% of the property area having been clear cut.

The fauna in the area include deer, moose, black bears, cougars, wolves, coyotes, and bald eagles.

6 History

The first report on the geology of northern Vancouver Island was published in 1887 by George M. Dawson of the Geological Survey of Canada. Interest in the Rupert Property area began back in 1962, after a joint airborne magnetic survey was conducted over northern Vancouver Island by the British Columbia Department of Mines and the Geological Survey of Canada. This survey identified a northwesterly-trending belt of magnetic highs north of Holberg and Rupert Inlets. Several exploration programs ensued during 1963 and 1964 without significant discovery leading to decreased interest in the area by 1965.

Interest in the area was renewed in 1965 when local prospector Gordon Melbourne staked a magnetic anomaly at Bay Lake near the eastern end of Rupert Inlet, just 3 km west of the current Rupert Property boundary. Chalcopyrite was discovered in the float and later sourced back to bedrock by trenching. In January of 1966, the property was optioned by Utah Construction and Mining Co. which immediately began an intense exploration program involving mapping, soil sampling, ground geophysics followed by drill testing. In February of 1967 the discovery hole was drilled - the 82nd drill hole of the program - and intersected an 88 m interval grading 0.45% Cu. This property was developed into the Island Copper Mine, with production beginning in 1971 and continuing until December of 1995.

6.1.1 Rupert

Table 6.1 Work history of mineral occurrences on the Rupert Property.

Year	Occurrence	Performed By	Work	Summary	Comments	Reference
1966	Reef Group	Humphrey, A.C.	Geochemical Survey	388 Soil samples	Samples analysed for Cu, Pb, and Zn. One weak anomalous zone identified with max Cu values of 130 ppm (four times background values).	ARIS_00894 Geochemical Report_1966, Nanaimo Mining Division
1968	P.L. Group	Sanders, K. G.	Geochemical Survey	300 Soil Samples	Analysed for Cu	ARIS_01687 Geochemical Report_1968, Pine Lake Mining Division
1968	BIM, TAR, KEN, BEE, CAR, EXPO, and KOL	Philip, R.H.D.	Geochemical Survey	850 Soil Samples	Samples analysed for: Cu, Pb, and Zn.	ARIS_01693 Geochemical Survey Report_1968, Dawn Min.
1968	TAP, DON, and PAM Groups	Argilis Exploration Services Ltd.	Geochemical Survey, Geological Survey	1360 soil samples; Geological Map: 1; Scale: 1: 4800	Samples analysed for: Cu, Molybdenum/Molybdenite	ARIS_01742 Geochemical Survey_1968, Copper Giant Mining Corporation. (N.P.L.)
1969	Tie Group	Pedley, S.J.	Line Cutting	Physical Line cutting: 13.0 km	Line cutting in preparation for geophysical and geochemical surveys.	ARIS_1969 Report on Line Cutting, Cominco Ltd.
1970	GGB, IAN, Susan, Tie	Irvine, W.T., Pedley, S.J.	Geophysical Survey	IP over 15.9 km; Magnetic, ground over 22.7 km	Eight zones identified as anomalous based on IP data. The largest anomaly was in Zone 1, centered at about 20S on Line 15W, and is 600 ft wide and at least 1500 ft long.	ARIS_02273 IP and Resistivity and Magnetometer Geophysical Surveys, Cominco Ltd.

Year	Occurrence	Performed By	Work	Summary	Comments	Reference
1970	EXPO	Singhai, G.	Geochemical Survey, Geophysical Survey, Line Cutting	1210 soil samples. Geophysical: Magnetic, ground over 56.0 km; Physical: lines cut over 56.0 km	Samples analysed for: Cu. Plate 6 at line indicates a magnetic anomaly which is trending N 84° W	ARIS_02658 Report on Geochemical and Magnetic Survey, Ballinderry Exploration
1970	EXPO	Baird, Shannon James	Geophysical Survey	IP over 49.0 km	The amplitude of the present responses could arise from bedrock containing 1 to 4% by volume of metallically conducting mineralization such as sulphides.	ARIS_02659 Report on Iduced Polarization Survey, Ballinderry Explorations Ltd.
1971	Penny	Holcapek, F.	Geological Survey, Geophysical Survey	Geological mapping over 400.0 ha. Geophysical magnetic, ground survey over 31.2 km	Magnetic survey outlines two north-easterly trending lows in the centre of the survey area.	ARIS_02832 Report on the Geological and Magnetometer Surveys, Copper Giant Minerals
1971	Reef and RIB	Walcott, Peter E.	Geophysical Survey	EM ground. Magnetic, ground	Magnetometer survey showed two magnetic highs indicating that Grid 2 is underlain by two magnetically different rock units (units M1 and M2). EM survey failed to locate any anomalies.	ARIS_03474 Ground Magnetic and Electromagnetic Surveys, Port Hardy Area_1971, Milbourne, G.
1973	Rupert	Kaiway, P.	Drilling Survey	5 holes (R-1, R-2, R-3, R-4, R-5); BQ	Drill logs included in report.	ARIS_05102 Diamond Drilling Report, BHP-Utah Mines
1974	BEE, BIM, F, KEN	Lamb, J.	Drilling Survey	4 holes (m-1, M-2, M-3, M-4); BQ; 677.0 m	Drill logs included in report.	ARIS_05033 Diamond Drilling Report, Utah Mines Ltd.
1976	Lake	Lamb, J.	Drilling Survey	1 hole (M5); NQ; 330.0 m	Drill logs included in report.	ARIS_06027 Diamond Drilling Report_1976, BHP-Utah Mines
1976	Sun	Lamb, J.	Drilling Survey	1 hole (R-6); NQ; 284.0 m	Drill logs included in report.	ARIS_06056 Diamond Drilling Report_1976, BHP-Utah Mines
1977	Rupp, EX, Beaver, and Star	Lamb, J.	Drilling Survey	4 holes (R7, R-8, R-8, R-10); BQ; 663.0 m	Drill logs included in report.	ARIS_06270 Diamond Drilling Report_1977, BHP-Utah Mines
1979	Lake	Lamb, J.	Drilling Survey	1 hole (M-6); BQ; 516.0 m	Drill logs included in report.	ARIS_07562 Diamond Drilling Report_1979, BHP-Utah Mines
1980	COIR, KOL, LONG	Lamb, J.	Drilling Survey	2 holes (W-1, W-2); NQ; 230.7 m	Drill logs included in report.	ARIS_08150 Diamond Drilling Report_1980, BHP-Utah Mines
1980	Rupert	Lamb, J.	Drilling Survey	1 hole (R-11); NQ; 183.5 m	Drill logs included in report.	ARIS_08178 Diamond Drilling Report_1980, BHP-Utah Mines
1980	E	Lamb, J.	Drilling Survey	1 hole (R-12); NQ; 256.6 m	Drill logs included in report.	ARIS_08235 Diamond Drilling Report_1980, BHP-Utah Mines

Year	Occurrence	Performed By	Work	Summary	Comments	Reference
1980	FEE	Watson, P.W.; Joy, R.	Geochemical Survey, Geological Survey, Line Cutting	66 rock samples; 171 silt samples; 5403 soil samples; Geological mapping over 2750.0 ha; Line Cutting over 13.6 km	Rock samples analysed for: Au, Ag, Zn, Ceramic Clay, Mo/Molybdenite; Silt samples analysed for: As, Au, Cu; Soil samples analysed for: As, Au, and Cu.	ARIS_08384 Line Cutting, Geological, and Geochemical Report_1980, United Keno Hill Mines Ltd.
1981	Amazon	Englund, R. J.	VLF EM Survey, Geochemical Survey	VLF EM survey over 7.5 km; No. of maps: 3; 5 Rock grab samples	Rock samples analysed for Au, Ag, Mo, Cu, Zn, Pb. The 2 most significant sample results: sample #736, Au 0.008 oz/st; Ag 0.25 oz/st; Cu 3.01%; Zn 1.45%. Sample #737: Au .008 oz/st; Ag .74 oz/st; Cu 4.12%; Zn <DL	ARIS_09811 VLF EM Survey_1981, Klein, R.
1982	Annex, Ensign, Silver, TIP	Carter, Nick C.	Geochemical Survey	30 soil samples; 3 rock samples	All samples analysed for: Cu, Pb, Ag and Au. A moderate to strong anomalous zone was identified along line 8SE with coincident high values in Cu, pb, and Ag.	ARIS_10945 Geochemical Report_1982, Harvey. J.R.
1983	Sun 64	Flemming, J.A.	Drilling Survey	1 hole (R-13); NQ; 127 m	No Cu or Mo encountered in the hole. Chloritic and sericitic alterations in the overlying pyritized tuffs; hydrothermal activity related to porphyry intrusions exist in the area.	ARIS_11460 Drilling Report_1983, BHP-Utah Mines
1984	Moon	Holland, G.; Flemming, J. A.	Drilling Survey	2 holes (R-14, R-15); NQ; 245.1 m	The holes confirm the extension of the Rupert Stock Dyke system east from hole R-13.	ARIS_12768 Drilling Report_1984, BHP-Utah Mines
1984	CAR, EXPO, F, JIM, JUNE, KEN, Rupert, SPAM, TAR	Clark, G.A.	Geophysical Survey	IP: 20.1-line miles were surveyed using dipole-dipole array.	5 significantly anomalous zones were identified in addition to a few single features which are not grouped. The main anomalies are 84-1 through 84-5.	ARIS_13009 Geophysical Report_1984, BHP-Utah Mines
1984	BIM, KEN, EXPO, LAMB, Rupert, SPAM	Flemming, J.A.	Geochemical Survey	700 soil samples, of which 403 were assayed.	Samples analysed for: Cu, Mo, Pb, Zn. Eleven anomalous zones identified including 2 zones high priority zones (84-1 and 84-11).	ARIS_13716 Geochemical Assessment Report_1984, BHP-Utah Mines
1985	Rupert	Clark, G.A.	Drilling Survey, Geochemical Survey	1 hole (R-17), 169.5 m; NQ; 9 samples assayed	Samples analysed for: Cu, Mo, and Fe. Drill logs included with report.	ARIS_14393 Drilling Assessment Report_1985, BHP-Utah Mines
1985	EXPO, Moon, Rupert, Star and SUN	Flemming, J.A.	Geochemical Survey	760 soil samples of which 386 were assayed.	Samples analysed for: Cu, Mo, Pb, Zn, Ag, Au, As, and Mn.	ARIS_15077 Geochemical Assessment Report_1985, BHP-Utah Mines
1986	Apple, Mars, Star, Sun, Moon, Mary	Clark, G.A.	Geochemical Survey	474 soil samples of which 240 were assayed;	Elements analysed for: Cu, Mo, Pb, Zn, Ag, As, Mn. Sample 155E, 91N has the highest Cu assay at 150 ppm.	ARIS_15707A Geochemical Assessment Report_1986, Utah Mines
1987	Apple, Mars, Star, Sun, Moon, Mary	Clark, G.A.	Geochemical Survey	765 soil samples of which 376 were assayed.	Samples assayed for Cu, Mo, Zn, Pb, As, Ag, Mn. Metal levels are low overall, and most anomalies are at or just above selected threshold levels.	ARIS_15707B Geochemical Assessment Report_1987, Utah Mines

Year	Occurrence	Performed By	Work	Summary	Comments	Reference
1987	Apple, Mars, Star, Sun, Moon, Mary	Clark, G.A.	Geotechnical Drilling Survey	5 holes (D97B, D96A, D101, V-6, V-3); NQ3; 1217 m	Drill logs included in report.	ARIS_15707C Geotechnical Drilling Assessment Report_1987, Utah Mines
1987	Apple, Mars, Star, Sun, Moon, Mary	Clark, G.A.	Geophysical Survey	Ground, magnetometer over 18.3 km; VLF survey over 12.6 km	M1 and M2 are moderate VLF anomalies.	ARIS_15707D Geophysical Survey_1987, Utah Mines
1987	Apple, Mars, Star, Sun, Moon, Mary	Clark, G.A.	Drilling Survey, Geochemical Survey	6 holes (R-18, E-67, E-68, E-70, W-5); 3127 m; NQ; Core split and sent for assay	Samples analysed for: Cu, Mo, Fe, Au, Ag, Pb, and Zn. Holes E-69 and W-5 in the northwest of the property show an increase in Cu mineralization.	ARIS_15707E Drilling Survey_1987, Utah Mines
1986	East 86 Group	Clark, G.A.	Geochemical Survey	398 soil samples of which 190 were sent for assay;	Samples assayed for Cu, Mo, Pb, Zn, As, Ag, and Mn. Low assay values reflect heavy overburden cover in the area and therefore it is questionable whether anomalies reflect underlying mineralization.	ARIS_15707F Geochemical Survey_1986, Utah Mines
1987	VAL, CAR, EXPO, Jim, Mary, Moon, Rupert, Snafu, Spam, Sun	Flemming, J.A.	Geochemical Survey	124 soil samples	30 element ICP analysis and AA for Au. A number of multi-element anomalies detected on the west side of the property near hole R-17.	ARIS_16510 Geochemical assessment Report_1987, BHP-Utah Mines
1988	Rupert, Snafu, EXPO	Brabec, D.; Flemming, J. A.	Geochemical Survey, Physical Survey	48 overburden and rock samples, 72 soil samples. Physical: 21 pits	Multi-element ICP analysis and AA for Au. Results confirm the level and continuity of the anomalies found on the western part of the property.	ARIS_17368 Soil Geochemical Survey_1988, BHP-Utah Mines
1994	Sun, Pluto, Waas	Flemming, J.A.	Drilling Survey, Geochemical Survey, Physical Survey	3 holes (R-019, R-020, R-021); NQ; 648.3 m	Porphyry system is not strongly mineralized in the area and area is too restricted in size to contain a large porphyry deposit.	ARIS_23276 Diamond Drilling Report_1994, BHP Minerals Canada
2011	509465, 509466, 509467, 509468, 509469, 509470, 509471, 509472, 509474, 509475	Lesnikov, Konstantin	Geophysical Survey	IP survey over 21.0 km	Significant chargeability (IP) highs were detected in the western part of the Rupert grid. No significant chargeability highs located east of line 19000E.	ARIS_33615 Induced Polarization Survey Report_2011, Northisle Copper and Gold Inc.
2011	mo 1to mo 12 and mo 15 to mo 16	Lesnikov, Konstantin	Geophysical Survey	Significant IP highs were detected in the western part of the Rupert grid.	Proximity to Island Copper Deposit, along with several other nearby deposits still makes this property prospective.	ARIS_32722 2011 Induced Polarization Survey Report on the Rupert Grid, Island Copper East Block, North Island Mining Corp.
2012	Mo 4 and Mo 5	Bartlett, Morgan; Chatan, Robbin; Lesnikov, Konstantin	Archaeological Impact Assessment	Covered an estimated 100% of the areas of high archaeological potential within claim boundaries.	Did not encounter aboriginal heritage sites, features, remains, or deposits. The Survey did not encounter any archaeological surface, subsurface, CMT sites or post 1846 traditional use sites.	ARIS_33983 2012 Archaeological Impact Assessment Report on the Rupert Grid, North Island Mining Corp.

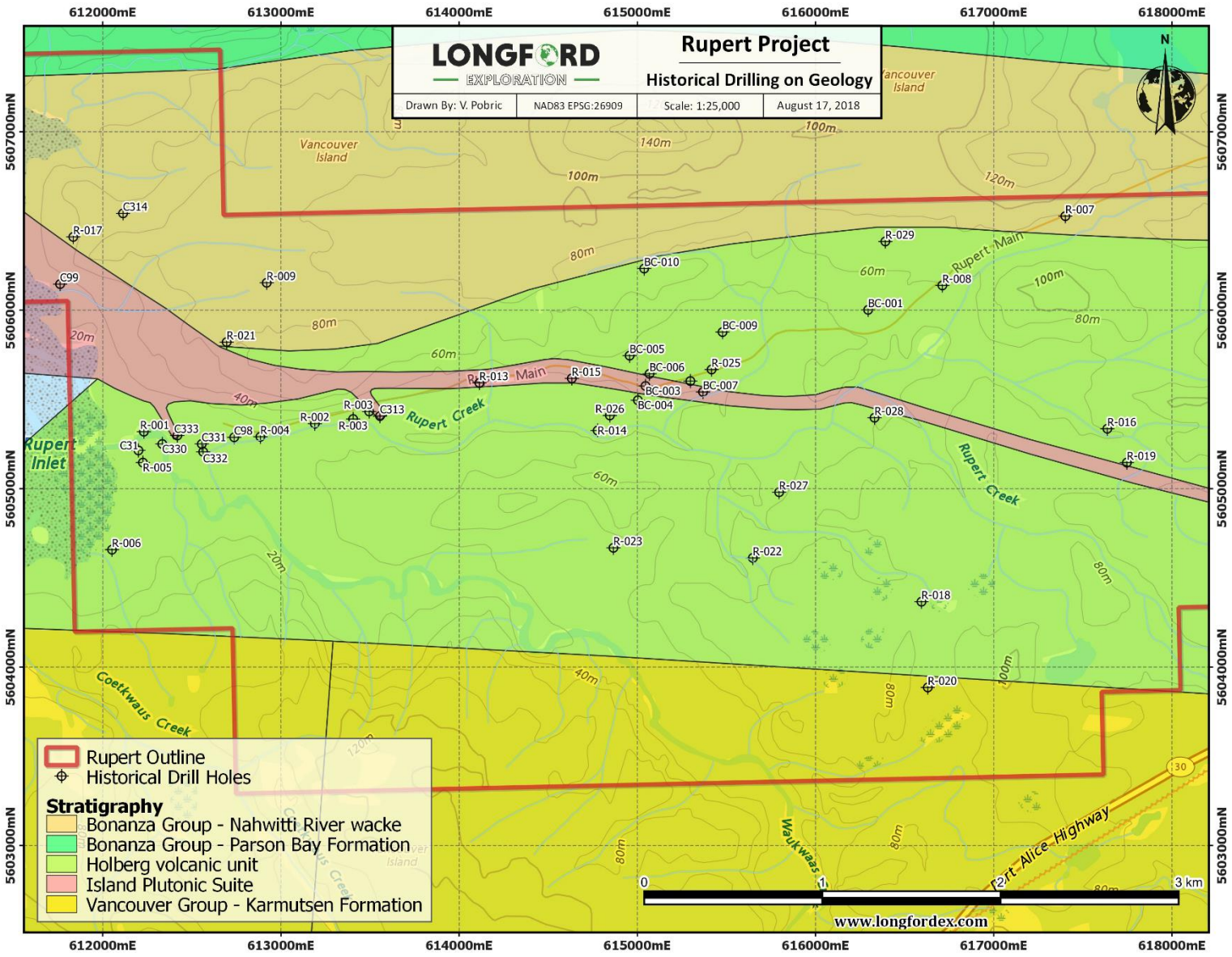

Figure 6.1: Historical drilling over the Rupert property.

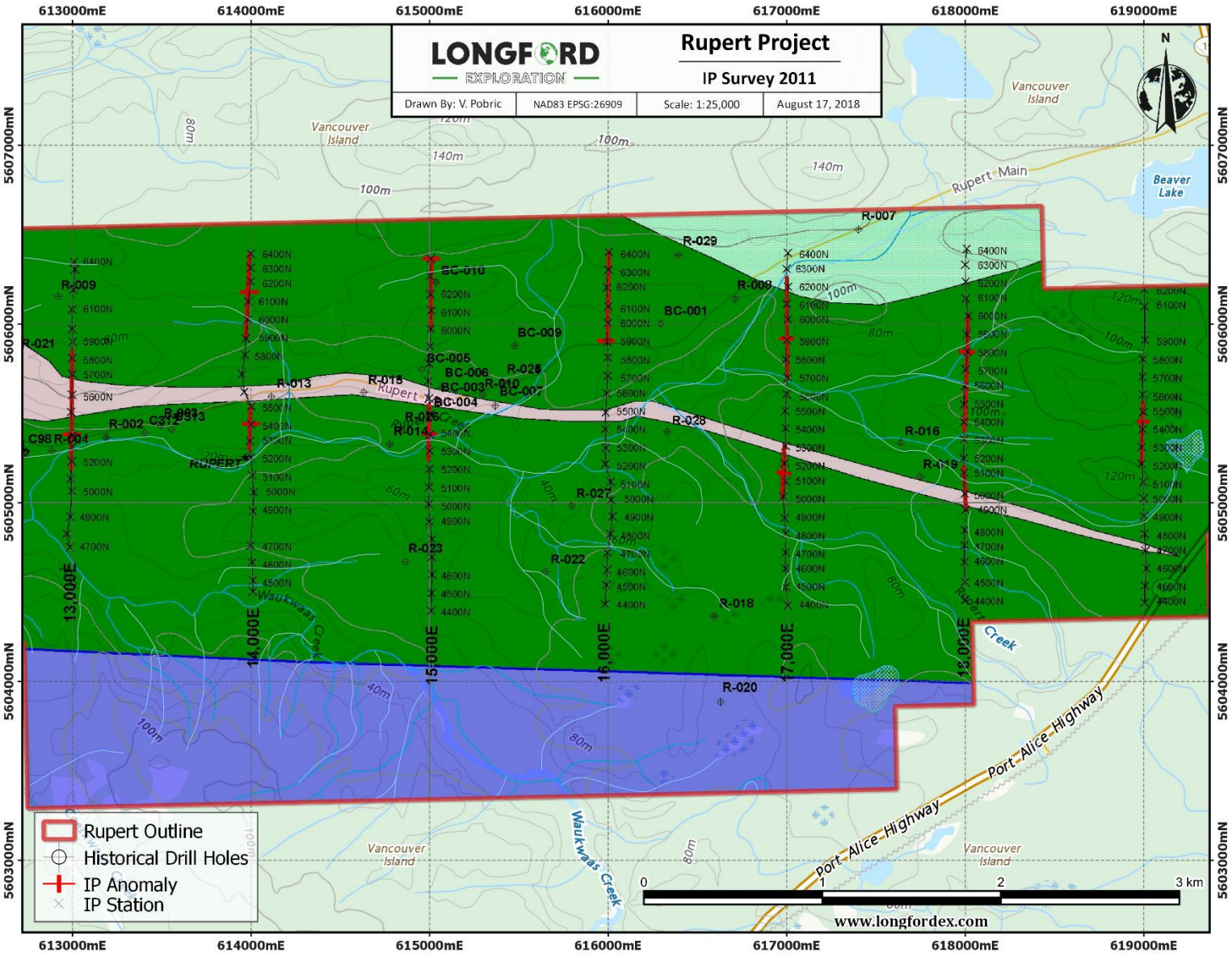

Figure 6.2: 2011 IP Survey over the Rupert property.

7 Geological Setting and Mineralization

7.1 Regional geology

Vancouver Island is located within the Insular Super Terrane of Western British Columbia, an amalgamation of the Wrangellia terrane and the Alexander terrane that eventually accreted to North America between the mid-Jurassic and mid-Cretaceous. This was followed by the accretion of the Pacific terrane and the Crescent terrane during the mid-Tertiary time-period. The Rupert Property is situated in the northern portion of Vancouver Island and is underlain by rock assemblages of the allochthonous Wrangellia terrane (Figure 7.1).

7.1.1 The Wrangellia Terrane

The Wrangellia terrane extends discontinuously north through the Queen Charlotte Islands towards central Alaska and is characterized by rocks of the Upper Paleozoic to Lower Mesozoic. In the late Carboniferous Wrangellia collided and amalgamated with the Alexander Terrane in Alaska to form the Insular Superterrane and subsequently accreted to the inboard terranes of the Coast and Intermontane belts as late as the mid-Cretaceous, or as early as the mid-Jurassic (Nixon et al. 2006).

Prior to its accretion, Wrangellia was comprised of the Paleozoic Sicker and Buttle Lake Groups and the Middle Triassic Karmutsen Formation. The Sicker and Buttle Lake groups are composed of Devonian to early Permian island-arc volcanic, volcaniclastic, and sedimentary rocks which are known to host VMS deposits, such as Myra Falls. The Karmutsen Formation is an approximately 6000 m thick oceanic plateau which conformably overlies the Sicker and Buttle Lake groups; it is composed of tholeiitic flood basalts, minor pillow basalts, pillow breccia and tuff as well as inter-volcanic limestone which underlie approximately 50% of Vancouver Island (Nixon et al. 2006). Conformably overlying the Karmutsen Formation is a shallow-water carbonate layer known as the Quatsino Formation. The Quatsino Formation is composed of massive to bedded bioclastic limestone which formed during the waning stages of the Karmutsen volcanism and associated subsidence. Continued sedimentation and deeper water resulted in the deposition of the impure limestone and siliciclastic rocks of the Parsons Bay Formation (Nixon et al. 2006).

A period of quietude followed by a renewed phase of island-arc magmatism and sedimentation produced the volcanic, volcaniclastic and epiclastic strata of the Bonanza Group, along with the coeval intrusions of the Island Plutonic Suite (Nixon et al. 2006)

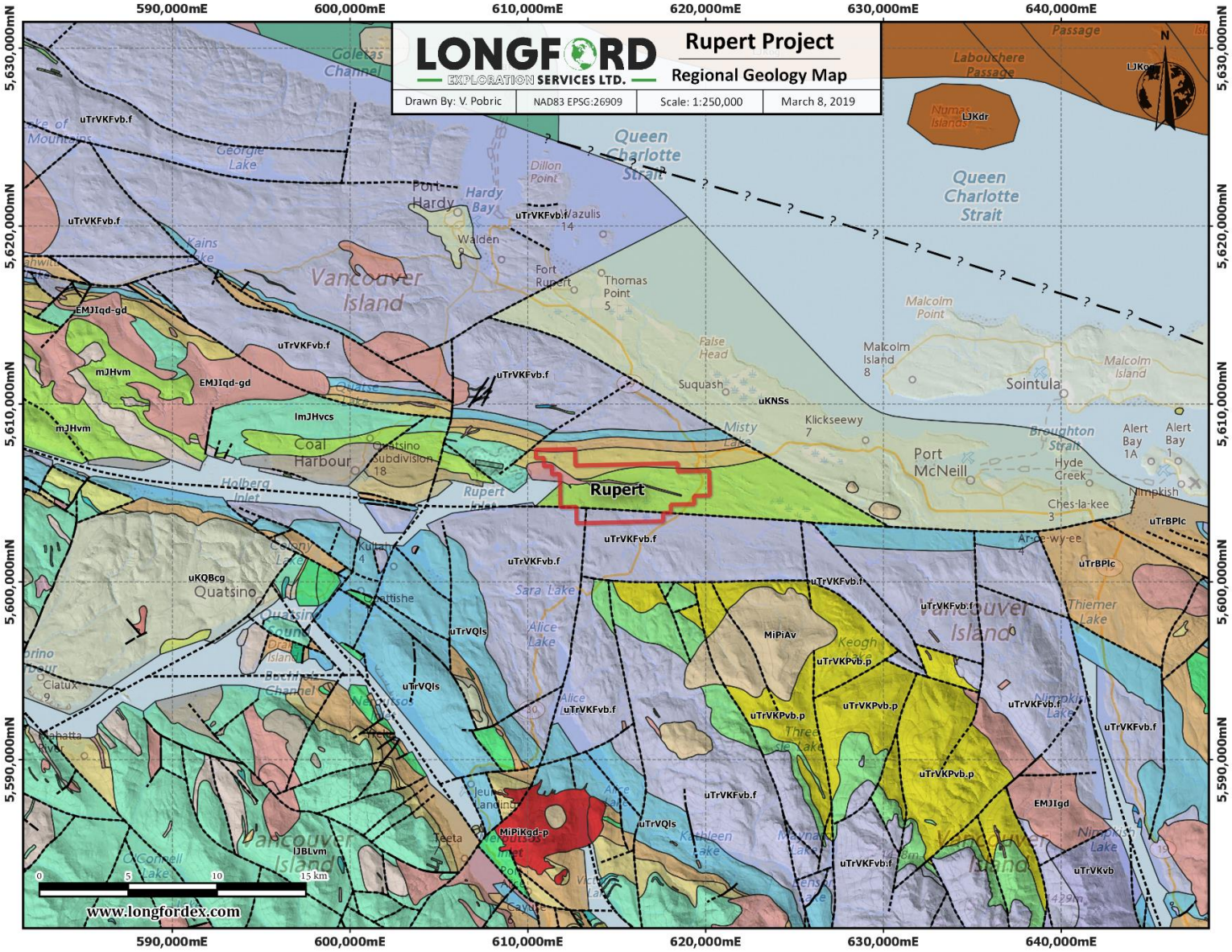

Figure 7.1: Regional Geology of the Rupert property.

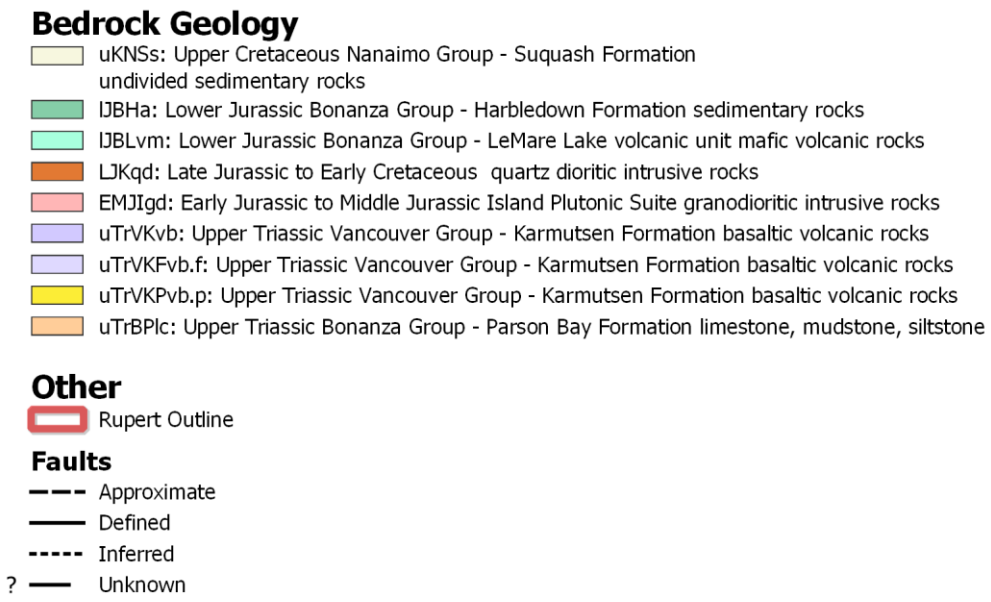

Figure 7.2: Rupert property regional geology legend.

7.2 Property Geology

7.2.1 Post Accretionary Stratigraphic Rocks

The Rupert Property is predominantly underlain by a generally southward-younging sequence of east-west-trending upper Triassic to middle Jurassic volcanics and lesser sedimentary rocks of the Vancouver and Bonanza Groups (Figure 7.3 and 7.4). The Vancouver group is comprised of the tholeiitic flood basalts of the Karmutsen formation at the base conformably overlain by thinly bedded to massive Quatsino Formation limestone and intercalated marine shale, siltstone and impure limestone of the Parson's Bay Formation (Nixon et al. 1994). The Lower to mid-Jurassic Bonanza Group is mainly composed of mafic to felsic volcanic with lesser intercalated sedimentary rocks which were deposited in both submarine and subaerial environments with coeval granitoids of the Island Plutonic Suite. Unconformably overlying the Bonanza Group are the marine to non-marine Upper Jurassic to Lower Cretaceous clastic sequences and localized tertiary volcanics.

7.2.2 Post Accretionary Intrusions

The Rupert Property contains a series of east-west trending dykes belonging to the Island Plutonic Suite. These intrusions are related to the Bonanza volcanism and thought to be apophyses emplaced just east of the Rupert Stock granodiorite during the Early to Mid-Jurassic (Nixon et al. 2006). The Rupert Stock is part of the Jurassic Island Stock suite responsible for the copper porphyry mineralization at the Island Copper Mine.

7.2.3 Structure and Folding

The layered units underlying the Rupert Property consist of mainly of the Quatsino Formation and the Parsons Bay Formation which generally dip gently to steeply southward, however bedding orientation data is sparse due to very few outcrops and thick overburden. The structural style of the property is

dominated by block-faulting. Strata within individual fault blocks generally have a consistent dip and facing direction which trends toward the south to southwest (Nixon et al. 1993).

The following three main episodes of deformation in the area have been described by Nixon et al. (1994). The timing of these events has been constrained to a pre-Cretaceous compressional event, supported by the presence an angular unconformity at the base of the Cretaceous Longarm Formation; Late Cretaceous to Tertiary transpression; and Tertiary extension.

Phase 1: Post-Early Jurassic to Pre-Cretaceous Deformation

The first regional deformational event was due to east to northeast-directed compressional event which resulted in the rotation and tilting of Lower Jurassic and older strata to form the western flank of the Victoria arch. This northeast directed compression resulted in northwesterly trending thrust faults and flexural slip folding that was evidenced by locally well-developed, northwesterly striking, stylolitic cleavage within the Quatsino limestone (Nixon et al. 1993).

Phase 2: Post-Mid to Pre-Late Cretaceous Deformation

The second deformation event postdates the Coal Harbour sediments but predates the deposition of the Upper Cretaceous Nanaimo Group sediments. This event was the result of intense strike-slip faulting and to a lesser extent thrusting from northerly directed compression. Faults formed during this event have a predominant northwest trend and, in many cases, produced significant drag folding in the adjacent strata where units are well bedded. This event is evidenced by northwesterly striking, high-angle, oblique-slip faults with a dextral strike-slip and south-up sense of motion (Nixon et al. 1993). A considerable amount of movement may have occurred along the Holberg fault during this phase of deformation as evidenced by the presence of many northerly verging, gently plunging drag folds in its footwall (Nixon et al. 1993). Some of the major northwest trending, dextral strike-slip faults located in the area are splays off the Holberg fault (Nixon et al. 1993).

