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# **RICH COPPER EXPLORATION CORP.**

Assessment Report

## **2024 Channel Sampling Program**

on the

## **RAPID RIVER PROPERTY**

Rioux Township – District of Algoma

Sault Ste Marie Mining Division – Ontario

**UTM 324,300 E / 5,181,875 N**

NAD 83 Zone 17 - NTS 41J14

**August 31, 2024**

***Report Prepared For:***

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Toronto, ON*

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***Rapid River Project – Card Zone***

***2022 Rock Sample location(s) site; G732081-G732084***

***Copper Values of 4800, 5600, 2840 & 6380 ppm***

***Iron Carbonate Gossan and Veins***

***(Looking Northeast)***

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## **Rapid River Report – Channel Sampling 2024**

### **Summary**

During the month of August 2024 (Dates August 9 to 12), a channel sampling program was conducted over the claims owned by Rich Copper Exploration Corp in Rioux Township (The Rapid River Property) focused on better defining the mineralization identified in a prospecting program carried out in October

2022 (Assessment Report by Ian Casidy). This program's purpose was to further expose the mineralization, collect samples for whole rock analysis and assay and improve understanding of the mineralization on the site. The sampling will assist in evaluating newly staked mining claims and to assess any copper potential along the previously identified northeast trending mineralized trend. This report covers the channel sampling completed in two areas of the property (called Road Showing and Carbonate). Sampling was completed where there was silicification, sulphide mineralization or quartz-carbonate veining containing sulphide mineralization; available logging roads were used to access areas on the property. The work was completed on claims 752931 and 612264. Details of the sample sites, location and sample assay results are included in this report.

The Rapid River Property is located approximately 85 kilometers along Highway 129, north of the town of Thessalon, ON which is situated approximately 80 km east from Sault Ste. Marie along the Trans-Canada Highway No 17. It is composed of fifty-seven claim (57) claim units entirely in Rioux Township within the Sault Ste Marie Mining District of Ontario with the center of the property at 83° 18' W and Latitude 46° 46' N. GPS coordinates were taken at each sampling point. UTM NAD83 - Zone 17 coordinates were used for compilation and presentation purposes, and all works are geo-referenced to the Ontario Lands base maps for the area and Forestry access maps.

Previous prospecting on the property in 2022 resulted in 13 rock samples which assayed over 2500 ppm Cu. Rock samples collected during the prospecting contained mineralization in the form of malachite and/or chalcopyrite. A chip sample (**G732089**) from what was described as a quartz alkali feldspar syenite rich outcrop along the main logging road on claim 752931 (The Road Showing) returned the highest copper value of 1.93% Cu. The sample was described as containing massive chalcopyrite throughout.

The 2024 channel sampling was conducted in the previously prospected areas to the northeast of the trenched areas from the 1960's and along the main northeast trending logging road. A total of 31 channel Samples were taken from 13 locations in two areas on the northern part of the property. Samples were analyzed for whole rock and metallic components at Activation Laboratories in Ancaster Ontario.

It should be noted that the well exposed nature of the mineralization meant that the channel sampling could be conducted on exposed veins and outcroppings and as such did not require stripping of overburden.

The purpose of the chemical analysis was to evaluate the alteration related to the copper bearing vein zones, to identify the surrounding wall rocks and to locate additional copper mineralization.

The current program resulted in the determination of alteration and other chemical patterns in the mineralized areas.

## **Introduction**

The Rapid River Project is owned by Rich Copper Exploration Corp. who currently hold 39 claims in Rioux Township. The Rapid River Property was currently focused on a copper bearing breccia and quartz veins in the area north of the Proterozoic rocks of the Canadian Shield. The rocks of the Southern province in

this area are famous for past production (i.e., Bruce Mines and Iron Bridge) and are actively being explored for copper, uranium, REE and gold mineralization. The Rapid River property, however, appears to be in an area dominated by granitic and gneissic rocks.

The property has excellent road access and is easily explored by a multitude of logging roads which have recently been built in 2021 & 2022. Previously a bush road accessed the southern part of the claims and was previously used for access.

The 2024 Channel Sampling Program was completed in August 2024 for Rich Copper Exploration Corp. from the 9<sup>th</sup> through to the 12<sup>th</sup> of August. A two (2) person crew completed the channel sampling using a rock saw after manually clearing the proposed sample areas. A total of thirty-one (31) channel samples were obtained from 13 locations in two areas – the Road Showings and the Carbonate Showings.

The copper mineralization rediscovered in 2016 is hosted by a northeast linear zone of breccia within granitic and mafic rocks. Newly found mineralized zones occur in mafic volcanics in contact with granites and possible quartz alkali feldspar syenites. Preliminary topographic and LIDAR interpretation indicates that there may be multiple northeast trending structures (oriented 045° to 055°) crossing the property. These structures are accompanied by west-northwest trending “cross faults” (290° to 300°). The junction of these structures could host significant copper mineralization based on the amount of copper mineralization found on traverses and in prospecting.

Trenching in four (4) separate pits in the mid-1960s exposed copper mineralization along a 700m length on the southern part of the claim group approximately 2 km south of the present area of investigation. An assessment report was filed on trenching and drilling completed in this area in the 1960s (CC Huston Report AFRI 41J11NW0002). The report detailed the presence of copper mineralization in trenching and drilling. These occurrences were followed up along strike to the northeast using newly established logging roads which trend northeast from the original discovery area.

The present report details a program of channel sampling carried out on the property in August 2024 (4 days). **The sampling was undertaken in areas of existing exposure. No stripping was undertaken.**

## **Mineral deposit type being explored.**

The mineral deposit type being sought is similar to the copper mineralization mined at the Bruce Copper Mines and the nearby Cannon Mine. The additional target could be a porphyry related deposit of copper in breccias similar to the previously exploited Tribag Mine. While the host rocks at Rapid River are Archean the mineralization may be younger and related to these similar deposits in the Proterozoic rocks of the Penokean. Evidence for the date of the mineralization is not known but the breccia/quartz zones cut Archean gneisses and mafic dykes which have been dated at 1.2 billion years (Proterozoic) indication of younger age. The comparable type of mineralization consists of brecciated zones and vein quartz zones containing higher grade copper cutting the host rocks. The zones have significant length and possible depth potential and have been developed over minable widths in underground operations. In the case of the Rapid River Project the known veins cut gneisses, granitic intrusives and mafic dikes.

## **Geological model/concept being applied.**

The target is vein-type/breccia hosted deposit in which copper is the dominant metal. The deposits are structurally controlled and occur in faults, fault systems, and vein-breccia zones; replacement zones

in associated country rocks are also present. They are highly varied in both size and grade. Although vein copper deposits occur in association with many different host rocks and in diverse geological settings, two main subtypes are recognized, which are based on the associated intrusive rocks; the deposits do not necessarily occur in these rocks in all cases, but they are likely genetically related to them. The first subtype consists of vein copper deposits associated with mafic intrusive rocks; these have been referred to as 'Churchill type' after the Churchill Copper (Magnum) deposit in British Columbia (Kirkham, 1973). The second subtype would be similar to the Bruce Copper Mine in Iron Bridge where quartz veins and breccia cut Proterozoic sedimentary rocks.

