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Report on Diamond Drilling at the Ranoke Project, Ontario

Ranoke Property,
Mulholland, Pickett & Morrow Townships,
Porcupine Mining Division,
Northeast Region, Ontario
Map Sheet: 42I12

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June 2020

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Summary

The first-pass diamond drill program at Ranoke was conducted in two phases over the winter season of 2019-2020; beginning October 28th, 2019 for 35 days, on January 25th, 2020 for 30 days and on March 6th, 2020 for 7 days culminating on total drill demobilization by March 12th, 2020. Four (4) drill holes totaling 1,711 metres were completed on three (3) pads across a north-south transect of the northern half of the property to test large magnetic and gravity geophysical features for copper and gold mineralization and hydrothermal alteration related to an iron-oxide copper gold (IOCG) deposit or carbonatite intrusion along known structures in the James Bay Lowlands.

Drilling was completed by Machine Roger International (MRI) based in Val d'Or, Quebec with camp, logistics and helicopter supplied by Expedition Group of Companies in Cochrane, Ontario. The work was completed for the claim owners, VR Resources Ltd., who own all claims 100% with no royalties or carried interests. A well-site trailer camp was constructed at the end of regional road ON-634 by Expedition just northwest of the Otter Rapids hydroelectric facility (Figure 1) on ground rented from Villeneuve Construction.

Winter drill sites were cleared of trees in the immediate area of drilling and for an adjacent helipad, as there is no access by land. Larger trees (>10cm diameter) from the bank of the nearby Pickett Creek were cut, limbed and lain on the bog to form a firm base for the drilling platform. All drilling materials were removed from site and felled logs were dispersed to more easily decompose in the bog.

Drill core, both NQ and BQ size, was brought to and logged at the Otter Rapids Camp by VR Resources personnel and contractors. Before being stacked on pallets for storage, the core was analyzed by X-ray fluorescence (XRF) within areas of interest and on 3 metre intervals for trace element vectors and to determine the necessity of sampling for assay.

Significant overburden (190-220m) was encountered in all holes and caused the abandonment of the first hole of the program at the Silurian-Archean unconformity. From surface, units encountered were clay-sand-boulder till, marine clay, Cretaceous mudstone, Devonian limestone and dolostone sequences and basal Silurian sandstone. The unconformity with the underlying English River subprovince of the Superior Craton appears to be relatively uniform in depth across the area of work, ranging within 15m from surface. The basement geology was characterized by variably magnetic metavolcanics/metasedimentary pegmatitic biotite-feldspar-quartz orthogneiss, medium-grain magnetic meta-basalt interpreted to be a Matachewan dyke, and a highly-magnetic and foliated Archean granodiorite. All Archean basement units were cut by late (probable Cretaceous age) aphanitic and amygdular to phlogopite-phyric lamprophyre dykes, ranging from 0.25 – 1.5 m in width, that appear to have been intruded into fault structures and were the main host of lower temperature hydrothermal alteration that includes potassic sericite on specular hematite veining and intense iron carbonate replacement. The altered lamprophyre zones were often host to reactivated faulting and further fluid movement.

No economic mineralization has been identified in this drilling, however the identification of specular hematite veins in **RK19-001b** & **RK20-002** and fluorite-calcite veins in **RK20-003** along with high-temperature potassic and low temperature iron carbonate alteration related to

Mesozoic lamprophyre intrusions is supportive of an IOCG or carbonatite mineral system at Ranoke. The results of this three hole first-pass drill program have realigned the exploration targeting from large magnetic and gravity “pipe-like” features towards more structurally controlled zones where hydrothermal fluids have concentrated with the potential for copper or gold mineralization. It is recommended that a follow up drill program of 4 holes, costing ~$1 million, be conducted to target major structural intersections associated with large magnetic and gravity features.

All maps, figures and coordinates are in UTM WGS84 Zone 17

Location and Access

The Ranoke property is in the Moose River basin in northern Ontario, Canada. It is located between the Mattagami and Missinaibi rivers. The nearest town is Moosonee located on tide water some 111 kilometres to the northeast at James Bay. Cochrane is the regional services hub and is located 180 kilometres to the southeast, on the Trans-Canada Highway (Provincial HWY 11). The property is 15 kilometers west of the active ONR railway line which connects the town of Moosonee with the Cochrane on the Trans Canada Highway, thus providing port access to the James Bay region (Figure 1).

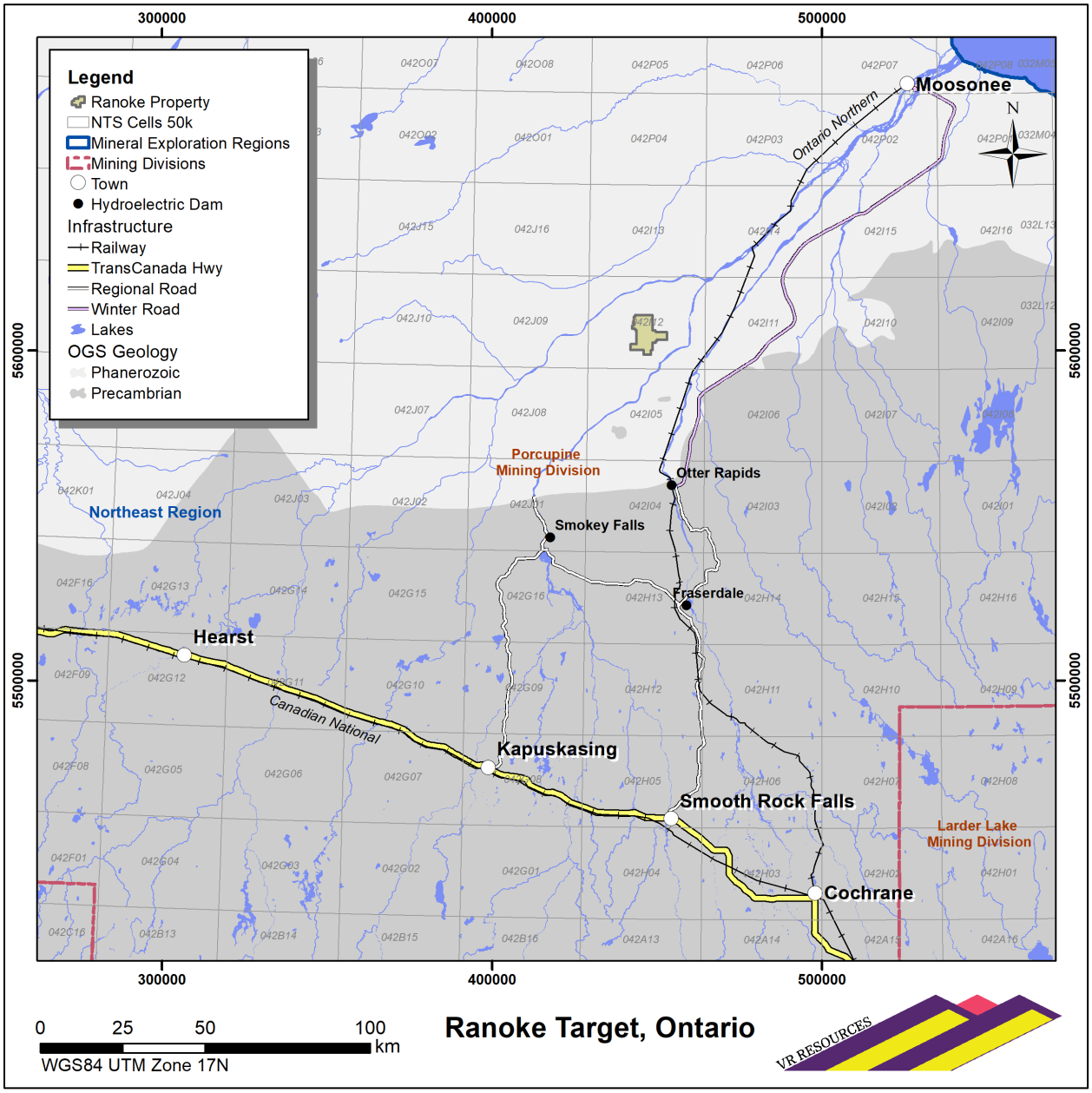


Figure 1: Location and access to the Ranoke Property

Otter Rapids Dam is an Ontario hydroelectric facility located on the Abitibi River about 50 kilometres to the south of the property. Provincial Highway 634 provides road access to Otter Rapids from Smooth Rock Falls, located at the junction of HWY 634 with the Trans-Canada Highway. Private ground just behind the ONR bunk house was rented from Villeneuve Construction and served as camp and helicopter base for crews during drilling. Helicopter access to the property from camp is about 50km each way

The Ranoke property is located in a boreal region of lowland muskeg, with black spruce and pine forest along river drainages. Topographic relief is minimal, and there is no outcrop in the lowland region; Ranoke is tens of kilometres north of the northern limit of exposed Archean Superior Province shield in northern Ontario.

Regional Geology and Exploration History

The Moose River Basin has a varied, checkerboard history of mineral exploration for the past 100 years. Cretaceous coal seams were the focus at the turn of the previous century, while diamond exploration has dominated in the region during the past 60 years (Figure 2). This section was adapted from the 2006 Coral Rapids Assessment Report for Baltic Resources.

Overall, exploration in the region is hindered by the lack of outcrop in the boggy, lowland terrain, and by the cover of up to 400 metres of mid-Paleozoic (Devonian) marine shelf strata and Cretaceous in-land basinal strata overlying Archean basement. Archean VMS and Proterozoic orogenic gold deposits occur in the surrounding sub-provinces of the Superior craton, but there are no active base metal or precious metal mines in the Moose River Basin region. The Attawapiskat diamond mine (“Victor”) of Debeer’s located well to the north along the Attawapiskat River has reached the end of its mine life after more than a decade in production.

The oldest mineral exploration in the Moose River region relates to coal, which is documented as far back as 1672 when the Abitibi River was part of an important fur trading route linking Hudson Bay with the Great Lakes. There are lignite occurrences exposed in the banks of the Abitibi River north of Coral Rapids. The coal seams were first studied in detail by the Geological Survey between 1871 and 1912. They extend westward from the Abitibi River within the confines a small Cretaceous successor basin named the Moose River Basin which is less than 50 kilometers in diameter. More than one hundred shallow drill holes were completed by the Ontario Department of Mines between 1926 and 1930 to evaluate the resource, leading ultimately to the completion of two shafts and some 389 metres of interconnecting drifts. Drilling resumed in the early 1950’s with the completion of an additional 182 holes. In 1981, the Ontario Energy Corporation re-visited the potential of the coal and evaluated lignite stratigraphy farther to the west, in the region between the Mattagami and Missinaibi rivers. Hundreds of shallow drill holes were completed on a lease which exceeded 1 million acres. Drill holes were completed around, but not on, VR’s current Ranoke copper-gold property.

Diamonds have been the focus of modern mineral exploration in the James Bay region. Exploration started in the 1960’s by DeBeers (Monoprose Canada), focused initially in the

Attawapiskat River region well to the north of the Moose River Basin, and built on the pioneering regional aeromagnetic program of the Geological Survey of Canada. Ongoing and extensive regional till and alluvium heavy mineral sampling and high-resolution magnetic surveys through the late 1980's eventually led to the discovery of numerous kimberlite pipes, including Victor.

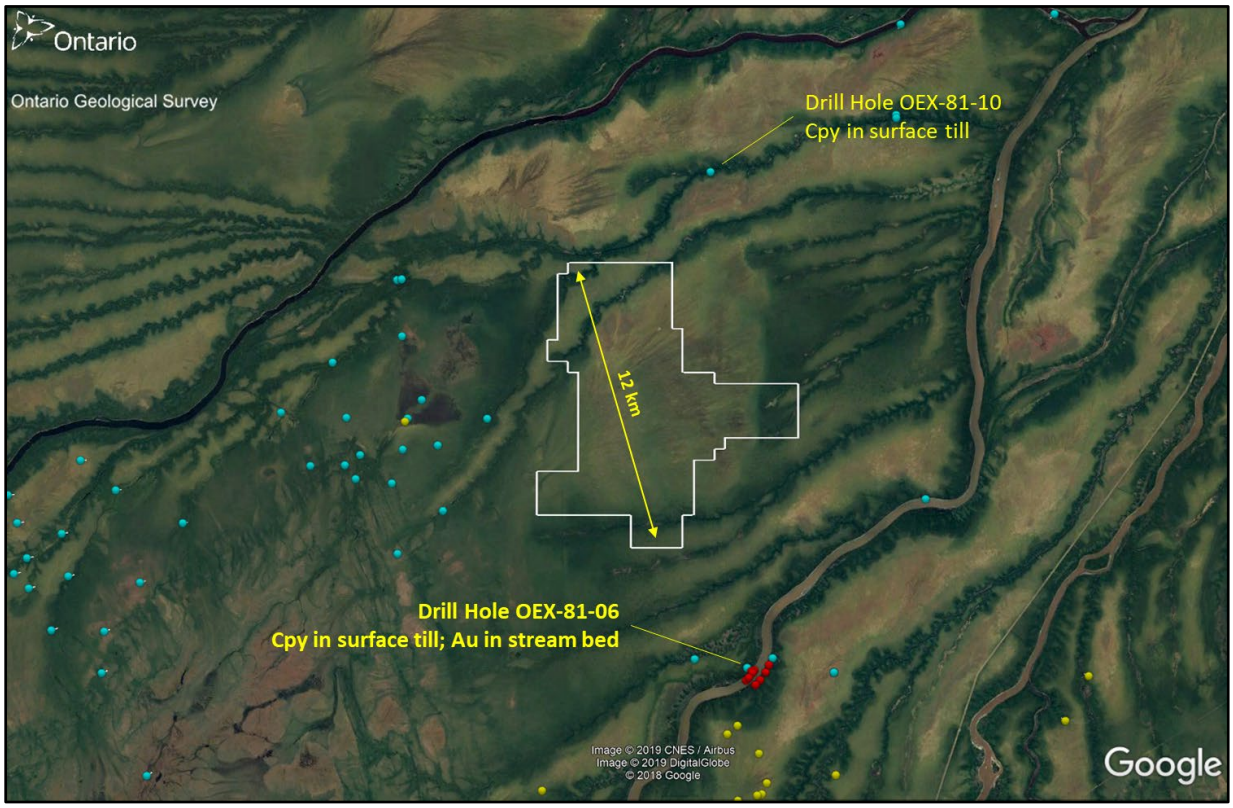


Figure 2: Location of assessment report database drillholes near the Ranoke Property. Teal pins to SW and NE of Ranoke represent drilling for coal by ONEXCO in 1981-1983, whereas red pins to south represent a soil auger campaign by them in 1982 following up on gold frains found in nearby heavy mineral separates from RC Drilling. Yellow pins to south represent kimberlite exploration during the 70s-90s.

The Ranoke property is near the southeastern margin of the Paleozoic Hudson Platform of Devonian marine strata. The property is within the Moose River Basin, a small, Cretaceous successor basin less than 50 kilometres across and located at the southeastern-most margin of the Paleozoic platform. Devonian and Cretaceous strata in the Moose River area were deposited on a gneissic crystalline basement of metamorphosed sedimentary assemblages and lesser volcano-plutonic complexes of the English River sub-Province, in what is believed to be the thickest part of the Archean Superior craton.