Phase 3: Tertiary Deformation

The third and most recent phase of deformation in the area postdates the deposition of the Nanaimo group sediments and produced east-northeasterly trending normal faults during the extension of the Queen Charlotte Basin (Nixon et al. 1993 and 1994). Extension is less obvious in the Quatsino-San josef map area than further south. Tertiary dykes intruded during this final phase of deformation and predominantly strike in a northeast direction, however not exclusively (Nixon et al. 1993). Intrusions occurring along fault zones tend to be felsic in composition with many of the longest dykes being emplaced along northerly or northwesterly striking faults (Nixon et al. 1994).

<u>The local units found on the Rupert Property is summarized in Nixon, et. al., 2011 as follows:</u>

NAHWITTI RIVER SILTSTONE-WACKE

Dark grey to grey-green, medium bedded to thinly laminated, siliceous siltstone, mudstone and feldspathic lithic wacke; locally contains massive beds of basaltic to andesitic volcaniclastic breccia and thin, rhyolitic tuff beds.

HOLBERG VOLCANIC UNIT

Poorly exposed, undivided basaltic to rhyolitic flows, volcaniclastic and sedimentary rocks east of Rupert Inlet (This is due to the lack of outcrop).

This unit (Holberg Volcanic) is disambiguated to the following units in areas of significant outcrop and these units are likely represented in whole or part on the Rupert property and not defined separately due to lack of outcrop:

- Mainly dark grey-green to medium grey, basaltic to andesitic flows and volcaniclastic rocks including plagioclase-hornblende-phyric andesite, plagioclase-clinopyroxene-phyric basalt-andesite with sparse hornblende megacrysts (~1cm), tuff-breccia, lapilli tuff and reworked equivalents; minor sedimentary rocks including volcanic breccia, wacke, siltstone, mudstone and shale; locally may include minor rhyolitic flows and tuffs
- Medium grey to grey-green, aphanitic to feldspar-phyric, rhyolitic to dacitic flows, flow domes and/or pyroclastic rocks including flow and pyroclastic breccia, welded to non-welded crystal-lithic lapilli tuff with carbonized wood fragments; may locally include thin interbedded volcanic breccia and wacke, and minor basaltic to andesitic flows
- Dark grey-green volcaniclastic and sedimentary rocks including basaltic to andesitic, plagioclase-clinopyroxene and plagioclase-hornblende-phyric lapilli tuff and tuff breccia, volcanic breccia, wacke and minor siltstone and mudstone; locally includes basaltic to andesitic flows

VANCOUVER GROUP

Middle Karmutsen Formation: Hyaloclastite Member

Dark grey-green, massive to medium bedded, basaltic hyaloclastite breccia, including pillow-fragment breccia, and medium bedded to laminated hyaloclastite sandstone; may locally pass laterally into pillowed basalt flows.

ISLAND PLUTONIC SUITE

Dark grey-green to pale pinkish grey, medium to coarse-grained, equigranular granitoid rocks and porphyry; includes hornblende ± biotite-bearing quartz diorite (qdi), granodiorite (gd), plagioclase ± hornblende porphyry (po) and quartz-plagioclase ± biotite porphyry (qpo); combined codes indicate a range of common rock types (qdi-gd, quartz diorite – granodiorite).

7.3 Mineralization

Due to low topography, thick glacial till overburden, and very few outcrops, no significant mineralization was observable on the Rupert property. Historic drill holes located in the northwest corner of the property have intersected narrow zones of mineralization reporting 0.1 to 0.2% Cu and 0.05 to 0.1% Mo. Hydrothermal alteration, Cu/Mo mineralization, and disseminated pyrite reported in historic drill core is consistent with a calc-alkaline copper-molybdenum style deposit.

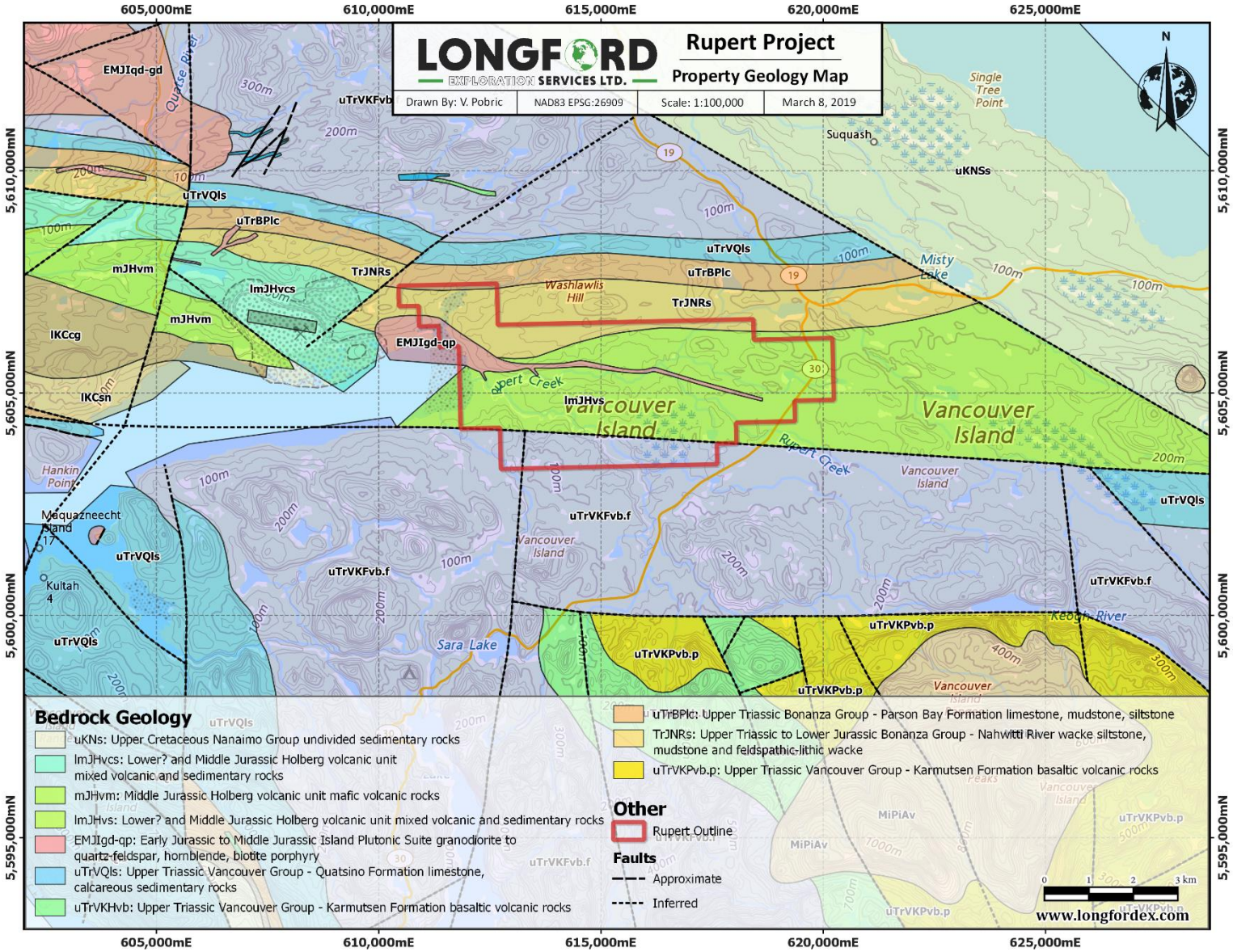

Figure 7.3: Local geology of the Rupert project area (inset after Nelson et al. 2013, Geology after BCGS).

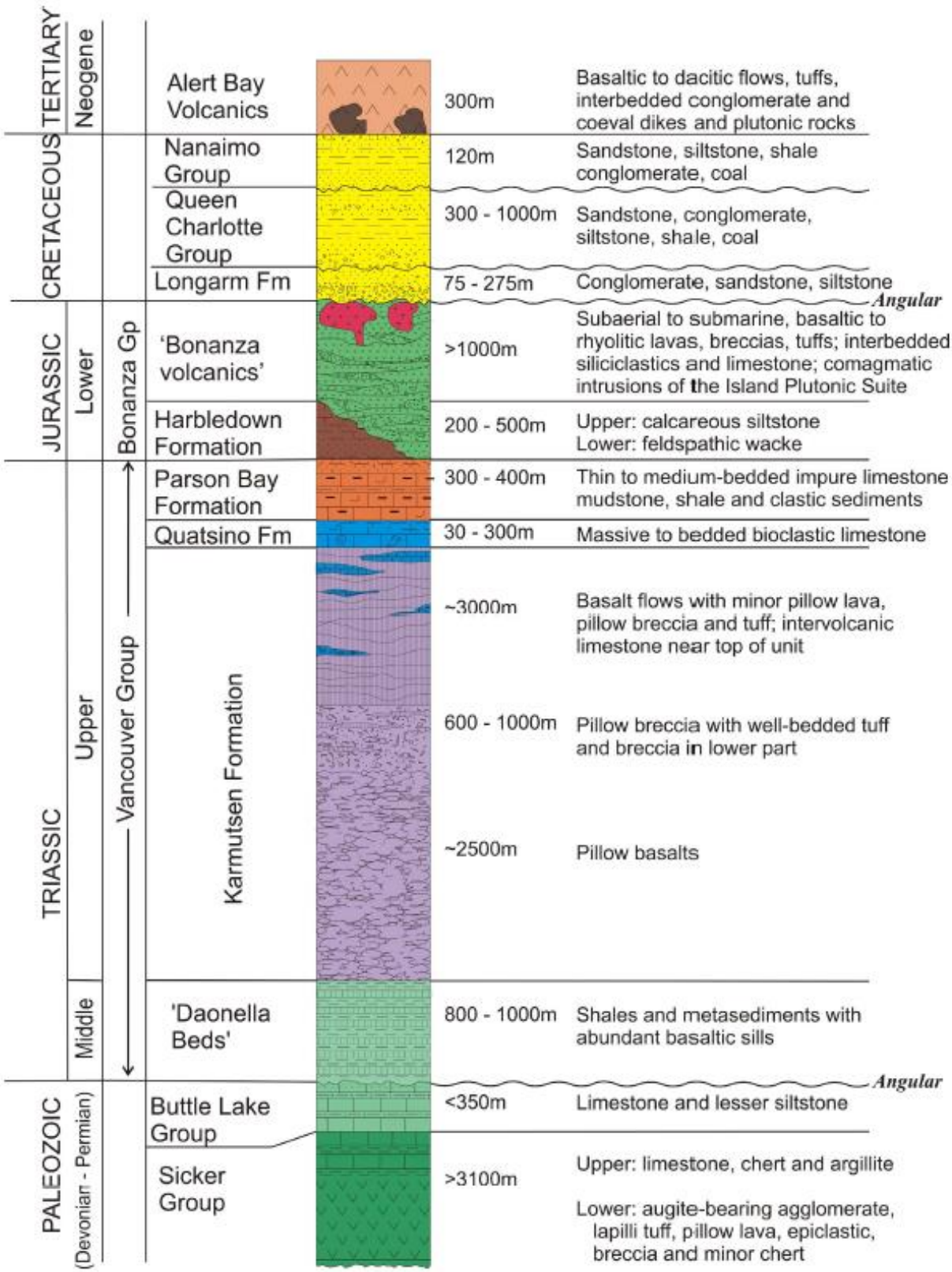

Figure 7.4: Stratigraphic summary of northern Vancouver Island, British Columbia (after Nixon et al. 2006).

8 Deposit Types

8.1 Calc-alkaline porphyry copper-molybdenum deposit

The Rupert Property is likely associated with a calc-alkaline porphyry copper-molybdenum deposit (Figure 8.1) based on geological mapping and airborne geophysics to-date. The mineralized zones are believed to be located within a quartz-feldspar porphyry and the surrounding andesites.

The formation of this style of deposit is related to orogenic belts at convergent plate boundaries (subduction-related magmatism), or extension settings related to strike-slip faulting or back arc spreading during continent margin accretion. They occur as large zones of hydrothermally altered host rock, commonly associated with breccia intrusions and dyke swarms. Composition of intrusions range from calc-alkaline quartz diorite to granodiorite and monzonite. These deposits are characterized by quartz stockworks, veins, sulphide bearing veins (pyrite and chalcopyrite with lesser molybdenite), closely spaced fractures and fracture selvages. These subvolcanic Intrusions are commonly emplaced by multiple successive intrusive phases and a wide variety of breccias. Grain size may range from coarse-grained phaneritic to porphyritic.

Mineralized zones occur at depths of 1 km or less and are mainly associated with the development of brecciated zones or preferential replacement in host rocks with a high degree of primary permeability. Ore-grade stockworks are linked to zones of intensely developed fractures that are coincident or intersect multiple fracture sets. Propylitic alteration halo is widespread and generally surrounds an early potassic alteration core (which is commonly well-mineralized). Overprinting of early mineralization by younger mineralized phyllic alteration is also common. Pyrite is typically the predominant sulphide mineral, and the predominant ore minerals are chalcopyrite, molybdenite, lesser bornite and rare (primary) chalcocite. Subordinate minerals include tetrahedrite/tennantite, enargite and minor gold, electrum and arsenopyrite.

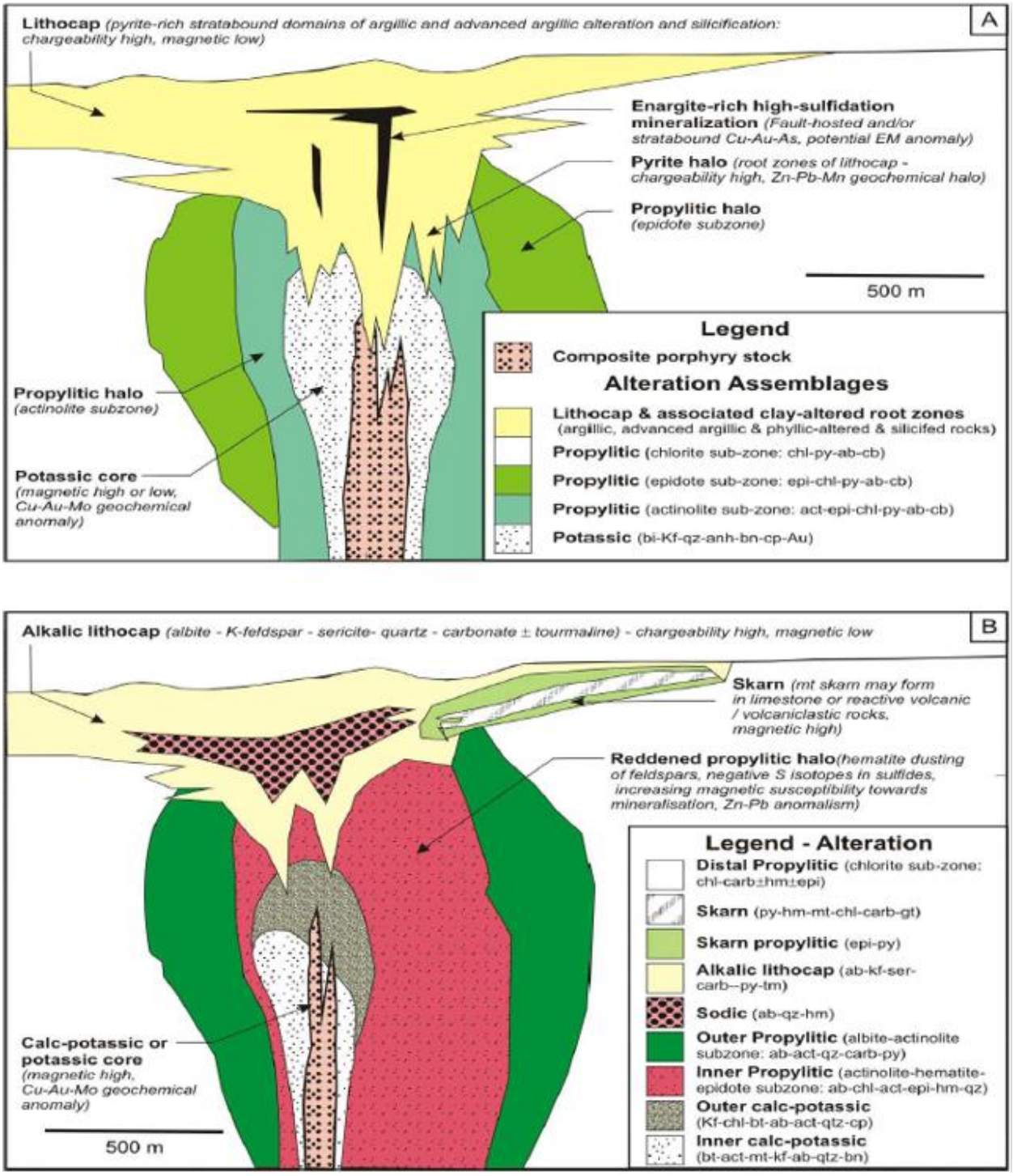

Figure 8.1: Zoned porphyry system model after Holliday and Cooke, 2007.

9 Exploration

Longford Exploration Services Ltd. mobilized a field crew consisting of Trent Potts, Sarah Ryan, Matt Krukowski and Paul Leach from Vancouver, BC on August 15th, 2018. The field program ran from August 16th to 23rd, 2018 and consisted of prospecting and rock and soil sampling. Report writing was completed on February 15th, 2019.

9.1 Rock and Soil Sampling

A total of 9 Rock samples and 185 MMI soil samples were collected over a one-week period and submitted for analysis (Table 9.1 and 9.2) at Bureau Veritas (rocks) in Vancouver, BC, and SGS Minerals (soils) in Burnaby, BC. Analysis methods are outlined in Section 10.

The MMI soil program was designed to target the 2011 IP anomalies with low resistivity and high conductivity. Four areas of interest were sampled, referred to as Quarry Zone, West Zone, Middle Zone and East Zone as shown in Figures 9.1 to 9.5 below.

Soil samples collected in the northwestern portion of the property targeted the Island Plutonic Suite (Figure 9.8) which was visible in the roadcut and a nearby quarry outcrop. The Island Plutonic Suite is known to host mineralization at the Island Copper Mine and is found along strike and further west of the Rupert property. The West Zone targeted two set of resistivity highs and lows and covered the initial Rupert showing. Sampling in the Middle Zone targeted a proposed contact between volcanic units showing potential for copper mineralization with historic soil samples running up to 630 ppm Cu and a coincident IP anomaly (Figure 6.2). In the East Zone most MMI soil lines covered a 'wish bone' like structure in the IP anomaly, possibly due to converging feeder dykes or mineralization overlying an intrusive.

Nine rock samples were collected during the program from to areas within the property, the Quarry Zone (Figure 9.6) and the West Zone (Figure 9.7) where there appeared to be a near surface rock outcrop. The rock samples were analyzed for a total of 45 elements which can be used to vector using minor elements in future programs.

During the sampling program every 20th sample was taken as a duplicate for QA/QC control in the field. Strict procedures were followed during soil collection; this analytical method is highly sensitive, and results can be skewed if sampling is carried out at inconsistent depths or by cross contamination (e.g. poorly cleaned geo-tools).

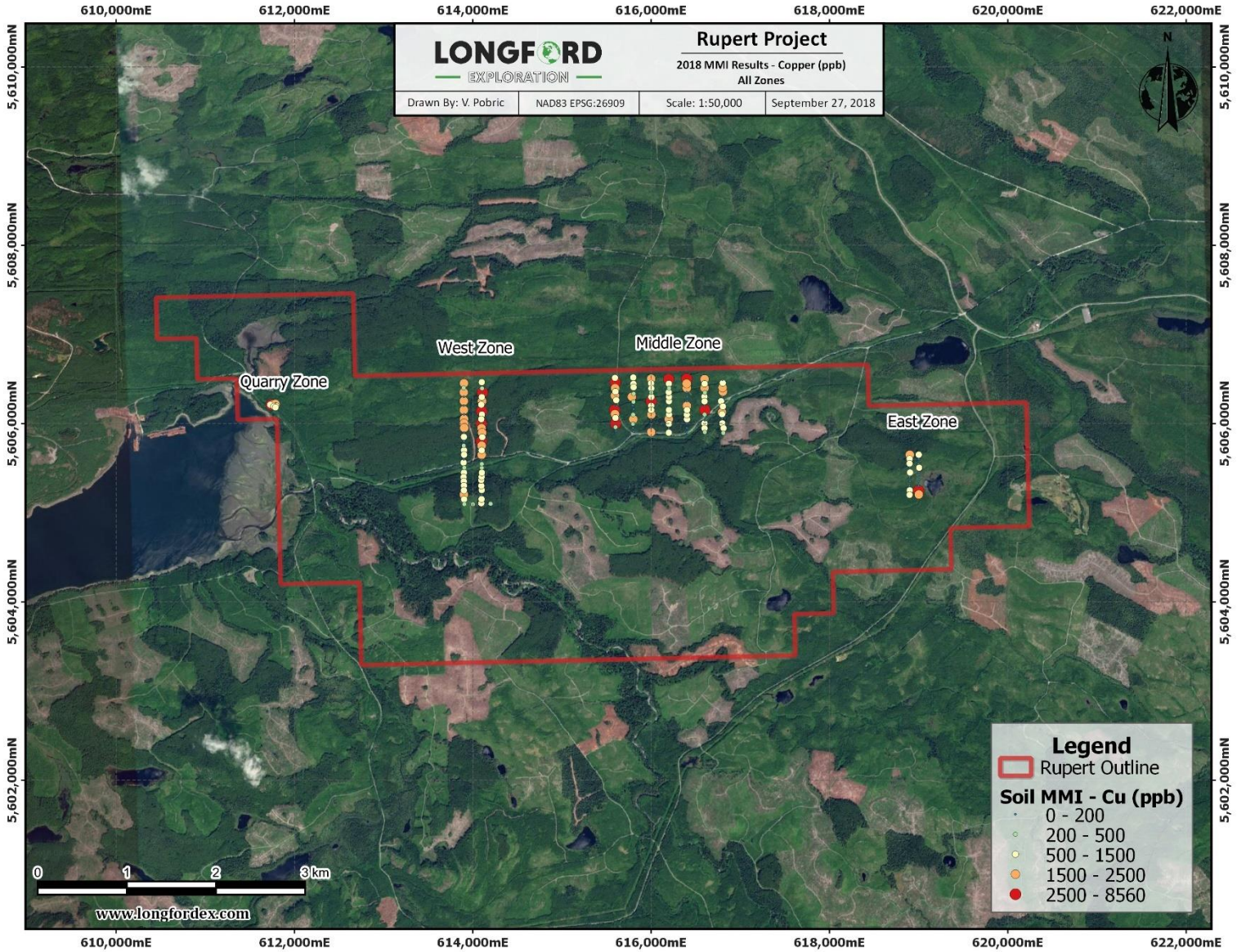

Figure 9.1: Rupert property 2018 MMI soil sample locations by zone (Quarry, West, Middle, and East Zone).

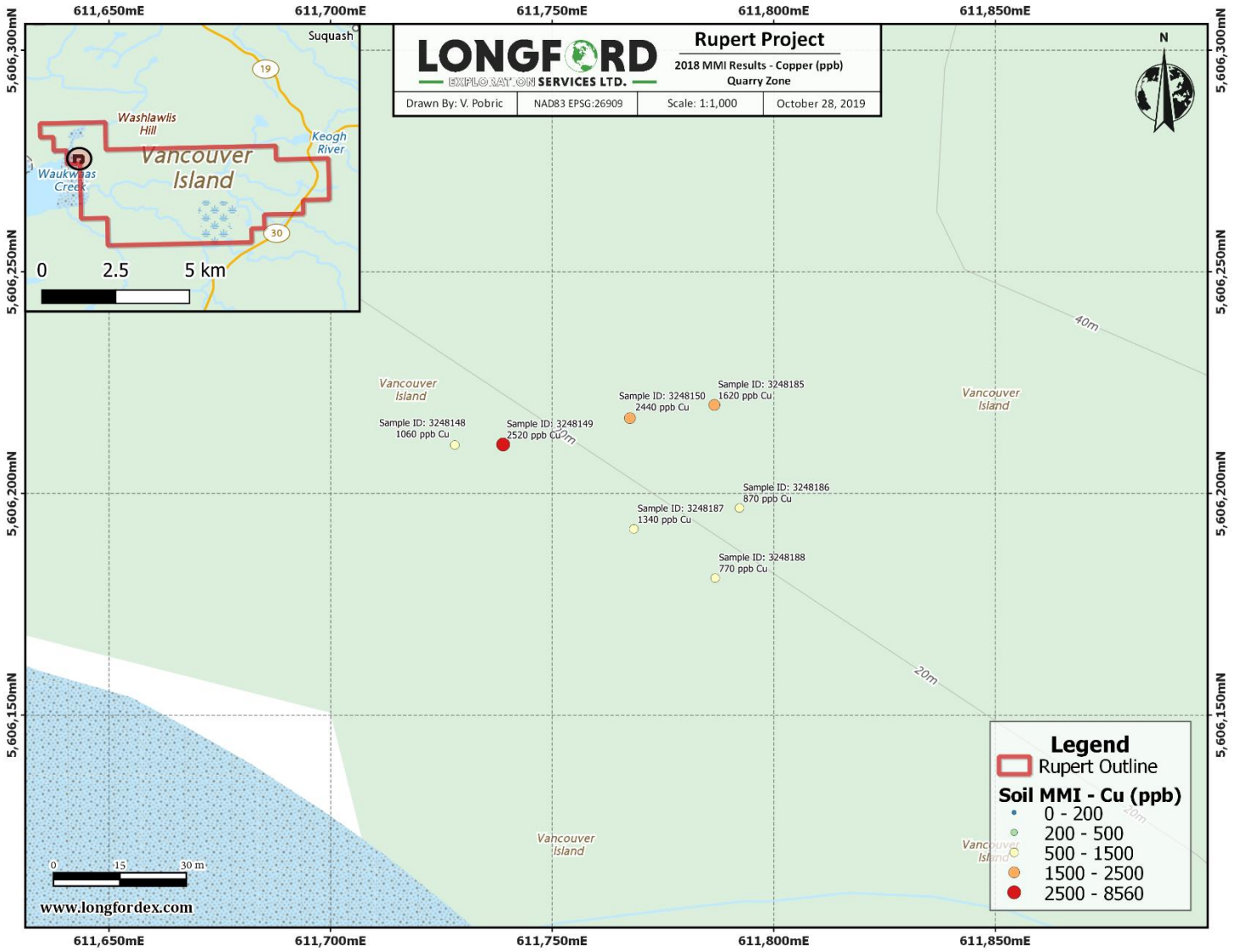

Figure 9.2: Rupert property Cu MMI soil assay results (ppb) within the Quarry Zone.

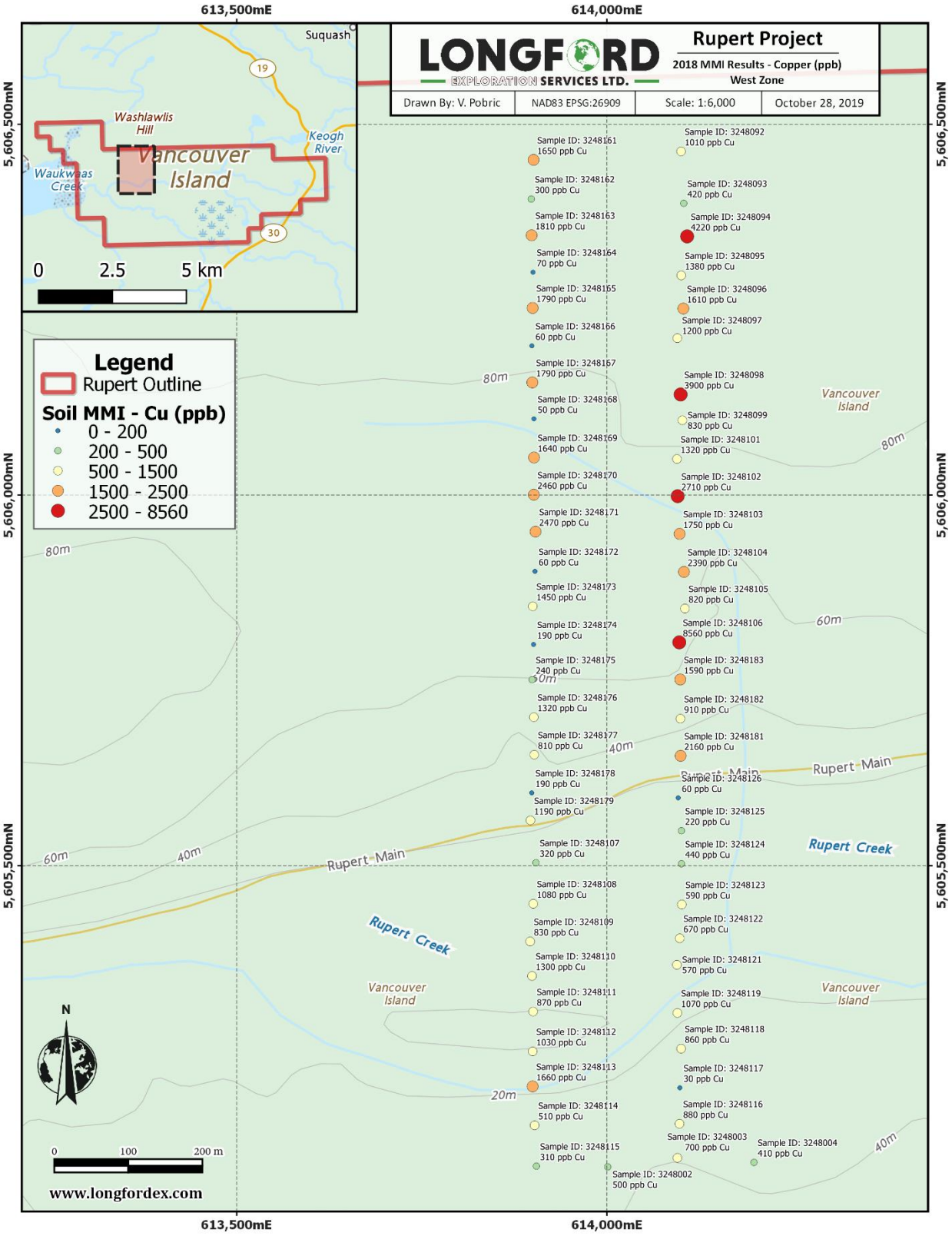

Figure 9.3: Rupert property Cu MMI soil assay results (ppb) within the West Zone.

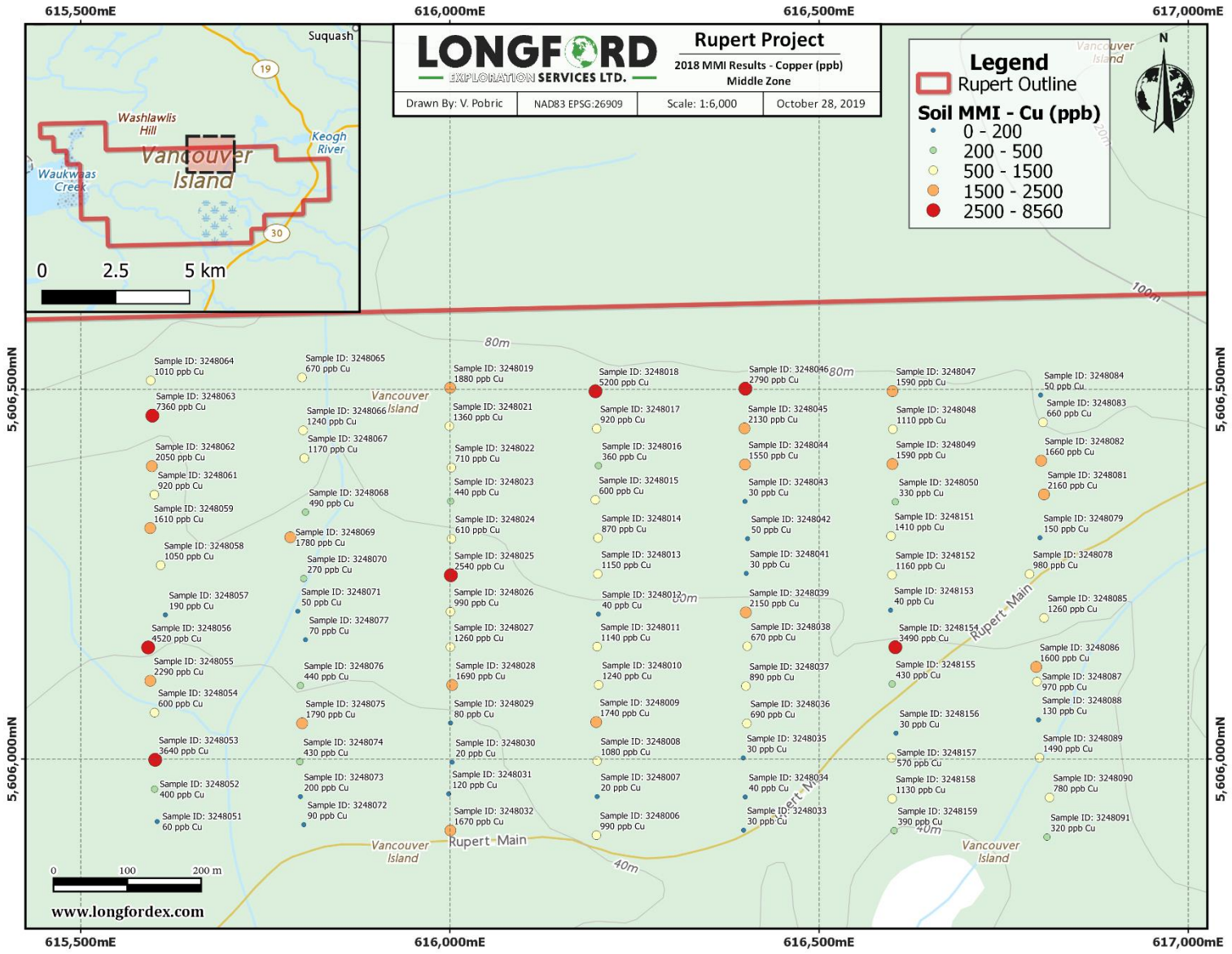

Figure 9.4: Rupert property Cu MMI soil assay results (ppb) within the Middle Zone.