The mineralization at Rapid River would be similar to the Churchill Type in that the veins appear to cut intrusive rocks.

## **Reason for exploration work / type performed**

The presence of a newly developed system of logging roads covering the property allowed prospecting and geological mapping to identify potential copper mineralized areas in structural zones extending northeast from the previously known copper mineralization. The identification of new copper occurrences will be used to focus further work such as prospecting, ground geophysics, stripping, channel sampling and eventually diamond drilling. The present channel sampling program will yield samples of the veins and adjacent wall rocks which can be analyzed for mineralization and important alteration minerals and chemical patterns.

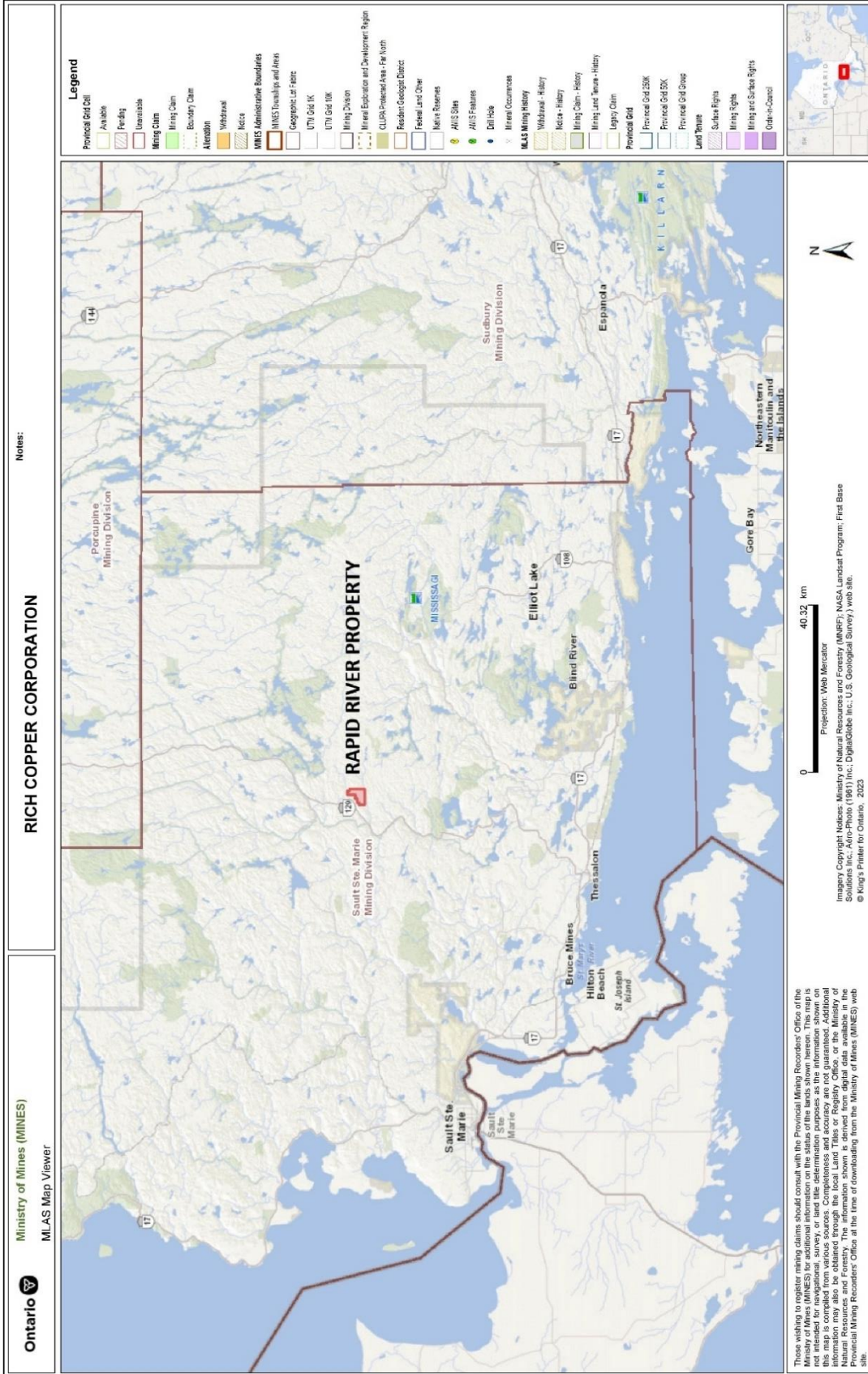
## **Property Information**

### **Location**

The property is located approximately 85 kilometers along Highway 129, north of the town of Thessalon (*Figure 1 and 2: Property Location*) which is situated approximately 80 km east from Sault Ste. Marie along the Trans-Canada Highway.



Map 1: Rapid River Property Location



Map 2: Detailed Location Rapid River Property  
**Mining Claim Information**

## Tenure and Ownership

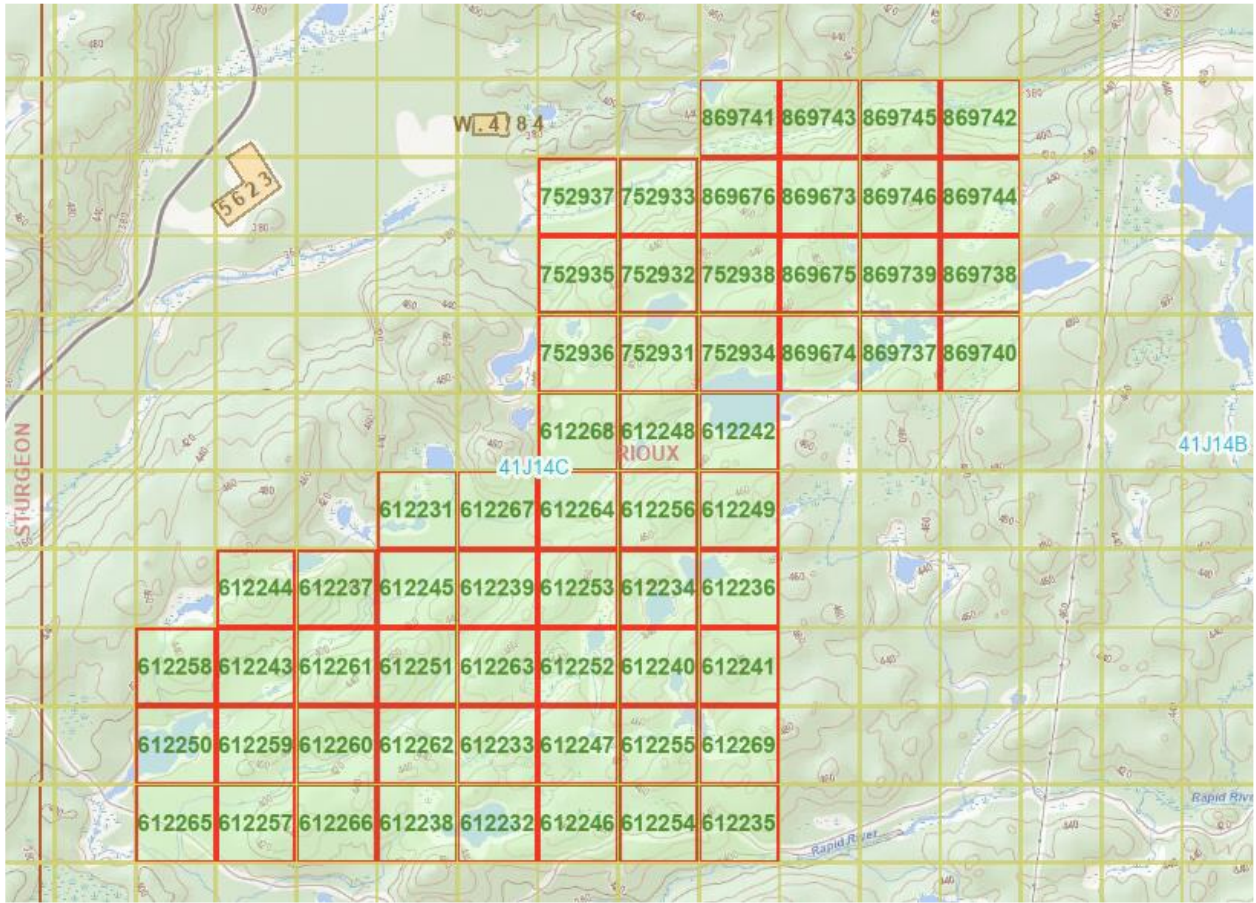
The Rapid River property is comprised of 53 contiguous mining claim cells (SCMC) and covers an area of approximately **1,200** hectares (Figure 3). Table 1 shows details of the claims which are also outlined in Appendix A. Only 39 of the claims will be discussed in this report as the remaining claims have due dates in 2025.