The Ranoke property occurs on the western margin of the Kapuskasing Structural Zone (KSZ), a crustal-scale shear zone which bisects the Superior craton in a complex, northeast-southwest trending zone of uplifted, high grade metamorphic rocks extending for more than 500 kilometres between Lake Superior and James Bay. There is believed to be more than 20 kilometres of

vertical crustal displacement along the KSZ. It is clearly defined by positive gravity and magnetic domains on regional geophysical maps.
The KSZ has a long-lived history of repeated ultra-basic, alkaline and carbonatite intrusions and kimberlite facies diatremes which collectively span 1.6 billion years of earth history, to as young as 125 million years ago. Intrusions in and around Coral Rapids and along the western margin of the KSZ where Archean rocks are exposed in major river drainages such as the Abitibi have been explored since the early 1960's, and many have been age-dated (Figure 3).

Selection Trust (later named Selco) began alluvial sampling in the KSZ region in 1962 and were joined by Esso Minerals in 1979. The first composite kimerlite – lamprophyry dyke was drilled in 1967, followed by drilling of the Valentine carbonatite complex in 1969. Between 1979 and 1983, the Selco – Esso partnership completed regional heavy mineral sampling of till and alluvium over an area exceeding 100,000 hectares, and an aeromagnetic program launched in 1980 led to the identification of numerous post-Paleozoic, pipe-like anomalies, of which 45 were drill-tested; most were ultra-basic and alkaline intrusions, non copper-bearing, and four were kimberlite-facies diatremes.

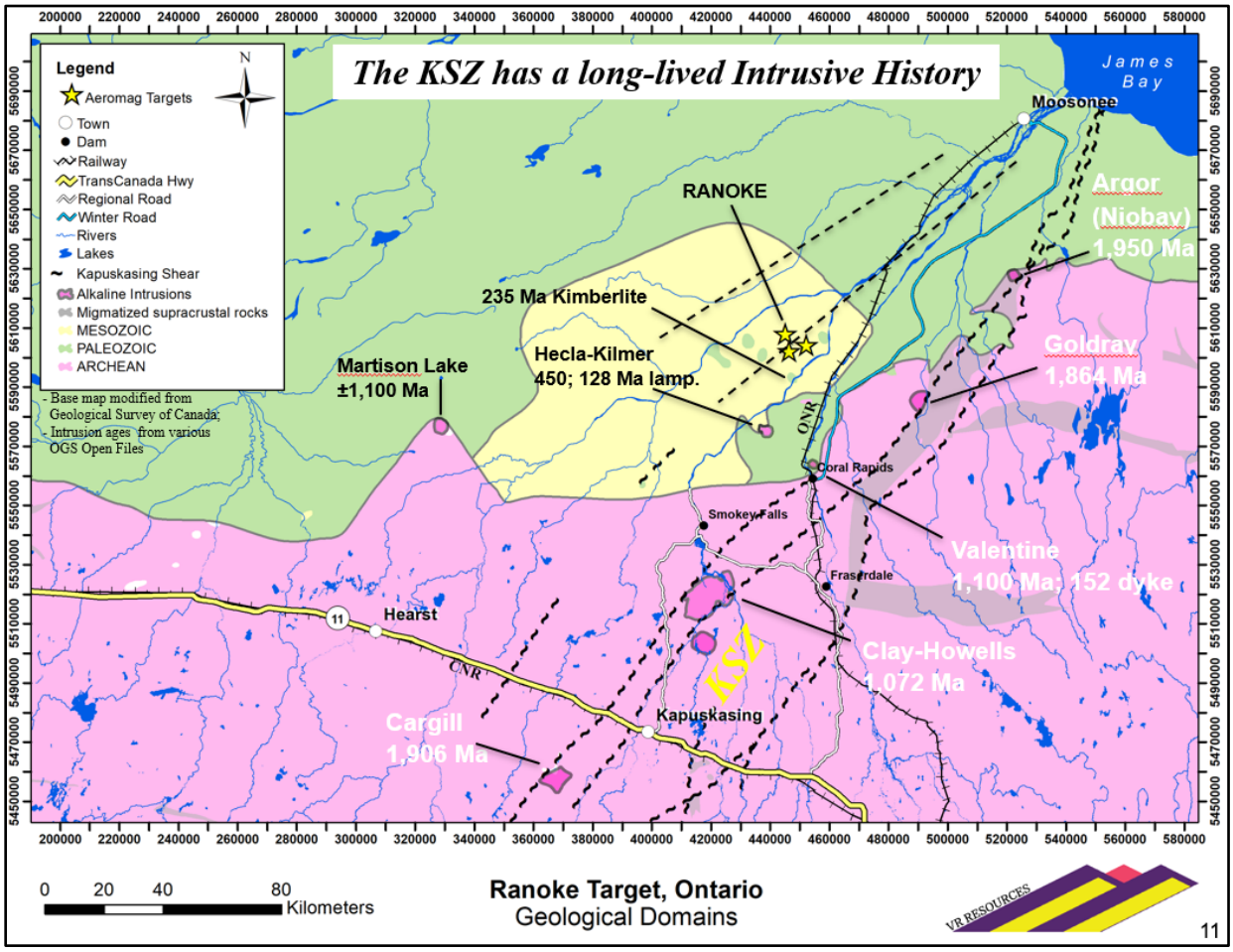


Figure 3: Regional geology map of Kapuskasing structural zone (KSZ) and James Bay Lowlands with alkaline and ultrabasic intrusions and their ages highlighted. The Ranoke target is noted by 3 gold stars indicating magnetic targets.

The Aquitane Company of Canada Ltd. completed airborne and ground geophysics between 1972 and 1974 to evaluate the hydro-carbon potential of Paleozoic strata, and twelve diamond drill holes to test for base metal, Mississippi Valley Type mineralization. A kimberlite west of Coral Rapids and south of Ranoke was also detected, delineated and drill-tested during this work. In 1978, Kerr-Addison Mines complete a series of reverse circulation drill holes near Coral Rapids to test exposed basal sandstone at the eastern edge of the Hudson Platform for uranium. These targets were re-visited and re-tested in 2006, during the re-surgent uranium exploration sector.

Regional-scale exploration in the KSZ - Moose River Basin region waned after 1983. Various small-scale airborne magnetic surveys and ground-based EM surveys, and local alluvium sampling programs were completed at the property-scale between 1983 and 2006, with the focus mostly on previously known, ultra-basic and alkaline intrusions and diatremes exposed at surface in and around Coral rapids, but also on limestone for industrial mineral applications.

Lastly, one high resolution airborne magnetic survey was completed north of Ranoke in 2014. The survey targeted kimberlite anomalies over an area of approximately 1,600 square kilometres.

Sixty years after modern mineral exploration arrived in the region, VR is focused on a specific, unexplored and untested geophysical anomaly and integrated target for a post-Archean intrusion or hydrothermal pipe with copper and gold located in a lowland terrain with no outcrop and no roads, and in a geologic domain where the Archean Superior shield is covered by a thin veneer of Paleozoic and Mesozoic rocks of the Hudson Platform and Moose River Basin respectively.

Table 3: Summary of major geological/tectonic events shaping the study region. (Darbyshire et al., 2017)

Date	Event
3–2.6 Ga	Assembly of Superior Craton
2.8–2.6 Ga	Kenoran Orogen completes assembly process
2.49–2.45 Ga	Hotspot influence and rifting on SE Superior margin leads to emplacement of Matachewan dyke swarm
2.2 Ga	Age of Southern Province; Nipissing Sills fed by distant Ungava plume
1.9–1.6 Ga	Penokean Orogen on southern margin of Superior Province; likely age of major uplift in Kapuskasing Structural Zone
~1.8 Ga	Trans-Hudson Orogen on northwest Superior margin
~1.1 Ga	Keweenawan Mid-Continent Rift on southern Superior margin
1.1–1.0 Ga	Grenville Orogen on southeast Superior margin
Late Proterozoic - Early Cambrian	Opening of Ottawa-Bonnechere Graben and Lake Timiskaming structural zone (Ontario/Quebec border region)
Phanerozoic	Development of Hudson Bay and Moose River intracratonic basins
180–134 Ma	Emplacement of kimberlites along track of Great Meteor hotspot

Property Exploration History

The Ranoke target is previously unexplored: it is under cover, it is north of exposed Archean Superior Province shield, and it is north of road access in northern Ontario. The specific area of the Ranoke property does not appear to have been staked before, is not included in any mineral exploration assessment reports filed with the MENDM, and there are no historic drill holes located at Ranoke in the MENDM drill hole database (Figure 2).

Property Geology

The overburden at the Ranoke Property begins around 210 metres depth at the Archean unconformity with the Upper Silurian Sextant Formation, comprising deep red limonitic sandstones at the weathered erosional contact and grades upward into a coarse reduced arenite. As the basin subsided and the sea prograded in the lower Devonian, clastics were replaced by carbonate muds and chemically precipitated carbonates with coral and stromatoporoid to form the Kwataboahegan Formation. The lower section contains chemically-deposited limestone, primary dolomite and thin muddy breccia. This breccia represents limy mud in evaporitic environments and dissolution features after induration. Several brecciated layers can be traced through several holes in the central and eastern areas of the basin. The upper part shows a definite marine influence and is well differentiated. While the lower part fluctuates from dolomitic to limy, the marine sequence with crinoids, corals and brachiopods is strictly limy.

The Moose River Formation, which conformably overlies the Kwataboahegan, is organic poor carbonate rocks developed with a reefal facies, rich in coral and stromatoporoids and very porous in the lower Murray Island beds. This features seems to have remained into the above formation (Williams Island) as well, though not as well marked. The Murray Island would rather represent a fore-slope with pelletoidal limestone, breccia and some wackestone. Towards the end of the Murray Island time, by reference to carbonate and biogenic sedimentation extended to the whole basin and tended to replace the clayish deposition of the underlying formation. The Williams Island Formation saw a quiet limy environment covering the general area, with its alternances of limestone, primary dolomite and some thin clay. The chemically deposited unfossiliferous strata suggested sabkha environment with its many intricate variations due to local geomorphic changes.

Unconformably overlying the Paleozoic strata at roughly 80m depth is a successor basin of unconsolidated Jurassic to Cretaceous muds, sands and local lignite coal deposition (however not observed in drilling at Ranoke). Recovery in this unit was very low, however plastic blue-grey muds were observed. Although not observed, regional drilling and reports from drillers suggests there were variably boulder-rich sandy tills from 50m to near surface where a layer of marine clay deposited from the post-glacially enlarged Hudson Bay.

The basement geology was the focus of drilling at the Ranoke property and consists primarily of undifferentiated Archean metasedimentary to metavolcanic paragneisses of the English River subprovince from within the deepest part of the Superior craton, a foliated probable-Archean granodiorite, as well as a wide (100’s of metres) diabase/metabasalt intrusions that likely represents the 2.45 Ga Matachewan (NNW trending) and 2.2 Ga Biscotasing (ENE Trending)

dyke systems (See Table 1; Darbyshire et al., 2017, Hall & Davis, 2004) and occur as major structural and magnetic features that interesect on the property (Figure 4).

Variability in the depth to Paleozoic strata as well as changes in the regional TMI magnetic grain are interpreted to be caused by many generations of rifting along the KSZ (see Table 1). Normal faults appear to have formed along the planar margins of the Archean dykes that intersect within the property.

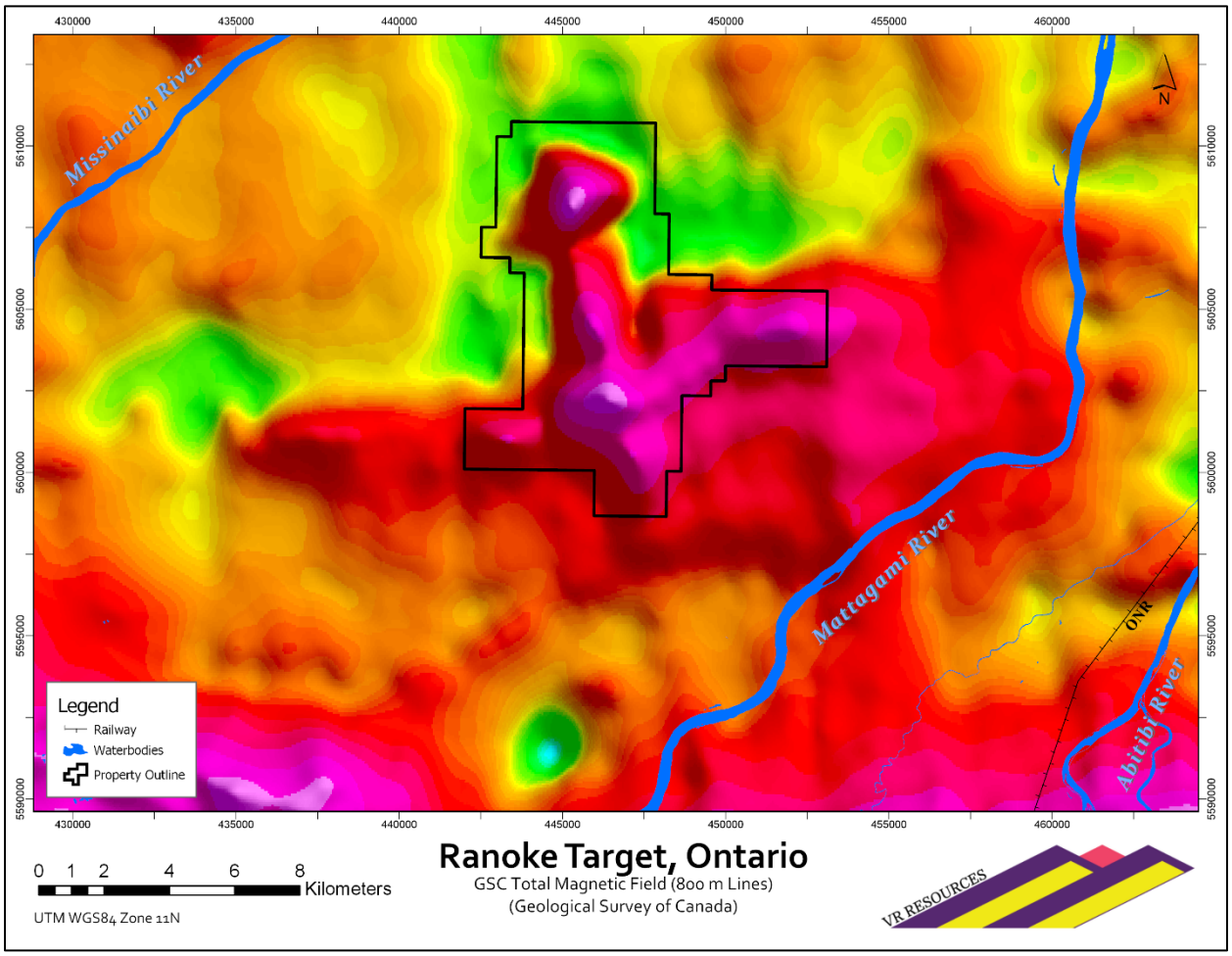


Figure 4: Total magnetic field at Ranoke showing staking over the high-magnetic complex inferred to be the intersection of Archean Mattachewan and Biscotasing dyke swarms. Structural planes along these dykes appear to have been reactivated by rifting providing a conduit for hydrothermal fluids and potential IOCG or carbonatite mineralization.