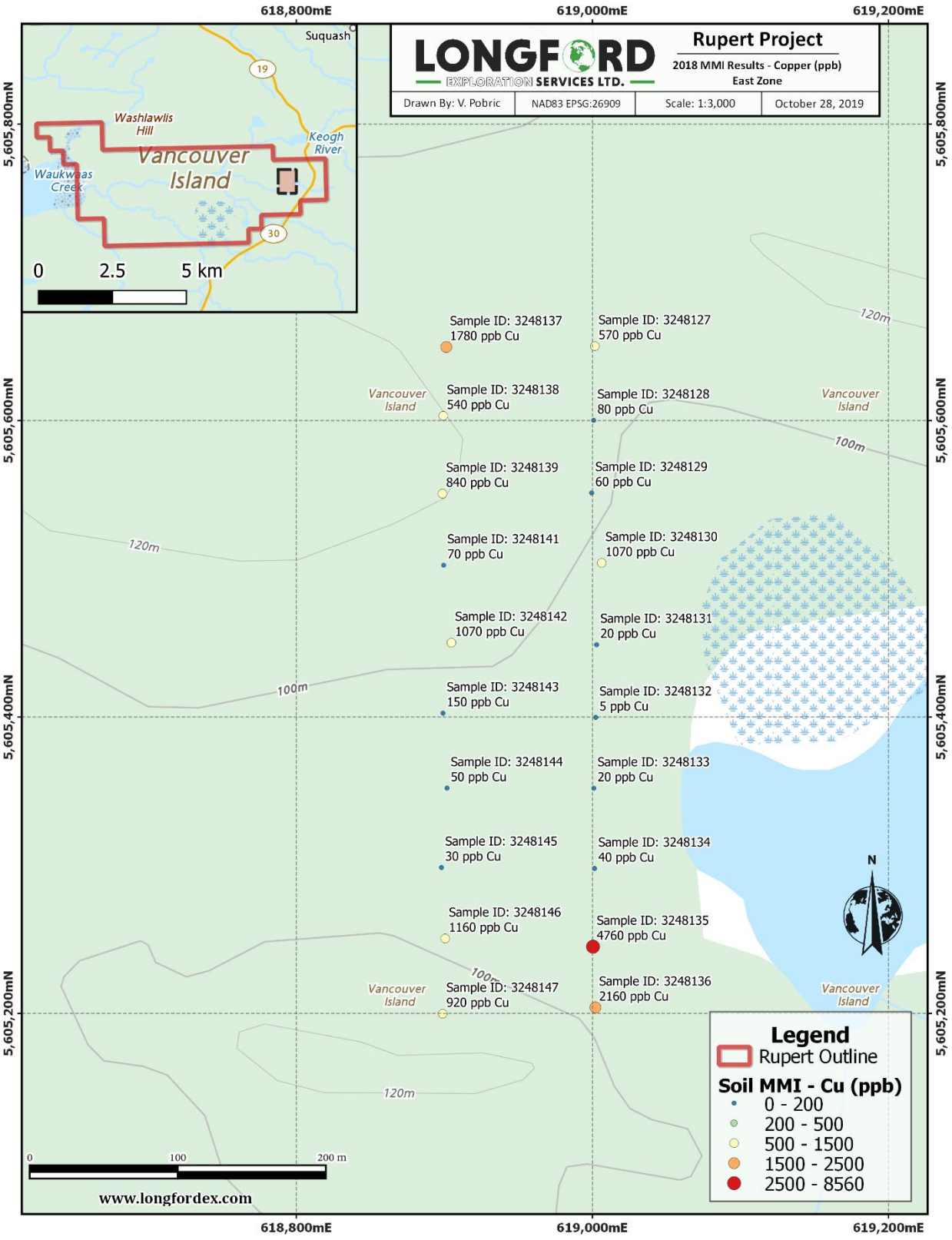

Figure 9.5: Rupert property Cu MMI soil assay results (ppb) within the East Zone.

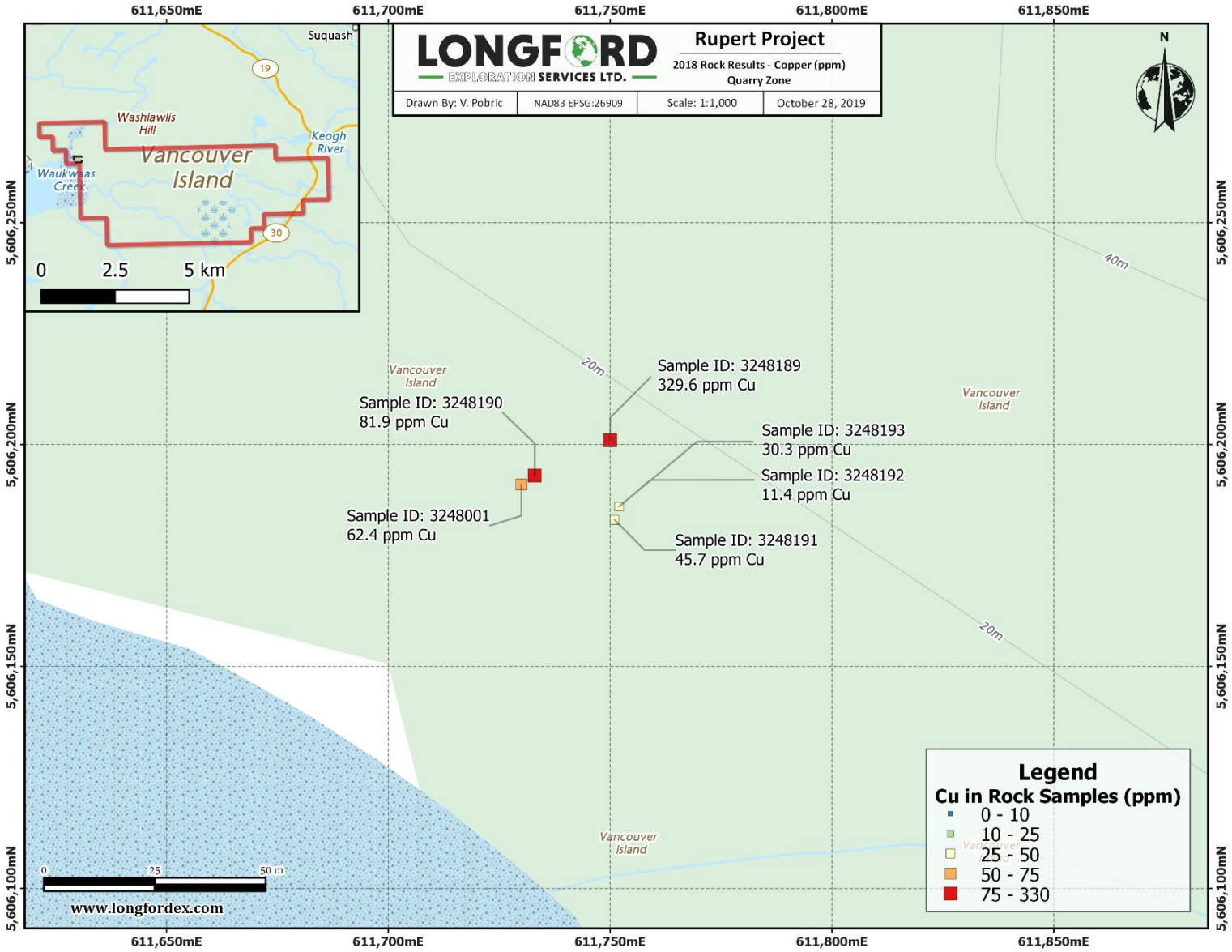

Figure 9.6: Rupert property 2018 Quarry Zone rock sample assay results for Cu (ppm).

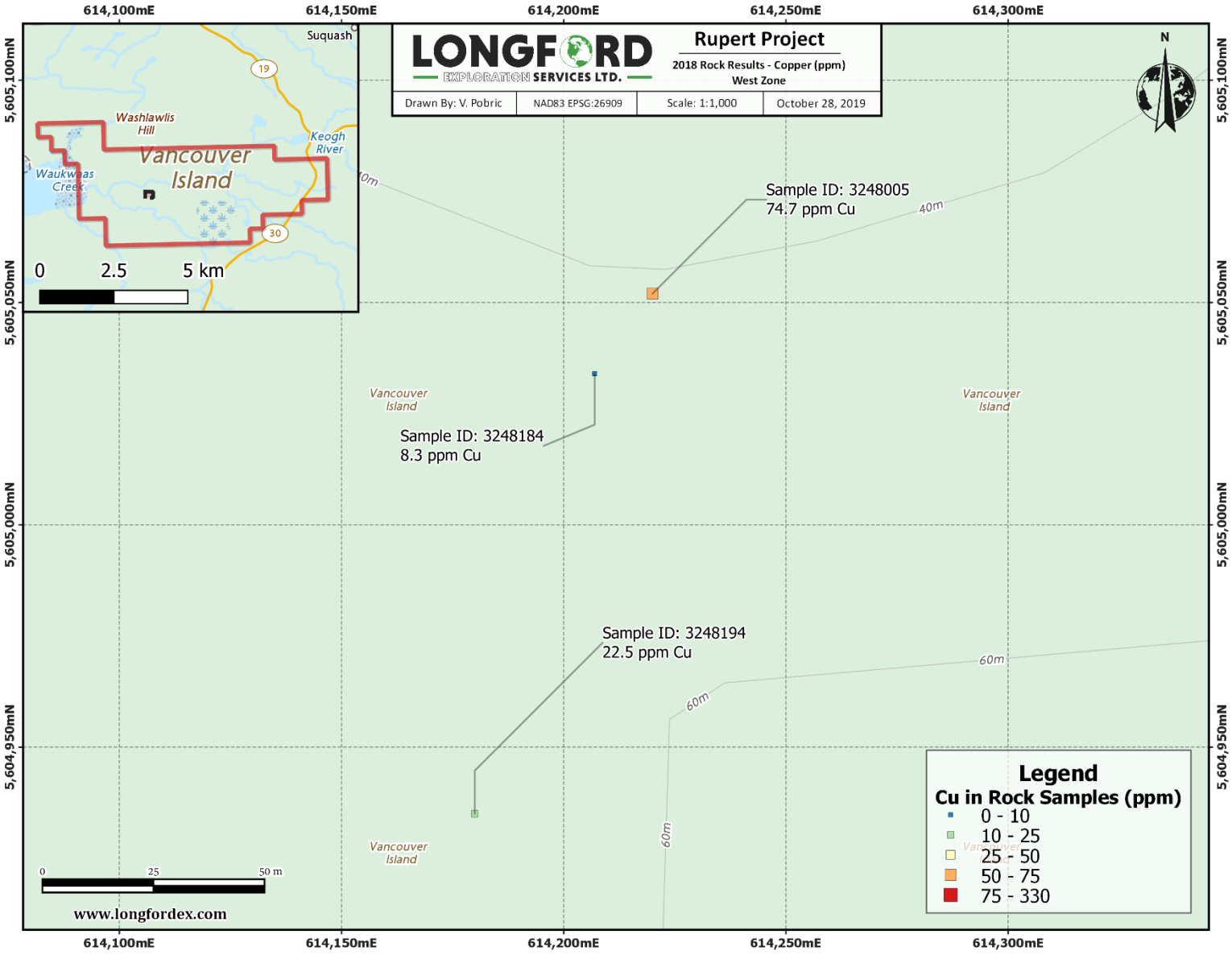

Figure 9.7: Rupert property 2018 West Zone rock sample assay results for Cu (ppm).

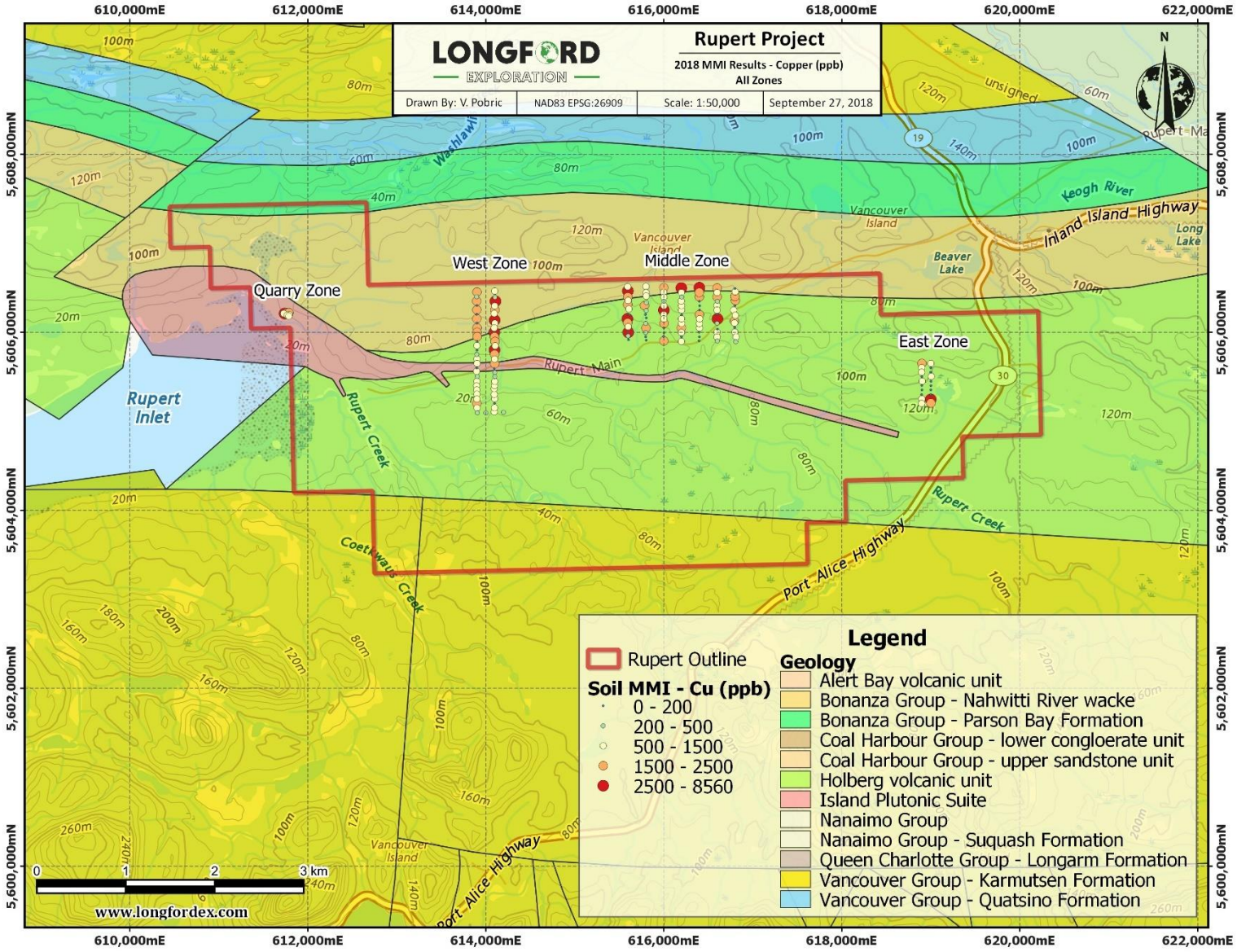

Figure 9.8: Rupert property 2018 MMI soil sample locations by Zone (Quarry, West, Middle, and East Zone) showing local geology.

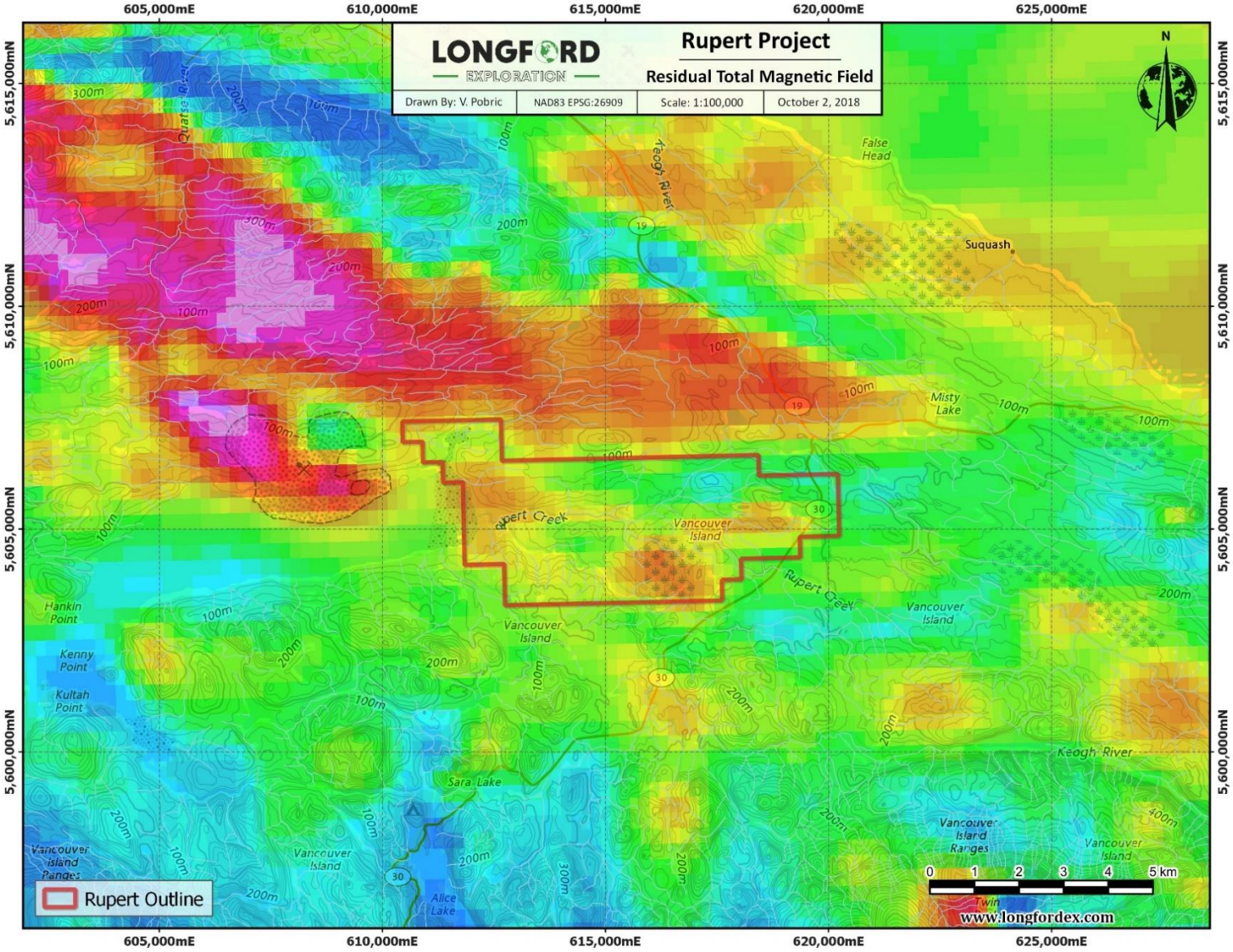

Figure 9.9: Rupert property residual total magnetic field (200M).

Table 9.1: Rupert property 2018 rock sample coordinates and assay results.

Sample No	NAD83 Zone	Easting	Northing	Cu (ppm)	Mo (ppm)	Pb (ppm)	Zn (ppm)	Ni (ppm)	Co (ppm)
3248001	9N	611730	5606191	62.4	7.2	15	73	1.3	8.5
3248005	9N	614220	5605052	74.7	0.3	3.8	77	3.3	16.9
3248184	9N	614207	5605034	8.3	0.2	2.9	60	1.6	13.5
3248189	9N	611750	5606201	329.6	1.7	4.3	23	0.8	3.6
3248190	9N	611733	5606193	81.9	1.9	15.2	61	1.4	6.2
3248191	9N	611751	5606183	45.7	2	6.4	34	1	10.7
3248192	9N	611752	5606186	11.4	2.4	4.8	23	0.4	5.2
3248193	9N	611752	5606186	30.3	2.6	4.6	20	0.9	3.1
3248194	9N	614180	5604935	22.5	0.4	4.5	65	3.3	17.1

Table 9.2: Rupert property 2018 MMI soil sample coordinates and assay results.

Sample No	NAD83 Zone	Easting	Northing	Cu (ppm)	Mo (ppm)	Pb (ppm)	Zn (ppm)	Ni (ppm)	Co (ppm)
3248002	9N	614001	5605094	500	<2	12	470	123	130
3248003	9N	614095	5605106	700	<2	13	180	111	66
3248004	9N	614199	5605100	410	<2	19	130	39	15
3248006	9N	616198	5605897	990	<2	27	370	195	145
3248007	9N	616199	5605949	20	<2	2.5	170	69	33
3248008	9N	616199	5605997	1080	<2	9	640	305	110
3248009	9N	616198	5606050	1740	2	7	270	108	186
3248010	9N	616201	5606100	1240	<2	8	180	115	231
3248011	9N	616199	5606152	1140	<2	22	340	173	429
3248012	9N	616201	5606196	40	<2	2.5	20	25	20
3248013	9N	616200	5606250	1150	<2	6	140	70	30
3248014	9N	616201	5606299	870	3	7	40	38	101
3248015	9N	616197	5606350	600	2	2.5	110	43	112
3248016	9N	616201	5606397	360	3	8	300	71	51
3248017	9N	616199	5606447	920	20	9	260	191	271
3248018	9N	616197	5606497	5200	8	28	70	142	150
3248019	9N	616000	5606502	1880	<2	16	370	175	391
3248020	9N	616000	5606501	1350	<2	14	410	178	523
3248021	9N	615999	5606450	1360	<2	22	190	54	125
3248022	9N	616002	5606394	710	2	9	70	64	102
3248023	9N	616001	5606349	440	3	16	190	76	82
3248024	9N	616002	5606298	610	3	9	320	45	312
3248025	9N	616001	5606248	2540	3	9	120	165	141
3248026	9N	616001	5606199	990	6	11	280	236	102
3248027	9N	616001	5606151	1260	4	8	220	170	132
3248028	9N	616003	5606100	1690	4	8	490	236	92
3248029	9N	616001	5606049	80	3	12	260	114	50
3248030	9N	616003	5605996	20	<2	2.5	80	52	21

Sample No	NAD83 Zone	Easting	Northing	Cu (ppm)	Mo (ppm)	Pb (ppm)	Zn (ppm)	Ni (ppm)	Co (ppm)
3248031	9N	615998	5605953	120	<2	6	170	63	27
3248032	9N	616001	5605903	1670	<2	6	330	84	51
3248033	9N	616398	5605904	30	<2	2.5	90	67	106
3248034	9N	616400	5605949	40	<2	5	190	103	34
3248035	9N	616397	5606001	30	<2	14	350	38	90
3248036	9N	616402	5606048	690	8	16	70	71	250
3248037	9N	616401	5606099	890	8	6	880	102	118
3248038	9N	616403	5606152	670	<2	16	160	75	117
3248039	9N	616401	5606198	2150	2	2.5	280	186	280
3248040	9N	616401	5606201	2510	2	2.5	260	209	251
3248041	9N	616401	5606251	30	<2	2.5	30	27	57
3248042	9N	616403	5606298	50	<2	2.5	20	83	165
3248043	9N	616400	5606348	30	<2	2.5	80	34	23
3248044	9N	616400	5606398	1550	5	9	60	113	70
3248045	9N	616399	5606447	2130	6	14	180	401	137
3248046	9N	616400	5606501	2790	<2	12	350	238	91
3248047	9N	616599	5606497	1590	2	6	70	80	67
3248048	9N	616600	5606446	1110	4	2.5	450	95	172
3248049	9N	616599	5606399	1590	5	13	620	192	140
3248050	9N	616603	5606348	330	3	2.5	110	71	59
3248051	9N	615603	5605915	60	<2	2.5	70	97	105
3248052	9N	615600	5605959	400	7	14	170	164	48
3248053	9N	615601	5605999	3640	6	11	160	185	88
3248054	9N	615600	5606063	600	4	2.5	140	67	109
3248055	9N	615594	5606106	2290	9	9	230	314	115
3248056	9N	615591	5606151	4520	4	10	120	328	114
3248057	9N	615615	5606195	190	<2	2.5	30	65	25
3248058	9N	615608	5606262	1050	<2	7	160	172	49
3248059	9N	615594	5606312	1610	<2	2.5	150	124	91
3248060	9N	615602	5606306	1690	<2	2.5	170	174	132
3248061	9N	615600	5606357	920	9	9	4410	93	106
3248062	9N	615596	5606396	2050	53	8	320	222	70
3248063	9N	615597	5606464	7360	38	18	110	208	88
3248064	9N	615595	5606512	1010	2	2.5	120	125	57
3248065	9N	615800	5606516	670	3	14	350	266	149
3248066	9N	615801	5606444	1240	<2	7	130	98	91
3248067	9N	615803	5606407	1170	<2	2.5	70	49	12
3248068	9N	615804	5606334	490	<2	7	100	50	18
3248069	9N	615784	5606300	1780	5	6	150	130	30
3248070	9N	615802	5606244	270	4	6	80	167	103
3248071	9N	615794	5606200	50	<2	6	190	74	32
3248072	9N	615802	5605911	90	<2	2.5	90	52	46
3248073	9N	615797	5605949	200	<2	2.5	130	62	80
3248074	9N	615797	5605996	430	2	13	90	87	288

Sample No	NAD83 Zone	Easting	Northing	Cu (ppm)	Mo (ppm)	Pb (ppm)	Zn (ppm)	Ni (ppm)	Co (ppm)
3248075	9N	615800	5606048	1790	<2	2.5	80	82	26
3248076	9N	615798	5606099	440	<2	7	720	464	746
3248077	9N	615804	5606161	70	<2	5	60	89	68
3248078	9N	616785	5606250	980	4	6	260	117	141
3248079	9N	616799	5606299	150	2	8	90	105	52
3248080	9N	616799	5606358	1600	3	2.5	230	256	145
3248081	9N	616805	5606358	2160	2	2.5	150	229	73
3248082	9N	616801	5606403	1660	5	9	270	163	283
3248083	9N	616803	5606455	660	2	14	300	141	137
3248084	9N	616800	5606492	50	3	24	110	49	36
3248085	9N	616805	5606191	1260	6	8	690	167	240
3248086	9N	616794	5606124	1600	3	2.5	410	177	16
3248087	9N	616795	5606105	970	3	9	400	275	217
3248088	9N	616797	5606053	130	3	16	940	118	68
3248089	9N	616799	5606002	1490	2	6	110	281	49
3248090	9N	616812	5605948	780	6	9	60	104	92
3248091	9N	616809	5605894	320	<2	7	610	119	35
3248092	9N	614100	5606463	1010	<2	2.5	40	59	18
3248093	9N	614104	5606393	420	<2	2.5	80	98	25
3248094	9N	614108	5606349	4220	2	9	20	75	62
3248095	9N	614101	5606296	1380	3	8	380	197	207
3248096	9N	614103	5606251	1610	<2	2.5	110	142	49
3248097	9N	614095	5606212	1200	<2	2.5	220	107	153
3248098	9N	614100	5606136	3900	6	9	340	223	228
3248099	9N	614102	5606101	830	2	2.5	100	154	21
3248100	9N	614102	5606099	800	<2	2.5	80	143	18
3248101	9N	614095	5606049	1320	<2	2.5	70	148	45
3248102	9N	614096	5605998	2710	7	7	250	248	276
3248103	9N	614098	5605948	1750	4	8	220	169	213
3248104	9N	614104	5605896	2390	<2	7	90	44	41
3248105	9N	614105	5605847	820	2	2.5	140	164	49
3248106	9N	614098	5605801	8560	4	2.5	140	496	338
3248107	9N	613904	5605504	320	3	54	200	38	31
3248108	9N	613901	5605449	1080	2	2.5	100	146	106
3248109	9N	613896	5605398	830	2	2.5	100	113	133
3248110	9N	613899	5605351	1300	2	2.5	90	190	114
3248111	9N	613900	5605303	870	4	5	70	168	69
3248112	9N	613900	5605250	1030	4	6	130	224	58
3248113	9N	613900	5605202	1660	4	8	40	148	65
3248114	9N	613902	5605150	510	<2	2.5	30	108	47
3248115	9N	613905	5605095	310	<2	8	1160	34	11
3248116	9N	614098	5605152	880	<2	10	420	113	69
3248117	9N	614099	5605200	30	<2	21	810	92	14
3248118	9N	614100	5605253	860	2	2.5	180	81	94

Sample No	NAD83 Zone	Easting	Northing	Cu (ppm)	Mo (ppm)	Pb (ppm)	Zn (ppm)	Ni (ppm)	Co (ppm)
3248119	9N	614095	5605301	1070	4	2.5	80	138	86
3248120	9N	614089	5605301	1060	3	2.5	70	132	83
3248121	9N	614095	5605366	570	4	6	680	462	150
3248122	9N	614098	5605402	670	3	8	330	251	113
3248123	9N	614101	5605448	590	5	11	160	151	73
3248124	9N	614101	5605503	440	<2	10	270	79	169
3248125	9N	614101	5605547	220	2	19	230	37	157
3248126	9N	614096	5605592	60	2	18	1040	268	97
3248127	9N	619002	5605650	570	<2	14	510	66	77
3248128	9N	619001	5605600	80	<2	2.5	490	219	112
3248129	9N	618999	5605551	60	<2	14	1040	97	34
3248130	9N	619006	5605504	1070	<2	7	250	168	139
3248131	9N	619003	5605449	20	<2	2.5	100	130	55
3248132	9N	619002	5605400	5	<2	13	50	28	12
3248133	9N	619001	5605352	20	<2	35	190	35	3
3248134	9N	619001	5605298	40	<2	19	150	43	28
3248135	9N	619000	5605245	4760	<2	2.5	30	29	16
3248136	9N	619002	5605204	2160	<2	2.5	190	263	105
3248137	9N	618901	5605650	1780	<2	5	150	147	238
3248138	9N	618899	5605603	540	<2	2.5	220	41	63
3248139	9N	618899	5605551	840	<2	2.5	200	130	38
3248140	9N	618899	5605550	920	<2	2.5	250	162	49
3248141	9N	618899	5605502	70	<2	8	270	93	95
3248142	9N	618905	5605450	1070	<2	2.5	90	134	95
3248143	9N	618899	5605403	150	<2	2.5	60	82	214
3248144	9N	618902	5605352	50	4	21	150	58	69
3248145	9N	618898	5605298	30	<2	2.5	5	63	21
3248146	9N	618900	5605251	1160	<2	2.5	110	104	88
3248147	9N	618899	5605200	920	3	37	1170	248	107
3248148	9N	611728	5606211	1060	4	37	170	87	27
3248149	9N	611739	5606211	2520	3	8	340	33	23
3248150	9N	611768	5606217	2440	<2	65	510	92	42
3248151	9N	616598	5606302	1410	<2	2.5	360	126	412
3248152	9N	616599	5606249	1160	4	11	170	123	381
3248153	9N	616597	5606201	40	<2	18	370	108	9
3248154	9N	616603	5606151	3490	44	6	160	249	82
3248155	9N	616599	5606101	430	4	2.5	270	77	380
3248156	9N	616604	5606035	30	<2	14	180	99	52
3248157	9N	616598	5606002	570	<2	11	550	73	114
3248158	9N	616599	5605946	1130	32	18	1090	304	441
3248159	9N	616602	5605903	390	<2	9	250	116	33
3248160	9N	616601	5605899	450	<2	6	270	106	33
3248161	9N	613901	5606452	1650	<2	14	150	162	74
3248162	9N	613898	5606399	300	<2	2.5	190	59	16

Sample No	NAD83 Zone	Easting	Northing	Cu (ppm)	Mo (ppm)	Pb (ppm)	Zn (ppm)	Ni (ppm)	Co (ppm)
3248163	9N	613898	5606350	1810	<2	2.5	100	132	47
3248164	9N	613900	5606300	70	<2	2.5	50	67	38
3248165	9N	613900	5606252	1790	<2	2.5	80	176	6
3248166	9N	613899	5606201	60	<2	2.5	60	59	37
3248167	9N	613899	5606152	1790	3	6	240	325	240
3248168	9N	613901	5606103	50	<2	2.5	5	29	38
3248169	9N	613902	5606051	1640	<2	2.5	270	137	238
3248170	9N	613901	5606000	2460	<2	6	60	138	211
3248171	9N	613904	5605951	2470	<2	5	50	53	41
3248172	9N	613903	5605897	60	<2	2.5	100	114	85
3248173	9N	613900	5605850	1450	<2	2.5	20	47	27
3248174	9N	613901	5605798	190	2	11	260	124	42
3248175	9N	613899	5605751	240	2	11	430	198	323
3248176	9N	613901	5605700	1320	3	2.5	120	206	380
3248177	9N	613902	5605650	810	<2	8	90	78	87
3248178	9N	613898	5605598	190	5	49	170	70	38
3248179	9N	613897	5605561	1190	3	115	810	173	137
3248180	9N	613899	5605562	870	<2	55	650	110	163
3248181	9N	614100	5605648	2160	<2	20	610	167	43
3248182	9N	614099	5605698	910	<2	16	430	110	73
3248183	9N	614099	5605751	1590	<2	10	350	80	65
3248185	9N	611787	5606220	1620	4	15	170	270	13
3248186	9N	611792	5606197	870	<2	23	280	173	57
3248187	9N	611768	5606192	1340	<2	29	320	188	73
3248188	9N	611787	5606181	770	<2	41	130	156	56

9.2 Statement of Costs

The following table describes the costs of the work program which are eligible for assessment credit. The amount being applied for is $97,972.81. The full invoice can be viewed in Appendix C.