Table 1: Claim Details for this Report

612237	Rapid River	41J14C310
612238	Rapid River	41J14C371
612239	Rapid River	41J14C312
612240	Rapid River	41J14C334
612241	Rapid River	41J14C335
612242	Rapid River	41J14C275
612243	Rapid River	41J14C329
612244	Rapid River	41J14C309
612245	Rapid River	41J14C311
612246	Rapid River	41J14C373
612247	Rapid River	41J14C353
612248	Rapid River	41J14C274
612249	Rapid River	41J14C295
612250	Rapid River	41J14C348
612251	Rapid River	41J14C331
612252	Rapid River	41J14C333
612253	Rapid River	41J14C313
612254	Rapid River	41J14C374
612255	Rapid River	41J14C354
612256	Rapid River	41J14C294
612257	Rapid River	41J14C369
612258	Rapid River	41J14C328

612259	Rapid River	41J14C349
612260	Rapid River	41J14C350
612261	Rapid River	41J14C330
612262	Rapid River	41J14C351
612263	Rapid River	41J14C332
612264	Rapid River	41J14C293
612265	Rapid River	41J14C368
612266	Rapid River	41J14C370
612267	Rapid River	41J14C292
612268	Rapid River	41J14C273
612269	Rapid River	41J14C355
752931	Rapid River	41J14C254
752932	Rapid River	41J14C234
752933	Rapid River	41J14C214
752934	Rapid River	41J14C255
752935	Rapid River	41J14C233
752936	Rapid River	41J14C253
752937	Rapid River	41J14C213
752938	Rapid River	41J14C235

Rich Copper Exploration owns a 100% interest to the right and title to the mining claims that constitute the Rapid River Property.



### Map 3:Rapid River Claims September 2024



Map 4: Google Image of Road Access - Rapid River Property 2024

### Property Access

New forestry roads off Highway 129 give excellent access to the property (Figure 4). The southernmost and northern roads are all accessible by two-wheel drive vehicles, ATV or snow machine. A four-wheel drive vehicle is only required at the northeast end of the property where recent logging has taken place (October 2022) and only haulage roads are present. The property is located all within NTS topographic map 41J11/14, center of the property is at NAD83 UTM coordinate Zone 17 324,400E / 5,182,075N.

## Climate, Topography and Vegetation Cover

The area near the property is traversed by northeast trending valleys which are bounded by hills up to 70 meters high. Most of the area of the property is dominated by linear hills which trend parallel to the valleys in a north-easterly direction.

The terrain within the claims is gently rolling with some hilly areas. A series of Northwest-Southeast trending ridges crosses the group and shows a relief of up to 122 metres. Several swampy areas and ponds, as well as several creeks and small lakes, are trapped in the ridge pattern, providing ample water supplies. Soil cover is generally less than 5m and the area is well treed with White Birch, Spruce, Jackpine, Poplar and Balsam up to sixty feet high and five inches across the base. Timber of property is currently being logged in the Northeast portion of the claims (November 2022). Slash and heavy underbrush is abundant in the areas of logging. Elevation ranges from a low of 367m in the NE corner to 490m in the SE corner of the claims with a difference of only 123m. The climate is a mid-continent, northern environment, with -20°C (average) winters. The winter field season for geophysics and drilling may require lake-ice that is available from late December to late March or early April. However, ice roads suitable for moving heavy equipment are usually only possible from late January to mid-March. The summer field season begins in late April to early May and runs until early to mid-November. The weather is typically humid in summer with temperatures in the 20°C to high 30°C range.