Basement units are cross-cut by much later aphanitic lamprophyre dykes that are ferroan and alkalic in nature and often contain calcite amygdales and phlogopite lathes (Figure 5, Photo 1). These late dykes often have brittle intrusive contacts with angular wall rock clasts and are rarely more than 1.5m across. The brittle nature and movement indicators on the contacts indicates the lamprophyres have intruded along active faults.

Hydrothermal fluid alteration has only been found related to lamprophyre dykes and reactivation of normal fault structures along them. The alteration mineralogy is siderite-ankerite-sericite with local includes specular hematite blebs and veinlets and clots of pyrite, grading outwards to epidote-chlorite-carbonate replacement of the orthogneiss and lamprophyre wallrock (Figure 6). These alteration facies are analogous to phyllic-argyllic and propylitic alteration assemblages found in porphyry and IOCG systems and are atypical of alteration and mineralization commonly seen in the Archean mineral deposits of the region.

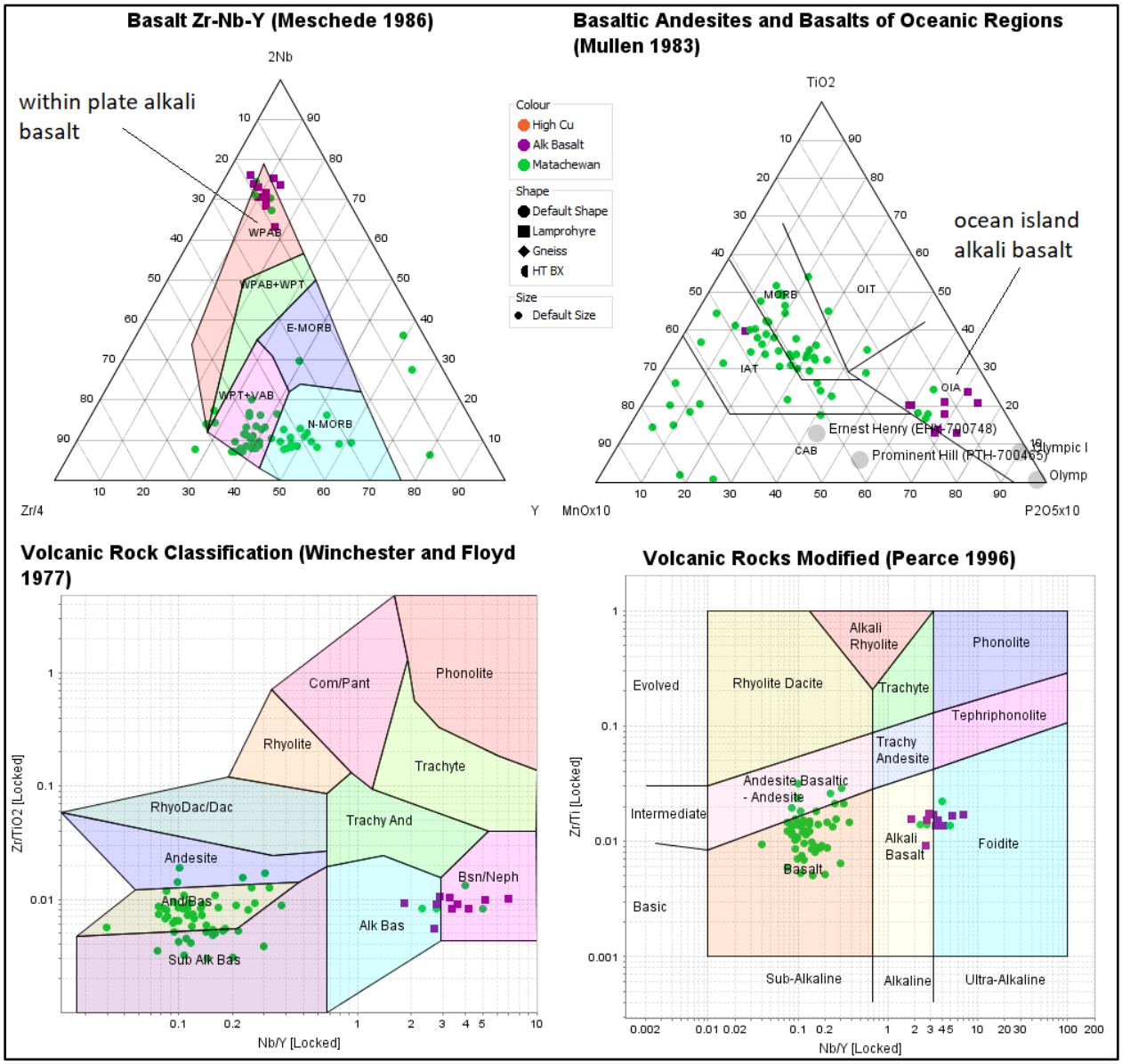


Figure 5: Geochemical discrimination plots in IMDEX ioGas using XRF results from the Ranoke drill program clearly differentiate between late lamprophyre intrusions and Archean metabasalts observed in core. Trace elements indicate the lamprophyre intrusions are alkalic and likely sourced from a mantle plume (Great Meteor hotspot) beneath the Superior Craton at 180-134 Ma. (matachewan data points within the lamprophyre cluster were rechecked and appear to be logging error due to high degrees of alteration. Citations in reference section.)

Figure 6: Core photos from Ranoke 2019-2020 drill program. A) Fluorite-calcite-epidote veinlet cutting across foliated Archean granodiorite at 378m in RK20-003; indicates high temperature hydrothermal fluids commonly found within and around IOCG and carbonatite deposits. B) specular hematite veining with potassium-rich halos at 210m in RK19-001a near Archean unconformity; further evidence for IOCG potential. C) least altered, narrow alkalic lamprophyre dyke at 345m in RK19-001b with carbonate amygdales and phlogopite lathe phenocrysts. D) Iron carbonate cemented hydrothermal breccia with rip-up clasts and intense high-K sericite altered lamprophyre wall-rock at 419m in RK19-001b.

Exploration Model

Ranoke is located immediately north of a robust copper-gold-fluorite heavy mineral anomaly evident in several rivers in the Coral Rapids area, based on a regional alluvium survey completed by the Ontario Geological Survey in 2001 and 2002. The unique mineral assemblage underscores the potential for a buried carbonatite or IOCG deposit (iron oxide copper-gold) as the source of the geochemical anomaly.

The Ranoke property covers a well defined, high intensity magnetic complex approximately 12 x 12 kilometres in size and evident on regional-scale Geological Survey of Canada (GSC) aeromagnetic maps. The complex delineates a regional-scale structural intersection, and individual magnetic anomalies are locally discordant to the regional magnetic grain evident in Archean basement rocks. The high resolution airborne survey completed by VR in 2019 confirmed the location, geometry and intensity of the Ranoke complex evident on the historic GSC maps. The northern magnetic anomaly at Ranoke is both the largest, at > 2.3 km's in diameter, and the highest intensity, at > 1,000 nT. It has a vertical, pipe-like geometry with sharply defined margins and a central apex which is consistent across TMI, RTP and 1VD magnetic products.

The 2019 airborne survey by VR also confirmed the discrete gravity anomaly evident at Ranoke in historic, regional gravity data collected by the Geological Survey of Canada. A singular, 2.5 mgal gravity anomaly is apparent in the 13 x 14 km survey completed by VR. It is co-spatial with the central part of the Ranoke magnetic complex overall, but it is locally discordant to the large, circular magnetic pipe at the north end of the complex.

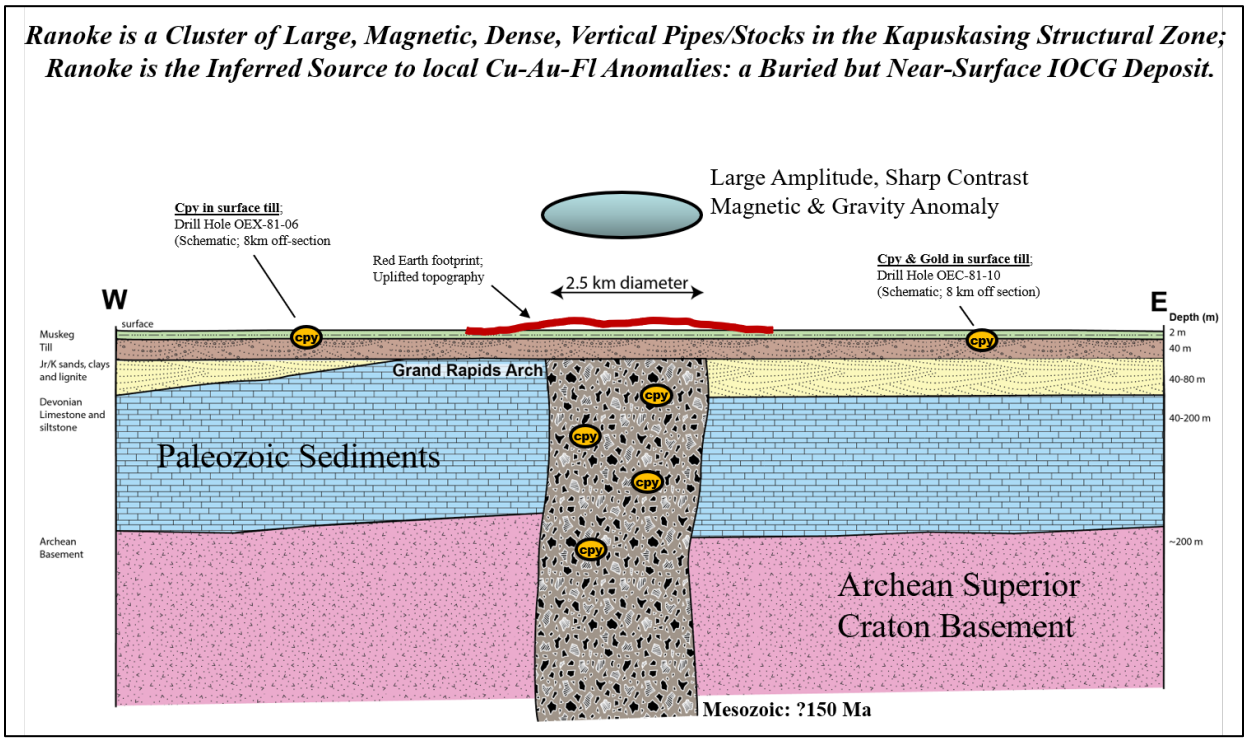


Figure 7: Schematic section of the exploration target at Ranoke.

The schematic cross-section shown in Figure 7 illustrates the target at Ranoke; a near-surface, large, vertical, magnetic, dense IOCG pipe or carbonatite intrusion. This cross-section is a representation of the discreet magnetic anomaly (pipe) at the northern end of the overall magnetic complex and structural intersection at Ranoke. This pipe is potentially the near-surface but till-covered source to copper and gold grains observed in the unconsolidated overburden in nearby reverse circulation drill holes completed in the early 1980's during a reconnaissance evaluation of Cretaceous-aged coal seams in the Moose River Basin.

Drill Holes

Drilling occurred under MENDM permit PR-19-000205. No core samples for assay have presently been taken. No holes encountered artesian conditions. XRF results are included in Appendix C

Table 4: Diamond drill hole locations at Ranoke.

Hole #	Size	Depth (m)	UTM Grid System	Northing	Easting	Elev. (m)	Azimuth	Dip	Started	Completed	Contractor	Assays
RK19-001a	NQ	195	WGS 84 / UTM zone 17N	5,606,666	445,628	70	342	-85	2019-11-09	2019-11-16	MRI	0
RK19-001b	BQ	468	WGS 84 / UTM zone 17N	5,606,666	445,628	71	342	-71	2019-11-18	2019-11-26	MRI	0
RK20-002	BQ	645	WGS 84 / UTM zone 17N	5,607,151	445,323	70	015	-65	2020-02-03	2020-02-11	MRI	0
RK20-003	BQ	403	WGS 84 / UTM zone 17N	5,608,190	445,214	70	165	-75	2020-02-15	2020-02-21	MRI	0

Conclusions & Recommendations

The 2019-2020 winter drill program at Ranoke was successful in testing for and encountering evidence for alteration styles consistent with both IOCG and Carbonatite deposit models. The depth to basement was tested along the northerly magnetic trend in the centre of the property and averaged 210m. Inferred Archean lithologies were groundtruthed and proved to be correct, while lamprophyres were newly described and new IOCG-related hydrothermal alteration and brecciation were discovered accompanying them.

Further drill testing west and east of RK19-001is recommended to target large structural features and their intersections for concentration of hydrothermal alteration and mineralization. These large structures are usually normal faults that have formed subparallel to the KSZ and perpendicularly along Matachewan dykes over the last 400 million years, and prime conduits for rising mineralizing fluids.

Certificate

1. I, Justin J. Daley, reside at 451 Kingswood Rd., Toronto, Ontario, M4E3P4

2. I have a B.Sc. Honours in Geological Sciences from Queen's University in Kingston, ON (2012) and a M.Sc. in Geology (Mineral Exploration) from Laurentian University in Sudbury, ON (2017).

3. I am a registered Professional Geoscientist in the Province of British Columbia and have been for three years.

4. I have been involved in all aspects of mineral exploration for 10 years in the United States, Mexico, Chile, Peru, and across Canada in British Columbia, Saskatchewan, Yukon Territory and Ontario.

5. I have primarily worked within magmatic-hydrothermal systems, such as Cu-Mo-Au porphyries, Au-Ag epithermal deposits and iron-oxide copper gold deposits, for the last 10 years.

6. I am not aware of any material fact or of any material change with respect to the subject matter of this technical report, which has not been reviewed and might make the report misleading.

7. I am a non-independent person with respect to VR Resources, I own shares and have received option agreements with respect to my work with the company as "Principal Geologist" from 2017 to present.

Dated at Toronto, Ontario on June 11th, 2020

Justin J. Daley, PGeo

PROFESSIONAL GEOSCIENTIST
PROVINCE OF BRITISH COLUMBIA
J. J. DALEY
47182

References

Darbyshire, F. A., Eaton, D. W., Frederiksen, A. W., & Ertolahti, L. 2007. New insights into the lithosphere beneath the Superior Province from Rayleigh wave dispersion and receiver function analysis. *Geophysical Journal International*, *169*(3), 1043-1068.

Halls, H. C., & Davis, D. W., 2004. Paleomagnetism and U Pb geochronology of the 2.17 Ga Biscotasing dyke swarm, Ontario, Canada: evidence for vertical-axis crustal rotation across the Kapuskasing Zone. Canadian Journal of Earth Sciences, 41(3), 255-269.