Table 9.3: Statement of costs for 2018 Rupert property exploration program.

Dates	Item Description	Units	Cost/Unit	Total
Aug 16th-23rd, 2018	Project Manager-James Rogers	2	$1000	$2,000
Aug 16th-23rd, 2018	Geologist P. Geo.-Sean Butler	1	$1,200	$1,200
Aug 16th-23rd, 2018	Geologists (Potts, Krukowski, Ryan, Leach)	32	$700	$22,400
Aug 16th-23rd, 2018	Food	33	$100	$3,300
Aug 16th-23rd, 2018	Lodging	32	$200	$6,400
Aug 16th-23rd, 2018	Truck (1 ton with safety and recovery gear)	8	$150	$1,200
Aug 16th-23rd, 2018	Trailer (18' 7000 lb covered trailer)	8	$100	$800
Aug 16th-23rd, 2018	Fuel (per km)	1560	$0.65	$1,014
Aug 16th-23rd, 2018	Misc. hand tools (hammers, shovels, etc.)	32	$40	$1,280
Aug 16th-23rd, 2018	Electronics Kit	32	$40	$1,280
Aug 16th-23rd, 2018	Chainsaw (safety kit with chaps and helmet)	8	$40.	$320
Aug 16th-23rd, 2018	Field/Office Consumables	32	$30	$960
Aug 16th-23rd, 2018	Mobilization-Flat rate (includes Flights etc.)	1	$7,500	$7,500
Aug 16th-23rd, 2018	Analysis-Rock (ICP-MS)	9	$26.70	$240.30
Aug 16th-23rd, 2018	Analysis-Soil (MMI)	185	$49.96	$9,242.60
Aug 16th-23rd, 2018	Sample Shipping (packaging/completion check)	1	$1,000	$1,000.
July/Aug 2018	Pre-field data compilation/GIS	70	$150.00	$10,500
Jan/Feb 2019	Post field-Assessment report and maps.	70	$150.00	$10,500
	Estimated Sub Total			**$81,136.90**
	Management Fee (15% of Est. Sub Total)			$12,170.54
	Sub Total			**$93,307.44**
	GST (@ 5%)			$4,665.37
	Total			**$97,972.81**

10 Sample Preparation, Analysis, and Security

10.1 2018 Sampling Procedure

During the 2018 program a total of 9 rock samples and 185 soil samples were collected. These samples were collected to enable detailed descriptions out of the field and were collected and secured in a manner where sample integrity and provenance is maintained for future analytical procedures.

Rock samples collected were located by GPS in NAD83 UTM Zone 9N, the sample location was recorded in field notebooks, an assay sample tag book and as a waypoint on a Garmin 60CSX GPS unit. Each sample was collected into its own 18" x 12" poly bag labeled with the locale (i.e. "Rupert") and a unique 7-character sample ID (i.e. E6690306) assigned from a barcoded Tyvek sample book. A tear-out tag with the barcode and unique sample ID was inserted in the bag with the sample and the bag sealed with a cable tie in the field. The sample locations are marked in the field with orange flagging type and the unique sample ID number recorded on the tape.

A similar process was carried out for recording the soil sample data however, soils were collected following strict guidelines to prevent cross contamination within the samples as MMI analysis is very sensitive. The MMI soil grid designed to sample the air/soil or organic/soil layer interface in true soils. This interface became the zero-datum line for the sampling procedure. Sampling was carried out in four zones, namely The Quarry, West Zone, Middle Zone and the East Zone, at 50 m intervals with a 200 m line spacing within the property. All sample locations were recorded using a hand-held GPS unit. Sample sites were marked using flagging tape and labelled with the sample number.

SGS Labs describes MMI at https://www.sgs.com/en/mining/services-for-industry-challenges/advancesin-technology/mobile-metal-ions-mmi as:

> "MMI technology is an innovative analytical process that uses a unique approach to the analysis of metals in soils and related materials. Target elements are extracted using weak solutions of organic and inorganic compounds rather than conventional aggressive acid or cyanide-based digests. MMI solutions contain strong ligands, which detach and hold metal ions that were loosely bound to soil particles by weak atomic forces in aqueous solution. This extraction does not dissolve the bound forms of the metal ions. Thus, the metal ions in the MMI solutions are the chemically active or 'mobile' component of the sample. Because these mobile, loosely bound complexes are in very low concentrations, measurement is by conventional ICP-MS and the latest evolution of this technology, ICP-MS Dynamic Reaction Cell™ (DRC II™). This allows us to report very low detection limits."

Soil samples were taken 10 cm below the zero datum, between a 10 to 25 cm interval. Each sample was a representative profile over the interval and weighed between 200-300 grams. Landscape characteristics, location, moisture content, range in particle size, thickness and nature of organic and inorganic material, colour, and anthropogenic contamination were recorded into a field notebook. Sample sites were moved if contamination was expected and recorded accordingly. Holes were initially dug with metal shovels and tools to the appropriate depth, exposing the soil profile. The plastic collection tray and plastic trowel were

then scrubbed with a clean uncontaminated cloth. The trowel was used to expose the wall of the soil profile by removing the soil that was in direct contact with the metal shovel. Then the zero datum was located, and samples were taken between 10 and 25 cm.

For the soil program every 20th sample was taken as a field duplicate for QA/QC control.

10.2 2018 Sampling Procedure and Analysis

The 9 rock samples and 185 soil samples were collected during the 2018 prospecting and sampling program. Rock samples were submitted for analysis at Bureau Veritas in Vancouver, BC, and soil samples were submitted to SGS Laboratories in Burnaby, BC, on Aug 27th, 2018 for the following processes:

Table 10.1: Rupert property rock and soil sample analysis methods.

No. of Samples	Media	Analysis Method Code	Description
9	Rock	PRP70-250	Crush, split and pulverize 250 g rock to 200 mesh
9	Rock	MA200	4 Acid digestion ICP-MS analysis
185	Soil	G_LOG_02	Pre-preparation, sorting, logging, boxing
185	Soil	GE_MMI_M	Mobile Metal ION Std. package/ICP-MS (53 elements)

11 Interpretation and Conclusions

The Rupert property is adjacent to the large historic Island Copper mine and shares many of the same geological units with significant mineralization at Island Copper. Other geologically similar properties within the belt, to the west of Island Copper (Hushamu, Red Dog, and Pemberton Hills) have had ongoing successes which speaks to the areas prospectivity.

The outcrop located at the Quarry Site, near the Island Copper access road, was previously assessed by Utah Copper who concluded the rocks were the same age as the mineralized intrusive rocks at the mine. Historic drilling and geophysical methods have traced the unit below the overburden on and near the Rupert property and extends well into the property. Highest copper values returned from Quarry Zone rock samples was 329.60 ppm (Table 11.1).

The MMI method of soil geochemical analysis is believed to be the best option available at this time for the determination of buried copper mineralization due to the presence of heavy glacial till overburden across the Rupert property. The 2018 MMI geochemical soil survey showed elevated copper values in both the West and Middle Zones, centrally located in the north of the Rupert property. Highest values returned from soil samples was 8560 ppb Cu (Table 11.2). Much of the Rupert property is under explored and it is recommended that further exploration is carried out in these areas.

The various historic drill intercepts and pits indicate that mineralization is consistent with a porphyry copper-molybdenum style deposit and has been located historically within the Rupert Property. Due to lack of outcrop and areas of thick overburden, extensive areas remain under-explored leaving the potential for an economic deposit to be uncovered.

Table 11.1: Statistical table of Rupert Property 2018 rock assay results in ppm.

Element	Mean (ppm)	Std. Dev (ppm)	Max (ppm)	Min (ppm)	Range (ppm)	Mode (ppm)	Median (ppm)
Mo	2.08	2.13	7.20	0.20	7.00	N/A	1.90
Cu	75.55	99.45	329.60	8.30	321.30	N/A	45.70
Pb	6.83	4.78	15.20	2.90	12.30	N/A	4.60
Zn	48.44	23.17	77.00	20.00	57.00	23.00	60.00

Table 11.2: Statistical table of Rupert Property 2018 MMI soil assay results in ppb

Element	Mean (ppb)	Std. Dev (ppb)	Max (ppb)	Min (ppb)	Range (ppb)	Mode (ppb)	Median (ppb)
Mo	3.21	6.26	53.00	1.00	52.00	1.00	1.00
Cu	1,125.22	1,191.68	8,560.00	5.00	8,555.00	30.00	910.00
Pb	10.31	12.69	115.00	2.50	112.50	2.50	7.00

Zn	170.00	382.17	4,410.00	5.00	4,405.00	70.00	170.00
Ni	135.12	84.77	496.00	25.00	471.00	108.00	115.00
Co	112.14	108.14	746.00	3.00	743.00	49.00	82.00

12 Recommendations

A two-phase exploration program is recommended for the Rupert Property. The second phase is contingent on positive results in phase one.

The project is best followed up with further field work. Specifically, further soil geochemistry using MMI analysis and further mapping and prospecting for surface exposures of outcrop. As well a compilation of historic data including all historic drill data for final analysis:

12.1 Proposed Exploration Budget

Table 12.1 Proposed exploration budget - Phase 1.

Phase 1- Geological Mapping, Prospecting and Soil Sampling Program		
2-week, 4-person crew (1 Project manager, 1 Geologist, 2 helpers)		
Description	**Unit Cost**	**Totals**
Wages	$35,000	$100,000
Food and Lodging	$10,000	
Transportation	$5,000	
Equipment Rentals	$10,000	
Sample Analysis	$15,000	
UAV-MAG	$25,000	
Interpretation of existing data and field results-14 days		$20,000
Total Phase 1		**$120,000**

Table 12.2: Proposed exploration budget - Phase 2.

Phase 2- Anomaly Follow-Up (contingent on results of Phase 1)		
17-day Drill program		
Description	**Unit Cost**	**Totals**
Wages	$40,000	$95,000
Food and Lodging	$20,000	
Transportation	$10,000	
Equipment Rentals	$10,000	
Sample Analysis	$15,000	
1,000 m of diamond drilling to test geophysical and mapping targets (all in)	$200/metre	$200,000
Total Phase 2		**$295,000**
Total Phase 1 and Phase 2 (contingent on positive results in phase 1)		**$415,000**

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APPENDIX A: Rock Sample Descriptions

Sample ID	Easting	Northing	Elevation (m)	Description
3248001	611730	5606191	1	Calcite porphyry with stringer quartz stockworks. Grain size from 0-2 mm, stockworks 1 mm wide, dense. Oxidation with box works (sporadic). Propylitic alteration. Disseminated py and cpy (primary). ~2 % fine-grained with trace bornite. Not magnetic. Outcrop 50 m long 10 m high.
3248005	614220	5605052	19	Tuff with stockworks (qtz calcite) 0-1 cm. Phyllic alteration. ~3 % py and cpy (primary). Floats from road cuttings, weakly magnetic.
3248184	614207	5605034	20	Float from road. Road fill has abundant tuff with stockworks, chloritization, and disseminated py.
3248189	611750	5606201	10	Light pink to grey feldspar quartz porphyry with disseminated py, cpy, malachite. Stockwork veinlets and weak potassic alteration.
3248190	611733	5606193	14	Light pink to grey feldspar quartz porphyry. Quartz carbonate veining with rusty disseminated oxidation, highly altered (limonite and goethite).
3248191	611751	5606183	14	Light pink to grey feldspar quartz porphyry. Quartz carbonate vein (0.8 mm) with rusty disseminated oxidation, highly altered (limonite and goethite).
3248192	611752	5606186	11	Quartz feldspar porphyry with potassic alteration and sporadic bull quartz carbonate veining. Finely disseminated py, bornite, and cpy.
3248193	611752	5606186	10	Quartz feldspar porphyry with potassic alteration and sporadic bull quartz carbonate veining. Finely disseminated py, bornite, and cpy.
3248194	614180	5604935	10	Sheared and propylitic altered tuff from road cuttings. Float. Aggregate stockwork veinlets with disseminated py.

APPENDIX B: Soil Descriptions and MMI Results

Sample ID	Easting	Northing	Elevation (m)	Slope	Mositure	Grain Size	Organic Description	Organic Thickness (cm)	Colour	Contamination	Comments	Cu (ppb)	Mo (ppb)	Pb (ppb)	Zn (ppb)	Ni (ppb)	Co (ppb)
3248027	616001	5606151	62	Gentle	2	Medium	Roots	12	Light			1260	4	8	220	170	132
3248028	616003	5606100	60	Gentle	2	Medium	Roots	25	Dark brown	IP (geophysics) lines;		1690	4	8	490	236	92
3248029	616001	5606049	56	Low	1	Medium	Roots	40	Brown			80	3	12	260	114	50
3248030	616003	5605996	51	Gentle	1	Fine	Roots	20	Brown/			20	1	2.5	80	52	21
3248031	615998	5605953	52	Gentle	3	Medium	Roots	15	Brown/			120	1	6	170	63	27
3248032	616001	5605903	48	Low	3	Medium	No Roots	25	Light	Adjacent to		1670	1	6	330	84	51
3248033	616398	5605904	64	Low	1	Fine	Roots	25	Light	10 m from		30	1	2.5	90	67	106
3248034	616400	5605949	62	Low	3	Fine	Roots	22	Dark			40	1	5	190	103	34
3248035	616397	5606001	66	Low	4	Fine	Minor roots	15	Dark			30	1	14	350	38	90
3248036	616402	5606048	66	Low	4	Fine	No Roots	10	Dark			690	8	16	70	71	250
3248037	616401	5606099	66	Low	4	Fine	Roots	12	Dark			890	8	6	880	102	118
3248038	616403	5606152	69	Low	2	Medium - coarse	Roots	20	Brown			670	1	16	160	75	117
3248039	616401	5606198	72	Hummocky	2	Medium - coarse	Roots	27	Brown			2150	2	2.5	280	186	280
3248040	616401	5606201	71	Hummocky	2	Medium - coarse	Roots	27	Brown		Duplicate	2510	2	2.5	260	209	251
3248041	616401	5606251	76	Low	2	Medium - coarse	Roots	25	Brown			30	1	2.5	30	27	57
3248042	616403	5606298	81	Low	2	Medium	Roots	24	Brown			50	1	2.5	20	83	165
3248043	616400	5606348	86	Low	1	Medium	Roots	25	Light			30	1	2.5	80	34	23
3248044	616400	5606398	82	Low	2	Fine	Minor roots	7	Brown			1550	5	9	60	113	70
3248045	616399	5606447	82	Low	1	Fine	Roots	5	Brown	Old road	Deactivated road	2130	6	14	180	401	137
3248046	616400	5606501	84	Low	4	Fine	Clay; minor roots	15	Dark			2790	1	12	350	238	91
3248047	616599	5606497	85	Low	4	Fine	Roots	15	Dark			1590	2	6	70	80	67
3248048	616600	5606446	85	Low	3	Medium	Roots	23	Dark			1110	4	2.5	450	95	172
3248049	616599	5606399	82	Low	3	Fine	Roots	16	Brown			1590	5	13	620	192	140
3248050	616603	5606348	82	Low	1	Medium	Roots	15	Light			330	3	2.5	110	71	59
3248051	615603	5605915	87	Low	2	Medium - coarse	Roots	12	Brown	Clear-cut		60	1	2.5	70	97	105
3248052	615600	5605959	82	Low	3	Fine - medium	Roots	20	Brown	Clear-cut	30 cm root labrinth at surface	400	7	14	170	164	48
3248053	615601	5605999	63	Low	3	Fine - coarse		10	Brown/ grey	Clear-cut	Hard and consolidated	3640	6	11	160	185	88
3248054	615600	5606063	56	Low	4	Fine	Peat; organic; swampy	5	Black	Clear-cut	Swampy	600	4	2.5	140	67	109
3248055	615594	5606106	52	Low	3	Medium - coarse	Roots	15	Dark brown	Clear-cut		2290	9	9	230	314	115
3248056	615591	5606151	49	Gentle	3	Medium - coarse		15	Brown/ red	Clear-cut		4520	4	10	120	328	114
3248057	615615	5606195	57	Gentle	2	Medium - coarse	Roots	15	Brown/ orange	Clear-cut		190	1	2.5	30	65	25

Sample ID	Easting	Northing	Elevation (m)	Slope	Mositure	Grain Size	Organic Description	Organic Thickness (cm)	Colour	Contamination	Comments	Cu (ppb)	Mo (ppb)	Pb (ppb)	Zn (ppb)	Ni (ppb)	Co (ppb)
3248002	614001	5605094	24	Low	3	Medium	Roots; bark	20	Brown/ Red		Dense vegetation	500	1	12	470	123	130
3248003	614095	5605106	24	Low	3	Medium	Roots; bark	3	Brown/ Red	Clear-cut; Soda can 100 cm away		700	1	13	180	111	66
3248004	614199	5605100	21	Low	3	Medium - coarse	Minor roots	3	Brown/ orange	Clear-cut		410	1	19	130	39	15
3248006	616198	5605897	48	Low	2	Coarse	Roots	15	Brown/			990	1	27	370	195	145
3248007	616199	5605949	58	Low	2	Medium	Major roots; bark/tree	27	Dark brown			20	1	2.5	170	69	33
3248008	616199	5605997	67	Low	2	Medium - coarse	Roots	35	Brown/ orange			1080	1	9	640	305	110
3248009	616198	5606050	64	Low	4	Fine	Clay; minor roots	4	Dark			1740	2	7	270	108	186
3248010	616201	5606100	62	Low	2	Medium	Roots	15	Dark			1240	1	8	180	115	231
3248011	616199	5606152	63	Low	2	Medium	Roots; poorly sorted	20	Dark brown			1140	1	22	340	173	429
3248012	616201	5606196	66	Low	2	Medium	Roots; poorly sorted	30	Brown/ orange			40	1	2.5	20	25	20
3248013	616200	5606250	75	Low	2	Coarse	Roots; poorly sorted	25	Brown/ dark			1150	1	6	140	70	30
3248014	616201	5606299	76	Low	3	Fine	Roots; well sorted	10	Black			870	3	7	40	38	101
3248015	616197	5606350	67	Low	3	Fine	Clay	10	Black/			600	2	2.5	110	43	112
3248016	616201	5606397	72	Low	3	Fine	Clay	15	Black/			360	3	8	300	71	51
3248017	616199	5606447	77	Low	1	Medium	Roots	20	Black/ grey		Lower amount of organic material	920	20	9	260	191	271
3248018	616197	5606497	82	Low	3	Fine	Clay; minor roots	25	Brown			5200	8	28	70	142	150
3248019	616000	5606502	78	Low	3	Medium	Roots	50	Brown/ grey	7 m from old road		1880	1	16	370	175	391
3248020	616000	5606501	78	Low	3	Medium	Roots	50	Black/ grey	7 m from old road	Duplicate	1350	1	14	410	178	523
3248021	615999	5606450	75	Low	2	Medium	Roots; poorly sorted	17	Black/ grey			1360	1	22	190	54	125
3248022	616002	5606394	73	Low	3	Fine	Clay; minor roots	15	Brown			710	2	9	70	64	102
3248023	616001	5606349	72	Gentle	2	Coarse	Roots; poorly sorted	25	Dark brown	IP (geophysics)		440	3	16	190	76	82
3248024	616002	5606298	69	Low	2	Coarse	Roots; bark; poorly sorted	20	Brown/ grey		Till	610	3	9	320	45	312
3248025	616001	5606248	67	Low	2	Medium	Roots; bark	15	Dark			2540	3	9	120	165	141
3248026	616001	5606199	67	Low	2	Medium	Roots	5	Brown/ grey	IP (geophysics)	Till	990	6	11	280	236	102

Sample ID	Easting	Northing	Elevation (m)	Slope	Mositure	Grain Size	Organic Description	Organic Thickness (cm)	Colour	Contamination	Comments	Cu (ppb)	Mo (ppb)	Pb (ppb)	Zn (ppb)	Ni (ppb)	Co (ppb)
3248058	615608	5606262	59	Gentle	2	Fine - coarse		20	Brown/ orange	Clear-cut	Taken from under tree root	1050	1	7	160	172	49
3248059	615594	5606312	62	Gentle	2	Fine - coarse	Roots	15	Brown	Clear-cut		1610	1	2.5	150	124	91
3248060	615602	5606306	63	Gentle	2	Fine - coarse	Roots	15	Brown	Clear-cut	Duplicate	1690	1	2.5	170	174	132
3248061	615600	5606357	61	Low	3	Fine - medium	Roots	25	Dark brown	Clear-cut		920	9	9	4410	93	106
3248062	615596	5606396	61	Low	3	Fine - coarse	Clay; roots	15	Brown/ grey	Clear-cut		2050	53	8	320	222	70
3248063	615597	5606464	68	Gentle	2	Fine - coarse	Clay; roots	15	Grey	Clear-cut		7360	38	18	110	208	88
3248064	615595	5606512	80	Low	2	Medium - coarse		20	Brown/ red	Clear-cut	30 cm root labrynth at bedrock	1010	2	2.5	120	125	57
3248065	615800	5606516	81	Low	2	Medium - coarse		20	Red	Clear-cut; bedrock		670	3	14	350	266	149
3248066	615801	5606444	76	Low	1	Fine	Clay	25	Brown/ red	Clear-cut	consolidated clay	1240	1	7	130	98	91
3248067	615803	5606407	77	Low	2	Medium - coarse		15	Brown/ red	Clear-cut		1170	1	2.5	70	49	12
3248068	615804	5606334	73	Gentle	2	Medium - coarse		20	Orang e	Clear-cut		490	1	7	100	50	18
3248069	615784	5606300	69	Low	3	Fine - coarse	Clay	15	Grey	Clear-cut		1780	5	6	150	130	30
3248070	615802	5606244	60	Gentle	5	Fine	High organic content	20	Black	Clear-cut; 5 m from creek; 10 m	Waterlogge d organics	270	4	6	80	167	103
3248071	615794	5606200	59	Gentle	4	Fine - medium	High organic content	15	Black	5 m from creek		50	1	6	190	74	32
3248072	615802	5605911	52	Low	2	Medium - coarse	Roots	15	Brown/ orange	20 m from road		90	1	2.5	90	52	46
3248073	615797	5605949	55	Low	2	Medium	Roots	10	Black/ orange		Bedrock at 15 cm	200	1	2.5	130	62	80
3248074	615797	5605996	54	Low	4	Fine	Clay; roots	15	Black/			430	2	13	90	87	288
3248075	615800	5606048	52	Low	4	Fine	Clay; roots	10	Grey/o			1790	1	2.5	80	82	26
3248076	615798	5606099	61	Gentle	4	Fine	Clay; roots	20	Black/			440	1	7	720	464	746
3248077	615804	5606161	64	Gentle	2	Coarse	Roots	20	Brown/			70	1	5	60	89	68
3248078	616785	5606250	70	Gentle	3	Fine - coarse	Roots	25	Dark brown	20 m adjacent to		980	4	6	260	117	141
3248079	616799	5606299	71	Gentle	2	Coarse	Roots	25	Brown			150	2	8	90	105	52
3248080	616799	5606358	79	Gentle	3	Fine - coarse	Roots; no oragnics	10	Brown/ grey		Duplicate	1600	3	2.5	230	256	145
3248081	616805	5606358	79	Gentle	3	Fine - coarse	Roots; no oragnics	10	Brown/ grey			2160	2	2.5	150	229	73
3248082	616801	5606403	84	Gentle	2	Medium - coarse	Roots; no organics	20	Brown/ grey			1660	5	9	270	163	283

Sample ID	Easting	Northing	Elevation (m)	Slope	Mositure	Grain Size	Organic Description	Organic Thickness (cm)	Colour	Contamination	Comments	Cu (ppb)	Mo (ppb)	Pb (ppb)	Zn (ppb)	Ni (ppb)	Co (ppb)
3248083	616803	5606455	89	Low	2	Medium	Roots	10	Brown/			660	2	14	300	141	137
3248084	616800	5606492	89	Low	4	Fine	High root content	25	Dark			50	3	24	110	49	36
3248085	616805	5606191	68	Gentle	3	Medium	Minor roots		Brown/ grey	Power lines 10 m from sample; clear-		1260	6	8	690	167	240
3248086	616794	5606124	64	Gentle	2	Medium - coarse	Roots; no organics	20	Brown	15 m from road		1600	3	2.5	410	177	16
3248087	616795	5606105	66	Gentle - steep	4	Medium	Roots; muddy	10	Dark brown			970	3	9	400	275	217
3248088	616797	5606053	65	Low	5	Medium	Roots; swampy; muddy	15	Dark brown			130	3	16	940	118	68
3248089	616799	5606002	56	Low	4	Fine	Clay; roots	20	Grey			1490	2	6	110	281	49
3248090	616812	5605948	55	Gentle	3	Medium - coarse	Roots	10	Grey			780	6	9	60	104	92
3248091	616809	5605894	55	Low	2	Medium - coarse	Roots; high organic content	20	Dark brown/			320	1	7	610	119	35
3248092	614100	5606463	97	Low	2	Medium - coarse	Roots; bark	15	Brown/ red			1010	1	2.5	40	59	18
3248093	614104	5606393	95	Low	3	Fine - medium	Minor roots; no organics	5	Dark brown		Consolidated clay at 25 cm	420	1	2.5	80	98	25
3248094	614108	5606349	97	Low	3	Very fine - medium	Clay; roots	30	Brown			4220	2	9	20	75	62
3248095	614101	5606296	93	Gentle	2	Fine - medium	Roots; bark; wood chips	30	Brown/ red			1380	3	8	380	197	207
3248096	614103	5606251	88	Gentle	3	Medium	Roots	25	Brown/ red	Marked for cuttng		1610	1	2.5	110	142	49
3248097	614095	5606212	90	Gentle	3	Fine - medium	Roots	20	Brown/ red	Marked for cutting		1200	1	2.5	220	107	153
3248098	614100	5606136	84	Gentle	4	Medium - coarse	Clay; roots	15	Brown/ grey	Marked for cutting		3900	6	9	340	223	228
3248099	614102	5606101	84	Gentle	3	Fine - medium	Roots; bark	40	Brown/ red	10 m from clear-cut		830	2	2.5	100	154	21
3248100	614102	5606099	84	Gentle	3	Fine - medium	Roots; bark	40	Brown/ red	10 m from clear-cut	Duplicate	800	1	2.5	80	143	18
3248101	614095	5606049	63	Moderate	2	Fine - coarse	Roots	20	Brown/ red	Clear-cut		1320	1	2.5	70	148	45
3248102	614096	5605998	54	Low	4	Very fine - coarse	Clay; roots	15	Brown/ grey	Clear-cut		2710	7	7	250	248	276
3248103	614098	5605948	50	Low	4	Very fine - coarse	Roots	10	Brown	Clear-cut		1750	4	8	220	169	213
3248104	614104	5605896	49	Low	3	Very fine - medium	Clay; roots; wood chips	25	Brown/ grey	Clear-cut		2390	1	7	90	44	41
3248105	614105	5605847	53	Low	2	Fine - medium	Roots	5	Brown/ red	Clear-cut		820	2	2.5	140	164	49
3248106	614098	5605801	45	Moderate	4	Very fine - medium	Clay; minor roots; wood chips	15	Brown/ grey	Clear-cut		8560	4	2.5	140	496	338
3248107	613904	5605504	24	Steep	3	Fine - medium	Minor roots; high organic content	12	Dark brown/		Hummocky pocket	320	3	54	200	38	31

Sample ID	Easting	Northing	Elevation (m)	Slope	Mositure	Grain Size	Organic Description	Organic Thickness (cm)	Colour	Contamination	Comments	Cu (ppb)	Mo (ppb)	Pb (ppb)	Zn (ppb)	Ni (ppb)	Co (ppb)
3248108	613901	5605449	20	Low	4	Fine - medium	Minor roots; high organic content	8	Dark brown/			1080	2	2.5	100	146	106
3248109	613896	5605398	21	Gentle	4	Fine - medium	Minor roots	11	Dark brown			830	2	2.5	100	113	133
3248110	613899	5605351	23	Gentle	4	Fine	Minor roots; high organic content	15	Dark brown			1300	2	2.5	90	190	114
3248111	613900	5605303	24	Gentle	4	Fine - medium	Roots	15	Brown/ grey			870	4	5	70	168	69
3248112	613900	5605250	28	Gentle	3	Fine - medium	Roots	20	Dark brown			1030	4	6	130	224	58
3248113	613900	5605202	28	Moderate	3	Fine	Roots; silty	13	Light			1660	4	8	40	148	65
3248114	613902	5605150	24	Low	4	Fine	Minor roots; high organic content	23	Dark brown			510	1	2.5	30	108	47
3248115	613905	5605095	25	Moderate	2	Coarse	Roots; bark; wood chips	7	Brown/ red		High bark content	310	1	8	1160	34	11
3248116	614098	5605152	15	Hummocky	1	Fine - medium	Roots; bark; wood chips	15	Brown/ red	Clear-cut		880	1	10	420	113	69
3248117	614099	5605200	8	Steep	2	Medium	Roots; bark; wood chips	28	Brown/ red	Clear-cut	High bark content	30	1	21	810	92	14
3248118	614100	5605253	6	Moderate	5	Fine	Roots	15	Brown	Edge of clear-	Swamp	860	2	2.5	180	81	94
3248119	614095	5605301	7	Low	4	Fine - medium	Roots; organics	20	Brown/ grey	Edge of clear-cut	Swamp	1070	4	2.5	80	138	86
3248120	614089	5605301	7	Low	4	Fine - medium	Roots; organics	20	Brown/ grey	Edge of clear-cut	Swamp; duplicate	1060	3	2.5	70	132	83
3248121	614095	5605366	14	Low	1	Fine - medium	Roots	20	Light brown			570	4	6	680	462	150
3248122	614098	5605402	16	Low	1	Fine - medium	Roots	20	Light brown		Near stream	670	3	8	330	251	113
3248123	614101	5605448	12	Hummocky	3	Fine	Silty/muddy	10	Brown			590	5	11	160	151	73
3248124	614101	5605503	15	Hummocky	5	Fine - medium		5	Dark brown			440	1	10	270	79	169
3248125	614101	5605547	18	Low	4	Fine - medium	Roots; high organic content	22	Dark brown/			220	2	19	230	37	157
3248126	614096	5605592	19	Steep	1	Fine - medium	Roots; bark; wood chips	15	Brown/ red	10 m from road	Poor quality	60	2	18	1040	268	97
3248127	619002	5605650	92	Low	2	Medium	Roots; bark; ash	17	Brown/	Clear-cut	Poor quality	570	1	14	510	66	77
3248128	619001	5605600	97	Low	3	Medium - coarse	Roots; bark; logs; ash	10	Black/ brown	Clear-cut		80	1	2.5	490	219	112
3248129	618999	5605551	95	Gentle	2	Medium - coarse	Roots; bark; logs; ash	15	Brown	Clear-cut		60	1	14	1040	97	34
3248130	619006	5605504	89	Steep - gentle	2	Fine	Roots; high vegetation	15	Brown/ orange			1070	1	7	250	168	139
3248131	619003	5605449	88	Hummocky	5	Fine	Roots	10	Dark			20	1	2.5	100	130	55
3248132	619002	5605400	87	Low	3	Fine	Roots; high organic content	22	Dark brown	Clear-cut		5	1	13	50	28	12