## History and Past Work

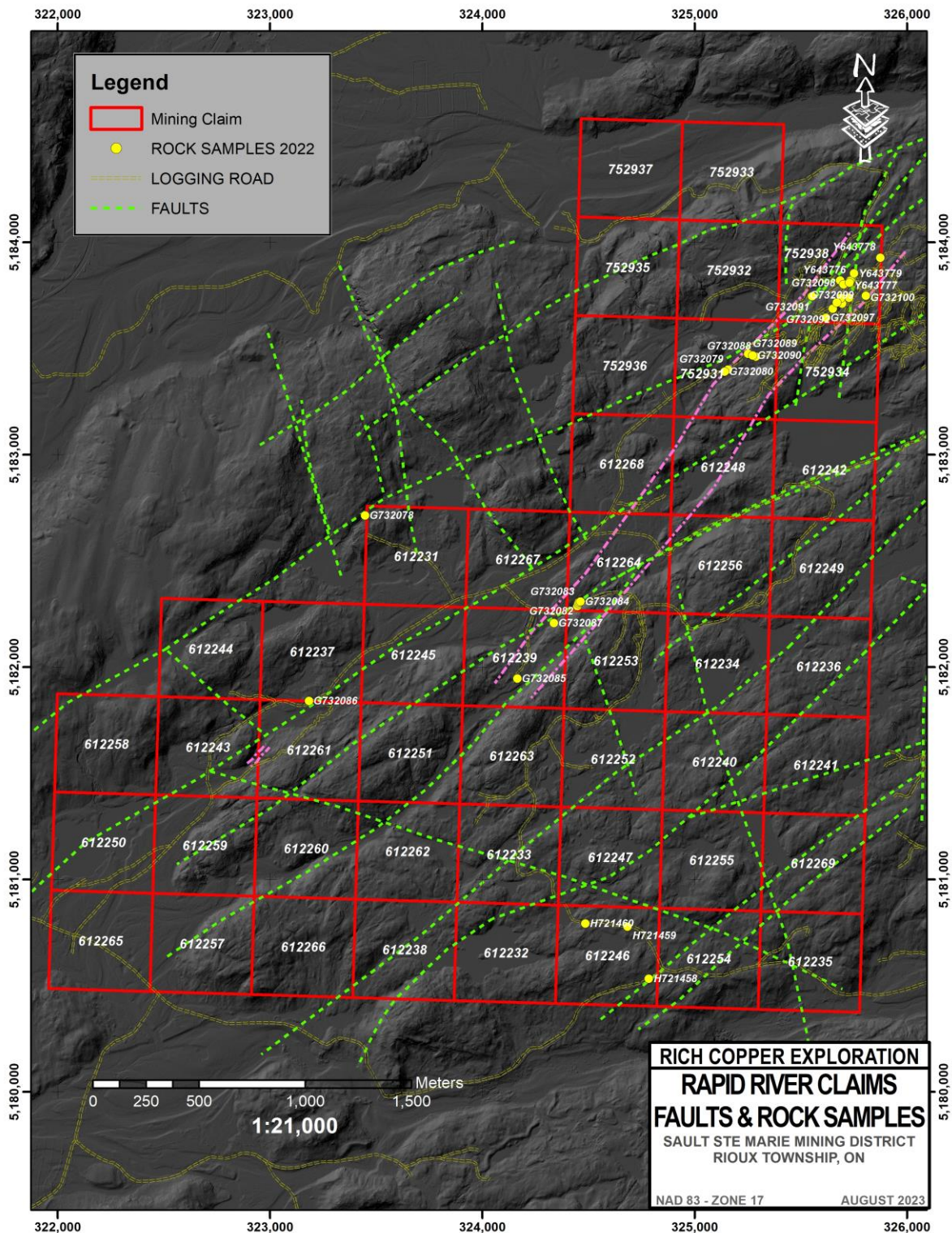
The copper showing covered by this property can be seen on **OGS Compilation Series Map 24191**. There is a report which purportedly gives the general geology of this part of Ontario — Department of Mines P.R. 1950-6 “Preliminary Report on the Geology along the Mississagi Road” by W.D. Harding but does not include the property area and only generalized geological information is available.

A search of the Ministry of Northern Development and Mines Assessment files (ARIS) shows that the only recorded work on the property was completed in the early 1960s. The work is detailed in a report by C.C. Huston & Associates titled “Report on McClasky Option” and is dated November 30<sup>th</sup>, 1962 (Assessment Report **41J11NW0002** Rioux Twp.). The report details a program of diamond drilling comprising of approximately 300m (973 feet), mapping and sampling of four trenches and 400m (1300 feet) of magnetometer and electromagnetic surveys. The drilling and trenching revealed copper mineralization in a linear breccia zone trending NNE for approximately 700 meters. The trenching returned copper mineralization up to 4.5% Cu over 1.0 meters while drilling encountered breccia and quartz veins up to 15 meters with values in the 0.3% to 0.5% Cu.

In 2016 an assessment report (AFRI **20000014783** Sharpsand River Project) detailing surface sampling and chemical analysis was submitted for the property (Jim Atkinson, 2016). The report included chemical analysis of grab and select samples from four trenches located in the southern part of the claims at that time. Significant copper mineralization was identified with 10 rock samples with an average of greater than 0.5% copper (Cu) with one grab sample assaying 1.12% Cu.

In 2023 Rich Copper Exploration completed a prospecting and LiDAR program on the property (AFRI Casidy 2023). The prospecting located four additional copper bearing showings (beyond the known southern areas) where anomalous and high-grade copper occurrences were located. Values up to 1.93% Cu were identified from this sampling.

The LiDAR survey identified a series of northeasterly trending linears which are thought to represent structures in bedrock. It was noted that several of these linears are associated with areas of known copper mineralization (Figure 5). Further work was recommended along these linear features.



Map 5: Compilation of Copper Occurrences and Lidar from Assessment Report by Casidy.

## Geology and Mineralization

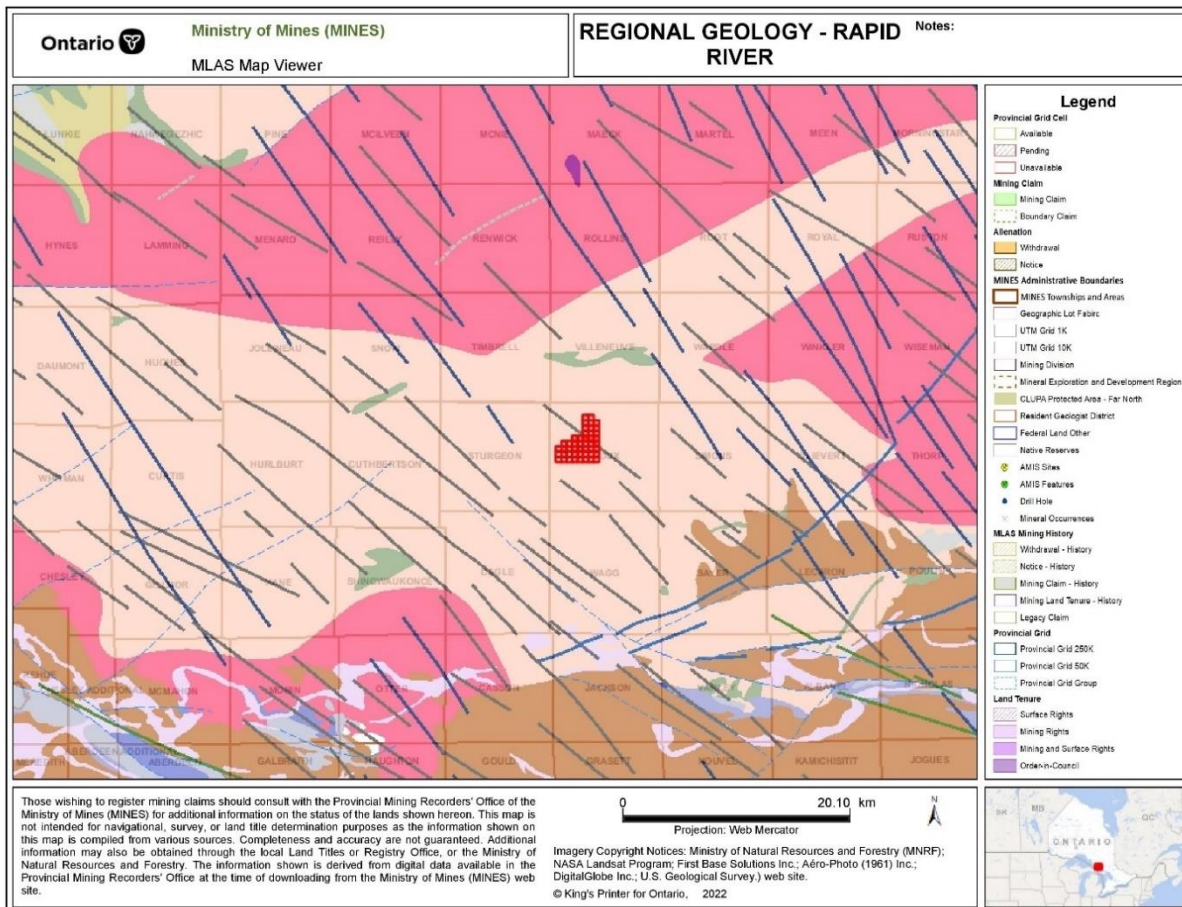
### Regional Geology in the Area of the Rapid River Property