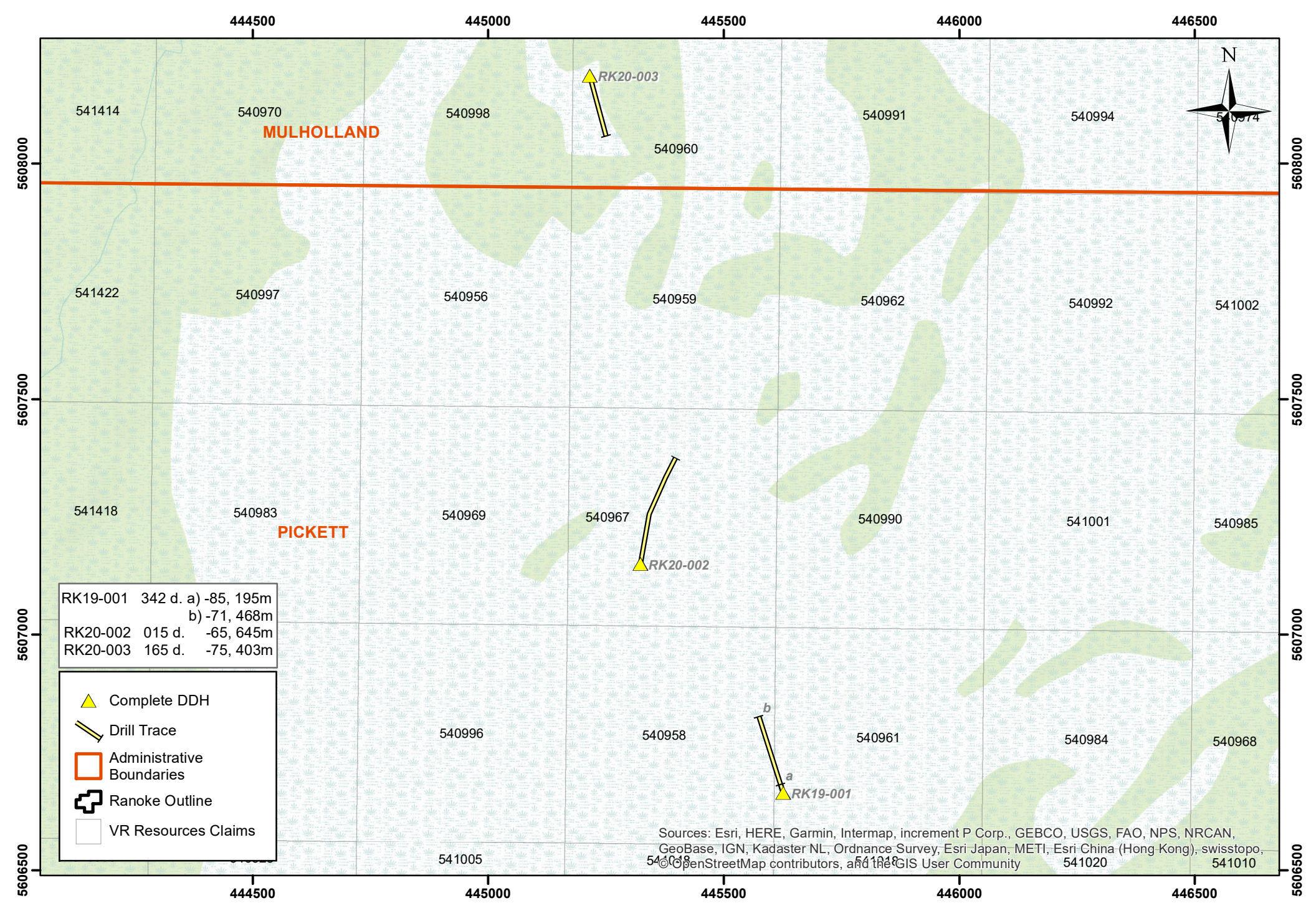
Meschede, M., 1986. A method of discriminating between different types of mid-ocean ridge basalts and continental tholeiites with the Nb 1bZr 1bY diagram. Chemical geology, 56(3-4), pp.207-218.

Mullen, E.D., 1983. $MnO/TiO_2/P_2O_5$: a minor element discriminant for basaltic rocks of oceanic environments and its implications for petrogenesis. Earth and Planetary Science Letters, 62(1), pp.53-62.

Pearce, J., 1996. Sources and settings of granitic rocks. Episodes, 19, pp.120-125.

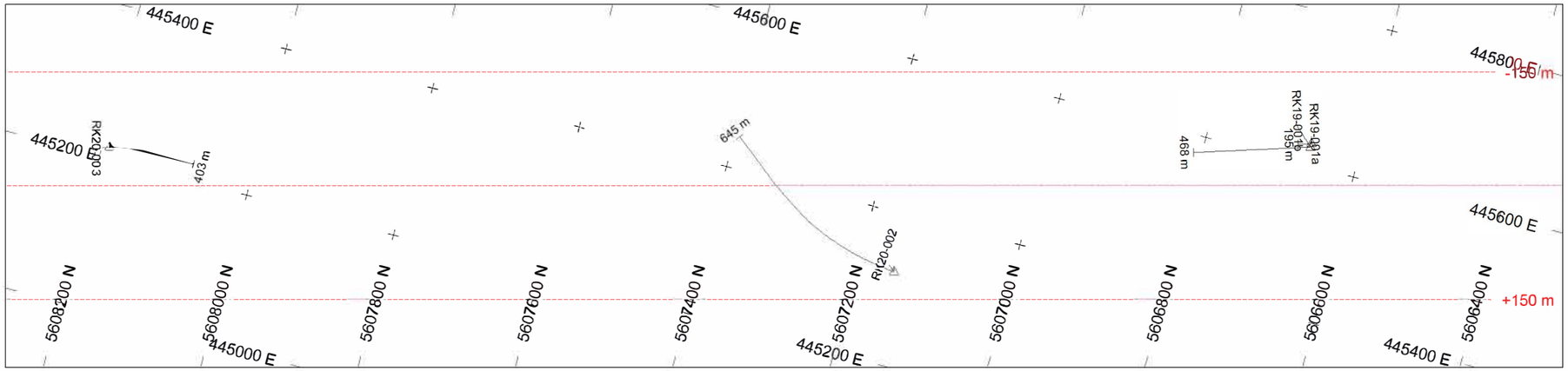
Salo, R. W., 2006. Diamond Drilling Report On The Coral Rapids Property For Baltic Resources Inc., OGS Assessment Report Database. Assessment File: 20000001302. AFRO Number: 2.31852. Resident Geologist District: Timmins. Resident Geologist Office File Number: T-5357

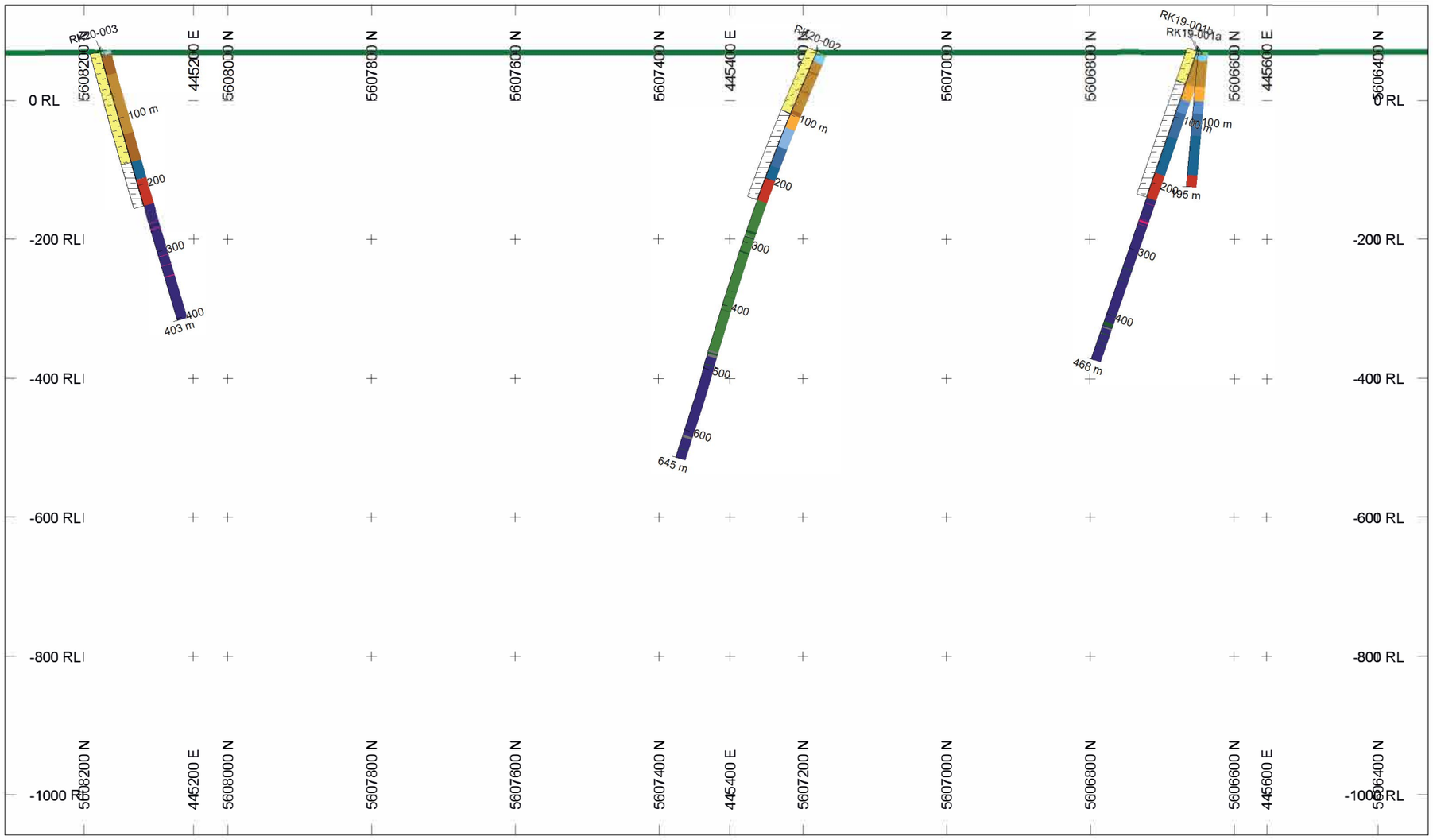
Winchester, J.A. and Floyd, P.A., 1977. Geochemical discrimination of different magma series and their differentiation products using immobile elements. Chemical geology, 20, pp.325-343.



Ranoke Property, Ontario
Drill Plan Map

VR RESOURCES





HOLES PLOTTED

TOTAL 4

RK19-001a	RK19-001b	RK20-002	RK20-003
AZ: 342.5	AZ: 342.5	AZ: 050	AZ:165
Dip: -85	Dip:-71	Dip: -65	Dip: -75

TOPOGRAPHY

LASER_TOPO_MSL.GRD

ROCK CODES Lithology	PAT	LABEL
		Qmg
		Qmc
		Qbt
		Qst
		HT4
		Kma
		mDwi
		MD1
		Atg
		mDmi
		mDmr
		lDsx
		mDkw
		Apg
		Amt

ROCK CODES Overburden	PAT	LABEL
		Overburden
		Sedimentary

SECTION SPECS:

REF. PT. E, N	445395 m	5607320 m
EXTENTS	2049 m	1194 m
SECTION TOP, BOT	136.7 m	-1057 m
TOLERANCE +/-	150 m	

SCALE 1 : 7500

(m)

-100 0 100 200 300

WGS 84 / UTM zone 11N

AZIMUTH = 165°

N W E S

VR Resources Ltd

Ranoke Property

Winter 2019-2020 Drilling

Ranoke Drilling Logging Code List
VR Resources Ltd.

Lithology Code List

Code	*Description*
Qmg	Muskeg
Qmc	Marine Clay
Qbt	Boulder Till
Qst	Sandy Till
Qct	Clay Till
Int1	Intrusive 1
Int2	Intrusive 2
Int3	Intrusive 3
HT1	Hydrothermal 1
HT2	Hydrothermal 2
HT3	Hydrothermal 3
HT4	Hydrothermal 4
Kma	Mattagami Formation - Clay (carbonaceous and laminated), sandstone, quartzose, sand, lignite
Jmi	Mistuskwia Beds - well sorted calcareous quartz sands and silty clay
uDlr	Long Rapids Fmtn - dark bituminous shales, siltstone and clays, green to chocolate mudstones, minor limestone and dolomite
mDwi	Williams Island Fmtn - oolitic fossiliferous limestone, argillaceous limestone, and calcareous shales
MD1	Young Mafic Dyke (Lamprophyre)
Atg	Archean Tonalite-Granodiorite Gneiss
mDmi	Murray Island Fmtn - reefal facies with coral, stromatoporoids, voids. Fore-slope bx, some wacke. biogenic increase upwards
mDmr	Moose River Fmtn - grey mudstone, slightly dolomitic
lDsx	Sextant Fmtn - red-brown limonitic sandstone, conglomerate and siltstone.
mDkw	Kwataboahegan Fmtn - marine facies with crinoids, brachiopods, corals and muddy disolution breccias. Grading to limey chemically deposited muds, clastic-quartz grains
Apg	Archean Pegmatite
Amt	Archean Matachewan Dyke

Rock Unit Code List

Code	*Description*
M1	metamorphosed pelites
M13	Orthogneiss
M10	metamorphosed int to mafic intrusives
V2	Felsic volcanic rocks (Rhyolite, Ryodacite, Dacite; silica content > 63%; pyroclastic
S5	Mudstone/siltstones/pelites (including calcareous)
I8	Diorite
M7	metamorphosed int to mafic volcanics
HT8	Siliceous zone
M11	metamorphosed ultramafics intrusives
HT6	Hydrothermal replacement (quartz veining is greater than 50% and any clasts present have been largely replaced by silica)
V8	Mafic volcanic rocks (basaltic-andesite, basalt; silica content 45-57%)
HT4	quartz-sulphide vein/replacement
HT1	quartz vein/replacement (identified as lithology when > 100 cm, otherwise noted in comments)

I10	Gabbro
M9	metamorphosed felsic intrusives
HT2	quartz-carbonate vein/replacement (massive white to white quartz and pink or white calcite, yellow sericite, ivory ankerite veining, carbonate comprised at least 5% of vein)
I5	granodiorite (mainly feldspars and quarts, bt +/- hbl up to 5-15%)
M8	metamorphosed ultramafic volcanics
M6	metamorphosed felsic volcanics
S6	Limestone
VBx	Volcanic breccia
FOS	Fossil bearing intervals
V6	Mafic dykes; cross cutting, basaltic-andesite
P1	Felsic porphyries
I7	Syenite (granodiorite but alkali feldspars dominant)
I9	Syenodiorite (potassic diorite)
M12	Migmatite
NR	Nothing Recorded
S3	conglomerate
M3	metamorphosed conglomerates
I3	Granite (qtz, plag, Kspar, and minor bt+hbl)
M5	Marble
S4	Sandstone/arenite (fine- to coarse-grained); S4gwy - greywacke
HBX	Hydrothermal breccias
M14	Amphiboliticgneiss
M4	metamorphosed carbonates
I2	Granophyre/microgranite (significant body of fg felsic intrusive)
V9	Felsic dykes
P2	Intermediate porphyries
V4	Intermediate volcanic rocks (Andesite, Latite; Silica content 57-63%); pyroclastic
M2	metamorphosed arenites
HT7	Dense vein stockwork (quartz veining is greater than 25%)
HT3	quartz-silicate vein/replacement (quartz-tourmaline; often occurring as hard, dark-grey veinlets)
I4	Monzogranite/quartz syenite (granite with Kspar dominant)
HT9	massive sulphide
NA	No Rock/Late Cover

Alteration Facies

Code	*Description*
Arg	Argyllic: clay-carbonate-oxides
Phy	Phylllic: serecite-silica-pyrite-specularite
disProp	chl-carb-hm-epi
CCC	Chlorite-Carb-Clay
OutProp	Outer Propylitic: albite-actinolite-quartz-carbonate-pyrite
InProp	Inner Propylitic: albite-chlorite-actinolite-epidote-hematite-quartz
Gen-P	Potassic: biotite-magnetite-quartz
In-CP	Inner Calc-Potassic: biotite-actinolite-magnetite-potassium feldspar-albite-quartz-bornite
Out-CP	Outer Calc-Potassic: Potassium feldspar-chlorite-biotite-albite-actinolite-quartz-chalcopyrite

Ranoke Drilling Logging Code List
VR Resources Ltd.