Sample ID	Easting	Northing	Elevation (m)	Slope	Mositure	Grain Size	Organic Description	Organic Thickness (cm)	Colour	Contamination	Comments	Cu (ppb)	Mo (ppb)	Pb (ppb)	Zn (ppb)	Ni (ppb)	Co (ppb)
3248133	619001	5605352	86	Low	2	Fine	Roots; high organic content	15	Dark brown	Clear-cut		20	1	35	190	35	3
3248134	619001	5605298	84	Low	5	Fine	Swampy; high organic content; overlying bark layer	23	Brown			40	1	19	150	43	28
3248135	619000	5605245	86	Low	3	Fine	Clay; swampy	15	Grey/y			4760	1	2.5	30	29	16
3248136	619002	5605204	91	Hummocky	3	Medium - coarse	Roots	14	Dark brown			2160	1	2.5	190	263	105
3248137	618901	5605650	101	Hummocky	3	Fine - medium	Bark	15	Brown/ orange	Clear-cut; adjacent to	Excavator use	1780	1	5	150	147	238
3248138	618899	5605603	102	Hummocky	3	Fine - medium	Bark	15	Brown	Clear-cut; adjacent to	Excavator use	540	1	2.5	220	41	63
3248139	618899	5605551	103	Hummocky	2	Fine - medium	Bark	18	Brown/ orange	Clear-cut	Excavator use	840	1	2.5	200	130	38
3248140	618899	5605550	102	Hummocky	2	Fine - medium	Bark	18	Brown/ orange	Clear-cut	Duplicate	920	1	2.5	250	162	49
3248141	618899	5605502	97	Gentle	2	Medium - coarse	Roots; bark	25	Brown			70	1	8	270	93	95
3248142	618905	5605450	92	Low	2	Medium - coarse	Minor roots	14	Brown/ orange			1070	1	2.5	90	134	95
3248143	618899	5605403	92	Low	3	Fine - medium		12	Dark brown	Deactivated road		150	1	2.5	60	82	214
3248144	618902	5605352	90	Gentle	3	Fine	High organic content	21	Dark brown			50	4	21	150	58	69
3248145	618898	5605298	90	Low	3	Fine	High organic content	20	Dark brown		Dense vegetation	30	1	2.5	5	63	21
3248146	618900	5605251	91	Low	2	Fine - medium		19	Brown/ red		Dense vegetation	1160	1	2.5	110	104	88
3248147	618899	5605200	95	Hummocky	2	Medium - coarse	Roots	16	Dark brown		Top of small hill	920	3	37	1170	248	107
3248148	611728	5606211	30	Gentle	1	Fine - coarse	Top of quarry	10	Brown/ orange			1060	4	37	170	87	27
3248149	611739	5606211	22	Gentle	1	Fine	Top of quarry	10	Grey			2520	3	8	340	33	23
3248150	611768	5606217	21	Low	1	Medium	Top of quarry	15	Grey			2440	1	65	510	92	42
3248151	616598	5606302	78	Low	1	Fine - medium	Roots	10	Light brown			1410	1	2.5	360	126	412
3248152	616599	5606249	78	Gentle	4	Fine	Roots	10	Dark			1160	4	11	170	123	381
3248153	616597	5606201	75	Gentle	3	Fine	Roots	17	Dark	Logging	>10 years	40	1	18	370	108	9
3248154	616603	5606151	71	Gentle	3	Medium	Roots	15	Dark			3490	44	6	160	249	82
3248155	616599	5606101	70	Gentle	1	Medium	Roots	22	Brown			430	4	2.5	270	77	380
3248156	616604	5606035	51	Steep	3	Fine	Roots	25	Dark brown/	Below power lines; clear-		30	1	14	180	99	52
3248157	616598	5606002	47	Gentle	2	Medium	Roots	12	Dark brown	Power lines	Prevalent fallen trees	570	1	11	550	73	114
3248158	616599	5605946	48	Low	2	Medium - coarse	Roots	25	Dark brown		Prevalent fallen trees	1130	32	18	1090	304	441

Sample ID	Easting	Northing	Elevation (m)	Slope	Mositure	Grain Size	Organic Description	Organic Thickness (cm)	Colour	Contamination	Comments	Cu (ppb)	Mo (ppb)	Pb (ppb)	Zn (ppb)	Ni (ppb)	Co (ppb)
3248159	616602	5605903	48	Low	2	Medium	Roots	20	Dark			390	1	9	250	116	33
3248160	616601	5605899	48	Low	2	Medium	Roots	20	Dark		Duplicate	450	1	6	270	106	33
3248161	613901	5606452	88	Gentle	2	Medium	Roots	12	Brown/			1650	1	14	150	162	74
3248162	613898	5606399	94	Low	2	Medium	Roots; poorly sorted	15	Brown/ red			300	1	2.5	190	59	16
3248163	613898	5606350	92	Low	2	Medium - coarse	Roots; poorly sorted	13	Brown/ grey			1810	1	2.5	100	132	47
3248164	613900	5606300	93	Low	1	Fine - medium	Roots	10	Brown/ orange			70	1	2.5	50	67	38
3248165	613900	5606252	92	Low	3	Fine	Clay; minor roots	8	Grey/y			1790	1	2.5	80	176	6
3248166	613899	5606201	90	Hummocky	2	Medium	Clay; roots	13	Brown/			60	1	2.5	60	59	37
3248167	613899	5606152	85	Low	3	Coarse	Roots	12	Dark			1790	3	6	240	325	240
3248168	613901	5606103	77	Gentle	4	Fine	High organic content; clay	17	Black			50	1	2.5	5	29	38
3248169	613902	5606051	72	Gentle	2	Medium	Topsoil removed	12	Black/ orange	Clear-cut	Repeating units	1640	1	2.5	270	137	238
3248170	613901	5606000	62	Gentle - steep	5	Coarse	Clay; roots; poorly sorted	10	Black/ grey	Clear-cut	Hummocky pocket	2460	1	6	60	138	211
3248171	613904	5605951	63	Low	2	Fine - medium	Roots	6	Orang e	Clear-cut		2470	1	5	50	53	41
3248172	613903	5605897	58	Gentle	1	Fine - medium	Roots; bark	19	Brown/ orange	Clear-cut		60	1	2.5	100	114	85
3248173	613900	5605850	53	Gentle	1	Medium	Roots; bark	5	Brown/	Clear-cut		1450	1	2.5	20	47	27
3248174	613901	5605798	49	Low	2	Medium - coarse	Roots; bark	25	Brown/ orange	Clear-cut		190	2	11	260	124	42
3248175	613899	5605751	46	Low	2	Medium - coarse	Roots; bark	50	Brown/ orange	Clear-cut	High organic	240	2	11	430	198	323
3248176	613901	5605700	40	Gentle	3	Fine - medium	Bark	14	Dark brown	Clear-cut		1320	3	2.5	120	206	380
3248177	613902	5605650	31	Gentle	1	Medium - coarse	No organic		Orang e	Clear-cut	Topsoil removed	810	1	8	90	78	87
3248178	613898	5605598	24	Low	1	Medium - coarse	Bark	40	Brown/ orange	Clear-cut	Poor quality	190	5	49	170	70	38
3248179	613897	5605561	21	Low	1	Fine	Roots; poorly sorted	19	Brown/ orange	10 m from road	Location moved 10 m north due to road	1190	3	115	810	173	137
3248180	613899	5605562	21	Low	1	Fine	Roots; poorly sorted	19	Brown/ orange	10 m from road	Duplicate	870	1	55	650	110	163
3248181	614100	5605648	27	Gentle	2	Medium - coarse	Roots	18	Black/ grey			2160	1	20	610	167	43
3248182	614099	5605698	35	Gentle	1	Fine - medium	Topsoil removed		Orang e	Anthroprogenic soil; clear-		910	1	16	430	110	73
3248183	614099	5605751	42	Gentle	1	Fine - medium	Roots; bark	22	Orang e	Clear-cut		1590	1	10	350	80	65
3248185	611787	5606220	21	Low	1	Medium	Top of quarry	8	Brown/ red		Weekly bedded	1620	4	15	170	270	13
3248186	611792	5606197	22	Gentle	1	Medium	Top of quarry	15	Brown/			870	1	23	280	173	57
3248187	611768	5606192	20	Low	1	Medium	Top of quarry	13	Brown/			1340	1	29	320	188	73
3248188	611787	5606181	14	Gentle	1	Medium	Top of quarry	20	Brown/ red		Close to powerline	770	1	41	130	156	56

APPENDIX C: Statement of Costs 2018

DATE: October 31, 2019

LONGFORD EXPLORATION

SEND TO:

Howson Resources
890-1140 West Pender St.
Vancouver, BC
V6E 4G1

Longford Exploration Services
Suite 460 688 West Hastings Street
Vancouver, BC
Canada V6B 1P1
778-809-7009

Rupert 2018 Cost Summary

Personnel			Days	Rate	Line Total
	Project Manager	James Rogers- management throughout	2	$ 1,000.00	$ 2,000.00
	Pgeo	Sean Butler-Aug 21st, 2018	1	$ 1,200.00	$ 1,200.00
	Geologist	Trent Potts-Aug 16th to 23rd, 2019	8	$ 700.00	$ 5,600.00
	Geologist	Matt Krukowski-Aug 16th to 23rd, 2019	8	$ 700.00	$ 5,600.00
	Geologist	Sarah Ryan-Aug 16th to 23rd, 2019	8	$ 700.00	$ 5,600.00
	Geologist	Paul Leach-Aug 16th to 23rd, 2019	8	$ 700.00	$ 5,600.00
				Cat. Total	**$ 25,600.00**
				GST	**$ 1,280.00**
Food and Lodging			Units	Rate	Line Total
	Food and Groceries	per person day	33	$ 100.00	$ 3,300.00
	Lodging	Port Hardy bed and breakfast per person night	32	$ 200.00	$ 6,400.00
				Cat. Total	**$ 9,700.00**
				GST	**$ 485.00**
Transportation			Units/Days	Unit Price	Line Total
	Truck	1 ton with safety and recovery gear	8	$ 150.00	$ 1,200.00
	Trailer	18' 7000lb covered trailer	8	$ 100.00	$ 800.00
	Fuel	per km for truck	1560	$ 0.65	$ 1,014.00
				Cat. Total	**$ 3,014.00**
				GST	**$ 150.70**
Equipment Rentals			Units	Unit Price	Line Total
	Misc. hand tools	measuring tapes, hammers, shovels etc.	32	$ 40.00	$ 1,280.00
	Electronics Kit	Radios, Sat phones, GPS, per man day	32	$ 40.00	$ 1,280.00
	Chain saw	Safety kit with chaps and helmet included. Per kit per day	8	$ 40.00	$ 320.00
				Cat. Total	**$ 2,880.00**
				GST	**$ 144.00**
Consumable			Units	Unit Price	Line Total
	Field / Office Consumables	per field man day (bags, tags, flagging etc)	32	$ 30.00	$ 960.00
				Cat. Total	**$ 960.00**
				GST	**$ 48.00**
Mobilisation			Units	Unit Price	Line Total
	unit cost	flat rate including flights for sean butler, sarah ryan, positioning costs, gear preparation,	1	$ 7,500.00	$ 7,500.00
				Cat. Total	**$ 7,500.00**
				GST	**$ 375.00**
Analytical			Units	Unit Price	Line Total
	Analysis - Rock	Gold ICP-MS, Bureau Veritas PRP250, MA200	9	$ 26.70	$ 240.30
	Analysis - MMI	MMI, ACT Labs	185	$ 49.96	$ 9,242.60
	Sample Shipping	including packaging, completiong check, drop off to Act labs and and Bureau veritas in truck. Dropped off on August 27th	1	$ 1,000.00	$ 1,000.00
				Cat. Total	**$ 10,482.90**
				GST	**$ 524.15**
Pre Field			Units	Unit Price	Line Total
		Data compilation and GIS	70	$ 150.00	$ 10,500.00
				Cat. Total	**$ 10,500.00**
				GST	**$ 525.00**
Post Field			Units	Unit Price	Line Total
		GIS and summary report	70	$ 150.00	$ 10,500.00
				Cat. Total	**$ 10,500.00**
				GST	**$ 525.00**
				Sub Total	**$ 81,136.90**
				Management 15%	**$ 12,170.54**
				Sub Total	**$ 93,307.44**
				GST	**$ 4,665.37**
				Total	**$ 97,972.81**

APPENDIX D: 2018 MMI Soil Sample Analytical Certificates

Certificate of Analysis
Work Order : VC183081
[Report File No.: 0000031665]

Date: September 24, 2018

To: **James Rogers**
COD SGS MINERALS - GEOCHEM VANCOUVER
LONGFORD EXPLORATION SERVICES LTD
460-688 Hastings St West
Vancouver
BC V6B 1P1

P.O. No.: Proj. Rupert/Longford
Project No.: -
Samples: 86
Received: Aug 27, 2018
Pages: Page 1 to 22
(Inclusive of Cover Sheet)

Methods Summary

No. Of Samples	Method Code	Description
86	G_LOG02	Pre-preparation processing, sorting, logging, boxing
86	GE_MMI_M	Mobile Metal ION standard package/ICP-MS

Certified By : _____
John Chiang
QC Chemist

SGS Minerals Services Geochemistry Vancouver conforms to the requirements of ISO/IEC 17025 for specific tests as listed on their scope of accreditation which can be found at http://www.scc.ca/en/search/palcan/sgs

Report Footer:

L.N.R. = Listed not received
n.a. = Not applicable
I.S. = Insufficient Sample
-- = No result

*INF = Composition of this sample makes detection impossible by this method
M after a result denotes ppb to ppm conversion, % denotes ppm to % conversion
Methods marked with an asterisk (e.g. *NAA08V) were subcontracted
Elements marked with the @ symbol (e.g. @Cu) denote assays performed using accredited test methods

SGS Canada Inc. | Minerals Suite E - 3260 Production Way Burnaby BC t(604) 638-2349 f(604) 444-5486 www.ca.sgs.com
Member of the SGS Group (Société Générale de Surveillance)

Element	Ag	Al	As	Au	Ba	Bi	Ca	Cd
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	1	10	0.1	10	0.5	2	1
Units	ppb	ppm	ppb	ppb	ppb	ppb	ppm	ppb
3248002	3.8	208	20	<0.1	270	<0.5	5	7
3248003	13.6	185	20	0.2	290	<0.5	2	13
3248004	4.1	122	<10	0.1	740	<0.5	<2	15
3248006	2.1	139	<10	<0.1	60	<0.5	12	9
3248007	<0.5	106	<10	<0.1	570	<0.5	62	2
3248008	1.7	165	<10	0.1	90	<0.5	5	8
3248009	2.3	194	<10	<0.1	230	<0.5	21	7
3248010	1.1	195	<10	<0.1	170	<0.5	11	3
3248011	<0.5	113	<10	<0.1	60	<0.5	15	13
3248012	<0.5	146	<10	<0.1	130	<0.5	15	<1
3248013	2.0	134	<10	0.1	20	<0.5	<2	4
3248014	1.5	153	<10	<0.1	80	<0.5	26	8
3248015	1.5	224	<10	<0.1	160	<0.5	13	3
3248016	1.4	199	<10	<0.1	160	<0.5	7	2
3248017	2.3	196	20	<0.1	230	<0.5	44	7
3248018	8.1	141	<10	0.1	540	<0.5	42	10
3248019	0.7	100	<10	<0.1	80	<0.5	44	5
3248020	0.6	106	<10	<0.1	100	<0.5	65	6
3248021	0.5	139	<10	<0.1	90	<0.5	26	10
3248022	3.4	176	<10	<0.1	70	<0.5	32	4
3248023	<0.5	166	<10	<0.1	170	<0.5	216	13
3248024	<0.5	88	<10	<0.1	100	<0.5	173	18
3248025	4.4	205	<10	<0.1	160	<0.5	37	8
3248026	2.2	310	10	<0.1	390	<0.5	32	4
3248027	1.3	174	10	<0.1	290	<0.5	19	7
3248028	2.6	205	<10	<0.1	180	<0.5	44	11
3248029	<0.5	229	<10	<0.1	1220	<0.5	93	2
3248030	<0.5	143	<10	<0.1	220	<0.5	41	2
3248031	<0.5	251	<10	<0.1	210	<0.5	62	1
3248032	4.8	106	<10	0.3	680	<0.5	6	1
3248033	<0.5	154	<10	<0.1	300	<0.5	101	2
3248034	<0.5	71	<10	<0.1	290	<0.5	56	2
3248035	<0.5	108	<10	<0.1	110	<0.5	21	<1
3248036	1.3	153	10	<0.1	80	<0.5	15	8
3248037	1.0	137	10	<0.1	80	<0.5	49	12
3248038	0.5	184	<10	<0.1	70	<0.5	16	5
3248039	1.6	194	<10	<0.1	130	<0.5	40	8
3248040	2.8	192	<10	<0.1	130	<0.5	34	6
3248041	<0.5	117	<10	<0.1	170	<0.5	73	<1
3248042	<0.5	159	<10	<0.1	240	<0.5	27	<1

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Element	Ag	Al	As	Au	Ba	Bi	Ca	Cd
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	1	10	0.1	10	0.5	2	1
Units	ppb	ppm	ppb	ppb	ppb	ppb	ppm	ppb
3248043	<0.5	116	<10	<0.1	240	<0.5	89	3
3248044	5.2	254	10	<0.1	240	<0.5	51	8
3248045	6.8	161	10	<0.1	200	<0.5	81	22
3248046	3.6	127	<10	<0.1	140	<0.5	131	20
3248047	4.6	153	<10	<0.1	170	<0.5	20	4
3248048	1.5	165	<10	<0.1	110	<0.5	40	16
3248049	5.6	174	10	<0.1	120	<0.5	37	17
3248050	0.7	219	<10	<0.1	160	<0.5	23	2
3248051	<0.5	187	<10	<0.1	1060	<0.5	23	2
3248052	1.3	251	20	<0.1	920	<0.5	13	<1
3248053	1.8	155	50	0.3	850	<0.5	89	4
3248054	<0.5	182	<10	<0.1	210	<0.5	11	9
3248055	3.0	277	<10	<0.1	980	<0.5	13	13
3248056	3.0	132	<10	<0.1	50	<0.5	22	8
3248057	0.6	165	<10	<0.1	80	<0.5	50	1
3248058	4.5	111	<10	<0.1	90	<0.5	16	11
3248059	6.2	114	<10	0.2	50	<0.5	16	12
3248060	5.1	100	<10	0.2	40	<0.5	13	10
3248061	1.1	149	<10	<0.1	80	<0.5	126	27
3248062	3.8	198	20	0.1	1530	<0.5	163	6
3248063	4.2	156	40	0.5	470	<0.5	235	9
3248064	1.5	243	<10	<0.1	100	<0.5	14	1
3248065	1.2	173	<10	<0.1	370	<0.5	15	25
3248066	4.3	104	<10	0.1	60	<0.5	3	9
3248067	2.8	128	<10	0.1	80	<0.5	2	3
3248068	3.2	162	<10	0.1	30	<0.5	12	11
3248069	4.2	127	<10	0.2	30	<0.5	28	19
3248070	<0.5	101	<10	<0.1	90	<0.5	144	7
3248071	<0.5	130	<10	<0.1	520	<0.5	21	1
3248072	<0.5	134	<10	<0.1	100	<0.5	37	<1
3248073	<0.5	157	<10	<0.1	1100	<0.5	26	1
3248074	0.9	163	<10	<0.1	130	<0.5	25	3
3248075	4.9	111	<10	0.3	430	<0.5	10	2
3248076	1.5	105	20	<0.1	180	<0.5	81	10
3248077	<0.5	187	<10	<0.1	390	<0.5	49	<1
3248078	1.0	163	10	<0.1	160	<0.5	28	4
3248079	<0.5	181	<10	<0.1	400	<0.5	27	<1
3248080	2.2	134	<10	<0.1	60	<0.5	41	5
3248081	2.7	131	<10	<0.1	30	<0.5	37	3
3248082	3.2	233	<10	<0.1	150	<0.5	18	5

Element	Ag	Al	As	Au	Ba	Bi	Ca	Cd
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	1	10	0.1	10	0.5	2	1
Units	ppb	ppm	ppb	ppb	ppb	ppb	ppm	ppb
3248083	0.9	243	<10	<0.1	220	<0.5	23	4
3248084	<0.5	98	<10	<0.1	80	<0.5	26	1
3248085	2.5	142	<10	<0.1	190	<0.5	28	8
3248086	2.1	95	<10	0.2	110	<0.5	131	3
3248087	2.2	136	<10	<0.1	220	<0.5	50	20
3248088	<0.5	78	<10	<0.1	60	<0.5	192	3
*Rep 3248016	1.1	197	<10	<0.1	160	<0.5	7	2
*Rep 3248023	0.5	175	<10	<0.1	180	<0.5	214	11
*Rep 3248044	6.4	239	<10	<0.1	280	<0.5	45	11
*Rep 3248054	0.7	178	<10	<0.1	270	<0.5	12	8
*Rep 3248081	2.8	134	<10	0.1	30	<0.5	36	4
*Std MMISRM24	16.2	33	10	3.1	90	<0.5	64	5
*Std MMISRM19	24.0	19	<10	4.5	1540	<0.5	770	33
*Blk BLANK	<0.5	<1	<10	<0.1	<10	<0.5	2	<1
*Blk BLANK	<0.5	<1	<10	<0.1	<10	<0.5	<2	<1

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Element	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	2	1	100	0.2	10	0.5	0.2	0.2
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
3248002	44	130	<100	2.2	500	8.5	6.5	1.3
3248003	59	66	<100	3.5	700	36.3	22.8	5.1
3248004	16	15	<100	2.9	410	13.0	7.6	1.8
3248006	13	145	<100	2.3	990	30.1	22.8	3.1
3248007	3	33	<100	1.2	20	<0.5	0.2	<0.2
3248008	41	110	<100	2.8	1080	31.9	22.5	4.3
3248009	29	186	<100	1.3	1740	28.2	18.2	3.0
3248010	17	231	<100	1.6	1240	16.5	17.2	1.5
3248011	7	429	<100	2.8	1140	31.8	28.9	2.2
3248012	8	20	<100	0.8	40	2.2	1.7	0.4
3248013	10	30	<100	1.5	1150	18.7	16.4	1.5
3248014	7	101	<100	0.3	870	10.5	14.1	0.6
3248015	24	112	200	0.8	600	7.5	7.7	1.6
3248016	20	51	100	1.5	360	6.1	6.9	1.2
3248017	28	271	100	1.7	920	19.7	15.2	2.2
3248018	41	150	<100	1.4	5200	61.6	40.9	6.4
3248019	14	391	<100	1.4	1880	64.7	54.3	4.7
3248020	11	523	<100	1.4	1350	52.8	46.9	3.9
3248021	18	125	<100	1.7	1360	27.4	24.2	2.5
3248022	15	102	<100	0.4	710	23.0	16.3	2.0
3248023	28	82	100	1.4	440	16.8	11.5	2.7
3248024	11	312	<100	1.9	610	15.6	17.3	1.0
3248025	41	141	<100	1.7	2540	32.6	18.0	4.4
3248026	64	102	300	4.1	990	26.7	15.4	5.2
3248027	53	132	<100	2.7	1260	40.0	25.4	4.9
3248028	46	92	100	3.8	1690	33.2	18.8	4.4
3248029	9	50	300	1.8	80	1.2	0.7	0.3
3248030	8	21	<100	0.8	20	0.7	0.4	<0.2
3248031	20	27	200	0.8	120	5.0	2.8	1.2
3248032	29	51	<100	5.3	1670	49.3	32.9	6.5
3248033	3	106	<100	0.2	30	<0.5	0.3	<0.2
3248034	<2	34	<100	1.6	40	<0.5	0.3	<0.2
3248035	7	90	<100	<0.2	30	2.1	1.8	0.4
3248036	19	250	<100	0.3	690	10.4	9.7	1.0
3248037	13	118	<100	0.4	890	18.2	16.0	1.4
3248038	26	117	<100	1.9	670	14.2	11.9	2.0
3248039	26	280	<100	2.3	2150	25.6	19.4	2.3
3248040	28	251	<100	2.1	2510	27.4	19.0	2.9
3248041	5	57	<100	0.8	30	0.6	0.5	<0.2
3248042	3	165	<100	0.6	50	0.7	0.6	<0.2

Final : VC183081 Order: Proj. Rupert/Longford

Report File No.: 0000031665

Element	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	2	1	100	0.2	10	0.5	0.2	0.2
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
3248043	4	23	<100	1.3	30	<0.5	<0.2	<0.2
3248044	99	70	200	1.6	1550	42.9	23.7	6.9
3248045	53	137	<100	0.9	2130	41.7	26.7	5.4
3248046	24	91	<100	1.3	2790	30.8	19.6	3.7
3248047	20	67	<100	0.9	1590	10.0	14.7	1.0
3248048	7	172	<100	0.6	1110	10.9	17.1	0.6
3248049	17	140	<100	0.8	1590	21.9	17.6	1.7
3248050	25	59	<100	1.9	330	7.2	6.8	1.4
3248051	4	105	<100	1.5	60	0.9	0.7	0.2
3248052	16	48	200	3.9	400	4.0	5.2	0.8
3248053	93	88	100	2.3	3640	29.2	17.3	7.2
3248054	15	109	<100	0.7	600	7.6	17.2	0.9
3248055	117	115	100	2.6	2290	53.4	31.0	9.5
3248056	34	114	<100	1.4	4520	37.3	23.9	4.6
3248057	11	25	<100	0.9	190	2.2	2.3	0.4
3248058	34	49	<100	0.8	1050	23.8	13.9	4.7
3248059	36	91	<100	4.4	1610	50.3	34.9	11.4
3248060	34	132	<100	4.3	1690	46.8	34.7	8.7
3248061	13	106	<100	0.3	920	20.5	18.6	1.6
3248062	40	70	200	3.1	2050	15.1	8.7	3.5
3248063	55	88	200	3.4	7360	20.6	12.3	5.4
3248064	33	57	100	2.6	1010	20.6	17.3	2.8
3248065	31	149	<100	2.2	670	26.7	18.9	3.6
3248066	19	91	<100	4.2	1240	48.6	37.1	6.6
3248067	61	12	<100	3.6	1170	45.0	29.7	8.8
3248068	33	18	<100	4.3	490	25.3	17.9	3.7
3248069	56	30	<100	3.3	1780	62.7	44.8	10.6
3248070	11	103	<100	0.3	270	10.6	8.5	1.2
3248071	6	32	100	0.3	50	0.7	0.5	0.2
3248072	6	46	<100	0.5	90	1.0	0.6	0.2
3248073	11	80	<100	4.8	200	4.4	9.4	0.6
3248074	11	288	<100	0.3	430	13.0	11.5	1.1
3248075	70	26	<100	1.1	1790	51.8	35.0	7.3
3248076	9	746	<100	0.6	440	24.5	22.0	2.0
3248077	18	68	100	0.6	70	1.7	0.9	0.4
3248078	25	141	<100	2.1	980	19.4	18.8	1.8
3248079	11	52	100	0.3	150	2.1	1.7	0.4
3248080	25	145	<100	0.8	1600	41.1	28.6	4.5
3248081	35	73	<100	1.3	2160	35.4	25.2	4.7
3248082	40	283	100	2.9	1660	29.1	21.9	3.1

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Element	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	2	1	100	0.2	10	0.5	0.2	0.2
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
3248083	24	137	200	3.6	660	24.9	15.4	2.8
3248084	14	36	<100	<0.2	50	4.9	3.5	1.2
3248085	32	240	100	3.9	1260	14.5	10.6	2.0
3248086	18	16	<100	2.9	1600	12.8	7.9	2.0
3248087	22	217	<100	0.8	970	26.7	22.6	2.4
3248088	4	68	<100	0.3	130	5.0	4.8	0.6
*Rep 3248016	20	50	100	1.5	340	6.2	6.7	1.0
*Rep 3248023	31	64	100	1.5	420	16.5	10.7	3.0
*Rep 3248044	95	72	200	1.8	1670	42.7	23.2	6.3
*Rep 3248054	19	110	<100	0.7	600	8.1	16.1	1.0
*Rep 3248081	34	82	<100	1.2	2140	36.2	25.0	4.9
*Std MMISRM24	33	15	<100	8.0	250	3.3	1.3	1.0
*Std MMISRM19	16	271	<100	3.8	1960	9.9	5.4	2.2
*Blk BLANK	<2	<1	<100	<0.2	<10	<0.5	<0.2	<0.2
*Blk BLANK	<2	<1	<100	<0.2	<10	<0.5	<0.2	<0.2

Final : VC183081 Order: Proj. Rupert/Longford

Report File No.: 0000031665

Element	Fe	Ga	Gd	Hg	In	K	La	Li
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	0.5	0.5	1	0.1	0.5	1	1
Units	ppm	ppb	ppb	ppb	ppb	ppm	ppb	ppb
3248002	129	10.8	5.5	<1	<0.1	4.7	13	3
3248003	63	10.2	21.7	<1	<0.1	2.8	29	<1
3248004	17	3.5	5.9	<1	<0.1	4.7	5	<1
3248006	33	6.3	13.6	<1	<0.1	2.2	7	<1
3248007	215	23.2	<0.5	<1	0.1	5.1	<1	1
3248008	54	11.5	15.9	<1	0.1	2.9	14	<1
3248009	36	16.3	12.6	<1	0.3	1.0	10	2
3248010	45	7.6	5.9	<1	0.2	4.0	8	<1
3248011	29	3.3	10.7	<1	<0.1	11.2	3	<1
3248012	123	9.2	1.3	<1	0.1	3.6	3	<1
3248013	22	4.3	6.9	<1	<0.1	2.2	5	<1
3248014	54	21.6	2.5	<1	0.3	0.7	3	<1
3248015	82	19.8	4.8	<1	0.4	1.2	10	<1
3248016	92	33.7	3.7	<1	0.2	1.6	10	1
3248017	305	45.0	9.1	<1	0.3	3.6	11	2
3248018	65	2.4	29.5	<1	0.1	<0.5	13	<1
3248019	30	2.4	22.9	<1	<0.1	3.2	5	<1
3248020	37	2.7	20.9	<1	0.1	4.0	4	<1
3248021	74	2.2	9.9	<1	<0.1	5.7	4	<1
3248022	42	23.8	8.8	<1	0.3	1.0	7	<1
3248023	51	31.6	11.9	<1	0.1	7.1	14	<1
3248024	52	5.0	5.6	<1	<0.1	9.7	4	<1
3248025	43	9.8	19.7	<1	0.2	1.3	13	<1
3248026	210	59.2	19.5	<1	0.4	2.6	28	3
3248027	182	15.2	20.1	<1	0.2	4.3	16	1
3248028	140	14.4	17.2	<1	0.1	4.6	16	<1
3248029	470	60.4	1.0	1	0.4	32.2	2	2
3248030	144	13.9	<0.5	<1	0.2	6.7	<1	2
3248031	160	40.0	4.0	<1	0.3	3.5	9	1
3248032	8	3.5	28.0	<1	<0.1	1.9	15	<1
3248033	178	16.2	<0.5	<1	0.2	12.4	<1	3
3248034	70	9.8	<0.5	<1	0.1	8.9	<1	<1
3248035	137	8.4	1.5	<1	0.1	1.4	3	<1
3248036	73	16.3	3.8	<1	0.1	0.6	8	<1
3248037	79	14.6	6.0	<1	0.2	0.9	5	<1
3248038	79	8.2	7.2	<1	0.1	7.5	9	<1
3248039	76	9.0	10.3	<1	0.2	4.1	9	<1
3248040	63	8.3	12.6	<1	0.2	3.4	10	<1
3248041	294	20.1	0.6	<1	0.2	10.2	2	3
3248042	85	10.4	0.6	<1	0.2	6.3	2	<1

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Element	Fe	Ga	Gd	Hg	In	K	La	Li
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	0.5	0.5	1	0.1	0.5	1	1
Units	ppm	ppb	ppb	ppb	ppb	ppm	ppb	ppb
3248043	288	30.5	<0.5	<1	0.2	6.7	<1	3
3248044	45	28.4	27.2	<1	0.3	1.0	31	2
3248045	29	6.3	24.5	<1	0.1	2.0	16	<1
3248046	26	6.7	16.1	<1	0.1	0.7	8	2
3248047	88	14.8	3.8	<1	0.2	0.6	9	1
3248048	60	16.4	2.2	<1	0.3	1.2	3	<1
3248049	71	25.9	7.2	<1	0.3	1.0	7	2
3248050	175	12.1	5.0	<1	0.2	4.3	11	<1
3248051	86	11.0	0.6	<1	0.2	5.9	1	4
3248052	145	64.9	2.2	<1	0.4	5.5	7	10
3248053	144	6.1	29.3	<1	<0.1	3.9	33	<1
3248054	51	18.7	3.2	<1	0.2	1.2	7	<1
3248055	14	14.5	40.6	<1	0.3	0.9	41	1
3248056	28	2.3	20.6	<1	0.2	0.8	12	<1
3248057	140	11.9	1.4	<1	0.2	4.5	3	1
3248058	45	20.0	19.4	<1	<0.1	2.7	27	<1
3248059	5	5.1	46.1	<1	<0.1	2.4	53	<1
3248060	4	4.6	37.3	<1	<0.1	2.5	43	<1
3248061	57	11.4	8.2	<1	0.1	1.5	5	<1
3248062	46	8.4	13.1	<1	0.2	6.1	17	<1
3248063	68	10.8	20.6	<1	0.2	7.6	26	2
3248064	104	29.4	11.3	<1	0.3	2.4	15	<1
3248065	121	31.3	14.6	<1	0.2	4.5	15	<1
3248066	16	7.0	33.2	<1	<0.1	3.7	21	<1
3248067	6	6.0	34.1	<1	<0.1	0.5	30	<1
3248068	74	9.0	14.2	<1	0.1	2.4	17	<1
3248069	6	1.7	48.1	<1	<0.1	1.6	21	<1
3248070	258	4.6	5.2	<1	<0.1	3.9	5	<1
3248071	251	38.6	0.7	<1	0.2	3.4	2	<1
3248072	303	39.7	0.8	<1	0.2	5.7	2	2
3248073	46	5.8	2.1	<1	0.1	4.8	4	<1
3248074	77	16.1	4.8	<1	0.2	1.1	5	<1
3248075	21	2.5	31.7	<1	<0.1	0.6	21	<1
3248076	83	2.1	9.8	<1	<0.1	1.5	5	<1
3248077	168	25.8	1.4	<1	0.2	6.6	3	1
3248078	115	18.9	7.5	<1	0.2	2.2	12	1
3248079	245	54.7	1.3	<1	0.2	5.0	5	1
3248080	37	5.6	19.9	<1	<0.1	1.3	10	<1
3248081	30	3.0	21.0	<1	<0.1	1.4	13	<1
3248082	173	42.1	12.2	<1	0.3	3.4	14	2