The Ontario Geological Survey Map 2670 “Precambrian Geology Compilation Series Sault Ste. Marie-Blind River Sheet” (Figure 6: Regional Geology) indicates that Rioux Township and the surrounding area are underlain by a Gneissic Tonalite Suite with associated foliated and/or lineated amphibolite bearing tonalite<sup>2</sup>. It is noted in regional reconnaissance work completed by the current property owners that the granitic rocks in the immediate area are not foliated and are massive and brick red colored indicating that they may comprise a later or separate intrusive event. Note that the regional Geology map shows several NE trending faults which may indicate the regional trend of major faults in the area.

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Giblin, P.E., Leahy, E.J., Robertson, James A. Robertson, *1974-1975 OGS Map 2419, Sault Ste. Marie-Elliot Lake Geological Compilation Series. Scale: 253,440 or 1 inch to 4 Miles*

Johns, G.W., McIlraith, S., and Muir, T.L. *2003. Bedrock geology compilation map—Sault Ste. Marie—Blind River sheet; Ontario Geological Survey, Map 2670, scale 1:250 000.*



Map 6: Regional Geology Map of the Rapid River Claim Area (From Johns, G.W., McIlraith, S., and Muir, T.L. 2003) Bedrock geology compilation Map Sault Ste. Marie—Blind River sheet; Ontario Geological Survey, Map 2670, scale 1:250 000). *Notes: Unit 9 which underlies all of Rioux Township. is described as “Gneissic Tonalite Suite. locally contains associated foliated or lineated biotite- and/or amphibole-bearing tonalite 9a Gneissic tonalite with abundant enclaves of migmatized supracrustal rocks”.*

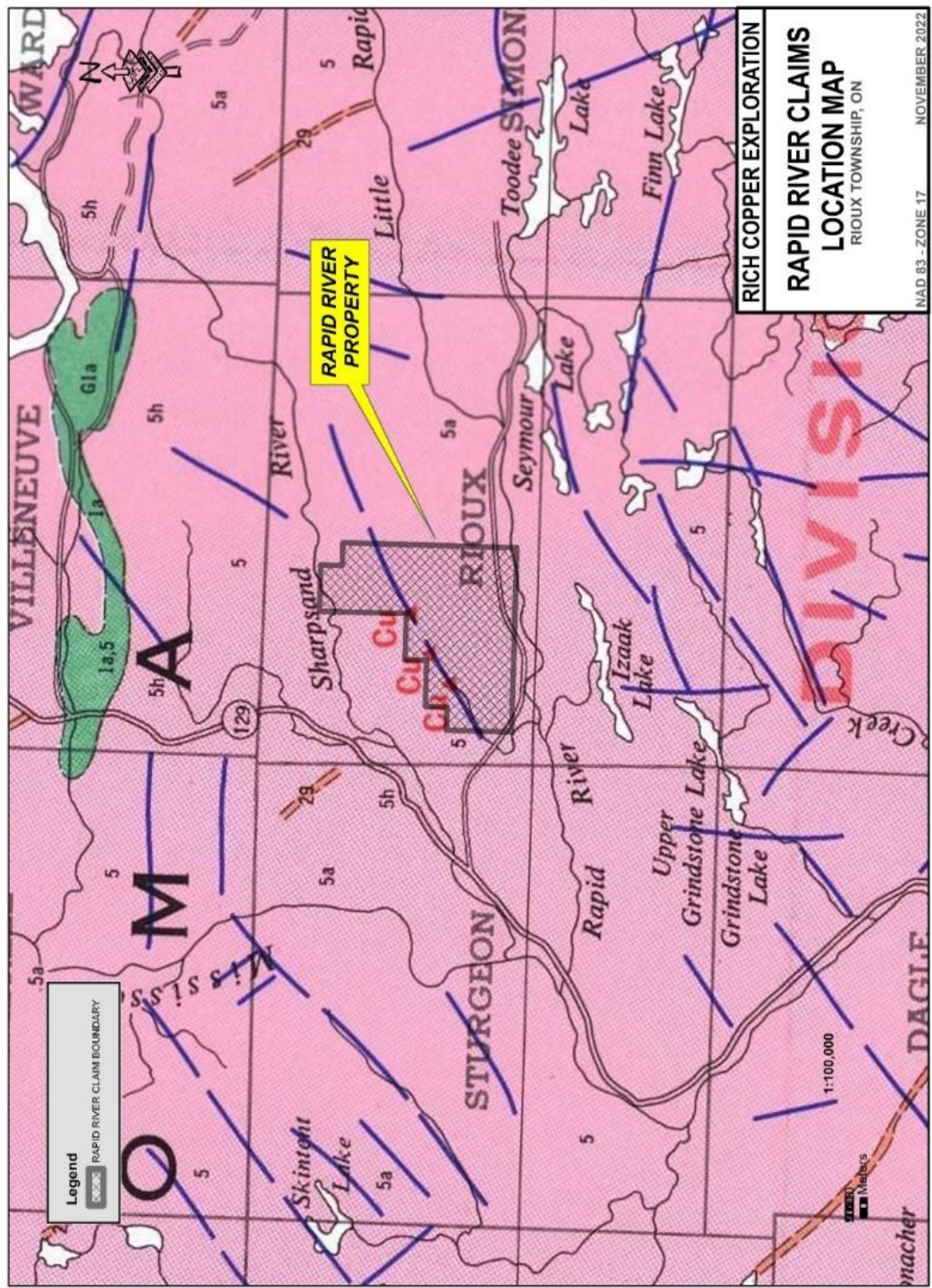
Units to the southeast in brown define the northern extent of the “Southern Province” of the Canadian Shield.

## Property Geology

The Assessment work report by C.C. Huston in 1962 indicates that “the claim group is underlain by Algomian granite which has been cut by numerous northwest/southeast striking, steeply dipping Keweenawan diabase dikes”. The age of the dykes has not been determined by dating and the Keweenawan designation has not been confirmed. The main area of interest consists of a north-east trending (060°) quartz-hematite +/- calcite filled fault and breccia zone that is mineralized with chalcopyrite, pyrite and specular hematite which appears to cut the granite and diabase dikes. The work completed by the previous owner in four trenches appears to indicate that there is a direct association between mineralization and cross cutting diabase dikes but a causative relationship between dykes and mineralization has not been confirmed in detail as the dykes are also brecciated and occasionally

mineralized and appear at least partly to pre-date the mineralization. In addition, there is extensive quartz veining and brecciation hosted by granitic rocks.