Alteration Mineral Codes

Code	*Description*	*Code*	*Description*
ep	epidote	al	alunite
spc	specularite	ad	adularia
hem	hematite	bt	biotite
sil	silica	cl	clay
mag	magnetite	cal	calcite
ser	sericite	ab	albite
act	actinolite	plg	phlogopite
Si	silica flooding	scp	scapolite
lim	limonite	jar	jarosite
GL	glassy limonite	ank	ankerite
anh	anhydrite	py	pyrite
carb	carbonate	Sod	ab-qz-hm
jsp	jasperoidal	sb	shreddy biotite
chl	chlorite	gnt	garnet
goe	goethite	ksp	K feldspar
ox	oxides		

Alteration Form Codes

Code	*Description*
F	fracture-controlled
L	acid-leached
OS	open-space crystallization
C	clots
Rv	vein associated replacement
By	blotchy
Pchy	patchy
V	filling vugs
Rm	mottled replacement
Rmx	rock matrix replacement
Rc	clast replacement
Rp	pervasive replacement
D	disseminated
Str	stringers
Rx	phenochryst replacement

Mineralization Mineral Codes

Code	*Description*	*Code*	*Description*	*Code*	*Description*
mal	malachite	au	visible gold	cpy	chalcopyrite
sulf	sulfosalts	py	pyrite	cov	covelite
aspy	arsenopyrite	sph	sphalerite	gn	galena
CuOx	copper oxides	pyar	pyrargite		
cry	chrysocola	cc	chalcocite		
tnt	tennantite	mo	molybdenite		
bn	bornite	az	azurite		
fbg	friebergite	ttr	tetrahedrite		

Alteration Intensity Codes

Code	*Description*
4	moderate
3	weak to moderate
2	weak
6	strong
1	trace
5	moderate to strong

Mineralization Form Codes

Code	*Description*	*Code*	*Description*
C	clots	cl	clot
Vs	vein selvages	F	fracture coating
A	aggregates	Vd	disseminated in veins
NR	Nothing Recorded	Rm	mottled replacement
Vb	banded in veins	D	disseminated
Str	stringers	Rmx	matrix replacement
B	banded	Bl	blebs
DN	dendtritic	Blv	blebs in veins
Rx	phenochryst replacement		
Rp	pervasive replacement		
V	veins		
Rc	clast replacement		
OS	open space crystallization		

Mineralization Intensity Codes

Code	*Description*
1	traces
2	<0.5%
3	0.5-2.0%
4	2.0-5.0%
5	5.0-10.0%
6	10.0-20.0%
7	>20.0%

VR Resources - Ranoke Lithology Logs

-Justin Daley

RK19-001a **Abandoned at base of sedimentary units, cave in. (195m)**

Casing Left: Yes; NW Steel casing cap w/ 1m high red marker

Core Storage: Otter Rapids Camp *Core Size:* NQ

GS84 Zone 17N *UTM E* 445,628 *Azimuth:* 342.5

UTM N 5,606,666 *Dip:* -85

Contractor: Machine Roger Int.

Start: 2019-11-09

Finish: 2019-11-16

Claim: 540961 (100% VR Resources)

Permit: PR-19-000205

Hole number	From	To	Lithology	Rock Unit	Texture	Grain Size	Colour	Oxidation	Description
RK19-001a	0	2	Qmg	NA		Very Fine	Br	H20	no recovery
RK19-001a	2	12	Qmc	NA				H20	no recovery
RK19-001a	12	50	Qst	NA				H20	no recovery
RK19-001a	50	70.65	Kma	S5	bd	Very Fine	Gy	H20	grey calcareous laminated plastic clay with nodules of pyrite around 67m and disseminated throughout. top of core box has boulders/cobblers of biotite-feldspar>quartz granitoid gneiss and fine diabase? probably cretaceous unconsolidated clay of Long Rapids formation. lower contact is irregular
RK19-001a	70.65	89.4	mDmi	S6	fs	Coarse	Cr	Fr	Dark grey to buff coloured fossiliferous packstone to limey mud carbonate with local depositional or dissolution breccias up to 15cm with darker grey/brown muddy to grainy cement containing very fine pyrite and weak K (xrf). breccia is subangular to rounded further down and calcareous. no evidence of HT alteration. crinoid stems, brachipods and local coral. problems with recovery from clay layers? or karst formation. reports of gas escaping, H2S?
RK19-001a	89.4	109.56	mDmr	S3	msp	Coarse	Gy	Fr	dark grey black calcareous mudstone conglomerate. matrix supported, local angular buff layered limestone and coral clasts 1-6cm semi regularly. clasts are small and increase in concentration towards base. zone of increased dissolution, poor core recovery. mud washed away?
RK19-001a	109.56	121.16	mDmr	S5	bd	Medium	Cr	Fr	Interlayered dolomite and limestone mudstone with sequences of dolomitic stromatoporoid and burrow rock packstone. local round fossils laying in mud bedding. smells of sulfur and has some rusty patches. wackestone to biomicrite packstone horizons up to 10cm
RK19-001a	121.16	130.6	mDkw	S6	fs	Coarse	Bl	Fr	gradation into fossiliferous floatstone to rudstone with abundant stromatoporoid mats up to 1cm 20-40%, large coral blocks averaging 6cm up to 15cm in 40% of rock. matrix is bituminous wackestone to packstone with rare thick bitumen
RK19-001a	130.6	174.1	mDkw	S6	fs	Coarse	Cr	Fr	similar unit to before with much coral-stromatoporoid-bitumen layers up to 30cm interspersed between buff calcareous mudstone. coral-stromatoporoid-bitumen layer is 30% of rock overall.
RK19-001a	174.1	178.28	mDkw	S6	fs	Coarse	Cr	Fr	transition into coarse siliciclastic packstone with large corals 2-20cm and occasional brachiopods in grainstone. looks like rudstone in places. Quartz and limestone fragments are angular and 2-6mm in mud matrix
RK19-001a	178.28	189.42	lDsx	S4	xbd	Fine	Gy	Fr	Dark grey calcareous fossiliferous arenite to siliciclastic wackestone. fossils are small fragments in narrow 5cm horizons. dark bituminous layers show cross bedding around 184-186m. angular quartz and limestone grains in 20cm layers amongst sandy matrix.
RK19-001a	189.42	195	lDsx	S4	m	Medium	Mr	Ox	10cm clast of pyrite, silica and chlorite veined igneous textured rock with clay alteration. tan weakly consolidated Sandston grading into firm maroon arenite at 194m. intense oxidation and more firm.

Log finished 2019-11-17 -- Justin J. Daley

VR Resources - Ranoke Lithology Logs

-Justin Daley

RK19-001b **468 metres**

Casing Left: Yes; NW Steel casing cap w/ 1m high red marker

Core Storage: Otter Rapids Camp Core Size: BQ

GS84 Zone 17N *UTM E* 445,628 Azimuth: 342.5

UTM N 5,606,666 Dip: -71

Contractor: Machine Roger Int.

Start: 2019-11-18

Finish: 2019-11-26

Claim: 540961 (100% VR Resources)

Permit: PR-19-000205

Hole number	From	To	Lithology	Rock Unit	Texture	Grain Size	Colour	Oxidation	Description
RK19-001b	0	2	Qmg	NA				H20	no recovery
RK19-001b	2	12	Qmc	NA				H20	no recovery
RK19-001b	12	50	Qst	NA				H20	No recovery; grey calcareous laminated plastic clay with nodules of pyrite around 67m and disseminated throughout. top of core box has boulders/cobblers of biotite-feldspar>quartz granitoid gneiss and fine diabase? probably cretaceous unconsolidated clay of Long Rapids formation. lower contact is irregular
RK19-001b	50	72.86	Kma	S5	lam	Fine	Gy	Fr	Dark grey to buff coloured fossiliferous packstone to limey mud carbonate with local depositional or dissolution breccias up to 15cm with darker grey/brown muddy to grainy cement containing very fine pyrite and weak K (xrf). breccia is subangular to rounded further down and calcareous. no evidence of HT alteration. crinoid stems, brachipods and local coral. problems with recovery from clay layers? or karst formation. reports of gas escaping, H2S?
RK19-001b	72.86	92.2	mDmi	S6	fs	Coarse	Cr	Fr	dark grey black calcareous mudstone conglomerate. matrix supported, local angular buff layered limestone and coral clasts 1-6cm semi regularly. clasts are small and increase in concentration towards base. zone of increased dissolution, poor core recovery. mud washed away?
RK19-001b	92.2	112.99	mDmr	S3	bx	Coarse	Gy	Fr	Interlayered dolomite and limestone mudstone with sequences of dolomitic stromatoporoid and burrow rock packstone. local round fossils laying in mud bedding. smells of sulfur and has some rusty patches. wackestone to biomicrite packstone horizons up to 10cm
RK19-001b	112.99	129.8	mDmr	S5	bd	Medium	Cr	Fr	gradation into fossiliferous floatstone to rudstone with abundant stromatoporoid mats up to 1cm 20-40%, large coral blocks averaging 6cm up to 15cm in 40% of rock. matrix is bituminous wackestone to packstone with rare thick bitumen layers.
RK19-001b	129.8	130.6	mDkw	S6	fs	Coarse	Bl	Fr	similar unit to before with much coral-stromatoporoid-bitumen layers up to 30cm interspersed between buff calcareous mudstone. coral-stromatoporoid-bitumen layer is 30% of rock overall.
RK19-001b	130.6	143.8	mDkw	S6	fs	Coarse	Cr	Fr	transition into coarse siliciclastic packstone with large corals 2-20cm and occasional brachiopods in grainstone. looks like rudstone in places. Quartz and limestone fragments are angular and 2-6mm in mud matrix
RK19-001b	143.8	185.5	mDkw	S6	fs	Coarse	Cr	Fr	Dark grey calcareous fossiliferous arenite to siliciclastic wackestone. fossils are small fragments in narrow 5cm horizons. dark bituminous layers show cross bedding around 184-186m. angular quartz and limestone grains in 20cm layers amongst sandy matrix.
RK19-001b	185.5	202	lDsx	S4	xbd	Medium	Gy	Fr	10cm clast of pyrite, silica and chlorite veined igneous textured rock with clay alteration. tan weakly consolidated Sandston grading into firm maroon arenite at 194m. intense oxidation and more firm. Base of unit has cobbles and boulders of other igneous and metamorphic units. a fresh biotite phyric rock, a hematite and pyrite altered tonalite. recovery was extremely poor as starting bar was used to get through sand.
RK19-001b	202	222.62	lDsx	S4	m	Medium	Mr	Ox	narrow band of pink coarse massive felsic rock. no banding or obvious metamorphic texture. sharp lower contact. local interstitial magnetite altering to specularite rims. interstitial disseminated black pyrite and spec. local phlogopite, but predominantly agglomeration of 3-7mm pink stained feldspar.
RK19-001b	222.62	223.1	Apg	I5	dk	Coarse	Pk	Ox	weakly foliated equigranular coarse tonalite diorite, maybe part of Archean TTG complex. 20-30% biotite in 3-4mm narrow books, replaced by chlorite, the rest issue pink stained feldspar with 5.7% K.

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RK19-001b	223.1	223.25	Atg	M13	eq	Coarse	Pk	Ox	clay altered soft magnetic late mafic dyke. dark green to maroon. relic augite? phenos 1-2mm totally replaced, locally by mottled intense maroon hematite stain. sharp contacts, likely vertical attitude. +30% Fe in xrf, also high Ba, La, Ce and 5% K. bleaching for 15cm at bottom contact.
RK19-001b	223.25	223.9	MD1	V6	por	Medium	Bl	Ox	weakly foliated equigranular coarse tonalite diorite, maybe part of Archean TTG complex. 20-30% biotite in 3-4mm narrow books, replaced by chlorite, the rest issue pink stained feldspar with 5.7% K. at 225.9 transitions into banded fine grain and chlorite coarse sections.
RK19-001b	223.9	231	Atg	M13	bx	Coarse	Pk	Ox	narrow band of pink coarse massive felsic rock. no banding or obvious metamorphic texture. sharp lower contact. local interstitial magnetite altering to specularite rims. interstitial disseminated black pyrite and spec. local phlogopite, but predominantly agglomeration of 3-7mm pink stained feldspar.
RK19-001b	231	231.43	Apg	I7	dk	Coarse	Pk	Ox	moderately foliated equigranular medium grain orthogneiss, maybe part of Archean TTG complex. looking like a lot more biotite and less intrusive. 20-30% biotite in 3-4mm narrow books, replaced by chlorite, the rest issue pink stained feldspar. after fault at 240m is fresh dark green biotite rich orthogneiss, variable banding .
RK19-001b	231.43	244.93	Atg	M13	bx	Medium	Gr	Tr	late mafic dyke with quenched hyalocrysstaline contacts and small xenoliths. pretty fresh and fine grain with up to 20% anhedral rounded dark green augite phenos.
RK19-001b	244.93	245.25	MD1	V6	dk	Fine	Bl	Fr	more intensely foliated gneiss sick layered and variably banded biotite orthogneiss. highly variable with zones of pure biotite and less mag. feldspar rich bands too. and evidence for relic textures
RK19-001b	245.25	254.8	Atg	M13	gs	Coarse	Gr	Fr	15cm dyklet of quartz kspar magnetite pegmatite. 3mm magnetite interstitial. texture is about 1ck
RK19-001b	254.8	255	Apg	M12	peg	Coarse	Cr	Fr	more intensely foliated gneiss sick layered and variably banded biotite orthogneiss. highly variable with zones of pure biotite and less mag. feldspar rich bands too. and evidence for relic textures
RK19-001b	255	256.07	Atg	M13	gs	Coarse	Gr	Fr	felsic zone of gneiss with few mafics and local patches of pink pegmatitic texture ~1cm grains.
RK19-001b	256.07	259.3	Apg	M12	peg	Coarse	Pk	Fr	many xenoliths in gneissic banded section. Probably porphyry, diorite and mafic dyke protolith. all replaced by feldspar and biotite.
RK19-001b	259.3	262.46	Atg	M13	xnl	Coarse	Gy	Fr	narrow band of pink coarse massive felsic rock. no banding or obvious metamorphic texture. sharp lower contact. local interstitial magnetite altering to specularite rims. interstitial disseminated black pyrite and spec. local phlogopite, but predominantly agglomeration of 3-7mm pink stained feldspar.
RK19-001b	262.46	262.76	Apg	M12	pbl	Coarse	Pk	Fr	back to a more homogeneous moderately foliated orthogneiss of feldspar and biotite, rare quartz. probable tonalite or diorite protolith. strong pink banded alteration as section proceeds.
RK19-001b	262.76	328.72	Atg	M13	fol	Coarse	Pk	Fr	late mafic dyke with quenched hyalocrysstaline contacts and small xenoliths. pretty fresh and fine grain with up to 20% anhedral rounded dark green augite phenos. some cross cutting calcite veins
RK19-001b	328.72	329.72	MD1	V6	fbx	Coarse	Bl	Fr	back to a more homogeneous moderately foliated orthogneiss of feldspar and biotite, rare quartz. probable tonalite or diorite protolith. strong pink banded alteration as section proceeds.
RK19-001b	329.72	346.42	Atg	M13	fol	Coarse	Pk	Fr	late mafic dyke with quenched hyalocrysstaline contacts and small xenoliths. pretty fresh and fine grain with up to 20% anhedral rounded dark green augite phenos. chlorite and pink carbonate. veins crossing
RK19-001b	346.42	346.85	MD1	V6	fbx	Coarse	Bl	Fr	back to a more homogeneous moderately foliated orthogneiss of feldspar and biotite, rare quartz. probable tonalite or diorite protolith. strong pink banded alteration as section proceeds.
RK19-001b	346.85	398.15	Atg	M13	fol	Coarse	Pk	Fr	apparently a silly of fine to medium grain porphyriytic volcanic rock. cutting get and parallel with siderite veins
RK19-001b	398.15	398.29	MD1	V8	fbx	Medium	Tn	Fr	strongly foliated and banded orthogneiss of feldspar and biotite, rare quartz. probable tonalite or diorite protolith. strong pink banded alteration as section proceeds.
RK19-001b	398.29	411	Atg	M13	fol	Coarse	Mr	Fr	narrow, steep green to black porphyritic volcanic dyke with rounded dark green and white altered phenocrysts. local small clasts at edges. narrow and large multi phase wavy calcite veins inside with epidote selvage. lower some hematite cored epidote bands and a carbonate hydrothermal breccia at bottom contact
RK19-001b	411	416.4	MD1	V4	dk	Medium	Gr	H20	strongly foliated and banded orthogneiss of feldspar and biotite, rare quartz. probable tonalite or diorite protolith. strong pink banded alteration as section proceeds.