Element	Fe	Ga	Gd	Hg	In	K	La	Li
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	0.5	0.5	1	0.1	0.5	1	1
Units	ppm	ppb	ppb	ppb	ppb	ppm	ppb	ppb
3248083	148	62.6	11.2	<1	0.4	3.1	12	2
3248084	89	10.8	4.3	<1	0.1	0.7	8	<1
3248085	346	19.5	6.9	<1	0.1	5.7	10	<1
3248086	33	0.7	8.4	<1	<0.1	3.0	7	<1
3248087	73	5.9	11.1	<1	<0.1	0.9	10	<1
3248088	117	2.2	3.1	<1	<0.1	4.5	2	<1
*Rep 3248016	98	36.2	3.8	<1	0.2	1.7	10	2
*Rep 3248023	56	32.4	11.9	<1	0.1	7.0	16	1
*Rep 3248044	42	33.8	25.2	<1	0.3	1.1	29	3
*Rep 3248054	68	21.4	3.7	<1	0.3	1.0	10	2
*Rep 3248081	26	2.6	20.6	<1	<0.1	1.1	13	<1
*Std MMISRM24	11	3.7	4.5	6	<0.1	10.0	13	<1
*Std MMISRM19	6	0.6	11.0	1	<0.1	85.2	3	1
*Blk BLANK	<1	<0.5	<0.5	<1	<0.1	<0.5	<1	<1
*Blk BLANK	<1	<0.5	<0.5	<1	<0.1	<0.5	<1	<1

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Element	Mg	Mn	Mo	Nb	Nd	Ni	P	Pb
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	100	2	0.5	1	5	0.1	5
Units	ppm	ppb	ppb	ppb	ppb	ppb	ppm	ppb
3248002	2.9	1400	<2	4.1	17	123	1.8	12
3248003	<0.5	1500	<2	2.8	59	111	1.5	13
3248004	<0.5	200	<2	0.8	13	39	0.1	19
3248006	4.8	500	<2	0.8	21	195	0.2	27
3248007	44.4	300	<2	3.2	<1	69	0.8	<5
3248008	2.0	1400	<2	3.2	32	305	0.6	9
3248009	3.4	2300	2	4.0	20	108	3.2	7
3248010	4.3	300	<2	1.8	14	115	1.2	8
3248011	5.8	4700	<2	<0.5	13	173	<0.1	22
3248012	12.6	<100	<2	1.3	4	25	0.2	<5
3248013	<0.5	<100	<2	<0.5	12	70	0.2	6
3248014	3.6	300	3	2.1	5	38	2.3	7
3248015	3.6	100	2	7.4	13	43	2.1	<5
3248016	1.5	100	3	10.1	11	71	4.9	8
3248017	12.4	1700	20	8.6	17	191	3.2	9
3248018	9.9	1000	8	<0.5	48	142	0.3	28
3248019	12.8	1700	<2	<0.5	27	175	0.1	16
3248020	18.5	1300	<2	<0.5	23	178	<0.1	14
3248021	5.9	1000	<2	<0.5	14	54	0.1	22
3248022	2.3	600	2	3.4	12	64	4.1	9
3248023	7.7	7000	3	11.6	21	76	1.7	16
3248024	9.1	17300	3	1.1	7	45	0.6	9
3248025	3.5	2100	3	2.7	33	165	3.2	9
3248026	4.1	3800	6	19.1	45	236	7.4	11
3248027	3.4	19200	4	3.7	38	170	1.6	8
3248028	5.3	9000	4	4.4	35	236	1.8	8
3248029	125	5100	3	15.9	2	114	3.2	12
3248030	61.8	700	<2	2.5	1	52	0.5	<5
3248031	19.7	500	<2	12.1	10	63	2.1	6
3248032	<0.5	500	<2	<0.5	54	84	0.1	6
3248033	57.6	1300	<2	1.7	<1	67	0.5	<5
3248034	42.7	900	<2	1.2	<1	103	1.5	5
3248035	3.7	800	<2	<0.5	4	38	1.2	14
3248036	1.3	2900	8	1.1	9	71	3.9	16
3248037	4.6	1500	8	1.9	9	102	2.1	6
3248038	3.3	600	<2	2.2	17	75	0.9	16
3248039	4.4	1800	2	2.2	18	186	2.0	<5
3248040	3.7	2200	2	2.3	20	209	1.6	<5
3248041	17.7	400	<2	5.9	2	27	1.5	<5
3248042	7.9	300	<2	1.4	2	83	0.4	<5

Final : VC183081 Order: Proj. Rupert/Longford

Report File No.: 0000031665

Element	Mg	Mn	Mo	Nb	Nd	Ni	P	Pb
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	100	2	0.5	1	5	0.1	5
Units	ppm	ppb	ppb	ppb	ppb	ppb	ppm	ppb
3248043	17.6	300	<2	8.5	<1	34	1.8	<5
3248044	3.3	400	5	8.2	60	113	4.0	9
3248045	5.2	3300	6	1.6	46	401	1.4	14
3248046	18.7	2000	<2	1.0	26	238	0.7	12
3248047	1.7	100	2	2.9	12	80	2.9	6
3248048	6.0	<100	4	1.5	4	95	1.7	<5
3248049	3.4	300	5	4.9	12	192	4.0	13
3248050	10.7	700	3	3.3	13	71	1.3	<5
3248051	39.5	100	<2	1.3	2	97	0.3	<5
3248052	4.7	<100	7	19.4	7	164	2.0	14
3248053	6.6	3400	6	1.2	69	185	0.8	11
3248054	2.6	<100	4	1.8	9	67	3.0	<5
3248055	1.9	800	9	3.5	96	314	3.6	9
3248056	2.1	700	4	<0.5	37	328	<0.1	10
3248057	13.3	<100	<2	3.0	4	65	1.0	<5
3248058	2.9	500	<2	6.2	53	172	0.3	7
3248059	0.7	600	<2	<0.5	122	124	0.1	<5
3248060	0.5	700	<2	<0.5	103	174	0.1	<5
3248061	6.3	1000	9	1.2	10	93	1.2	9
3248062	7.6	1200	53	1.6	32	222	1.3	8
3248063	7.4	700	38	2.2	52	208	2.4	18
3248064	1.0	100	2	10.1	27	125	1.6	<5
3248065	5.8	300	3	8.5	31	266	1.0	14
3248066	<0.5	700	<2	<0.5	68	98	0.1	7
3248067	<0.5	<100	<2	<0.5	85	49	<0.1	<5
3248068	0.5	200	<2	2.0	32	50	0.3	7
3248069	0.6	1100	5	<0.5	90	130	0.2	6
3248070	7.9	7100	4	1.0	9	167	0.9	6
3248071	33.1	<100	<2	10.4	3	74	1.2	6
3248072	28.4	<100	<2	10.3	2	52	1.0	<5
3248073	17.9	300	<2	1.3	6	62	0.5	<5
3248074	3.6	3600	2	2.1	8	87	4.1	13
3248075	0.7	400	<2	<0.5	64	82	<0.1	<5
3248076	15.7	600	<2	<0.5	14	464	0.3	7
3248077	33.8	100	<2	8.8	4	89	1.2	5
3248078	5.1	300	4	5.6	18	117	3.0	6
3248079	12.1	200	2	18.0	5	105	3.2	8
3248080	7.4	800	3	0.7	32	256	0.2	<5
3248081	3.3	500	2	<0.5	36	229	0.1	<5
3248082	2.5	1000	5	13.0	26	163	2.5	9

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Final : VC183081 Order: Proj. Rupert/Longford

Report File No.: 0000031665

Element	Mg	Mn	Mo	Nb	Nd	Ni	P	Pb
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	100	2	0.5	1	5	0.1	5
Units	ppm	ppb	ppb	ppb	ppb	ppb	ppm	ppb
3248083	3.8	1700	2	19.8	20	141	3.8	14
3248084	3.1	300	3	0.9	13	49	2.8	24
3248085	3.6	15200	6	5.8	17	167	2.1	8
3248086	12.0	3500	3	<0.5	17	177	<0.1	<5
3248087	7.3	3000	3	1.1	20	275	1.1	9
3248088	20.1	8100	3	<0.5	5	118	0.9	16
*Rep 3248016	1.6	<100	3	12.1	11	62	4.6	9
*Rep 3248023	6.6	7000	3	12.4	24	97	1.9	16
*Rep 3248044	3.4	500	7	11.0	57	109	4.6	11
*Rep 3248054	2.9	<100	6	2.6	13	66	3.4	<5
*Rep 3248081	3.7	400	2	<0.5	37	239	0.1	<5
*Std MMISRM24	7.3	200	19	<0.5	21	121	0.5	177
*Std MMISRM19	173	5500	7	<0.5	14	1880	0.3	806
*Blk BLANK	<0.5	<100	<2	<0.5	<1	<5	<0.1	<5
*Blk BLANK	<0.5	<100	<2	<0.5	<1	<5	<0.1	<5

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Element	Pd	Pr	Pt	Rb	Sb	Sc	Sm	Sn
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	0.5	0.1	1	0.5	5	1	1
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
3248002	<1	3.9	<0.1	26	<0.5	49	5	<1
3248003	<1	11.4	<0.1	36	<0.5	107	17	<1
3248004	<1	2.3	<0.1	28	<0.5	58	4	<1
3248006	<1	3.6	<0.1	21	<0.5	111	7	<1
3248007	<1	<0.5	<0.1	16	<0.5	12	<1	<1
3248008	<1	6.0	<0.1	17	<0.5	93	10	<1
3248009	<1	4.0	<0.1	3	<0.5	79	7	<1
3248010	<1	2.6	<0.1	8	<0.5	81	4	<1
3248011	<1	2.0	<0.1	25	<0.5	72	5	<1
3248012	<1	0.9	<0.1	10	<0.5	57	1	<1
3248013	<1	2.1	<0.1	9	<0.5	90	4	<1
3248014	<1	0.8	<0.1	<1	<0.5	59	1	<1
3248015	<1	2.8	<0.1	3	<0.5	91	4	<1
3248016	<1	2.5	<0.1	5	<0.5	74	3	2
3248017	<1	3.6	<0.1	10	<0.5	78	5	1
3248018	<1	7.9	<0.1	3	<0.5	120	17	<1
3248019	<1	3.8	<0.1	10	<0.5	113	11	<1
3248020	<1	3.2	<0.1	9	<0.5	96	10	<1
3248021	<1	2.4	<0.1	22	<0.5	121	6	<1
3248022	<1	2.3	<0.1	3	<0.5	91	4	<1
3248023	<1	4.1	<0.1	22	<0.5	58	7	2
3248024	<1	1.2	<0.1	20	<0.5	47	2	<1
3248025	<1	6.1	<0.1	4	<0.5	100	12	<1
3248026	<1	9.0	<0.1	11	<0.5	104	14	2
3248027	<1	7.2	<0.1	11	<0.5	115	13	<1
3248028	<1	6.5	<0.1	15	<0.5	87	11	<1
3248029	<1	<0.5	<0.1	75	<0.5	37	<1	2
3248030	<1	<0.5	<0.1	16	<0.5	38	<1	<1
3248031	<1	2.3	<0.1	16	<0.5	47	3	2
3248032	<1	8.8	<0.1	29	<0.5	157	17	<1
3248033	<1	<0.5	<0.1	20	<0.5	35	<1	<1
3248034	<1	<0.5	<0.1	28	<0.5	21	<1	<1
3248035	<1	0.9	<0.1	3	<0.5	54	1	<1
3248036	<1	2.0	<0.1	2	<0.5	47	3	<1
3248037	<1	1.9	<0.1	2	<0.5	47	3	<1
3248038	<1	3.4	<0.1	21	<0.5	77	5	<1
3248039	<1	3.5	<0.1	9	<0.5	87	6	<1
3248040	<1	4.0	<0.1	8	<0.5	90	7	<1
3248041	<1	<0.5	<0.1	18	<0.5	27	<1	<1
3248042	<1	<0.5	<0.1	16	<0.5	40	<1	<1

Element	Pd	Pr	Pt	Rb	Sb	Sc	Sm	Sn
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	0.5	0.1	1	0.5	5	1	1
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
3248002	<1	3.9	<0.1	26	<0.5	49	5	<1
3248003	<1	11.4	<0.1	36	<0.5	107	17	<1
3248004	<1	2.3	<0.1	28	<0.5	58	4	<1
3248006	<1	3.6	<0.1	21	<0.5	111	7	<1
3248007	<1	<0.5	<0.1	16	<0.5	12	<1	<1
3248008	<1	6.0	<0.1	17	<0.5	93	10	<1
3248009	<1	4.0	<0.1	3	<0.5	79	7	<1
3248010	<1	2.6	<0.1	8	<0.5	81	4	<1
3248011	<1	2.0	<0.1	25	<0.5	72	5	<1
3248012	<1	0.9	<0.1	10	<0.5	57	1	<1
3248013	<1	2.1	<0.1	9	<0.5	90	4	<1
3248014	<1	0.8	<0.1	<1	<0.5	59	1	<1
3248015	<1	2.8	<0.1	3	<0.5	91	4	<1
3248016	<1	2.5	<0.1	5	<0.5	74	3	2
3248017	<1	3.6	<0.1	10	<0.5	78	5	1
3248018	<1	7.9	<0.1	3	<0.5	120	17	<1
3248019	<1	3.8	<0.1	10	<0.5	113	11	<1
3248020	<1	3.2	<0.1	9	<0.5	96	10	<1
3248021	<1	2.4	<0.1	22	<0.5	121	6	<1
3248022	<1	2.3	<0.1	3	<0.5	91	4	<1
3248023	<1	4.1	<0.1	22	<0.5	58	7	2
3248024	<1	1.2	<0.1	20	<0.5	47	2	<1
3248025	<1	6.1	<0.1	4	<0.5	100	12	<1
3248026	<1	9.0	<0.1	11	<0.5	104	14	2
3248027	<1	7.2	<0.1	11	<0.5	115	13	<1
3248028	<1	6.5	<0.1	15	<0.5	87	11	<1
3248029	<1	<0.5	<0.1	75	<0.5	37	<1	2
3248030	<1	<0.5	<0.1	16	<0.5	38	<1	<1
3248031	<1	2.3	<0.1	16	<0.5	47	3	2
3248032	<1	8.8	<0.1	29	<0.5	157	17	<1
3248033	<1	<0.5	<0.1	20	<0.5	35	<1	<1
3248034	<1	<0.5	<0.1	28	<0.5	21	<1	<1
3248035	<1	0.9	<0.1	3	<0.5	54	1	<1
3248036	<1	2.0	<0.1	2	<0.5	47	3	<1
3248037	<1	1.9	<0.1	2	<0.5	47	3	<1
3248038	<1	3.4	<0.1	21	<0.5	77	5	<1
3248039	<1	3.5	<0.1	9	<0.5	87	6	<1
3248040	<1	4.0	<0.1	8	<0.5	90	7	<1
3248041	<1	<0.5	<0.1	18	<0.5	27	<1	<1
3248042	<1	<0.5	<0.1	16	<0.5	40	<1	<1

Final : VC183081 Order: Proj. Rupert/Longford

Report File No.: 0000031665

Element	Pd	Pr	Pt	Rb	Sb	Sc	Sm	Sn
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	0.5	0.1	1	0.5	5	1	1
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
3248083	<1	3.9	<0.1	14	<0.5	110	7	3
3248084	<1	2.6	<0.1	1	<0.5	86	3	<1
3248085	<1	3.3	<0.1	24	0.5	110	5	<1
3248086	<1	3.1	<0.1	15	<0.5	63	5	<1
3248087	<1	3.8	<0.1	3	<0.5	37	6	<1
3248088	<1	0.9	<0.1	6	<0.5	54	1	<1
*Rep 3248016	<1	2.4	<0.1	6	<0.5	69	3	2
*Rep 3248023	<1	4.7	<0.1	21	<0.5	59	8	2
*Rep 3248044	<1	11.3	<0.1	4	<0.5	133	18	2
*Rep 3248054	<1	2.7	<0.1	2	<0.5	82	3	<1
*Rep 3248081	<1	6.5	<0.1	8	<0.5	113	13	<1
*Std MMISRM24	5	4.7	2.6	111	<0.5	20	5	<1
*Std MMISRM19	<1	2.0	<0.1	183	1.1	35	6	<1
*Blk BLANK	<1	<0.5	<0.1	<1	<0.5	5	<1	<1
*Blk BLANK	<1	<0.5	<0.1	<1	<0.5	<5	<1	<1

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Element	Sr	Ta	Tb	Te	Th	Ti	Tl	U
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	10	1	0.1	10	0.5	10	0.1	0.5
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
3248002	40	<1	1.1	<10	2.6	2830	0.1	2.5
3248003	30	<1	4.6	<10	2.2	2460	0.1	2.9
3248004	30	<1	1.5	<10	<0.5	850	<0.1	1.8
3248006	70	<1	3.4	<10	0.8	820	<0.1	1.4
3248007	560	<1	<0.1	<10	0.6	1950	<0.1	0.7
3248008	20	<1	3.7	<10	1.5	3000	<0.1	2.2
3248009	90	<1	3.2	<10	1.6	3410	<0.1	2.0
3248010	70	<1	1.7	<10	1.2	1810	0.1	2.4
3248011	80	<1	3.1	<10	<0.5	70	<0.1	5.7
3248012	160	<1	0.3	<10	1.1	1120	<0.1	2.0
3248013	<10	<1	2.0	<10	0.6	400	<0.1	1.8
3248014	80	<1	0.7	<10	1.1	1730	<0.1	2.0
3248015	80	<1	1.0	<10	3.0	5720	<0.1	2.6
3248016	40	<1	0.7	<10	2.0	9260	<0.1	3.3
3248017	200	<1	2.1	<10	2.3	9090	<0.1	4.7
3248018	210	<1	7.1	<10	1.2	440	0.2	21.2
3248019	230	<1	6.1	<10	<0.5	90	<0.1	6.3
3248020	300	<1	5.5	<10	<0.5	60	<0.1	6.0
3248021	110	<1	2.7	<10	1.4	100	<0.1	4.0
3248022	60	<1	2.3	<10	1.8	2830	<0.1	4.9
3248023	280	<1	2.2	<10	2.4	10200	<0.1	8.7
3248024	270	<1	1.3	<10	0.6	1110	<0.1	7.3
3248025	90	<1	4.1	<10	1.8	2390	0.3	5.3
3248026	100	1	3.7	<10	5.0	18500	0.2	5.7
3248027	60	<1	4.7	<10	1.7	3990	<0.1	4.2
3248028	120	<1	4.0	<10	2.1	4930	<0.1	5.0
3248029	1380	<1	0.1	<10	3.0	11000	0.1	2.5
3248030	470	<1	<0.1	<10	1.5	1880	<0.1	1.1
3248031	240	<1	0.7	<10	2.6	11400	<0.1	2.7
3248032	30	<1	6.1	<10	<0.5	80	0.2	2.4
3248033	490	<1	<0.1	<10	<0.5	1660	0.1	<0.5
3248034	430	<1	<0.1	<10	1.0	410	<0.1	<0.5
3248035	90	<1	0.2	<10	1.6	150	<0.1	0.8
3248036	50	<1	1.0	<10	1.2	1140	0.2	1.3
3248037	140	<1	1.7	<10	0.9	1930	<0.1	1.6
3248038	50	<1	1.6	<10	2.5	2190	<0.1	5.6
3248039	110	<1	2.7	<10	1.6	2340	0.2	3.2
3248040	90	<1	3.1	<10	1.6	2230	0.2	2.9
3248041	380	<1	<0.1	<10	<0.5	5210	<0.1	2.1
3248042	160	<1	<0.1	<10	<0.5	1360	<0.1	1.7

Element	Sr	Ta	Tb	Te	Th	Ti	Tl	U
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	10	1	0.1	10	0.5	10	0.1	0.5
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
3248043	370	<1	<0.1	<10	0.9	7490	<0.1	4.8
3248044	100	<1	5.5	<10	3.0	7200	<0.1	4.2
3248045	190	<1	5.1	<10	1.4	1680	0.2	7.0
3248046	270	<1	3.7	<10	1.2	1020	0.2	6.8
3248047	50	<1	0.8	<10	1.5	2590	<0.1	2.4
3248048	130	<1	0.7	<10	1.0	1480	<0.1	2.3
3248049	90	<1	2.1	<10	2.2	4330	0.1	5.1
3248050	120	<1	1.0	<10	2.3	3200	<0.1	4.2
3248051	510	<1	0.1	<10	0.6	1310	<0.1	1.2
3248052	70	1	0.4	<10	2.8	18400	0.2	3.6
3248053	210	<1	4.5	<10	2.9	1200	0.3	6.9
3248054	80	<1	0.6	<10	1.5	1480	0.1	8.5
3248055	90	<1	7.6	<10	2.9	3180	0.3	17.7
3248056	40	<1	4.6	<10	0.9	110	0.1	3.5
3248057	90	<1	0.3	<10	0.9	2960	<0.1	1.1
3248058	30	<1	3.3	<10	0.6	6520	<0.1	1.7
3248059	10	<1	6.9	<10	0.6	110	<0.1	2.8
3248060	<10	<1	6.2	<10	<0.5	60	<0.1	2.5
3248061	300	<1	2.0	<10	1.1	1220	0.1	6.7
3248062	460	<1	2.2	<10	2.5	1710	0.4	12.7
3248063	430	<1	3.2	<10	3.5	2320	0.2	37.0
3248064	20	<1	2.4	<10	2.1	10300	<0.1	3.3
3248065	140	<1	3.1	<10	1.4	7750	<0.1	1.6
3248066	<10	<1	6.0	<10	0.6	300	<0.1	2.7
3248067	<10	<1	6.1	<10	1.1	210	0.1	3.5
3248068	<10	<1	3.1	<10	1.4	2010	<0.1	2.9
3248069	20	<1	8.3	<10	0.6	150	0.4	6.6
3248070	230	<1	1.2	<10	0.5	1090	<0.1	1.3
3248071	380	<1	<0.1	<10	1.6	9550	<0.1	1.2
3248072	270	<1	0.1	<10	0.8	8860	<0.1	0.7
3248073	290	<1	0.4	<10	1.0	1680	<0.1	2.7
3248074	80	<1	1.3	<10	1.3	1860	<0.1	1.1
3248075	40	<1	6.3	<10	0.7	60	<0.1	6.5
3248076	390	<1	2.5	<10	<0.5	370	<0.1	64.3
3248077	400	<1	0.2	<10	1.8	7500	<0.1	1.6
3248078	130	<1	1.9	<10	1.5	5090	<0.1	4.0
3248079	250	<1	0.2	<10	2.2	17000	<0.1	2.1
3248080	160	<1	4.7	<10	0.6	780	<0.1	2.4
3248081	70	<1	4.1	<10	0.7	370	<0.1	4.2
3248082	40	<1	3.1	<10	2.6	12800	<0.1	4.2

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Element	Sr	Ta	Tb	Te	Th	Ti	Tl	U
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	10	1	0.1	10	0.5	10	0.1	0.5
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
3248083	70	1	2.9	<10	2.8	19200	<0.1	3.4
3248084	50	<1	0.7	<10	2.2	480	<0.1	1.3
3248085	80	<1	1.6	<10	2.9	5290	0.1	6.5
3248086	390	<1	1.6	<10	0.7	90	<0.1	7.5
3248087	270	<1	2.8	<10	0.8	1130	0.1	20.3
3248088	540	<1	0.6	<10	<0.5	140	<0.1	8.8
*Rep 3248016	40	<1	0.7	<10	2.2	11400	<0.1	3.3
*Rep 3248023	260	<1	2.3	<10	2.6	10700	<0.1	8.8
*Rep 3248044	100	<1	5.4	<10	3.2	9870	0.2	4.8
*Rep 3248054	90	<1	0.7	<10	1.5	2360	0.1	8.4
*Rep 3248081	80	<1	4.4	<10	0.6	200	<0.1	3.6
*Std MMISRM24	1290	<1	0.6	<10	14.8	100	0.2	8.3
*Std MMISRM19	3960	<1	1.6	<10	13.6	<10	0.8	52.4
*Blk BLANK	<10	<1	<0.1	<10	<0.5	10	<0.1	<0.5
*Blk BLANK	<10	<1	<0.1	<10	<0.5	10	<0.1	<0.5

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Final : VC183081 Order: Proj. Rupert/Longford

Report File No.: 0000031665

Element	W	Y	Yb	Zn	Zr
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	1	0.2	10	2
Units	ppb	ppb	ppb	ppb	ppb
3248002	<0.5	36	6.4	470	63
3248003	<0.5	194	17.5	180	60
3248004	<0.5	58	6.0	130	24
3248006	<0.5	190	17.6	370	31
3248007	<0.5	1	<0.2	170	19
3248008	<0.5	182	17.2	640	44
3248009	<0.5	140	12.8	270	42
3248010	<0.5	97	14.8	180	35
3248011	<0.5	230	22.2	340	12
3248012	<0.5	9	3.0	20	48
3248013	<0.5	113	14.1	140	23
3248014	<0.5	58	12.2	40	16
3248015	<0.5	31	8.8	110	100
3248016	0.5	33	6.4	300	51
3248017	<0.5	110	12.4	260	54
3248018	<0.5	408	28.4	70	21
3248019	<0.5	398	40.1	370	7
3248020	<0.5	338	34.1	410	6
3248021	<0.5	142	21.6	190	44
3248022	<0.5	101	11.9	70	29
3248023	<0.5	116	7.7	190	55
3248024	<0.5	113	14.3	320	15
3248025	<0.5	169	11.8	120	48
3248026	0.9	140	10.8	280	116
3248027	<0.5	235	20.2	220	52
3248028	<0.5	166	13.4	490	66
3248029	<0.5	5	0.5	260	82
3248030	<0.5	2	0.3	80	67
3248031	<0.5	21	3.1	170	85
3248032	<0.5	302	25.8	330	22
3248033	<0.5	2	0.2	90	12
3248034	<0.5	2	0.4	190	18
3248035	<0.5	12	2.9	350	13
3248036	0.6	54	7.9	70	21
3248037	<0.5	102	12.2	880	18
3248038	<0.5	73	11.6	160	60
3248039	<0.5	146	15.2	280	42
3248040	<0.5	154	13.6	260	44
3248041	<0.5	3	1.3	30	19
3248042	<0.5	4	3.8	20	10

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Final : VC183081 Order: Proj. Rupert/Longford

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Element	W	Y	Yb	Zn	Zr
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	1	0.2	10	2
Units	ppb	ppb	ppb	ppb	ppb
3248043	<0.5	2	0.4	80	33
3248044	0.6	231	15.3	60	77
3248045	<0.5	251	17.4	180	29
3248046	<0.5	196	13.3	350	12
3248047	<0.5	58	13.5	70	28
3248048	<0.5	65	15.4	450	13
3248049	0.8	129	13.3	620	35
3248050	<0.5	39	7.7	110	52
3248051	<0.5	4	1.7	70	22
3248052	0.7	21	7.4	170	135
3248053	<0.5	179	13.1	160	76
3248054	1.0	48	19.2	140	21
3248055	2.2	318	22.4	230	74
3248056	<0.5	234	17.5	120	29
3248057	<0.5	8	2.8	30	35
3248058	<0.5	168	8.9	160	28
3248059	<0.5	404	25.9	150	31
3248060	<0.5	386	24.9	170	23
3248061	0.5	134	14.0	4410	16
3248062	1.3	82	6.6	320	68
3248063	3.5	119	10.4	110	101
3248064	<0.5	118	15.5	120	73
3248065	<0.5	153	14.1	350	42
3248066	<0.5	384	26.7	130	23
3248067	<0.5	290	23.7	70	43
3248068	<0.5	143	14.4	100	66
3248069	<0.5	448	34.8	150	31
3248070	<0.5	74	6.2	80	10
3248071	<0.5	3	0.4	190	39
3248072	<0.5	4	0.7	90	41
3248073	<0.5	22	21.1	130	31
3248074	<0.5	65	8.8	90	24
3248075	<0.5	327	27.3	80	25
3248076	0.6	198	16.4	720	6
3248077	<0.5	6	1.1	60	65
3248078	0.6	108	15.2	260	36
3248079	0.6	9	2.1	90	52
3248080	<0.5	303	20.4	230	14
3248081	<0.5	239	18.1	150	24
3248082	<0.5	160	16.6	270	69

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Report File No.: 0000031665

Element	W	Y	Yb	Zn	Zr
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	1	0.2	10	2
Units	ppb	ppb	ppb	ppb	ppb
3248083	0.6	138	11.1	300	68
3248084	<0.5	26	3.7	110	16
3248085	<0.5	73	8.3	690	87
3248086	<0.5	72	5.8	410	17
3248087	0.7	197	16.3	400	13
3248088	0.7	38	3.9	940	7
*Rep 3248016	0.5	32	6.4	300	56
*Rep 3248023	<0.5	109	7.0	190	62
*Rep 3248044	0.8	230	15.5	80	86
*Rep 3248054	1.2	45	17.5	200	28
*Rep 3248081	<0.5	248	18.2	130	22
*Std MMISRM24	<0.5	19	0.8	120	25
*Std MMISRM19	<0.5	55	3.9	2040	12
*Blk BLANK	<0.5	<1	<0.2	<10	<2
*Blk BLANK	<0.5	<1	<0.2	<10	<2

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Certificate of Analysis
Work Order : VC183083
[Report File No.: 0000031666]

Date: September 24, 2018

To: **James Rogers**
COD SGS MINERALS - GEOCHEM VANCOUVER
LONGFORD EXPLORATION SERVICES LTD
460-688 Hastings St West
Vancouver
BC V6B 1P1

P.O. No.: Proj. Rupert/Longford
Project No.: -
Samples: 99
Received: Aug 24, 2018
Pages: Page 1 to 22
(Inclusive of Cover Sheet)

Methods Summary

No. Of Samples	Method Code	Description
99	G_LOG02	Pre-preparation processing, sorting, logging, boxing
99	GE_MMI_M	Mobile Metal ION standard package/ICP-MS

Storage: Pulp & Reject
REJECT STORAGE : RETURN

Certified By :
John Chiang
QC Chemist

SGS Minerals Services Geochemistry Vancouver conforms to the requirements of ISO/IEC 17025 for specific tests as listed on their scope of accreditation which can be found at http://www.scc.ca/en/search/palcan/sgs

Report Footer:
L.N.R. = Listed not received
n.a. = Not applicable
I.S. = Insufficient Sample
-- = No result
*INF = Composition of this sample makes detection impossible by this method
M after a result denotes ppb to ppm conversion, % denotes ppm to % conversion
Methods marked with an asterisk (e.g. *NAA08V) were subcontracted
Elements marked with the **@** symbol (e.g. @Cu) denote assays performed using accredited test methods

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Element	Ag	Al	As	Au	Ba	Bi	Ca	Cd
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	1	10	0.1	10	0.5	2	1
Units	ppb	ppm	ppb	ppb	ppb	ppb	ppm	ppb
3248089	2.9	143	<10	<0.1	550	<0.5	109	6
3248090	1.3	270	10	<0.1	300	<0.5	7	2
3248091	<0.5	20	<10	<0.1	110	<0.5	21	4
3248092	1.6	11	<10	0.3	<10	<0.5	5	2
3248093	2.3	286	<10	<0.1	80	<0.5	9	1
3248094	3.0	158	<10	0.4	30	<0.5	5	3
3248095	4.6	227	<10	<0.1	130	<0.5	5	13
3248096	3.4	169	<10	0.2	50	<0.5	<2	2
3248097	6.5	138	<10	<0.1	40	<0.5	<2	9
3248098	2.9	173	<10	0.2	80	<0.5	51	15
3248099	4.6	198	<10	<0.1	70	<0.5	2	4
3248100	4.6	180	10	0.1	60	<0.5	<2	3
3248101	6.8	121	<10	0.1	30	<0.5	<2	8
3248102	2.7	271	10	0.2	260	<0.5	11	5
3248103	2.4	231	<10	<0.1	150	<0.5	14	7
3248104	1.9	88	<10	0.7	280	<0.5	24	<1
3248105	7.6	155	<10	0.1	90	<0.5	8	6
3248106	11.6	80	<10	0.1	50	<0.5	64	11
3248107	<0.5	196	<10	<0.1	30	<0.5	47	8
3248108	2.5	256	<10	<0.1	770	<0.5	20	4
3248109	1.4	180	<10	<0.1	160	<0.5	15	4
3248110	1.4	199	<10	<0.1	320	<0.5	10	4
3248111	1.1	260	10	0.1	910	<0.5	5	2
3248112	1.7	235	<10	0.1	690	<0.5	7	3
3248113	4.2	196	<10	0.2	630	<0.5	9	3
3248114	1.6	204	<10	0.1	410	<0.5	4	2
3248115	<0.5	27	<10	<0.1	70	<0.5	65	4
3248116	13.3	192	<10	<0.1	150	<0.5	<2	14
3248117	<0.5	23	<10	<0.1	110	<0.5	42	3
3248118	1.1	220	<10	<0.1	180	<0.5	3	5
3248119	1.4	219	<10	0.1	800	<0.5	26	3
3248120	1.4	221	<10	0.1	810	<0.5	37	3
3248121	5.6	199	<10	<0.1	960	<0.5	90	8
3248122	3.2	223	<10	0.1	710	<0.5	42	9
3248123	2.4	242	10	<0.1	680	<0.5	19	3
3248124	0.8	167	<10	<0.1	260	<0.5	16	6
3248125	<0.5	154	<10	<0.1	130	<0.5	15	7
3248126	<0.5	158	<10	<0.1	870	0.5	128	4
3248127	1.4	179	<10	<0.1	70	<0.5	10	4
3248128	<0.5	188	<10	<0.1	370	<0.5	35	<1