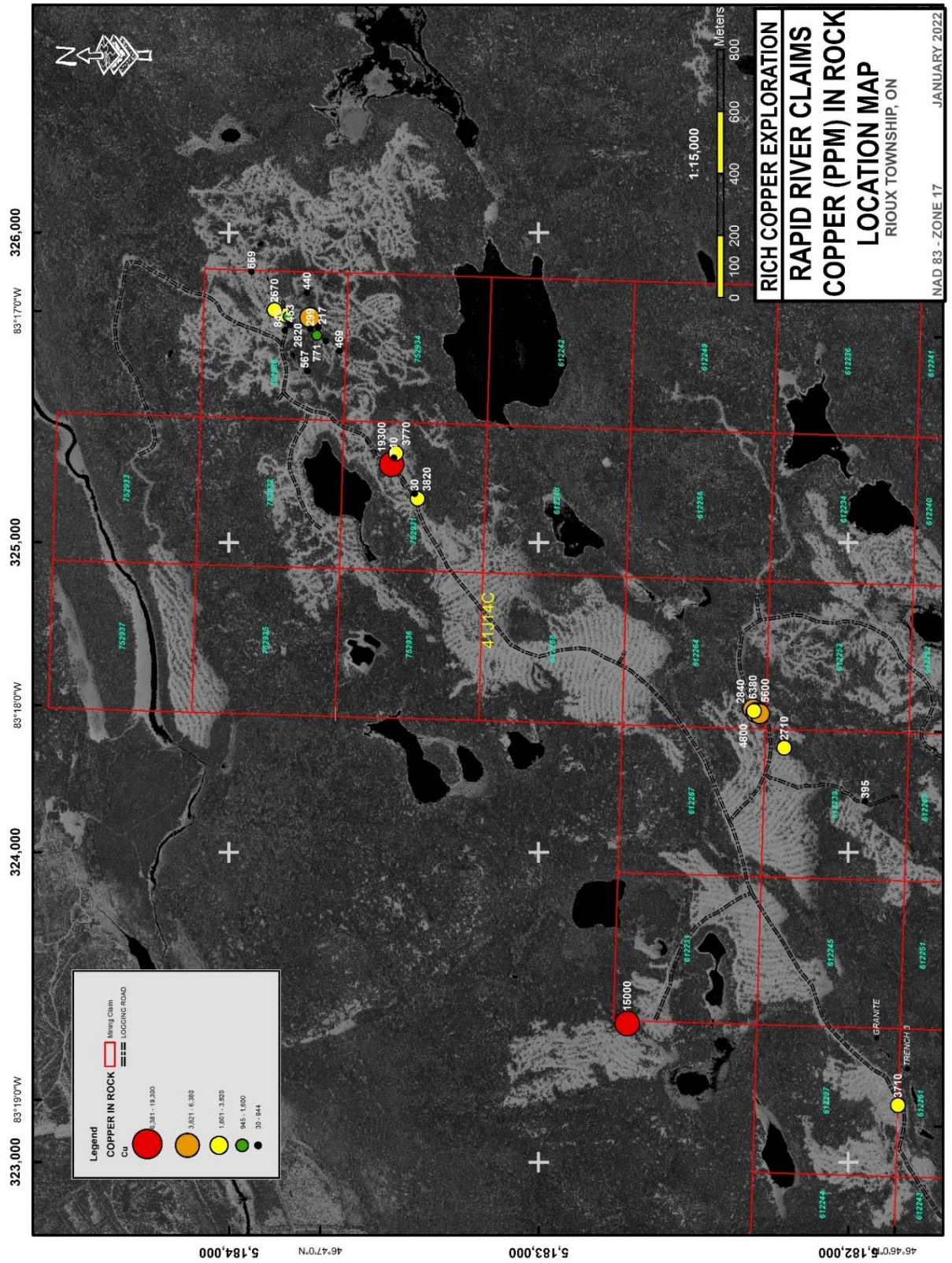
LiDAR, topographic and satellite interpretation suggests that there are several parallel linear features associated with copper mineralization. Additional similar linear features are also seen to the east and west of the known breccia zone. Several "cross-over" features exist between the main linear features (Figure 5). It is thought that these may represent additional structural features of interest in the area, which should be investigated.



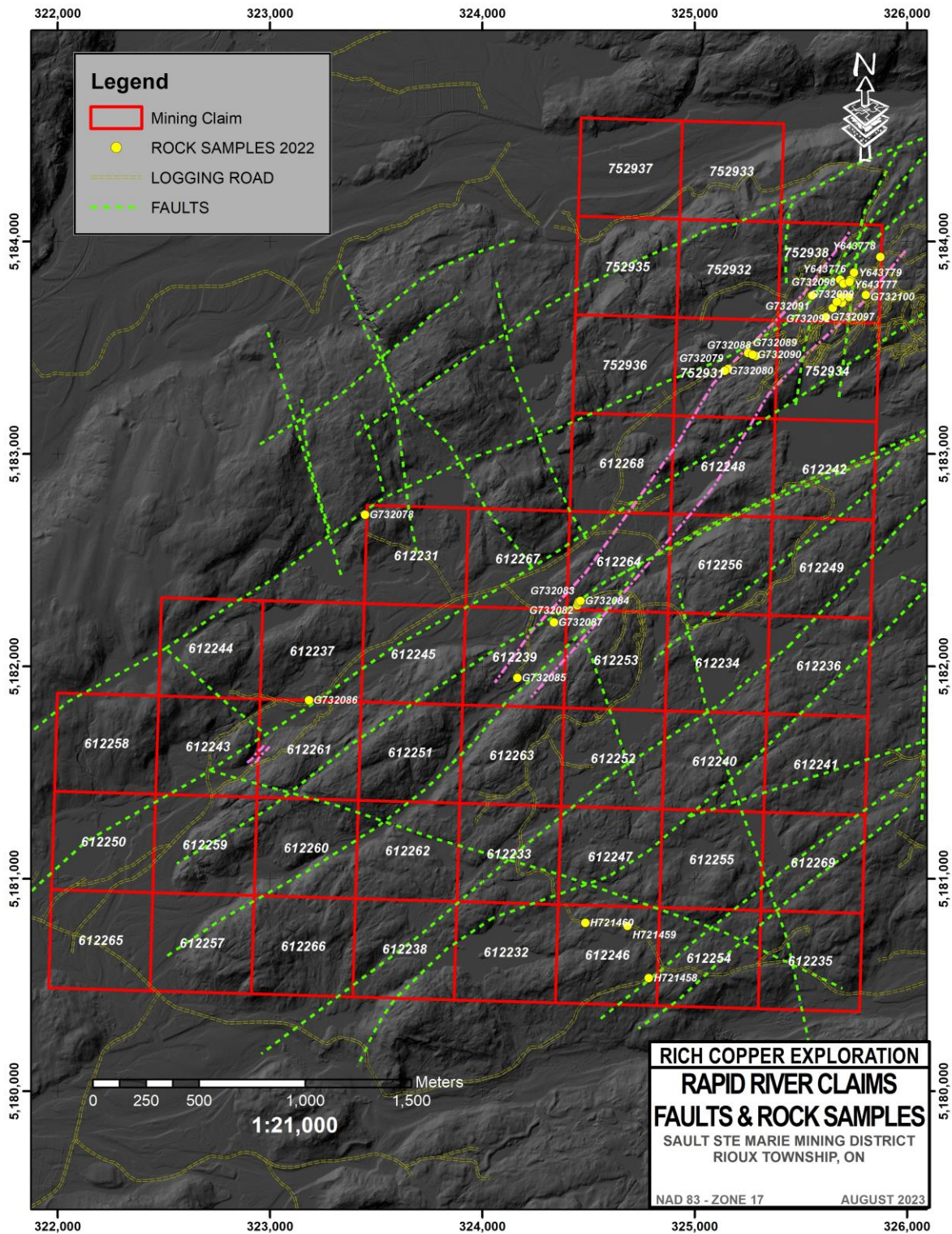
Map 7: Rich Copper Exploration’s Rapid River Property Geology showing Original Claim Boundary