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RK19-001b	416.4	418.2	Atg	M13	fol	Coarse	Gy	Fr	strongly altered hydrothermal breccia with pale green angular blesched clasts on edges of orange red hematite carbonate matrix. associated with the mafic dyke, cross-cutting with many veins.
RK19-001b	418.2	420	HT4	HBX	bx	Fine	Rd	Ox	strongly foliated and banded orthogneiss of feldspar and biotite, rare quartz. probable tonalite or diorite protolith. strong pink banded alteration as section proceeds.
RK19-001b	420	427.5	Atg	M13	gs	Coarse	Pr	Fr	veined and pale green epidote altered narrow, steep green to black porphyritic volcanic dyke with rounded dark green and white altered phenocrysts. local small clasts at edges. narrow wavy calcite veins inside
RK19-001b	427.5	429	MD1	V6	por	Medium	Gr	Fr	strongly foliated and banded orthogneiss of feldspar and biotite, rare quartz. probable tonalite or diorite protolith. strong pink banded alteration as section proceeds.
RK19-001b	429	437.65	Atg	M13	fol	Coarse	Mr	Fr	narrow, steep green to black porphyritic volcanic dyke with rounded dark green and white altered phenocrysts. local small clasts at edges. narrow wavy calcite veins inside
RK19-001b	437.65	438.35	MD1	V6	dk	Medium	Gy	Fr	strongly foliated and banded with local mafic xenoliths around 433. alternating between pink pegmatoidal zones around 10cm to irregular biotite bands.
RK19-001b	438.35	445.82	Atg	M13	xnl	Coarse	Pk	Fr	narrow, steep green to black porphyritic volcanic dyke with rounded dark green and white altered phenocrysts. local small clasts at edges. narrow wavy calcite veins inside
RK19-001b	445.82	446.4	MD1	V6	dk	Medium	Gy	Fr	strongly foliated and banded with local mafic xenoliths around 433. alternating between pink pegmatoidal zones around 10cm to irregular biotite bands.
RK19-001b	446.4	468	Atg	M13	gs	Coarse	Pk	Fr	

Log finished 2019-11-26 -- Justin J. Daley

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-Justin Daley

RK19-002 **645 metres**

Casing Left: Yes; NW Steel casing cap w/ 1m high red marker

Core Storage: Otter Rapids Camp Core Size: BQ

GS84 Zone 17N *UTM E* 445,323 Azimuth: 15

UTM N 5,607,151 Dip: -65

Contractor: Machine Roger Int.

Start: 2020-02-03

Finish: 2020-02-11

Claim: 540967 (100% VR Resources)

Permit: PR-19-000205

Hole number	From	To	Lithology	Rock Unit	Texture	Grain Size	Colour	Oxidation	Description
RK20-002	0	3	Qmg	NA		Very Fine		H20	no recovery
RK20-002	3	15	Qmc	NA		Very Fine		H20	no recovery
RK20-002	15	30	Qst	NA		Fine		H20	no recovery
RK20-002	30	33	Qbt	NA		Coarse		H20	no recovery
RK20-002	33	60	Qst	NA		Fine		H20	no recovery
RK20-002	60	63	Qbt	NA		Coarse		H20	no recovery
RK20-002	63	93	Qst	NA		Fine		H20	no recovery
RK20-002	93	99	Qbt	NA		Coarse		H20	no recovery
RK20-002	99	150	Kma	S5		Fine		H20	no recovery
RK20-002	150	234.9	Jmi	S5		Fine		Ox	cobbles of dolomite and granitoid, sandy
RK20-002	234.9	281.8	Amt	V8	pbl	Medium	Gr	Fr	fine grain massive basalt with blotches of epidote alteration up to 2cm. feldspars are glassy in places. could be archean dome with no devonian limestone that has down dropped
RK20-002	281.8	285.2	MD1	V6	amy	Fine	Bl	Fr	very fine late magic dyke cross cutting with fluids on contacts. locally amygdaloidal with carbonate fill.
RK20-002	285.2	289.9	Amt	V8	pbl	Medium	Gr	Fr	fine grain massive basalt with blotches of epidote alteration up to 2cm
RK20-002	289.9	290.74	HT4	HBX	shr	Coarse	Or	Fr	weakly brecciated on contact of very fine late dyke. small angular fragments are dark green in light green ground mass. veining looks like orange iron carbonate and chlorite local gypsum?.
RK20-002	290.74	292.5	MD1	V6	amy	Fine	Gr	Fr	very fine late magic dyke cross cutting with fluids on contacts. locally amygdaloidal with carbonate fill.
RK20-002	292.5	313.9	Amt	V8	eq	Medium	Gr	Fr	fine grain massive basalt
RK20-002	313.9	316.46	MD1	V6	aph	Fine	Bl	Fr	high angle to core with much more fragments and layering. pink fragments, pyrite, and angular black frags. magnetic. one irregular green 4cm class with sheeted veins
RK20-002	316.46	326.35	Amt	V8	pbl	Medium	Gr	Fr	fine grain massive basalt with locally pegmatitic zone at 325m, needle like grains indicating supersaturation
RK20-002	326.35	326.65	MD1	V6	sx	Fine	Bl	Fr	narrow very fine grain with needles of deep green bootie? and 1mm calcite at core. edges are irregular and high level
RK20-002	326.65	376.7	Amt	V8	pbl	Medium	Gr	Fr	median grain massive basalt with variable replacement in zones around veins and dykes
RK20-002	376.7	376.85	MD1	V6	fb	Fine	Bl	Fr	narrow irregular aphanktic dyke with small rounded carb blobs and disseminated pyrite. edges have multiple bands of dark material "pulsing"
RK20-002	376.85	386.36	Amt	V8	pbl	Medium	Gr	Fr	median grain massive basalt with variable replacement in zones around veins and dykes
RK20-002	386.36	386.81	MD1	V6	fb	Fine	Bl	Fr	narrow irregular aphanktic dyke with small rounded carb blobs and disseminated pyrite. edges have multiple bands of dark material "pulsing". usual narrow mafic dyke with aphanitic edges and rounded clasts 1-5mm in core. starting to see small angular fragments of red hematite or ankerite/siderite
RK20-002	386.81	407.14	Amt	V8	pbl	Medium	Gr	Fr	median grain massive basalt with variable replacement in zones around veins and dykes
RK20-002	407.14	407.64	MD1	V6	por	Medium	Bl	Fr	usual narrow mafic dyke with aphanitic edges and rounded clasts 1-5mm in core. starting to see small angular fragments of red hematite or ankerite/siderite
RK20-002	407.64	472.31	Amt	V8	pbl	Medium	Gr	Fr	median grain massive basalt with variable replacement in zones around veins and dykes
RK20-002	472.31	474.5	HT4	HT2	bx	Coarse	Or	Ox	fault zone with alternating maroon Atg and Amt fragments with intense silica-carbonate hydrothermal infill. lots of chlorite and pink clasts. contact between matachewan dyke and gneiss. possible that thefr is some young dyke in here, but is totally bleached.

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RK20-002	474.5	477.7	MD1	V6	por	Fine	Gy	Ox	pale green grey fine volcanic with green chlorite replacing nodules. dark rims on clasts with calcite infill. 6mm fragments of pink pegmatite in dyke streaming. looking fluidized and bleached greh with calcite veins in it and strong brecciation on either side
RK20-002	477.7	481.5	HT4	HT2	bx	Coarse	Or	Ox	fault zone with alternating maroon Atg and Amt fragments with intense silica-carbonate hydrothermal infill. lots of chlorite and pink clasts. contact between matachewan dyke and gneiss. possible that thefr is some young dyke in here, but is totally bleached.
RK20-002	481.5	494.03	Atg	M9	peg	Coarse	Pk	Tr	massive pink-maroon pegmatite bands in pink metavolcanic, with moderate veining. locally developed gneissic and migmatitic zones
RK20-002	494.03	495.22	MD1	V6	por	Fine	Gr	Fr	pale green grey fine volcanic with green chlorite replacing nodules. looking fluidized and bleached greh at its core with calcite veins
RK20-002	495.22	608.05	Atg	M9	peg	Coarse	Mr	Fr	massive pink-maroon pegmatite bands in pink metavolcanic, with moderate veining. locally developed gneissic and migmatitic zones. gets more mafic after 530m.
RK20-002	608.05	612	HT4	HT2	fz	Coarse	Or	Ox	intense iron-carbonate and silica veining and brecciation and cementation surrounding clast fault zone with polymictic grey to pink granitoid pebble dyke? local dark blue black silica in matrix. other tabular clasts are pink calcite.
RK20-002	612	630.11	Atg	M7	gs	Coarse	Gr	Fr	predominantly dark green crystalloblastic and locally gneissic mafic metavolcanic with quartz-kspar pegmatites.
RK20-002	630.11	630.52	MD1	V6		Fine	Bl	Fr	fairly fresh mafic-alkaline lamprophyre with sharp edges and rounded 1mm calcite blobs and possible pyrite?
RK20-002	630.52	645	Atg	M9	gs	Coarse	Gr	Fr	predominantly dark green crystalloblastic and locally gneissic mafic metavolcanic with quartz-kspar pegmatites. transitions to pink fellsic protolith at 638.56

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RK19-003 **403 metres**

Casing Left: No No Marker

Core Storage: Otter Rapids Camp

GS84 Zone 17N *UTM E* 445,214

UTM N 5,608,190

Core Size: BQ

Azimuth: 165

Dip: -75

Contractor: Machine Roger Int.

Start: 2020-02-15

Finish: 2020-02-21

Claim: 540960 (100% VR Resources)

Permit: PR-19-000205

Hole number	From	To	Lithology	Rock Unit	Texture	Grain Size	Colour	Oxidation	Description
RK20-003	0	2	Qmg	NA				H20	no recovery
RK20-003	2	6	Qmc	NA				H20	no recovery
RK20-003	6	36	Qbt	NA				H20	boulders of dolomite, granitoid gneiss and fine grain mafic rocks
RK20-003	36	124	Qst	NA				H20	no recovery
RK20-003	124	165	Qbt	NA				Fr	boulders of fresh archean granodiorite and a couple fragments of aphanitic mafic volcanic
RK20-003	165	191.5	mDkw	S6	fs	Coarse	Tn	Fr	dark floatstone dolomite to 180m with yellowish euhedral calcite growing in voids. turning to pale grey limestone after with local coral and shell fragments in Packstone horizons 5-25mm
RK20-003	191.5	230.8	lDsx	S4	bd	Medium	Mr	Tr	massive grey lsandstone to 204m with rare fizz, local 5-8mm empty shell shaped voids. after is another sequence of coarse wackestone with some large blocks of limestone, otherwise no fizz, large fragments of bull quartz. angular fragment of silestone at 207m and the start of some oxidation. return to grey granite to 210m before turning back to immature greywhacke. may even be some biotite in there. large quartz fragments again at 211m. after 213m are 1-20cm seams of black siltstone and becoming more interbedded with arenite after 216m. 3cm thick angular siltstone fragment at 217m. 220m sees a change to softer darker and more oxidized wacke. becomes deep red at 222m
RK20-003	230.8	257.65	Atg	M10	peg	Coarse	Pk	Tr	weakly foliated pegmatitic granodiorite with variable mafic content (biotite) from 30 to 50%. pegmatites are 10cm across with megacrystic quartz and Kspar with 1cm clots of euhedral brassy black biotite. disseminated magnetite oxidized to specularite
RK20-003	257.65	257.85	Apg	M9	peg	Coarse	Pk	Fr	very coarse pegmatite of quartz Kspar and magnetite
RK20-003	257.85	266.2	Atg	M10	fol	Coarse	Gy	Fr	weakly foliated pegmatitic granodiorite with variable mafic content (biotite) from 30 to 50%. pegmatites are 10cm across with megacrystic quartz and Kspar with 1cm clots of euhedral brassy black biotite. disseminated magnetite
RK20-003	266.2	267.55	Apg	M9	peg	Coarse	Pk	Fr	very coarse pegmatite of quartz Kspar and magnetite, large clot of biotite
RK20-003	267.55	307.32	Atg	M10	fol	Coarse	Gy	Fr	weakly foliated pegmatitic granodiorite with variable mafic content (biotite) from 30 to 50%. pegmatites are 10cm across with megacrystic quartz and Kspar with 1cm clots of euhedral brassy black biotite. disseminated magnetite
RK20-003	307.32	307.96	Apg	M9	peg	Coarse	Pk	Fr	very coarse pegmatite of quartz Kspar and a seam of pyrite
RK20-003	307.96	321.6	Atg	M10	fol	Coarse	Gy	Fr	weakly foliated pegmatitic granodiorite with variable mafic content (biotite) from 30 to 50%. pegmatites are 10cm across with megacrystic quartz and Kspar with 1cm clots of euhedral brassy black biotite. disseminated magnetite
RK20-003	321.6	322.45	Apg	M9	peg	Coarse	Pk	Fr	very coarse pegmatite of quartz Kspar and magnetite, large clot of biotite
RK20-003	322.45	337.75	Atg	M10	fol	Coarse	Gy	Fr	weakly foliated pegmatitic granodiorite with variable mafic content (biotite) from 30 to 50%. pegmatites are 10cm across with megacrystic quartz and Kspar with 1cm clots of euhedral brassy black biotite. disseminated magnetite
RK20-003	337.75	338.7	Apg	M9	peg	Coarse	Pk	Fr	very coarse pegmatite of quartz Kspar and magnetite, large clot of biotite
RK20-003	338.7	403	Atg	M10	fol	Coarse	Gy	Fr	weakly foliated pegmatitic granodiorite with variable mafic content (biotite) from 30 to 50%. pegmatites are 10cm across with megacrystic quartz and Kspar with 1cm clots of euhedral brassy black biotite. disseminated magnetite