Element	Ag	Al	As	Au	Ba	Bi	Ca	Cd
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	1	10	0.1	10	0.5	2	1
Units	ppb	ppm	ppb	ppb	ppb	ppb	ppm	ppb
3248129	<0.5	14	<10	<0.1	120	<0.5	57	4
3248130	3.2	165	<10	0.1	80	<0.5	9	5
3248131	<0.5	119	<10	<0.1	70	<0.5	38	2
3248132	<0.5	33	<10	<0.1	20	<0.5	29	<1
3248133	<0.5	7	<10	<0.1	30	<0.5	121	4
3248134	<0.5	34	<10	<0.1	50	<0.5	91	2
3248135	1.8	60	<10	0.2	20	<0.5	33	1
3248136	3.6	203	<10	<0.1	60	<0.5	7	2
3248137	4.3	195	<10	<0.1	70	<0.5	3	2
3248138	2.7	181	<10	<0.1	50	<0.5	4	3
3248139	2.5	209	<10	<0.1	50	<0.5	2	7
3248140	3.2	233	<10	<0.1	60	<0.5	4	9
3248141	<0.5	174	<10	<0.1	350	<0.5	58	2
3248142	5.2	199	<10	<0.1	70	<0.5	3	4
3248143	<0.5	168	<10	<0.1	80	<0.5	89	3
3248144	<0.5	85	<10	<0.1	110	<0.5	66	3
3248145	<0.5	145	<10	<0.1	70	<0.5	11	<1
3248146	3.7	58	<10	0.2	<10	<0.5	4	3
3248147	0.5	247	<10	<0.1	320	<0.5	21	17
3248148	5.7	177	30	0.2	8890	<0.5	188	19
3248149	3.8	110	<10	0.6	1040	<0.5	23	4
3248150	6.3	143	<10	0.2	1060	<0.5	195	18
3248151	<0.5	181	<10	<0.1	160	<0.5	73	20
3248152	1.1	218	<10	<0.1	140	<0.5	32	7
3248153	<0.5	12	<10	<0.1	60	<0.5	144	3
3248154	6.0	151	10	<0.1	80	<0.5	150	27
3248155	<0.5	211	<10	<0.1	240	<0.5	108	4
3248156	<0.5	33	<10	<0.1	330	<0.5	68	7
3248157	<0.5	155	<10	<0.1	150	<0.5	80	10
3248158	3.3	284	30	<0.1	1120	<0.5	77	6
3248159	1.2	298	<10	<0.1	250	<0.5	21	4
3248160	1.0	282	<10	<0.1	300	<0.5	28	6
3248161	2.8	138	<10	0.1	70	<0.5	14	7
3248162	1.0	337	<10	<0.1	90	<0.5	9	2
3248163	2.0	140	<10	<0.1	20	<0.5	5	2
3248164	<0.5	202	<10	<0.1	270	<0.5	25	2
3248165	2.5	92	<10	0.1	<10	<0.5	7	2
3248166	<0.5	225	<10	<0.1	270	<0.5	17	1
3248167	5.3	201	<10	<0.1	130	<0.5	19	7
3248168	<0.5	171	<10	<0.1	70	<0.5	12	<1

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Element	Ag	Al	As	Au	Ba	Bi	Ca	Cd
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	1	10	0.1	10	0.5	2	1
Units	ppb	ppm	ppb	ppb	ppb	ppb	ppm	ppb
3248169	4.9	150	<10	<0.1	90	<0.5	11	5
3248170	4.3	183	<10	0.2	80	<0.5	27	10
3248171	7.3	28	<10	0.2	<10	<0.5	12	4
3248172	0.7	180	<10	<0.1	180	<0.5	47	<1
3248173	10.3	3	<10	0.3	<10	<0.5	6	2
3248174	1.0	199	10	<0.1	180	<0.5	32	3
3248175	0.6	184	<10	<0.1	400	<0.5	27	4
3248176	1.3	125	<10	<0.1	110	<0.5	13	9
3248177	8.9	9	<10	0.4	10	<0.5	<2	3
3248178	1.9	228	10	<0.1	260	0.5	15	<1
3248179	1.9	220	<10	<0.1	240	<0.5	43	12
3248180	0.8	178	<10	<0.1	290	<0.5	69	9
3248181	1.0	126	<10	<0.1	110	<0.5	27	16
3248182	1.1	60	<10	0.1	50	<0.5	13	10
3248183	4.2	198	<10	0.2	90	<0.5	4	11
3248185	14.6	131	<10	<0.1	290	<0.5	40	72
3248186	3.0	164	<10	<0.1	610	<0.5	9	23
3248187	4.3	195	<10	0.2	290	<0.5	32	18
3248188	7.0	180	<10	<0.1	360	<0.5	16	15
*Rep 3248110	1.4	201	<10	<0.1	320	<0.5	9	4
*Rep 3248123	2.3	255	10	0.1	850	<0.5	14	2
*Rep 3248158	2.7	275	30	<0.1	1060	<0.5	67	6
*Rep 3248164	<0.5	190	<10	<0.1	230	<0.5	20	2
*Std MMISRM24	19.2	30	<10	3.1	100	<0.5	56	5
*Std MMISRM19	24.4	21	<10	5.1	1310	<0.5	757	35
*Std AMIS0169	9.1	61	<10	0.3	680	<0.5	37	2
*Blk BLANK	<0.5	<1	<10	<0.1	<10	<0.5	3	<1
*Blk BLANK	<0.5	<1	<10	<0.1	<10	<0.5	3	<1
*Blk BLANK	<0.5	<1	<10	<0.1	<10	<0.5	<2	<1

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Final : VC183083 Order: Proj. Rupert/Longford

Report File No.: 0000031666

Element	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	2	1	100	0.2	10	0.5	0.2	0.2
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
3248089	43	49	<100	2.5	1490	34.7	22.3	4.5
3248090	89	92	200	1.2	780	32.6	22.2	6.0
3248091	<2	35	<100	0.9	320	<0.5	<0.2	<0.2
3248092	8	18	<100	4.9	1010	21.2	20.9	4.2
3248093	18	25	100	3.1	420	6.4	6.6	1.3
3248094	29	62	<100	2.8	4220	22.2	13.6	2.9
3248095	44	207	200	2.7	1380	29.7	21.5	4.5
3248096	30	49	<100	4.3	1610	26.3	16.9	3.7
3248097	20	153	<100	4.4	1200	18.9	15.9	2.3
3248098	41	228	<100	2.1	3900	25.3	14.7	4.1
3248099	32	21	<100	2.6	830	21.7	15.8	2.9
3248100	27	18	<100	2.4	800	20.7	15.3	2.7
3248101	30	45	<100	2.3	1320	46.7	30.6	9.2
3248102	54	276	200	5.0	2710	13.5	8.2	3.5
3248103	38	213	100	2.1	1750	30.8	18.0	4.4
3248104	117	41	<100	3.2	2390	39.9	22.3	11.6
3248105	26	49	<100	2.1	820	20.0	13.4	2.8
3248106	12	338	<100	3.6	8560	7.6	5.9	1.1
3248107	22	31	<100	<0.2	320	56.3	41.9	5.0
3248108	66	106	200	1.3	1080	40.7	24.3	6.4
3248109	13	133	<100	0.3	830	11.3	21.9	0.9
3248110	24	114	<100	0.3	1300	30.1	30.0	2.2
3248111	75	69	200	0.6	870	31.0	23.6	5.1
3248112	77	58	200	0.8	1030	52.5	35.8	6.7
3248113	90	65	<100	0.5	1660	80.5	51.3	9.3
3248114	30	47	<100	0.4	510	23.1	21.3	2.2
3248115	<2	11	<100	0.5	310	<0.5	0.3	<0.2
3248116	34	69	<100	3.3	880	26.4	18.8	3.7
3248117	<2	14	<100	1.3	30	<0.5	<0.2	<0.2
3248118	18	94	100	0.7	860	7.2	10.1	1.3
3248119	87	86	100	0.6	1070	39.2	24.4	6.2
3248120	88	83	100	0.5	1060	36.0	22.5	6.1
3248121	31	150	100	1.3	570	21.3	12.9	3.4
3248122	34	113	100	0.9	670	25.3	14.4	4.2
3248123	60	73	200	0.5	590	34.8	20.3	5.6
3248124	10	169	<100	0.4	440	17.4	14.0	1.3
3248125	6	157	<100	0.6	220	3.9	5.8	0.4
3248126	3	97	<100	0.8	60	1.5	1.4	0.3
3248127	16	77	<100	1.4	570	16.4	12.4	1.8
3248128	<2	112	<100	1.0	80	<0.5	0.5	<0.2

Final : VC183083 Order: Proj. Rupert/Longford

Report File No.: 0000031666

Element	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	2	1	100	0.2	10	0.5	0.2	0.2
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
3248129	<2	34	<100	0.5	60	<0.5	0.3	<0.2
3248130	26	139	<100	1.9	1070	23.5	20.2	2.9
3248131	6	55	<100	<0.2	20	4.6	4.6	0.7
3248132	3	12	<100	<0.2	<10	1.0	1.0	0.2
3248133	<2	3	<100	0.4	20	<0.5	0.3	<0.2
3248134	7	28	<100	<0.2	40	2.6	1.9	0.7
3248135	67	16	<100	3.6	4760	33.0	21.8	7.6
3248136	44	105	<100	1.0	2160	39.8	23.1	5.6
3248137	39	238	100	1.0	1780	23.9	16.9	3.4
3248138	14	63	100	1.8	540	4.8	3.3	0.9
3248139	22	38	<100	1.5	840	17.7	13.1	2.4
3248140	26	49	<100	1.4	920	19.2	14.1	2.8
3248141	19	95	100	0.4	70	2.0	1.4	0.4
3248142	30	95	<100	2.1	1070	21.6	15.6	3.0
3248143	4	214	<100	0.2	150	2.6	8.6	0.3
3248144	11	69	<100	0.2	50	3.6	2.6	0.8
3248145	3	21	<100	<0.2	30	1.0	0.8	0.2
3248146	26	88	<100	3.8	1160	27.2	22.4	6.7
3248147	34	107	200	1.9	920	25.0	20.2	2.7
3248148	204	27	<100	22.1	1060	123	78.5	23.7
3248149	268	23	<100	3.1	2520	51.5	26.5	17.0
3248150	80	42	<100	2.5	2440	53.2	32.0	12.7
3248151	12	412	<100	3.5	1410	16.3	26.5	0.9
3248152	19	381	100	1.3	1160	16.7	13.6	1.7
3248153	<2	9	<100	1.2	40	<0.5	0.4	<0.2
3248154	36	82	<100	1.4	3490	23.2	15.0	3.4
3248155	5	380	<100	2.3	430	2.5	7.9	0.3
3248156	<2	52	<100	0.2	30	0.5	0.4	<0.2
3248157	6	114	<100	0.5	570	10.5	13.6	0.5
3248158	111	441	400	5.6	1130	30.9	17.9	5.7
3248159	15	33	200	1.4	390	3.4	2.3	0.6
3248160	24	33	200	1.3	450	5.5	3.4	1.1
3248161	38	74	<100	2.8	1650	64.7	48.7	9.5
3248162	21	16	200	1.1	300	7.6	5.8	1.6
3248163	10	47	<100	2.1	1810	20.2	15.0	1.8
3248164	8	38	<100	1.1	70	1.6	0.9	0.4
3248165	41	6	<100	2.5	1790	44.7	34.6	6.7
3248166	8	37	<100	0.5	60	1.3	0.8	0.4
3248167	81	240	<100	2.1	1790	60.5	40.8	7.9
3248168	5	38	<100	<0.2	50	0.8	1.9	<0.2

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Element	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	2	1	100	0.2	10	0.5	0.2	0.2
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
3248169	31	238	<100	2.1	1640	19.4	13.7	2.2
3248170	43	211	<100	6.1	2460	46.2	28.3	7.4
3248171	14	41	<100	2.3	2470	16.2	11.6	3.0
3248172	9	85	<100	0.4	60	1.5	1.2	0.2
3248173	2	27	<100	1.2	1450	7.7	8.7	0.7
3248174	12	42	200	0.4	190	2.2	1.9	0.4
3248175	13	323	<100	0.4	240	7.6	8.6	1.0
3248176	42	380	<100	2.1	1320	10.8	9.7	1.5
3248177	8	87	<100	4.5	810	18.4	16.5	2.8
3248178	23	38	200	1.1	190	3.0	2.9	0.6
3248179	28	137	100	2.5	1190	24.4	19.1	2.2
3248180	14	163	<100	2.3	870	10.7	14.2	0.9
3248181	23	43	<100	2.5	2160	39.5	42.3	2.0
3248182	3	73	<100	2.3	910	23.3	21.9	1.5
3248183	14	65	<100	2.6	1590	38.0	29.9	4.9
3248185	48	13	<100	1.9	1620	114	74.1	15.5
3248186	17	57	<100	3.0	870	41.3	36.4	2.7
3248187	33	73	<100	3.1	1340	70.1	42.2	11.6
3248188	115	56	<100	6.9	770	40.3	23.0	9.0
*Rep 3248110	24	108	<100	0.3	1350	31.7	28.9	2.4
*Rep 3248123	72	67	200	0.5	670	35.1	19.9	6.1
*Rep 3248158	97	413	300	5.7	1210	34.2	20.1	5.6
*Rep 3248164	5	37	<100	1.0	40	0.9	0.5	0.3
*Std MMISRM24	30	15	<100	9.0	260	2.8	1.2	1.0
*Std MMISRM19	17	312	<100	4.3	2000	11.6	6.4	2.2
*Std AMIS0169	723	88	100	7.7	3940	27.0	11.8	10.5
*Blk BLANK	<2	<1	<100	<0.2	<10	<0.5	<0.2	<0.2
*Blk BLANK	<2	<1	<100	<0.2	<10	<0.5	<0.2	<0.2
*Blk BLANK	<2	<1	<100	<0.2	<10	<0.5	<0.2	<0.2

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Element	Fe	Ga	Gd	Hg	In	K	La	Li
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	0.5	0.5	1	0.1	0.5	1	1
Units	ppm	ppb	ppb	ppb	ppb	ppm	ppb	ppb
3248089	28	6.2	19.7	<1	<0.1	6.7	13	<1
3248090	23	27.3	22.5	<1	0.2	10.8	33	3
3248091	11	3.7	<0.5	<1	<0.1	2.2	<1	<1
3248092	5	7.9	18.5	<1	<0.1	4.0	6	<1
3248093	74	37.8	4.0	<1	0.3	1.9	11	<1
3248094	143	4.1	12.3	<1	0.1	4.3	11	<1
3248095	160	35.4	18.0	<1	0.2	3.6	22	1
3248096	15	6.3	14.9	<1	<0.1	1.8	12	<1
3248097	44	13.4	9.9	<1	0.1	3.5	10	<1
3248098	17	3.4	17.6	<1	0.1	1.6	16	<1
3248099	102	14.6	11.7	<1	0.2	2.3	13	<1
3248100	87	11.8	10.1	<1	0.1	2.2	11	<1
3248101	5	5.4	38.4	1	<0.1	3.9	61	<1
3248102	160	37.1	12.2	<1	0.2	2.7	22	2
3248103	85	26.8	19.2	<1	0.2	2.2	15	2
3248104	11	7.3	51.1	<1	<0.1	3.8	41	<1
3248105	72	11.5	11.2	<1	<0.1	4.0	9	<1
3248106	56	1.8	4.6	<1	<0.1	5.6	4	<1
3248107	29	20.1	23.7	<1	0.2	3.1	9	<1
3248108	65	15.2	24.7	<1	0.2	2.9	25	<1
3248109	58	11.4	3.3	<1	0.2	3.1	6	<1
3248110	51	13.0	9.9	<1	0.3	3.1	10	<1
3248111	74	21.9	20.1	<1	0.2	2.2	29	2
3248112	63	23.7	28.4	<1	0.3	1.5	28	2
3248113	44	12.3	41.9	<1	0.2	2.7	28	<1
3248114	35	10.9	8.9	<1	0.3	1.0	12	<1
3248115	14	3.1	<0.5	<1	<0.1	5.5	<1	<1
3248116	22	4.4	14.8	<1	<0.1	5.6	15	<1
3248117	13	3.0	<0.5	<1	<0.1	37.6	<1	<1
3248118	45	11.8	4.1	<1	0.3	4.5	8	<1
3248119	101	13.8	26.5	<1	0.2	0.9	32	2
3248120	91	12.5	24.1	<1	0.2	0.8	33	2
3248121	94	12.5	14.7	<1	0.1	3.3	12	1
3248122	88	23.9	18.7	<1	0.2	4.0	14	1
3248123	112	27.1	22.3	<1	0.2	6.5	24	2
3248124	93	11.6	5.9	<1	0.2	2.5	4	1
3248125	146	28.1	1.7	<1	0.2	3.2	3	1
3248126	121	12.5	1.4	<1	0.2	14.1	<1	4
3248127	133	15.6	7.3	<1	0.1	10.8	5	<1
3248128	83	15.2	<0.5	<1	0.1	11.2	<1	<1

Element	Fe	Ga	Gd	Hg	In	K	La	Li
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	0.5	0.5	1	0.1	0.5	1	1
Units	ppm	ppb	ppb	ppb	ppb	ppm	ppb	ppb
3248129	9	2.0	<0.5	<1	<0.1	1.9	<1	<1
3248130	93	8.1	11.8	<1	0.1	4.0	9	<1
3248131	33	4.8	3.0	<1	<0.1	<0.5	4	<1
3248132	14	4.1	1.1	<1	<0.1	9.8	2	<1
3248133	11	1.8	<0.5	<1	<0.1	20.1	<1	<1
3248134	82	2.2	2.6	<1	<0.1	3.4	3	<1
3248135	19	1.0	31.4	<1	<0.1	2.0	15	<1
3248136	23	7.9	24.8	<1	0.1	1.2	17	<1
3248137	175	27.7	13.0	<1	0.1	3.9	15	<1
3248138	147	16.5	3.3	2	0.2	12.4	7	<1
3248139	65	11.4	8.7	<1	0.1	5.2	8	<1
3248140	70	12.5	10.3	<1	0.1	5.0	10	<1
3248141	265	53.0	1.5	<1	0.3	3.0	3	2
3248142	65	10.1	11.4	<1	0.1	1.6	11	<1
3248143	129	12.2	1.1	<1	0.1	2.1	2	<1
3248144	156	7.1	3.0	<1	<0.1	3.0	6	<1
3248145	141	10.4	0.8	<1	<0.1	0.7	2	<1
3248146	9	10.0	25.1	1	<0.1	2.1	20	<1
3248147	246	59.4	10.7	2	0.3	6.9	12	2
3248148	44	3.7	117	1	<0.1	25.4	239	<1
3248149	8	20.7	74.0	<1	<0.1	2.6	121	<1
3248150	34	3.7	57.3	<1	<0.1	5.5	49	<1
3248151	43	10.4	4.5	<1	0.3	8.1	4	1
3248152	87	13.2	6.7	<1	0.2	2.2	7	<1
3248153	12	1.7	<0.5	<1	<0.1	5.8	<1	<1
3248154	25	4.7	15.2	<1	<0.1	2.0	12	<1
3248155	168	18.8	1.0	<1	0.3	7.6	2	1
3248156	16	3.0	<0.5	<1	<0.1	8.0	<1	<1
3248157	87	6.6	2.8	<1	0.1	6.4	2	<1
3248158	251	58.9	22.0	<1	0.4	6.5	23	4
3248159	179	46.3	2.0	1	0.2	3.9	7	2
3248160	146	27.9	3.4	1	0.2	5.0	9	2
3248161	27	7.7	43.8	<1	<0.1	4.7	37	<1
3248162	30	43.4	4.9	1	0.4	2.0	11	<1
3248163	12	4.5	8.0	<1	0.2	2.8	3	<1
3248164	122	22.0	1.2	1	0.2	10.3	3	1
3248165	4	3.6	29.1	1	<0.1	1.2	16	<1
3248166	140	16.5	1.3	<1	0.2	5.8	3	1
3248167	129	13.2	34.9	<1	0.1	1.3	23	<1
3248168	122	10.9	0.7	<1	0.2	<0.5	3	<1

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Element	Fe	Ga	Gd	Hg	In	K	La	Li
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	0.5	0.5	1	0.1	0.5	1	1
Units	ppm	ppb	ppb	ppb	ppb	ppm	ppb	ppb
3248169	138	5.2	9.7	<1	<0.1	2.4	10	<1
3248170	27	2.8	32.2	<1	<0.1	6.4	14	<1
3248171	6	4.0	12.7	<1	<0.1	8.4	6	<1
3248172	189	24.0	0.9	<1	0.2	4.3	2	1
3248173	2	9.2	3.9	2	<0.1	4.0	2	<1
3248174	280	66.2	1.2	<1	0.3	10.0	2	1
3248175	201	46.7	4.0	<1	0.3	12.7	7	1
3248176	83	10.1	5.9	<1	<0.1	2.1	8	<1
3248177	3	11.6	12.4	3	<0.1	5.0	7	<1
3248178	335	85.7	1.9	<1	0.5	8.5	8	6
3248179	146	22.1	9.6	<1	0.2	14.4	10	<1
3248180	111	14.6	3.4	<1	0.2	17.4	5	<1
3248181	35	3.9	9.5	<1	<0.1	8.1	5	<1
3248182	7	5.7	8.0	<1	<0.1	6.9	2	<1
3248183	31	4.3	19.8	<1	<0.1	6.5	11	<1
3248185	37	6.7	76.6	<1	<0.1	3.7	71	<1
3248186	41	5.9	13.9	<1	0.2	6.5	9	<1
3248187	31	6.4	53.3	<1	<0.1	11.4	46	<1
3248188	40	10.4	37.0	<1	0.2	14.0	109	<1
*Rep 3248110	52	13.0	10.3	<1	0.2	3.2	10	<1
*Rep 3248123	102	28.7	23.5	1	0.2	5.8	28	2
*Rep 3248158	225	55.2	22.7	<1	0.4	6.8	20	6
*Rep 3248164	109	16.2	0.8	<1	0.2	9.7	2	1
*Std MMISRM24	8	3.1	3.8	7	<0.1	12.3	12	<1
*Std MMISRM19	6	0.5	11.8	1	<0.1	85.6	3	<1
*Std AMIS0169	38	10.5	41.7	<1	<0.1	44.8	420	1
*Blk BLANK	<1	0.6	<0.5	<1	<0.1	<0.5	<1	<1
*Blk BLANK	<1	<0.5	<0.5	<1	<0.1	<0.5	<1	<1
*Blk BLANK	<1	<0.5	<0.5	<1	<0.1	<0.5	<1	<1

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Element	Mg	Mn	Mo	Nb	Nd	Ni	P	Pb
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	100	2	0.5	1	5	0.1	5
Units	ppm	ppb	ppb	ppb	ppb	ppb	ppm	ppb
3248089	19.4	900	2	0.8	35	281	0.5	6
3248090	1.7	100	6	10.6	58	104	7.7	9
3248091	34.2	500	<2	<0.5	<1	119	0.8	7
3248092	<0.5	400	<2	<0.5	33	59	<0.1	<5
3248093	0.8	100	<2	4.7	11	98	4.2	<5
3248094	0.7	4400	2	0.8	24	75	0.4	9
3248095	1.9	1200	3	11.6	42	197	1.8	8
3248096	<0.5	500	<2	0.9	28	142	0.8	<5
3248097	<0.5	1600	<2	2.0	21	107	0.5	<5
3248098	4.5	1600	6	0.8	37	223	0.4	9
3248099	0.8	400	2	3.1	27	154	1.0	<5
3248100	0.8	200	<2	2.4	23	143	0.9	<5
3248101	<0.5	100	<2	<0.5	120	148	0.2	<5
3248102	3.2	6000	7	12.2	39	248	8.3	7
3248103	2.8	2300	4	7.4	37	169	5.5	8
3248104	1.2	600	<2	<0.5	141	44	0.2	7
3248105	0.9	2500	2	3.0	25	164	0.6	<5
3248106	7.8	23000	4	<0.5	9	496	0.1	<5
3248107	12.5	600	3	1.0	29	38	1.9	54
3248108	4.2	1300	2	4.8	53	146	4.3	<5
3248109	4.7	200	2	1.5	8	113	2.2	<5
3248110	3.0	300	2	2.1	17	190	2.9	<5
3248111	2.2	100	4	7.7	48	168	5.8	5
3248112	3.1	400	4	7.5	60	224	6.2	6
3248113	4.1	300	4	1.4	73	148	1.5	8
3248114	1.9	<100	<2	2.2	20	108	3.4	<5
3248115	21.4	200	<2	<0.5	<1	34	1.9	8
3248116	<0.5	300	<2	<0.5	38	113	0.4	10
3248117	35.4	100	<2	<0.5	<1	92	2.3	21
3248118	2.1	200	2	3.3	11	81	4.6	<5
3248119	6.0	1800	4	4.6	58	138	4.3	<5
3248120	5.7	1700	3	4.0	58	132	3.8	<5
3248121	17.8	2600	4	4.4	27	462	2.3	6
3248122	9.3	2700	3	6.7	34	251	2.6	8
3248123	4.8	400	5	9.1	48	151	5.7	11
3248124	5.4	1300	<2	2.7	8	79	2.6	10
3248125	4.9	900	2	6.5	4	37	2.8	19
3248126	191	3000	2	0.7	2	268	2.8	18
3248127	4.9	2100	<2	5.2	13	66	0.5	14
3248128	22.5	<100	<2	1.0	<1	219	0.7	<5

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Element	Mg	Mn	Mo	Nb	Nd	Ni	P	Pb
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	100	2	0.5	1	5	0.1	5
Units	ppm	ppb	ppb	ppb	ppb	ppb	ppm	ppb
3248129	33.7	2500	<2	<0.5	<1	97	1.0	14
3248130	1.4	500	<2	1.8	24	168	0.5	7
3248131	8.6	700	<2	<0.5	7	130	0.8	<5
3248132	15.8	<100	<2	<0.5	3	28	0.7	13
3248133	11.4	500	<2	<0.5	<1	35	0.2	35
3248134	28.6	1500	<2	<0.5	7	43	1.7	19
3248135	2.2	500	<2	<0.5	63	29	<0.1	<5
3248136	0.7	300	<2	1.4	50	263	0.6	<5
3248137	0.7	3300	<2	10.6	30	147	1.1	5
3248138	1.4	500	<2	5.3	8	41	1.3	<5
3248139	0.5	300	<2	3.0	19	130	0.4	<5
3248140	0.8	600	<2	3.3	23	162	0.5	<5
3248141	27.6	400	<2	17.0	5	93	1.9	8
3248142	0.7	<100	<2	1.7	26	134	0.6	<5
3248143	3.8	<100	<2	0.6	3	82	0.5	<5
3248144	11.9	700	4	0.7	9	58	1.8	21
3248145	3.8	<100	<2	<0.5	2	63	0.8	<5
3248146	<0.5	700	<2	<0.5	68	104	<0.1	<5
3248147	7.6	24000	3	17.2	22	248	4.7	37
3248148	24.6	3200	4	<0.5	310	87	0.5	37
3248149	1.0	300	3	<0.5	283	33	0.3	8
3248150	20.9	3200	<2	<0.5	123	92	0.3	65
3248151	15.2	1200	<2	1.8	8	126	1.2	<5
3248152	5.0	4100	4	2.5	14	123	2.4	11
3248153	22.7	200	<2	<0.5	<1	108	0.9	18
3248154	12.2	1800	44	1.1	30	249	0.7	6
3248155	29.0	800	4	3.7	3	77	1.1	<5
3248156	40.1	200	<2	<0.5	1	99	0.8	14
3248157	21.7	800	<2	0.7	4	73	0.4	11
3248158	13.7	20900	32	19.4	47	304	7.5	18
3248159	5.5	200	<2	14.5	5	116	1.4	9
3248160	7.4	500	<2	7.2	9	106	1.2	6
3248161	2.7	900	<2	0.9	92	162	0.2	14
3248162	1.2	200	<2	7.3	13	59	5.0	<5
3248163	<0.5	400	<2	<0.5	13	132	0.1	<5
3248164	8.9	300	<2	4.6	4	67	1.6	<5
3248165	<0.5	500	<2	<0.5	66	176	<0.1	<5
3248166	38.9	300	<2	3.8	3	59	0.7	<5
3248167	2.5	7900	3	4.0	72	325	1.4	6
3248168	3.5	200	<2	<0.5	3	29	1.9	<5

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Element	Mg	Mn	Mo	Nb	Nd	Ni	P	Pb
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	100	2	0.5	1	5	0.1	5
Units	ppm	ppb	ppb	ppb	ppb	ppb	ppm	ppb
3248169	1.6	1000	<2	1.2	18	137	0.4	<5
3248170	1.9	3100	<2	<0.5	58	138	0.3	6
3248171	<0.5	2300	<2	<0.5	24	53	<0.1	5
3248172	10.6	100	<2	6.9	2	114	0.7	<5
3248173	<0.5	300	<2	<0.5	7	47	<0.1	<5
3248174	10.3	500	2	20.5	3	124	2.1	11
3248175	18.7	400	2	12.5	11	198	2.1	11
3248176	4.3	14700	3	3.7	16	206	2.5	<5
3248177	<0.5	700	<2	<0.5	25	78	<0.1	8
3248178	9.2	100	5	28.6	7	70	1.9	49
3248179	12.6	3200	3	7.7	17	173	0.7	115
3248180	22.5	800	<2	4.3	7	110	0.5	55
3248181	8.2	10300	<2	0.7	14	167	0.9	20
3248182	2.8	2700	<2	<0.5	10	110	0.1	16
3248183	1.0	600	<2	<0.5	35	80	0.2	10
3248185	6.2	3800	4	1.1	159	270	1.1	15
3248186	2.4	1000	<2	0.8	21	173	0.6	23
3248187	7.8	2600	<2	1.0	119	188	0.6	29
3248188	3.6	1400	<2	1.0	141	156	0.4	41
*Rep 3248110	3.2	300	2	2.0	18	187	2.7	<5
*Rep 3248123	3.6	200	5	9.5	54	138	5.9	8
*Rep 3248158	15.8	19100	28	17.3	47	313	6.8	21
*Rep 3248164	7.5	300	<2	2.2	2	59	1.0	<5
*Std MMISRM24	9.2	200	20	<0.5	20	123	0.5	172
*Std MMISRM19	174	6100	8	<0.5	16	1920	0.3	872
*Std AMIS0169	32.9	4100	3	2.7	359	387	2.5	96
*Blk BLANK	<0.5	<100	<2	<0.5	<1	7	<0.1	<5
*Blk BLANK	<0.5	<100	<2	<0.5	<1	5	<0.1	<5
*Blk BLANK	<0.5	<100	<2	<0.5	<1	<5	<0.1	<5

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Element	Pd	Pr	Pt	Rb	Sb	Sc	Sm	Sn
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	0.5	0.1	1	0.5	5	1	1
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
3248089	<1	6.2	<0.1	20	<0.5	100	12	<1
3248090	<1	11.8	<0.1	14	<0.5	209	17	1
3248091	<1	<0.5	<0.1	8	<0.5	13	<1	<1
3248092	1	4.4	<0.1	32	<0.5	90	12	<1
3248093	<1	2.5	<0.1	12	<0.5	57	3	<1
3248094	<1	4.6	<0.1	28	<0.5	92	8	<1
3248095	<1	8.2	<0.1	18	<0.5	129	12	1
3248096	<1	5.3	<0.1	12	<0.5	86	9	<1
3248097	<1	3.8	<0.1	33	<0.5	84	6	<1
3248098	<1	6.8	<0.1	10	<0.5	96	12	<1
3248099	<1	5.4	<0.1	15	<0.5	77	8	<1
3248100	<1	4.4	<0.1	13	<0.5	67	7	<1
3248101	<1	23.1	<0.1	24	<0.5	149	27	<1
3248102	<1	7.8	<0.1	19	<0.5	98	11	1
3248103	<1	6.7	<0.1	8	<0.5	109	12	<1
3248104	<1	23.6	<0.1	30	<0.5	96	40	<1
3248105	<1	4.3	<0.1	17	<0.5	86	8	<1
3248106	<1	1.8	<0.1	15	<0.5	110	3	<1
3248107	<1	4.6	<0.1	3	<0.5	81	12	<1
3248108	<1	10.1	<0.1	7	<0.5	126	17	<1
3248109	<1	1.9	<0.1	5	<0.5	72	2	<1
3248110	<1	3.4	<0.1	3	<0.5	126	6	<1
3248111	<1	10.1	<0.1	4	<0.5	188	14	<1
3248112	<1	11.2	<0.1	5	<0.5	230	19	<1
3248113	<1	13.0	<0.1	3	<0.5	274	26	<1
3248114	<1	4.0	<0.1	3	<0.5	143	6	<1
3248115	<1	<0.5	<0.1	15	<0.5	6	<1	<1
3248116	<1	7.2	<0.1	44	<0.5	96	11	<1
3248117	<1	<0.5	<0.1	94	<0.5	<5	<1	<1
3248118	<1	2.3	<0.1	8	<0.5	101	3	<1
3248119	<1	11.8	<0.1	2	<0.5	182	19	<1
3248120	<1	11.3	<0.1	1	<0.5	178	18	<1
3248121	<1	4.9	<0.1	12	<0.5	74	9	<1
3248122	<1	6.1	<0.1	9	<0.5	107	12	<1
3248123	<1	8.9	<0.1	7	<0.5	124	15	1
3248124	<1	1.5	<0.1	4	<0.5	67	3	<1
3248125	<1	0.8	<0.1	5	<0.5	54	1	<1
3248126	<1	<0.5	<0.1	38	<0.5	42	<1	<1
3248127	<1	2.2	<0.1	25	<0.5	75	5	<1
3248128	<1	<0.5	<0.1	34	<0.5	41	<1	<1