Three (3) copper occurrences from 1962 Report by C.C. Huston

Map 8:



Rich Copper Exploration's Rapid River Property showing Rock Sample Results from 2022



Map 9: LiDAR Linears and Associated Sampling from 2022

## Current Work Completed

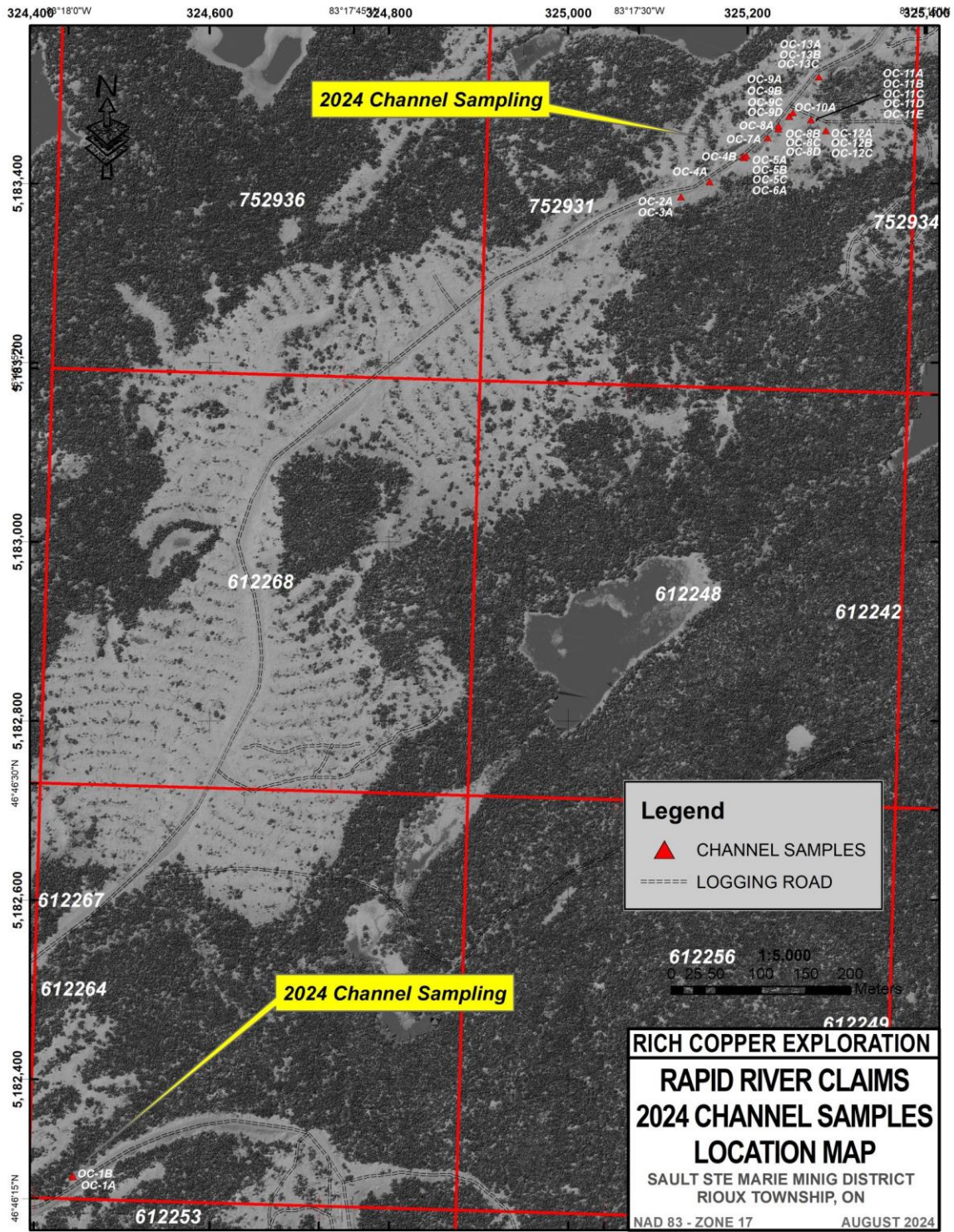
The current work consisted of channel Sampling in two areas of known mineralization (Figure 10). Table 2 shows the samples collected on Claims 753936 and 612264. There were 11 sample areas completed on Claim 752931 (Road Zone) and 2 channel samples collected on Claim 61226 for a total of 31 samples.

Table 2: Samples Collected on each claim

### Rapid River Channel Sampling August 2024

Sample Number	Location Name	Location	Claim Number
OC-1A	Carb Zone	17T 324447E 5182292N	612264
OC-1B		17T 324448E 5182291N	612264
OC-2A	Road Zone	17T 325126E 5183385N	752931
OC-3A	Road Zone	17T 325140E 5183389N	752931
OC-4A	Road Zone	17T 325158E 5183402N	752931
OC-4B	Road Zone	17T 325195E 5183430N	752931
OC-5A	Road Zone	17T 325197E 5183429N	752931
OC-5B	Road Zone	17T 325197E 5183429N	752931
OC-5C	Road Zone	17T 325197E 5183429N	752931
OC-6A	Road Zone	17T 325199E 5183431N	752931
OC-7A	Road Zone	17T 325223E 5183451N	752931
OC-8A	Road Zone	17T 325235E 5183464N	752931
OC-8B	Road Zone	17T 325235E 5183464N	752931
OC-8C	Road Zone	17T 325235E 5183464N	752931