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Hole number	From	To	Length	AltFacies	Alt 1	Alt 1 Inte	Alt 1 For	Alt 2	Alt 2 Intens	Alt 2 Form	Alt 3	Alt 3 Inter	Alt 3 Form	Description
RK19-001b	222.8	223.1	0.3	In-CP	hem	4	Rp	ksp	5	Rv	chl	1	Rx	hematite stringers and stockworks with Kspar selvage, weak bleaching too. locally chlorite altered mafic sites. hematite rimming magnetite in clots. disseminated pyrite too.
RK19-001b	223.1	223.25	0.15	In-CP	hem	5	Rp	ksp	5	Rv	chl	5	Rx	hematite stringers and stockworks with Kspar selvage. intense chlorite altered mafic sites. disseminated specularite.
RK19-001b	223.25	223.9	0.65	CCC	hem	6	Rp	cl	6	Rp	chl	6	Rp	intense mottled hematite replacement of rock. totally chlorite-clay altered groundmass and phenocrysts.
RK19-001b	223.9	225.9	2	In-CP	hem	5	D	ksp	4	Rv	chl	4	Rx	begins with strong bleavhing for 15cm. hematite stringers and stockworks with Kspar selvage. intense chlorite altered mafic sites. disseminated specularite.
RK19-001b	225.9	231	5.1	disProp	hem	3	Rv	ab	4	Rv	chl	6	Rv	stockwork of chlorite veins in banded fine grain gneiss with bleached white feldspar in halo. weaker hematite stockworks. local late carbonate veins.
RK19-001b	231	231.43	0.43	Out-CP	hem	5	Rv	ksp			chl	2	Rv	hematite stringers and stockworks with Kspar selvage, weak bleaching too. locally chlorite altered mafic sites. hematite rimming magnetite in clots. disseminated pyrite too.
RK19-001b	231.43	233	1.57	disProp	hem	2	Rv	ksp			chl	6	Rv	strong chlorite replacement of stronger biotite foliation. local intense hematite veins but Kspar halos are weaker.
RK19-001b	246.4	247	0.6		chl	4	Rp							strong chlorite replacement of stronger biotite foliation.
RK19-001b	256.1	259.3	3.2		hem	2	D	ksp	5					bands and patches of pink kspar replacement. leucoxene and specularite replacement of mafic sites. increasing in intensity towards 303.
RK19-001b	259.3	262.2	2.9		hem	2	D	ksp	3		chl	3	F	zone of epidote, chlorite and hemstite, brecciating Kspar, and disseminated pyrite. bands and patches of pink kspar replacement. leucoxene and specularite replacement of mafic sites.
RK19-001b	262.76	267	4.24		hem									bands and patches of pink kspar replacement. leucoxene and specularite replacement of mafics
RK19-001b	267	268.5	1.5											zone of hematite veining and chlorite, epidote rim. siderite and epidote veins.
RK19-001b	268.5	289	20.5		hem	3	Pchy	ksp	3	Rv				bands and patches of pink kspar replacement. leucoxene and specularite replacement of mafic sites. increasing in intensity towards 303.
RK19-001b	289	298.5	9.5		hem	3	D	ksp	4	Rv	cl	3	Rx	bands and patches of pink kspar replacement. leucoxene and specularite replacement of mafic sites. increasing in intensity towards 303. new splotches of weak white clay and carbonate disseminated
RK19-001b	298.5	303.2	4.7		hem	5	D	ksp	5	Rv	ep	2	Rv	large bands and patches of pink kspar replacement around epidote veins. leucoxene and specularite replacement of mafic sites, some py. increasing in intensity towards 303. new splotches of weak white clay and carbonate disseminated more intensely
RK19-001b	303.2	328.72	25.52		hem	3	Pchy	ksp	4	Rv				large bands selvages of pink kspar replacement around epidote veins. leucoxene and specularite replacement of mafic sites, some py. increasing in intensity towards 303. new splotches of weak white clay and carbonate disseminated more intensely
RK19-001b	329.72	346.4	16.68		hem	2	D	ksp	3	Rv	cl	3	Rx	large bands selvages of pink kspar replacement around epidote veins. leucoxene and specularite replacement of mafic sites, some py. increasing in intensity towards 303. new splotches of weak white clay and carbonate disseminated more intensely

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RK19-001b	346.85	351	4.15		hem	2	D	ksp	3	Rv	ep	2	Rv	large bands selvages of pink kspar replacement around epidote veins. leucoxene and specularite replacement of mafic sites, some py. increasing in intensity towards 303. new splotches of weak white clay and carbonate disseminated more intensely
RK19-001b	351	390.75	39.75		hem	2	D	ksp	3	Rv	sb	3	Rp	large bands selvages of pink kspar replacement around epidote veins. leucoxene and specularite replacement of mafic sites, some py. increasing in intensity with biotite replacement to bt
RK19-001b	390.75	398.15	7.4		hem	5	Rv	ksp	5	Rx	sb	5		zone of more intense pink hem/kspar staining and biotite replacement to shreddy biotite. vein dominated.
RK19-001b	398.29	401.7	3.41		hem	4	Rp	ksp	5	Rv	cl	1	Rx	zone of more intense pink hem/kspar staining and biotite replacement to shreddy biotite. vein dominated. with specs of clay alteration through.
RK19-001b	401.7	411	9.3		hem	3		ksp	2	Rv	cl	4	Rx	as before but more intense clay alteration just after 402m
RK19-001b	411	421	10		hem	3		cl	2	Rv	ep	3	Rx	bleached clasts in dyke or hydrothermal breccia with strong hematite staining, lots of chlorite and epidote throughout. a chaotic late low temperature zone.
RK19-001b	421	427.5	6.5		hem									zone of more intense pink hem/kspar staining and biotite replacement to shreddy biotite. vein dominated. with specs of clay alteration through.
RK19-001b	427.5	429	1.5		hem			chl	4	Rv	ep			bleaching and epidote chlorite replacement around the strong calcite veinning at
RK19-001b	429	437.65	8.65		hem									zone of more intense pink hem/kspar staining and biotite replacement to shreddy biotite. vein dominated. with specs of clay alteration through.
RK19-001b	437.65	438.35	0.7											
RK19-001b	438.35	445.82	7.47		hem	3		ksp	2	Rv	cl	3	Rx	as before but more intense clay alteration just after 402m. especially concentrated around dykes.
RK19-001b	446.4	450	3.6		hem	3		ksp	2	Rv	cl	3	Rx	as before but more intense clay alteration just after 402m. especially concentrated around dykes.

Hole number	From	To	Length	AltFacies	Alt 1	Alt 1 Inte	Alt 1 For	Alt 2	Alt 2 Intens	Alt 2 Form	Alt 3	Alt 3 Inter	Alt 3 Form	Description
RK20-002	234.9	281.8	46.9	disProp	ep	4	Pchy							patchy replacements by epidote of fsp phenos and destruction of mafic texture in 1-2cm areas every 5cm. and around wavy carbonate veins.
RK20-002	281.8	285.2	3.4	disProp	ep	2	Rv	chl	2	Rv	cal	3	V	epidote selvage on fine dark green chlorite veins. and calcite in 6mm amydules
RK20-002	285.2	289.9	4.7	disProp	ep	4	By							patchy replacements by epidote of fsp phenos and destruction of mafic texture in 1-2cm areas every 5cm. and around wavy carbonate veins.
RK20-002	289.9	290.74	0.84	disProp	ep	5		carb	4	Rv				patchy replacements by epidote of fsp phenos and destruction of mafic texture in 1-2cm areas every 5cm. and around wavy carbonate veins.
RK20-002	290.74	292.5	1.76	disProp	ep	2	Rv	chl						epidote selvage on fine dark green chlorite veins. and calcite in 6mm amydules
RK20-002	292.5	313.9	21.4	disProp	ep	2	D							less patchy replacements by epidote around wavy carbonate veins.
RK20-002	313.9	316.46	2.56	disProp	carb	3	Rv							very fine carbonate disseminated in groubdmass of dyke and rubble areas of angular hydrothermal breccia
RK20-002	316.46	326.35	9.89	disProp	chl	3	Rm	ep	2	D				banded areas of more intense alteration. pyroxenes going to glassy titanite...
RK20-002	326.65	338	11.35	disProp	chl	4	Rm							weak mottled chlorite replacement
RK20-002	338	376.7	38.7	disProp	ser	3	Rv	chl	5	Rm				mottled replacement and weak bleaching around vein zones every 2m or so.
RK20-002	376.85	386.36	9.51	disProp	ser	3	Rv	chl	5	Rm				mottled replacement and weak bleaching around vein zones every 2m or so.
RK20-002	386.81	407.14	20.33	disProp	ser	3	Rv	chl	5	Rm				mottled replacement and weak bleaching around vein zones every 2m or so.

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RK20-002	407.64	447	39.36	disProp	ser	3	Rv	chl	5	Rm				mottled replacement and weak bleaching around vein zones every 2m or so.
RK20-002	447	465	18	disProp	ser	4	Rm	chl	5	Rm				more regular alteration of feldspars to peachy white sericite and moderate chlorite alteration. destruction of magnetite into specularite
RK20-002	465	472.31	7.31	CCC	cl	5	Rp	chl	4	Rm	ox	2	F	transition into bleached and clay altered oxidized crumbly rock. veinlets of carb with specularite. locally replacing a primary breccia, volcanic in nature. fluids coming up contact with tonalite gneiss.
RK20-002	472.31	474.5	2.19	Arg	cl	5	Rp	chl	3	Rp	ox	3	F	transition into bleached and clay altered oxidized crumbly rock. veinlets of carb with specularite. locally replacing a primary breccia, volcanic in nature. fluids coming up contact with tonalite gneiss.
RK20-002	474.5	477.7	3.2	Arg	cl	5	Rp	chl	3	Rp	ox	3	F	bleached and clay altered oxidized crumbly rock. intense chlorite replacement in hydrothermal breccia. locally replacing a primary breccia, volcanic in nature. fluids coming up contact with tonalite gneiss and late mafic dyke
RK20-002	477.7	481.5	3.8	Arg	cl	5	Rp	chl	3	Rp	ox	3	F	bleached and clay altered oxidized crumbly rock. intense chlorite replacement in hydrothermal breccia. locally replacing a primary breccia, volcanic in nature. fluids coming up contact with tonalite gneiss and late mafic dyke
RK20-002	481.5	494.03	12.53	disProp	ser	2	Rp	chl	2	Rp				pink pegmatite and gneiss is not obviously all that altered
RK20-002	494.03	495.22	1.19	CCC	cl	5	Rp	chl	3	Rp	CCC	3	F	bleached and clay altered with intense chlorite replacement especially around quartz carb veins at core
RK20-002	502.5	505.2	2.7	disProp	ep	4	Rm							epidote replacement in bands in more mafic sections
RK20-002	512.75	516	3.25	disProp	ep	4	Rm							epidote replacement in bands in more mafic sections
RK20-002	520.5	522	1.5	disProp	ep	4	Rm							epidote replacement in bands in more mafic sections
RK20-002	531	534	3	disProp	ep	4	Rm							epidote replacement in bands in more mafic sections
RK20-002	540.6	551	10.4	disProp	ep	5	Rp							epidote replacement in bands in more mafic sections
RK20-002	560.3	562.1	1.8	disProp	ep	5	Rp							epidote replacement in bands in more mafic sections
RK20-002	567.2	573	5.8	disProp	ep	5	Rm							epidote replacement in bands in more mafic sections. local breccia infilling
RK20-002	580.4	582	1.6	disProp	ep	3	Rm	chl	5	Rp				pale epidote bands and alteration through section with band of apple green chlorite coming up foliation
RK20-002	582	588.9	6.9	disProp	ep	3	Rm	chl	5	Rp				pale epidote bands and alteration through section with band of apple green to dark chlorite coming up foliation and veining at 584m, 586m and 588.2m
RK20-002	592.2	604.5	12.3	InProp	ep	5	Rm	chl	6	Rp	ox	4	D	same pulses of epidote, overprinted by chlorite alteration and now strong hematite stain heading towards rubble in fault at 609m. all that's left of initial mineralogy seem to be pegmatitic quartz and Kspar
RK20-002	604.5	608.05	3.55	Phy	ser	5	Rm	carb	5	Rp	ox	4	D	much more bleached and crunchy overprint to hematite-Chlorite alteration around rubble.
RK20-002	608.05	612	3.95	Phy	ser	5	Rm	carb	5	Rp	ox	4	D	sericite-hematite-siderite altered and silica cemented pebble dyke zone. matrix is primarily iron carbonate with local silica and specularite
RK20-002	612	630.11	18.11	disProp	chl	5	Rv	ep	4	Rv	py	2	D	pretty intense chlorite and epidote alteration in more mafic gneiss, browd bands of replacement. locally disseminated py
RK20-002	630.5	638.5	8	disProp	chl	5	Rv	ep	4	Rv	py	2	D	pretty intense chlorite and epidote alteration in more mafic gneiss, browd bands of replacement. locally disseminated py

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Hole number	From	To	Length	AltFacies	Alt 1	Alt 1 Inte	Alt 1 For	Alt 2	Alt 2 Intens	Alt 2 Form	Alt 3	Alt 3 Inter	Alt 3 Form	Description
RK20-003	230.8	234	3.2	Arg	ox	5	Rp	cl	4	Rmx				paleosurface oxidation of granodiorite with clay and hematite, patches of leucoxene in situ
RK20-003	234	245.8	11.8	disProp	chl	2	D	spc	3	D				very weak local spots of chlorite alteration on edges of biotite. magnetite altering to specularite in situ. patches where leucoxene are bright white
RK20-003	256.6	257.4	0.8	disProp	chl	3	D	spc	3	D	cl	2		weak local bands of chlorite alteration. magnetite altering to specularite in situ. patches where leucoxene are bright white

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Hole number	From	To	Min 1	Min 1 Intensity	Min 1 Form	Min 2	Min 2 Intensity	Min 2 Form	Min 3	Min 3 Intensity	Min 3 Form	Description
RK19-001a	67	68	py	3	A							nodules and aggregated pyrite in bedding horizons. disseminated 1mm to 1cm
RK19-001a	82.3	84	py	1	Str							thin black coatings on bottom of clasts. locally crystalline
RK19-001a	157	159	py	3	OS							crystalline pyrite coating cast of fossil void.
RK19-001a	166	167	py	2	OS							crystalline pyrite coating cast of fossil void.
RK19-001a	168.2	169	py	2	Bl							local blebs and clots of pyrite inside corals and floating in mud.
RK19-001a	174.9	177.5	py	3	OS							large blebs of pyrite filling voids in corals
RK19-001a	189.42	189.49	py	4	V	py	3	D				pyrite disseminated in veins and through matrix of intrusive clast at top of arenite
RK19-001a	189.5	194	py	4	C							1cm crystalline clots of pyrite sitting in sandstone. weird!