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Element	Pd	Pr	Pt	Rb	Sb	Sc	Sm	Sn
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	0.5	0.1	1	0.5	5	1	1
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
3248129	<1	<0.5	<0.1	7	<0.5	7	<1	<1
3248130	<1	4.3	<0.1	21	<0.5	81	8	<1
3248131	<1	1.3	<0.1	<1	<0.5	98	2	3
3248132	<1	<0.5	<0.1	10	<0.5	12	<1	<1
3248133	<1	<0.5	<0.1	18	<0.5	<5	<1	<1
3248134	<1	1.3	<0.1	3	<0.5	25	2	<1
3248135	<1	9.6	<0.1	13	<0.5	113	22	<1
3248136	<1	9.0	<0.1	6	<0.5	95	16	<1
3248137	<1	5.6	<0.1	6	<0.5	91	9	1
3248138	<1	1.7	<0.1	20	<0.5	47	2	<1
3248139	<1	3.5	<0.1	16	<0.5	92	6	<1
3248140	<1	4.3	<0.1	15	<0.5	97	7	<1
3248141	<1	0.9	<0.1	9	<0.5	37	1	2
3248142	<1	4.9	<0.1	8	<0.5	95	8	<1
3248143	<1	0.5	<0.1	3	<0.5	46	<1	<1
3248144	<1	1.9	<0.1	5	<0.5	57	2	<1
3248145	<1	<0.5	<0.1	1	<0.5	49	<1	<1
3248146	<1	10.7	<0.1	17	<0.5	138	18	<1
3248147	<1	4.2	<0.1	18	<0.5	116	7	2
3248148	<1	62.4	<0.1	95	1.3	176	78	<1
3248149	<1	54.0	<0.1	25	<0.5	72	67	<1
3248150	<1	20.9	<0.1	32	<0.5	179	40	<1
3248151	<1	1.4	<0.1	15	<0.5	146	3	<1
3248152	<1	2.6	<0.1	3	<0.5	91	4	<1
3248153	<1	<0.5	<0.1	17	<0.5	10	<1	<1
3248154	<1	5.3	<0.1	8	<0.5	91	10	<1
3248155	<1	0.6	<0.1	14	<0.5	89	<1	<1
3248156	<1	<0.5	<0.1	12	<0.5	21	<1	<1
3248157	<1	0.7	<0.1	10	<0.5	48	1	<1
3248158	<1	8.8	<0.1	33	<0.5	142	15	2
3248159	<1	1.2	<0.1	11	<0.5	43	1	3
3248160	<1	2.0	<0.1	13	<0.5	53	3	1
3248161	<1	15.8	<0.1	27	<0.5	166	26	<1
3248162	<1	2.8	<0.1	7	<0.5	81	4	<1
3248163	<1	2.2	<0.1	12	<0.5	78	4	<1
3248164	<1	0.8	<0.1	28	<0.5	30	<1	1
3248165	<1	10.3	<0.1	14	<0.5	139	19	<1
3248166	<1	0.6	<0.1	18	<0.5	44	<1	<1
3248167	<1	12.6	<0.1	11	<0.5	144	23	<1
3248168	<1	0.6	<0.1	<1	<0.5	70	<1	<1

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Element	Pd	Pr	Pt	Rb	Sb	Sc	Sm	Sn
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	0.5	0.1	1	0.5	5	1	1
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
3248169	<1	3.4	<0.1	13	<0.5	80	6	<1
3248170	<1	8.5	<0.1	26	<0.5	166	20	<1
3248171	<1	3.4	<0.1	31	<0.5	53	8	<1
3248172	<1	<0.5	<0.1	10	<0.5	41	<1	<1
3248173	<1	1.0	<0.1	14	<0.5	43	2	<1
3248174	<1	0.6	<0.1	23	<0.5	58	<1	3
3248175	<1	2.0	<0.1	16	<0.5	48	3	2
3248176	<1	3.2	<0.1	12	<0.5	61	5	<1
3248177	<1	3.7	<0.1	58	<0.5	43	8	<1
3248178	<1	1.7	<0.1	22	<0.5	47	2	6
3248179	<1	3.4	<0.1	47	<0.5	86	6	<1
3248180	<1	1.4	<0.1	49	<0.5	68	2	<1
3248181	<1	2.3	<0.1	22	<0.5	101	5	<1
3248182	<1	1.4	<0.1	19	<0.5	77	4	<1
3248183	<1	6.2	<0.1	23	<0.5	201	12	<1
3248185	<1	28.6	<0.1	24	<0.5	114	45	<1
3248186	<1	3.7	<0.1	41	<0.5	109	7	<1
3248187	<1	21.6	<0.1	46	<0.5	188	35	<1
3248188	<1	29.2	<0.1	133	<0.5	73	29	<1
*Rep 3248110	<1	3.4	<0.1	4	<0.5	118	6	<1
*Rep 3248123	<1	10.4	<0.1	5	<0.5	132	17	<1
*Rep 3248158	<1	8.5	<0.1	35	<0.5	139	15	2
*Rep 3248164	<1	0.5	<0.1	26	<0.5	28	<1	<1
*Std MMISRM24	5	4.6	2.4	128	<0.5	9	4	<1
*Std MMISRM19	<1	2.4	<0.1	195	0.8	15	7	<1
*Std AMIS0169	<1	97.5	<0.1	245	0.8	60	57	<1
*Blk BLANK	<1	<0.5	<0.1	<1	<0.5	7	<1	<1
*Blk BLANK	<1	<0.5	<0.1	<1	<0.5	6	<1	<1
*Blk BLANK	<1	<0.5	<0.1	<1	<0.5	<5	<1	<1

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Element	Sr	Ta	Tb	Te	Th	Ti	Tl	U
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	10	1	0.1	10	0.5	10	0.1	0.5
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
3248089	540	<1	4.3	<10	1.1	890	0.1	4.2
3248090	20	<1	4.2	<10	3.9	8810	0.2	5.7
3248091	340	<1	<0.1	<10	<0.5	30	<0.1	<0.5
3248092	<10	<1	2.8	<10	<0.5	<10	<0.1	1.4
3248093	30	<1	0.8	<10	2.1	3600	<0.1	3.3
3248094	20	<1	2.7	<10	1.6	390	0.2	7.6
3248095	30	<1	3.7	<10	2.5	11100	<0.1	2.1
3248096	<10	<1	3.4	<10	1.5	990	0.1	3.0
3248097	<10	<1	2.2	<10	0.7	2210	<0.1	2.9
3248098	90	<1	3.4	<10	1.1	740	0.4	7.0
3248099	20	<1	2.7	<10	1.6	2950	0.1	2.0
3248100	20	<1	2.3	<10	1.2	2330	<0.1	1.6
3248101	<10	<1	6.3	<10	0.6	120	<0.1	2.2
3248102	70	<1	2.2	<10	4.2	12400	0.2	5.4
3248103	60	<1	4.1	<10	2.4	7120	0.2	4.6
3248104	50	<1	6.9	<10	1.3	40	0.2	3.9
3248105	10	<1	2.4	<10	1.3	3130	<0.1	2.6
3248106	150	<1	1.0	<10	<0.5	20	0.2	8.5
3248107	230	<1	6.3	<10	0.9	990	<0.1	2.0
3248108	130	<1	5.4	<10	2.3	3770	0.1	2.9
3248109	90	<1	0.9	<10	0.9	1520	<0.1	1.2
3248110	60	<1	2.6	<10	1.2	1600	<0.1	1.3
3248111	50	<1	4.0	<10	3.6	6970	0.1	4.5
3248112	70	<1	6.4	<10	3.2	6810	<0.1	6.3
3248113	90	<1	9.9	<10	2.5	1160	<0.1	7.2
3248114	50	<1	2.3	<10	1.5	1840	0.1	2.6
3248115	280	<1	<0.1	<10	<0.5	90	<0.1	<0.5
3248116	<10	<1	3.3	<10	0.8	450	0.1	1.9
3248117	280	<1	<0.1	<10	0.6	20	<0.1	<0.5
3248118	40	<1	0.8	<10	1.7	2460	0.3	1.2
3248119	130	<1	5.2	<10	2.5	4150	0.1	3.8
3248120	140	<1	5.0	<10	2.5	3500	<0.1	3.6
3248121	400	<1	3.0	<10	1.8	4390	0.1	3.1
3248122	210	<1	3.5	<10	2.4	6800	0.1	3.6
3248123	110	<1	4.6	<10	3.0	8400	<0.1	4.1
3248124	100	<1	1.7	<10	1.2	2530	<0.1	1.5
3248125	100	<1	0.4	<10	1.8	5850	<0.1	2.6
3248126	1900	<1	0.2	<10	2.7	80	<0.1	1.3
3248127	50	<1	1.9	<10	1.6	4690	<0.1	1.7
3248128	630	<1	<0.1	<10	0.7	680	<0.1	0.5

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Element	Sr	Ta	Tb	Te	Th	Ti	Tl	U
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	10	1	0.1	10	0.5	10	0.1	0.5
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
3248129	230	<1	<0.1	<10	<0.5	10	<0.1	1.1
3248130	30	<1	2.7	<10	1.2	1850	<0.1	1.4
3248131	110	<1	0.5	<10	1.7	110	<0.1	1.7
3248132	130	<1	0.2	<10	1.6	80	<0.1	1.5
3248133	170	<1	<0.1	<10	<0.5	<10	<0.1	<0.5
3248134	230	<1	0.4	<10	0.7	80	<0.1	1.1
3248135	20	<1	5.0	<10	<0.5	20	<0.1	3.0
3248136	20	<1	5.2	<10	0.9	1890	<0.1	1.7
3248137	<10	<1	2.8	<10	1.8	10300	<0.1	2.1
3248138	<10	<1	0.7	<10	2.3	5000	<0.1	3.7
3248139	<10	<1	2.2	<10	0.7	3010	<0.1	1.3
3248140	10	<1	2.4	<10	0.9	3280	<0.1	1.4
3248141	360	<1	0.3	<10	1.7	17100	<0.1	2.8
3248142	10	<1	2.6	<10	1.0	2110	<0.1	1.8
3248143	600	<1	0.2	<10	<0.5	760	<0.1	0.9
3248144	250	<1	0.5	<10	3.1	300	<0.1	1.8
3248145	70	<1	0.1	<10	<0.5	140	<0.1	0.6
3248146	<10	<1	3.7	<10	<0.5	180	<0.1	2.0
3248147	120	<1	2.7	<10	3.9	18900	<0.1	4.0
3248148	450	<1	18.4	<10	12.9	540	0.2	11.2
3248149	70	<1	9.2	<10	2.1	50	0.3	4.1
3248150	1650	<1	8.5	<10	2.5	720	0.2	4.7
3248151	230	<1	1.2	<10	0.6	2130	<0.1	5.2
3248152	170	<1	1.8	<10	1.4	2460	<0.1	2.3
3248153	370	<1	<0.1	<10	1.1	10	<0.1	6.4
3248154	420	<1	3.0	<10	0.9	1290	0.3	24.1
3248155	540	<1	0.3	<10	0.6	3800	<0.1	2.3
3248156	580	<1	<0.1	<10	1.8	110	<0.1	0.7
3248157	340	<1	0.9	<10	0.7	1070	<0.1	0.7
3248158	290	<1	4.4	<10	5.5	22200	0.3	8.2
3248159	130	<1	0.4	<10	1.6	15100	<0.1	1.6
3248160	160	<1	0.8	<10	1.8	6950	<0.1	1.9
3248161	50	<1	8.2	<10	0.6	1180	<0.1	2.7
3248162	30	<1	1.0	<10	2.5	5980	<0.1	4.9
3248163	<10	<1	2.1	<10	<0.5	40	<0.1	2.6
3248164	110	<1	0.2	<10	<0.5	4350	<0.1	1.6
3248165	<10	<1	5.6	<10	<0.5	30	<0.1	2.4
3248166	360	<1	0.2	<10	1.4	3280	<0.1	1.4
3248167	50	<1	7.4	<10	1.7	4380	<0.1	4.1
3248168	50	<1	0.1	<10	<0.5	510	<0.1	1.2

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Element	Sr	Ta	Tb	Te	Th	Ti	Tl	U
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	10	1	0.1	10	0.5	10	0.1	0.5
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
3248169	50	<1	2.3	<10	0.9	1230	<0.1	2.0
3248170	60	<1	6.2	<10	0.7	190	<0.1	9.3
3248171	<10	<1	2.2	<10	<0.5	20	<0.1	1.9
3248172	170	<1	0.2	<10	0.7	6780	<0.1	1.0
3248173	<10	<1	0.8	<10	<0.5	10	<0.1	<0.5
3248174	190	<1	0.2	<10	2.1	20900	<0.1	1.6
3248175	250	<1	0.9	<10	1.6	11600	<0.1	2.3
3248176	60	<1	1.1	<10	1.4	3780	0.7	4.5
3248177	<10	<1	2.2	<10	<0.5	10	<0.1	0.8
3248178	140	1	0.4	<10	3.3	25400	<0.1	3.8
3248179	170	<1	2.6	<10	2.6	6500	<0.1	3.6
3248180	270	<1	0.9	<10	1.4	3940	<0.1	2.6
3248181	130	<1	3.2	<10	0.5	920	0.1	3.2
3248182	50	<1	2.1	<10	<0.5	50	<0.1	1.2
3248183	20	<1	4.4	<10	1.0	430	<0.1	2.5
3248185	230	<1	14.5	<10	1.1	1390	0.2	4.7
3248186	80	<1	3.9	<10	1.5	910	0.1	2.8
3248187	180	<1	9.5	<10	1.9	1150	0.1	4.3
3248188	80	<1	5.9	<10	3.0	770	0.2	5.1
*Rep 3248110	70	<1	3.0	<10	1.2	1560	<0.1	1.4
*Rep 3248123	90	<1	4.8	<10	3.4	8800	<0.1	4.6
*Rep 3248158	300	<1	4.6	<10	4.8	20400	0.3	8.0
*Rep 3248164	100	<1	0.1	<10	<0.5	2410	<0.1	1.1
*Std MMISRM24	1510	<1	0.5	<10	13.2	50	0.2	8.3
*Std MMISRM19	3630	<1	1.8	<10	15.3	10	0.7	58.4
*Std AMIS0169	80	<1	5.3	<10	67.4	430	1.2	23.8
*Blk BLANK	<10	<1	<0.1	<10	<0.5	<10	<0.1	<0.5
*Blk BLANK	<10	<1	<0.1	<10	<0.5	10	<0.1	<0.5
*Blk BLANK	<10	<1	<0.1	<10	<0.5	10	<0.1	<0.5

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Element	W	Y	Yb	Zn	Zr
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	1	0.2	10	2
Units	ppb	ppb	ppb	ppb	ppb
3248089	<0.5	200	15.6	110	20
3248090	2.4	157	17.8	60	120
3248091	<0.5	<1	0.3	610	4
3248092	<0.5	161	19.7	40	2
3248093	<0.5	29	6.1	80	41
3248094	<0.5	97	9.5	20	47
3248095	<0.5	156	17.5	380	80
3248096	<0.5	134	12.7	110	43
3248097	<0.5	115	12.5	220	23
3248098	<0.5	129	10.0	340	27
3248099	<0.5	111	12.7	100	51
3248100	<0.5	101	12.3	80	42
3248101	<0.5	316	21.0	70	23
3248102	0.9	57	5.7	250	115
3248103	0.6	144	12.7	220	54
3248104	<0.5	208	16.6	90	29
3248105	<0.5	106	10.4	140	42
3248106	<0.5	40	4.6	140	13
3248107	<0.5	300	30.6	200	12
3248108	1.1	197	15.9	100	82
3248109	<0.5	60	20.5	100	23
3248110	0.6	154	23.5	90	37
3248111	1.3	159	19.7	70	120
3248112	1.4	262	27.4	130	96
3248113	0.6	437	37.3	40	72
3248114	0.6	112	16.9	30	48
3248115	<0.5	2	0.3	1160	12
3248116	<0.5	133	14.9	420	37
3248117	<0.5	1	0.2	810	3
3248118	0.9	33	10.1	180	56
3248119	1.2	214	18.2	80	77
3248120	1.2	201	17.5	70	78
3248121	<0.5	105	9.0	680	59
3248122	0.5	125	9.8	330	78
3248123	1.1	167	13.5	160	97
3248124	<0.5	83	10.8	270	28
3248125	0.7	22	5.4	230	34
3248126	<0.5	11	1.9	1040	30
3248127	<0.5	80	9.4	510	50
3248128	<0.5	2	1.0	490	19

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Element	W	Y	Yb	Zn	Zr
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	1	0.2	10	2
Units	ppb	ppb	ppb	ppb	ppb
3248129	<0.5	2	0.4	1040	3
3248130	<0.5	136	16.5	250	35
3248131	<0.5	26	6.5	100	16
3248132	<0.5	7	1.3	50	10
3248133	<0.5	2	0.3	190	<2
3248134	<0.5	17	2.0	150	9
3248135	<0.5	216	17.6	30	18
3248136	<0.5	239	16.9	190	40
3248137	<0.5	145	13.5	150	72
3248138	<0.5	22	2.6	220	58
3248139	<0.5	97	11.5	200	49
3248140	<0.5	105	11.9	250	55
3248141	<0.5	10	1.5	270	51
3248142	<0.5	117	14.2	90	49
3248143	<0.5	17	16.7	60	14
3248144	<0.5	22	2.8	150	25
3248145	<0.5	6	4.9	<10	7
3248146	<0.5	235	20.2	110	19
3248147	<0.5	138	17.1	1170	77
3248148	0.8	1210	54.7	170	52
3248149	<0.5	316	19.2	340	18
3248150	<0.5	380	22.5	510	38
3248151	<0.5	103	27.6	360	16
3248152	<0.5	97	10.6	170	42
3248153	<0.5	4	0.5	370	2
3248154	0.5	161	10.5	160	20
3248155	<0.5	15	15.5	270	21
3248156	<0.5	4	0.4	180	9
3248157	<0.5	66	11.8	550	20
3248158	0.8	152	13.1	1090	170
3248159	<0.5	17	2.3	250	87
3248160	<0.5	24	3.1	270	72
3248161	<0.5	614	36.0	150	29
3248162	<0.5	36	6.1	190	60
3248163	<0.5	128	11.9	100	13
3248164	<0.5	7	1.3	50	21
3248165	<0.5	367	28.1	80	11
3248166	<0.5	7	1.0	60	44
3248167	<0.5	416	31.9	240	51
3248168	<0.5	4	6.3	<10	8

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Element	W	Y	Yb	Zn	Zr
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	1	0.2	10	2
Units	ppb	ppb	ppb	ppb	ppb
3248169	<0.5	108	10.9	270	33
3248170	<0.5	296	19.9	60	24
3248171	<0.5	116	9.6	50	4
3248172	<0.5	7	2.4	100	37
3248173	<0.5	76	7.8	20	<2
3248174	<0.5	12	2.0	260	59
3248175	<0.5	48	9.6	430	40
3248176	<0.5	54	8.4	120	41
3248177	<0.5	161	14.7	90	2
3248178	1.2	17	4.5	170	119
3248179	<0.5	141	14.2	810	69
3248180	<0.5	63	13.9	650	40
3248181	<0.5	257	37.6	610	17
3248182	<0.5	180	18.8	430	4
3248183	<0.5	221	28.0	350	57
3248185	<0.5	1120	46.7	170	18
3248186	<0.5	250	31.0	280	26
3248187	<0.5	411	28.9	320	37
3248188	<0.5	281	13.8	130	23
*Rep 3248110	0.6	163	22.8	100	37
*Rep 3248123	1.2	163	13.4	110	114
*Rep 3248158	0.8	174	14.5	1170	152
*Rep 3248164	<0.5	4	0.9	30	15
*Std MMISRM24	<0.5	15	0.7	170	22
*Std MMISRM19	<0.5	60	4.8	2140	12
*Std AMIS0169	1.1	116	9.3	200	47
*Blk BLANK	<0.5	<1	<0.2	<10	<2
*Blk BLANK	<0.5	<1	<0.2	<10	<2
*Blk BLANK	<0.5	<1	<0.2	<10	<2

SGS Canada Inc. | Minerals Suite E - 3260 Production Way Burnaby BC t(604) 638-2349 f(604) 444-5486 www.ca.sgs.com

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APPENDIX E: 2018 Rock Sample Analytical Certificates

BUREAU VERITAS MINERAL LABORATORIES Canada

www.bureauveritas.com/um

Bureau Veritas Commodities Canada Ltd.
9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada
PHONE (604) 253-3158

Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Submitted By: James Rogers
Receiving Lab: Canada-Vancouver
Received: August 27, 2018
Report Date: October 03, 2018
Page: 1 of 2

CERTIFICATE OF ANALYSIS VAN18002265.1

CLIENT JOB INFORMATION

Project: Rupert
Shipment ID:
P.O. Number
Number of Samples: 9

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
PRP70-250	9	Crush, split and pulverize 250 g rock to 200 mesh			VAN
MA200	9	4 Acid digestion ICP-MS analysis	0.25	Completed	VAN

SAMPLE DISPOSAL

PICKUP-PLP Client to Pickup Pulps
PICKUP-RJT Client to Pickup Rejects

ADDITIONAL COMMENTS

Bureau Veritas does not accept responsibility for samples left at the laboratory after 90 days without prior written instructions for sample storage or return.

Invoice To: Longford Exploration Services Ltd.
6970 Napier Street
Burnaby British Columbia V5B 2C4
Canada

CC: Trent Potts
Matt Krukowski
Vedran Pobric

KERRY JAY
Geochem Project Specialist

This report supersedes all previous preliminary and final reports with this file number dated prior to the date on this certificate. Signature indicates final approval; preliminary reports are unsigned and should be used for reference only.
All results are considered the confidential property of the client. Bureau Veritas assumes the liabilities for actual cost of analysis only. Results apply to samples as submitted.
"**" asterisk indicates that an analytical result could not be provided due to unusually high levels of interference from other elements.

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Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Project: Rupert
Report Date: October 03, 2018

CERTIFICATE OF ANALYSIS VAN18002265.1

	Method	WGHT	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200
	Analyte	Wgt	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Th	Sr	Cd	Sb	Bi	V	Ca	P
	Unit	kg	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%
	MDL	0.01	0.1	0.1	0.1	1	0.1	0.1	0.2	1	0.01	1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.001
3248001	Rock	2.47	7.2	62.4	15.0	73	0.4	1.3	8.5	838	3.02	79	1.5	3.4	556	0.5	51.2	0.1	66	2.37	0.037
3248005	Rock	1.74	0.3	74.7	3.8	77	0.1	3.3	16.9	1242	5.00	16	0.8	2.0	405	0.1	1.1	<0.1	174	2.39	0.134
3248184	Rock	1.96	0.2	8.3	2.9	60	0.2	1.6	13.5	1274	3.97	35	0.8	1.9	230	<0.1	1.0	<0.1	113	2.82	0.110
3248189	Rock	2.02	1.7	329.6	4.3	23	0.2	0.8	3.6	144	1.38	25	2.0	4.9	157	0.3	18.0	<0.1	23	1.53	0.034
3248190	Rock	1.78	1.9	81.9	15.2	61	0.5	1.4	6.2	511	2.34	76	1.7	3.9	575	0.6	68.1	<0.1	49	1.34	0.036
3248191	Rock	1.45	2.0	45.7	6.4	34	0.1	1.0	10.7	622	2.93	61	1.2	2.3	504	<0.1	9.6	<0.1	82	7.40	0.052
3248192	Rock	2.80	2.4	11.4	4.8	23	<0.1	0.4	5.2	308	1.69	5	1.7	4.6	198	<0.1	0.5	<0.1	24	3.03	0.032
3248193	Rock	4.73	2.6	30.3	4.6	20	<0.1	0.9	3.1	241	1.64	6	1.6	4.3	136	<0.1	0.9	<0.1	23	2.96	0.029
3248194	Rock	1.69	0.4	22.5	4.5	65	0.2	3.3	17.1	1275	4.94	27	0.6	1.6	213	<0.1	2.8	<0.1	175	3.90	0.105

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Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Project: Rupert
Report Date: October 03, 2018

CERTIFICATE OF ANALYSIS VAN18002265.1

	Method	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200
	Analyte	La	Cr	Mg	Ba	Ti	Al	Na	K	W	Zr	Ce	Sn	Y	Nb	Ta	Be	Sc	Li	S	Rb
	Unit	ppm	ppm	%	ppm	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm
	MDL	0.1	1	0.01	1	0.001	0.01	0.001	0.01	0.1	0.1	1	0.1	0.1	0.1	0.1	1	1	0.1	0.1	0.1
3248001	Rock	11.2	2	0.68	899	0.240	6.70	0.532	0.83	5.9	29.3	21	1.3	13.0	6.0	0.4	<1	10	43.1	0.3	19.4
3248005	Rock	14.9	1	1.76	868	0.429	8.37	2.180	2.89	0.8	54.3	32	0.8	14.6	8.2	0.4	1	15	24.5	0.5	85.2
3248184	Rock	15.9	2	1.29	774	0.302	6.97	1.621	2.97	0.4	46.8	31	0.5	12.3	7.5	0.4	<1	10	22.5	0.4	83.7
3248189	Rock	14.5	2	0.25	651	0.137	6.83	2.156	2.38	0.5	38.5	29	0.7	8.6	5.1	0.3	1	5	20.2	0.2	48.7
3248190	Rock	13.4	2	0.43	606	0.172	6.63	0.019	0.46	4.8	27.7	25	0.8	10.1	5.4	0.4	<1	7	50.9	0.1	13.1
3248191	Rock	14.6	2	0.83	648	0.262	6.60	0.113	0.86	4.3	19.4	26	1.1	14.7	4.3	0.2	<1	11	37.6	0.2	21.8
3248192	Rock	14.5	2	0.28	1073	0.162	6.18	2.393	2.26	0.2	41.1	29	1.0	12.0	6.1	0.4	<1	5	12.0	0.3	51.5
3248193	Rock	12.9	2	0.34	796	0.145	6.06	1.442	2.25	0.4	42.3	25	0.8	11.5	6.1	0.4	<1	5	18.2	0.2	49.0
3248194	Rock	14.1	4	1.30	318	0.420	7.88	1.803	2.88	0.7	40.6	30	0.7	13.5	7.5	0.4	<1	14	31.9	0.7	70.3

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6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Project: Rupert
Report Date: October 03, 2018

CERTIFICATE OF ANALYSIS VAN18002265.1

		Method	MA200	MA200	MA200	MA200	MA200	MA200
		Analyte	Hf	In	Re	Se	Te	Tl
		Unit	ppm	ppm	ppm	ppm	ppm	ppm
		MDL	0.1	0.05	0.005	1	0.5	0.5
3248001	Rock		1.0	0.11	0.026	<1	0.6	<0.5
3248005	Rock		1.5	0.06	<0.005	<1	<0.5	1.6
3248184	Rock		1.4	0.06	<0.005	<1	<0.5	1.3
3248189	Rock		1.4	<0.05	<0.005	<1	<0.5	<0.5
3248190	Rock		1.0	<0.05	<0.005	<1	<0.5	<0.5
3248191	Rock		0.7	<0.05	<0.005	<1	0.7	<0.5
3248192	Rock		1.4	<0.05	<0.005	1	<0.5	<0.5
3248193	Rock		1.4	<0.05	<0.005	<1	<0.5	<0.5
3248194	Rock		1.5	<0.05	<0.005	<1	<0.5	1.2

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Burnaby British Columbia V5B 2C4 Canada

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Report Date: October 03, 2018

QUALITY CONTROL REPORT VAN18002265.1

	Method	WGHT	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200
	Analyte	Wgt	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Th	Sr	Cd	Sb	Bi	V	Ca	P
	Unit	kg	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%
	MDL	0.01	0.1	0.1	0.1	1	0.1	0.1	0.2	1	0.01	1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.001
Pulp Duplicates																					
3248005	Rock	1.74	0.3	74.7	3.8	77	0.1	3.3	16.9	1242	5.00	16	0.8	2.0	405	0.1	1.1	<0.1	174	2.39	0.134
REP 3248005	QC		0.3	75.2	3.7	73	<0.1	3.3	16.5	1235	5.00	14	0.8	1.9	412	<0.1	1.0	<0.1	172	2.38	0.120
Reference Materials																					
STD OREAS25A-4A	Standard		2.4	33.0	24.6	37	<0.1	45.5	7.8	480	6.44	10	2.6	14.9	48	<0.1	0.7	0.3	157	0.29	0.050
STD OREAS45E	Standard		2.4	783.7	18.8	46	0.3	485.0	61.6	544	24.21	16	2.5	13.9	17	<0.1	1.0	0.2	344	0.06	0.034
STD OREAS25A-4A Expected			2.55	33.9	25.2	44.4		45.8	8.2	470	6.6	9.94	2.94	15.8	48.5		0.67	0.35	157	0.309	0.048
STD OREAS45E Expected			2.4	780	18.2	46.7	0.311	454	57	570	24.12	16.3	2.41	12.9	15.9	0.06	1	0.28	322	0.065	0.034
BLK	Blank		<0.1	0.2	0.1	<1	<0.1	<0.1	<0.2	<1	<0.01	1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.001
Prep Wash																					
ROCK-VAN	Prep Blank		0.7	2.7	2.6	37	<0.1	1.0	4.9	699	2.39	2	1.1	2.8	219	<0.1	0.1	<0.1	42	1.71	0.047

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Project: Rupert
Report Date: October 03, 2018

QUALITY CONTROL REPORT VAN18002265.1

	Method	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200
	Analyte	La	Cr	Mg	Ba	Ti	Al	Na	K	W	Zr	Ce	Sn	Y	Nb	Ta	Be	Sc	Li	S	Rb
	Unit	ppm	ppm	%	ppm	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm
	MDL	0.1	1	0.01	1	0.001	0.01	0.001	0.01	0.1	0.1	1	0.1	0.1	0.1	0.1	1	1	0.1	0.1	0.1
Pulp Duplicates																					
3248005	Rock	14.9	1	1.76	868	0.429	8.37	2.180	2.89	0.8	54.3	32	0.8	14.6	8.2	0.4	1	15	24.5	0.5	85.2
REP 3248005	QC	13.8	2	1.72	847	0.433	8.32	2.172	3.09	0.7	54.5	30	0.6	14.5	8.1	0.4	<1	14	24.2	0.5	83.7
Reference Materials																					
STD OREAS25A-4A	Standard	21.7	111	0.33	148	0.898	8.87	0.115	0.47	1.9	148.7	46	3.9	9.4	19.3	1.4	<1	12	35.3	<0.1	60.6
STD OREAS45E	Standard	11.9	1026	0.17	241	0.535	7.08	0.056	0.34	0.9	97.1	25	1.4	7.8	6.2	0.5	<1	92	6.6	<0.1	22.6
STD OREAS25A-4A Expected		21.8	115	0.327	147	0.977	8.87	0.134	0.482	2	155	48.9	4.06	10.5	20.9	1.5	0.93	13.7	36.7	0.047	61
STD OREAS45E Expected		11	979	0.156	252	0.559	6.78	0.059	0.324	1.07	97	23.5	1.32	8.28	6.8	0.54		93	6.58	0.046	21.2
BLK	Blank	<0.1	<1	<0.01	<1	<0.001	<0.01	0.004	<0.01	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1	<0.1	0.1
Prep Wash																					
ROCK-VAN	Prep Blank	12.2	2	0.60	650	0.231	7.25	3.695	1.45	0.4	52.7	24	0.8	15.7	5.5	0.4	1	8	2.6	<0.1	30.6

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Client: **Longford Exploration Services Ltd.**
6970 Napier Street
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Project: Rupert
Report Date: October 03, 2018

QUALITY CONTROL REPORT VAN18002265.1

	Method	MA200	MA200	MA200	MA200	MA200	MA200
	Analyte	Hf	In	Re	Se	Te	Tl
	Unit	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.1	0.05	0.005	1	0.5	0.5
Pulp Duplicates							
3248005	Rock	1.5	0.06	<0.005	<1	<0.5	1.6
REP 3248005	QC	1.7	<0.05	<0.005	<1	<0.5	1.5
Reference Materials							
STD OREAS25A-4A	Standard	4.3	0.07	<0.005	2	<0.5	<0.5
STD OREAS45E	Standard	2.9	0.10	<0.005	3	<0.5	<0.5
STD OREAS25A-4A Expected		4.28	0.09		2.5		0.35
STD OREAS45E Expected		3.11	0.099		2.97	0.1	0.15
BLK	Blank	<0.1	<0.05	<0.005	2	<0.5	<0.5
Prep Wash							
ROCK-VAN	Prep Blank	1.5	0.05	<0.005	<1	<0.5	<0.5

APPENDIX F: STATEMENT OF QUALIFICATIONS

I, Trent Potts, of 460-688 Hastings St., Vancouver, British Columbia, Canada do hereby certify the following:

- I graduated from the University of Otago with a Bachelor of Science in Geology in 2011, and I have practiced my profession continuously since August 2011.
- Over the last 8 years I have worked in Canada, Australia, and Peru as a mineral exploration geologist and have been involved in a number of projects at various stages of development.
- I am a Consulting Geologist and have been so since March 2015.

Oct 24, 2019

Trent Potts Date

APPENDIX G: STATEMENT OF QUALIFICATIONS

I, Sarah Ryan, of 460-688 Hastings St., Vancouver, British Columbia, Canada do hereby certify the following:

- I graduated from Memorial University with a Bachelor of Science in Earth Sciences in 2018, and I have practiced my profession continuously since May 2018.
- From 2018 to present I have been working in Canada as a mineral exploration geologist and have been actively involved in projects in BC, YK, ON, and QC.
- I am a Consulting Geologist and have been so since September 2018.

Oct 24, 2019

Sarah Ryan Date