Hole number	From	To	Min 1	Min 1 Intensity	Min 1 Form	Min 2	Min 2 Intensity	Min 2 Form	Min 3	Min 3 Intensity	Min 3 Form	Description
RK19-001b	184.6	185.5	py	3	C							Trace to 1% pyrite clots (1mm to 1cm) weakly deformed, stretched in the bedding.
RK19-001b	189.9	190	py	4	OS							pyrite coating void in rock
RK19-001b	222.8	223.1	py	2	D							finely disseminated pyrite with black coating
RK19-001b	259.9	260	py	3	D							strongly disseminated on margin of narrow mafic dyke
RK19-001b	260.9	261.5	py	3	D							pyrite disseminated in zone of epidote replacement
RK19-001b	266.5	266.6	py	2	D							pyrite finely disseminated in dark biotite band
RK19-001b	299.4	300	py	2	D							finely disseminated around edges of the pink kspar bands
RK19-001b	333.3	333.4	py	2	D							Pyrite finely disseminated in pinkish alteration
RK19-001b	361	361.2	py	2	D							Pyrite finely disseminated in pinkish alteration
RK19-001b	371	372	py	1	D							Pyrite finely disseminated in pinkish alteration
RK19-001b	391	396	py	3	Vd							Pyrite finely disseminated in pinkish alteration
RK19-001b	411	415	py	3	D							pyrite is disseminated in the mafic dykes around epidote alteration
RK19-001b	429	435	py	2	D							
RK19-001b	438.35	440	py	3	Bl							Fine pyrite in pink band. clusters
RK19-001b	446.5	460	py	2	D							

Hole number	From	To	Min 1	Min 1 Intensity	Min 1 Form	Min 2	Min 2 Intensity	Min 2 Form	Min 3	Min 3 Intensity	Min 3 Form	Description
RK20-002	237	270	py	3	D							disseminated primary pyrite
RK20-002	286	289.5	py	2	D							disseminated primary pyrite
RK20-002	293	313	py	2	D							disseminated primary pyrite
RK20-002	315	315.5	py	2	D							disseminated very fine pyrite
RK20-002	316.9	326	py	2	D							disseminated very fine pyrite
RK20-002	318.4	318.5	sulf	3	cl							1cm clot of pyrrhotite-pentlandite exsolution texture. highly magnetic
RK20-002	327	476	py	2	D							very fine disseminated pyrite
RK20-002	327.6	327.7	sulf	3	cl							1cm clot of pyrrhotite-pentlandite exsolution texture. highly magnetic

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RK20-002	375.9	375.95	py	3	cl							circular disc clots on fracture of bright silvery pyrite or pyrrhotite
RK20-002	376.9	386	py	2	D							finely disseminated in needle like yellowish micro agglomeration
RK20-002	421	421.1	py	3	cl							clot of pyrrhotite encircling feldspar grains. 1cm
RK20-002	429.3	429.5	py	3	Vs							1-3mm bl3bs of pyrite around silica carbonate veins
RK20-002	444.3	444.5	py	3	cl							clot of pyrrhotite encircling feldspar grains. 1cm. and near the veins it is more brassy and non-magnetic... turning I to pyrite
RK20-002	452.6	452.95	py	3	cl							clots of pyrite within chlorite streaming
RK20-002	473	473.25	py	5	C							large blocky clots and agglomerations of pyrite streaming up contact of mafic dyke into pink pegmatite
RK20-002	489	493	py	2	D							finely disseminated pyrite in pegmatized zones
RK20-002	500	502.6	py	2	D							fine disseminated pyrite in coarse pegmatite zones with quartz
RK20-002	510	511	py	2	D							fine disseminated pyrite in coarse pegmatite zones with quartz
RK20-002	522	522.78	py	2	D							fine disseminated pyrite in coarse pegmatite zones with quartz
RK20-002	525.6	526.8	py	2	D							fine disseminated pyrite in coarse pegmatite zones with quartz
RK20-002	599.2	599.4	py	2	Vd							very finely disseminated in thick hematite veins
RK20-002	612.5	630	py	2	D							very fine disseminated pyrite

Hole number	From	To	Min 1	Min 1 Intensity	Min 1 Form	Min 2	Min 2 Intensity	Min 2 Form	Min 3	Min 3 Intensity	Min 3 Form	Description
RK20-003	307.5	307.6	py	4	C							clots and seams in quartz kspar Kspar pegmatite
RK20-003	337.9	338	py	4	Blv							clots and seams in quartz kspar Kspar pegmatite

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Hole number	From	To	Vein Type	Vein Min	Vein Min Alt	Vein Alt 2	Vein Selvage	Vein Selv 2	Width (cm)	Interval (cm)	Core Angle	Description
RK19-001b	222.8	223.1			hem		ksp		0.1	4	45	stockwork of very thin red hematite veins with elevated K on selvage.
RK19-001b	223.5	225.9			hem		ksp		0.1	4	45	stockwork of very thin red hematite veins with elevated K on selvage.
RK19-001b	223.5	240			chl				0.1	10	50	locally intense stockworks or chlorite veinlets especially at 226m
RK19-001b	225.9	228.3			cal				0.5	25	50	late calcite veins cross-cutting cutting all. crystalline
RK19-001b	240	244.9			cal				0.1	30	50	late calcite veins cross-cutting cutting all. crystalline
RK19-001b	240.1	240.4			cal	sil			0.2		20	late Cb - Qtz vein with open space texture. Crystalline
RK19-001b	252.1	254.4			cal	chl			0.1	15	35	late Cb - Chlorite veinlets cross cutting all with a variable orientations between 30 to 60 dtca.
RK19-001b	255.8	275			cal				0.1	75	65	late calcite veins cross-cutting cutting all. crystalline
RK19-001b	256.5	267			ksp				0.5	10	30	pink kspar bands, could be part of metamorphic texture
RK19-001b	267	268.5			hem	ep	chl		0.3	5	30	zone of intense hematite and epidote alteration and some clay. 267.5 is intense iron replacement.
RK19-001b	268	291					ksp	hem	1	25	45	banding of pink kspar and weakly disseminated specularite
RK19-001b	268	411			cal				0.1	50	35	late whitish veinlets cross cutting all. Cb in fracture filling ?
RK19-001b	291	299					ksp	hem	3	10	50	banding of pink kspar and weakly disseminated specularite
RK19-001b	299	303			carb	ep	cl		0.4	60	30	section of slightly more intense carbonate veining with local epidote.
RK19-001b	311	314			hem	carb	ksp		2	120	15	near core axis siderite and locally specularite centered veins with 2cm selvage of PINK Kspar
RK19-001b	312	393			ep				1	150	20	epidote bands with local Tourmaline!
RK19-001b	332.5	335			ep	hem	ksp		0.3			epidote again with tourmaline. and other banded ksp veins
RK19-001b	351	356.5			ep	hem	ksp	sb	0.5	150	5	epidote tourmaline and some specularite in
RK19-001b	375	380.5			ep	hem	ksp	sb	0.5	150	5	epidote tourmaline and some specularite in
RK19-001b	390	411			carb	cal			0.3	20	25	higher angle and more abundant calcite veins, orally with siderite.
RK19-001b	390.7	402			spc	cal	hem	ep	1	500	10	high angle saccharine calcite vein with 7mm patches of specularite and some py disseminated. selvage of red creamy hematite and then black Mn rind. overprinting get epidote vein.
RK19-001b	392	411			carb	ep	ksp		0.2	30	15	siderite and epidote veinlets with strong pink halo on them
RK19-001b	401	411			carb	ep			0.3	80	30	open space calcite veins with epidote and halos of clay alteration
RK19-001b	411	416.5			carb	hem	ep	chl	0.4	4	30	late propylitic locally open space veins with strong preferred orientation and cross cutting dyke, also at boundaries is most intense. banded hematite, siderite, calcite,and epidote fringes. locally much stronger hematite. can be some pyrite
RK19-001b	418	420.5			carb	hem	ep	chl	0.4	2	50	vein stockwork and vein breccia of hematite and siderite cored fluids and strong chlorite epidote replacement of mafic rock. also elevated K in bleached greenish selvage.
RK19-001b	421	436			carb	cal	ep		0.2	50	35	late creamy to white multiphase carbonate veins through mafic dykes and gneiss
RK19-001b	436	445			carb	cal	ep		0.2	20	35	late creamy to white multiphase carbonate veins through mafic dykes and gneiss. locally banded and colloidal

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RK19-001b	447	448			hem	chl	cl		0.3		30	late mess of hematite and chlorite replacement with weak clay selvage
RK19-001b	448	468			ksp				0.4	10	60	pink kspar bands, could be part of metamorphic texture

Hole number	From	To	Vein Type	Vein Min	Vein Min Alt	Vein Alt 2	Vein Selvage	Vein Selv 2	Width (cm)	Interval (cm)	Core Angle	Description
RK20-002	237.5	238.4			chl	ank			0.3	10	40	dark green black undulose subparallel low ramp veins with some carbonate and bright orange ankerite
RK20-002	238.4	246			chl	ank			0.2	150	25	dark green black undulose subparallel low ramp veins with some carbonate and bright orange ankerite
RK20-002	281	282	Epi		carb	ep	ank		0.3	10	20	bands of undulose white crab veins in sheared strongly on contact
RK20-002	282	284	Epi		chl	ep			0.1	5	45	dark green chlorite veins in weak stockworkwith pale selvage of epidote or clay?
RK20-002	289.8	290.6			chl	carb	ank		3	5	20	larger zone of high core angle fibrous ankerite (bright tangerine). and dark green chlorite. also white calcite seems later and there are nodu,es of potentially gypsum
RK20-002	290.6	293			chl				0.1	15	30	dark green chlorite veins in weak stockworkwith pale selvage of epidote or clay?
RK20-002	293	312			carb							
RK20-002	303	312			chl				0.1	100	10	dark green undulose chlorite veins
RK20-002	314.5	316.5			cal				0.3	25	80	vein breccia with calcite cement and unaltered angular coasts. local orange carbonated
RK20-002	316.5	321			chl				0.1	200	45	dark green undulose chlorite veins
RK20-002	327	336	Carb		carb				0.1	500	20	boring carbonate veins.
RK20-002	336	336.5	Carb		sil	chl			1	15	75	red silia veins overprinting peachy carb vein with chlorite. Late Low temp textures
RK20-002	336.5	384	Carb		carb		ser	chl	0.1	250	15	stronger carbonate veining with large selvages of yellowish bleaching that might be serictite or just chlorite and epidote. occurs a, most as fluid banding in rock.
RK20-002	390	485	Carb		carb		ser	chl	0.1	300	20	stronger carbonate veining with large selvages of yellowish bleaching that might be serictite or just chlorite and epidote. occurs a, most as fluid banding in rock.
RK20-002	403	405	Qtz-Cb		sil	ank			0.2		10	low temperature chalcedony? vein with micro inclusions of orange/red carb?
RK20-002	411	415	Qtz-Cb		sil	ank		chl	1		5	long vein along core axis with multi phase fluids. 1. chlorite with calcite 2. later reddish silica or chalcedony veins
RK20-002	428.5	430.5	Qtz-Cb		sil	ank		chl	1		5	red stained silica vein and a long vein along core axis with multi phase fluids. 1. chlorite with calcite 2. later reddish silica or chalcedony veins
RK20-002	430.5	438	Qtz-Cb		sil	ank		chl	0.5	35	40	multi phase carb to silica veins with epithermal boiling textures
RK20-002	441.4	441.6			carb	chl			2		25	ivory carbonate that fizzes readily with spines of chlorite perpendicular to vein wall
RK20-002	465	466			carb	spc			0.2		10	late open space filling with specularite and calcite, interconnecting with orange carb veinlets
RK20-002	472.4	483	Qtz-Cb		sil	carb		py	0.5	5	20	low core angle epithermal looking quartz carbonate veins and vein brecciasgrading into full on bx matrix at 474m and 479m on either side of mafic dyke and through it. minor pyrite on selvages of veins.

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RK20-002	480	486			chl				0.1	15	45	chlorite veining seems to precede the mafic event? filling bx matrix after 480m and decreases to stringers to end of segment.
RK20-002	494.2	495	Qtz-Cb		sil	carb	cl		0.3	5	30	quartz carbonate veins coming up centre of mafic dyke and bleaching it with clay chlorite alteration. core angle increasing from 20 to 70 to bottom of segment
RK20-002	496.5	499.75	Epi		ep				0.2	5	75	angular narrow subparallel stockwork of epidote
RK20-002	504.6	509.2			chl		py		0.1		5	dark green red veinlets locally with some pyrite.
RK20-002	509.5	510	Qtz-Cb		sil	carb			0.7	5	30	open space filling quartz carb veins
RK20-002	512.75	517.8	Epi		ep				0.1	5	80	angular narrow subparallel stockwork of epidote
RK20-002	517.8	519	Chl		chl	hem			0.1	100	45	dark green red veinlets locally with some pyrite.
RK20-002	570.8	571.7	Chl		chl	hem			0.1	5	25	anastomosing and locally undulating dark green red veinlets locally with some pyrite.
RK20-002	582.8	586.5	Chl		chl	hem			0.3	45	30	various sizes and angles of thicker chlorite and hematite veins with more calcite mixed in.
RK20-002	586.5	586.6	Qtz-Cb		sil	carb			1		40	thicker quartz carbonate epithermal crustiform vein
RK20-002	593.5	608			hem				0.1	125	45	irregular and anastomosing veinlets and stringers of hematite in fractures? seem to precede the qtz carb veinlets
RK20-002	593.7	606	Qtz-Cb		sil	carb			0.3	30	25	stockwork and single fracture filling low temp epithermal white to ivory quartz carbonate veins
RK20-002	596.5	597.6			spc		chl		0.6	50	30	same generation of hematite veinlets, just thicker and more crystalline
RK20-002	605	611			ank	carb			0.4	20	15	late iron carbonate with calcite cores. very angular and irregular increasing towards cementation of the hydrothermal breccia
RK20-002	235	281			carb		ep		0.2	45	15	undulose carbonate veins with local peppered epidote replacement

Hole number	From	To	Vein Type	Vein Min	Vein Min Alt	Vein Alt 2	Vein Selvage	Vein Selv 2	Width (cm)	Interval (cm)	Core Angle	Description
RK20-003	254.75	255	Carb		cal				0.1		30	undulose carbonate veins with local peppered epidote replacement
RK20-003	271.6	273	Carb		cal				0.2	15	25	undulose carbonate veins with local peppered epidote replacement
RK20-003	281.5	283	Carb		cal				0.2	15	25	undulose carbonate veins with local peppered epidote replacement
RK20-003	289.5	291	Carb		cal				0.2	40	30	undulose carbonate veins with local peppered epidote replacement
RK20-003	325.8	330	Carb		cal				0.2	40	75	undulose carbonate veins with local peppered epidote replacement
RK20-003	332.5	337	Carb		cal				0.2	80	75	undulose carbonate veins with local peppered epidote replacement
RK20-003	344.5	346	Carb		cal				0.2	150	70	undulose carbonate veins with local peppered epidote replacement
RK20-003	363	370	Carb		cal				0.2	25	10	undulose carbonate veins with local peppered epidote replacement
RK20-003	378	378.2			fl	ep	cal		1		30	megacrystic purple fluorite with calcite and epidote in sharp planar vein.