<b>OC-8D</b>	Road Zone	17T 325235E 5183464N	752931
<b>OC-9A</b>	Road Zone	17T 325247E 5183475N	752931
<b>OC-9B</b>	Road Zone	17T 325247E 5183475N	752931
<b>OC-9C</b>	Road Zone	17T 325247E 5183475N	752931
<b>OC-9D</b>	Road Zone	17T 325247E 5183475N	752931
<b>OC-10A</b>	Road Zone	17T 325251E 5183479N	752931
<b>OC-11A</b>	Road Zone	17T 325271E 5183471N	752931
<b>OC-11B</b>	Road Zone	17T 325271E 5183471N	752931
<b>OC-11C</b>	Road Zone	17T 325271E 5183471N	752931
<b>OC-11D</b>	Road Zone	17T 325271E 5183471N	752931
<b>OC-11E</b>	Road Zone	17T 325271E 5183471N	752931
<b>OC-12A</b>	Road Zone	17T 325288E 5183456N	752931
<b>OC-12B</b>	Road Zone	17T 325288E 5183456N	752931
<b>OC-12C</b>	Road Zone	17T 325288E 5183456N	752931
<b>OC-13A</b>	Road Zone	17T 325280E 5183519N	752931
<b>OC-13B</b>	Road Zone	17T 325280E 5183519N	752931
<b>OC-13C</b>	Road Zone	17T 325280E 5183519N	752931



Map 10: Location of Channel Sampling on Google Earth Photograph. *Note: the northern area is called The Road Zone, and the southern area is called the Carbonate Zone.*

## Personnel

Work on the property was completed by:

Aaron Nicholson Field Work

Marcus LeBlanc Field Work

James Atkinson M. Sc., Project Supervision and Report Preparation

## Dates of Work

In August 2024, a total of 3 days were spent on the property, channel sampling. on claims 752931 and 612264. Detailed in tables below. In addition three days were spent by Mr. James Atkinson in report preparation and interpretation.

## Work Description

### Rock Sampling

A total of thirty-one (31) channel samples were collected from the property by completing channel samples using a rock saw and submitted to Activation Laboratories in Ancaster, ON for chemical analysis for base and precious metals and elements considered indicative of alteration.

Table 3: Sample Locations

#### Rapid River Channels

Sample Number	Easting	Northing	Claim Number
OC-1A	324,447	5,182,292	612264
OC-1B	324,448	5,182,291	612264
OC-2A	325,126	5,188,835	752931
OC-3A	325,126	5,183,385	752931
OC-4A	325,158	5,183,402	752931
OC-4B	325,195	5,183,430	752931
OC-5A	325,197	5,183,429	752931
OC-5B	325,197	5,183,429	752931
OC-5C	325,197	5,183,429	752931
OC-6A	325,199	5,183,431	752931
OC-7A	325,223	5,183,451	752931
OC-8A	325,235	5,183,464	752931
OC-8B	325,235	5,183,464	752931
OC-8C	325,235	5,183,461	752931
OC-8D	325,235	5,183,464	752931
OC-9A	325,247	5,183,475	752931
OC-9B	325,247	5,183,475	752931
OC-9C	325,247	5,183,475	752931
OC-9D	325,247	5,183,475	752931
OC-10A	325,251	5,183,479	752931
OC-11A	325,271	5,183,471	752931
OC-11B	325,271	5,183,471	752931
OC-11C	325,271	5,183,471	752931

<b>OC-11D</b>	325,271	5,183,471	752931
<b>OC-11E</b>	325,271	5,183,471	752931
<b>OC-12A</b>	325,288	5,183,459	752931
<b>OC-12B</b>	325,288	5,183,459	752931
<b>OC-12C</b>	325,288	5,183,459	752931
<b>OC-13A</b>	325,280	5,183,519	752931
<b>OC-13B</b>	325,280	5,183,519	752931
<b>OC-13C</b>	325,280	5,183,519	752931

Table 4: Sample Locations and Lenth

Rapid River Channel Sampling August 2024 13 Zones

<b>Sample Number</b>	<b>Sample Type</b>	<b>Location Name</b>	<b>Length (cm)</b>	<b>Notes</b>	<b>Location</b>	<b>Claim Number</b>
<b>OC-1A</b>	Channel Cut	Carb Zone	65	65cm channel cut Direction 140 Dip 35	17T 324447E 5182292N	612264
<b>OC-1B</b>	Channel Cut		100	1m length Direction 140 Dip 35	17T 324448E 5182291N	612264
<b>OC-2A</b>	Channel Cut	Road Zone	75	Length 75cm Direction 155 Angle 10	17T 325126E 5183385N	752931
<b>OC-3A</b>	Channel Cut	Road Zone	60	Length 60 cm Angle 0 Direction 150	17T 325140E 5183389N	752931
<b>OC-4A</b>	Channel Cut	Road Zone	64	Length 64 cm Direction 168 Angle 20	17T 325158E 5183402N	752931
<b>OC-4B</b>	Channel Cut	Road Zone	35	Length 35 cm Direction 148 Angle 6	17T 325195E 5183430N	752931
<b>OC-5A</b>	Channel Cut	Road Zone	34	Length 34 cm Direction 172 S Angle -21	17T 325197E 5183429N	752931
<b>OC-5B</b>	Channel Cut	Road Zone	37	Length 37 cm Direction 155 SE Angle -8	17T 325197E 5183429N	752931

<b>OC-5C</b>	Channel Cut	Road Zone	45	5C Length 45 cm Direction 148 SE Angle 5	17T 325197E 5183429N	752931
<b>OC-6A</b>	Channel Cut	Road Zone	45	Length 45 cm Direction 136 SE Angle -4	17T 325199E 5183431N	752931
<b>OC-7A</b>	Channel Cut	Road Zone	75	Length 75 cm Direction 153 SE Angle 5	17T 325223E 5183451N	752931
<b>OC-8A</b>	Channel Cut	Road Zone	71	Length 71 cm Direction 157 S Angle -23	17T 325235E 5183464N	752931
<b>OC-8B</b>	Channel Cut	Road Zone	74	Length 74 cm Direction 145 SE Angle 3	17T 325235E 5183464N	752931
<b>OC-8C</b>	Channel Cut	Road Zone	76	Length 76 cm Direction 134 SE Angle -4	17T 325235E 5183464N	752931
<b>OC-8D</b>	Channel Cut	Road Zone	75	Length 75 cm Direction 130 SE Angle 3	17T 325235E 5183464N	752931
<b>OC-9A</b>	Channel Cut	Road Zone	77	Length 77 cm Direction 174 S Angle 12	17T 325247E 5183475N	752931
<b>OC-9B</b>	Channel Cut	Road Zone	100	Length 1m Direction 166 S Angle 8	17T 325247E 5183475N	752931
<b>OC-9C</b>	Channel Cut	Road Zone	100	Length 1 m Direction 161 S Angle -5	17T 325247E 5183475N	752931
<b>OC-9D</b>	Channel Cut	Road Zone	100	Length 1m Direction 228 SW Angle -24 *2cm quartz vein with green colouring	17T 325247E 5183475N	752931
<b>OC-10A</b>	Channel Cut	Road Zone	38	Length 38 cm Direction 158 S Angle 16	17T 325251E 5183479N	752931

<b>OC-11A</b>	Channel Cut	Road Zone	96	Length 96 cm Direction 137 SE Angle -2	17T 325271E 5183471N	752931
<b>OC-11B</b>	Channel Cut	Road Zone	100	Length 1m Direction 125 SE Angle 10	17T 325271E 5183471N	752931
<b>OC-11C</b>	Channel Cut	Road Zone	106	Length 106 cm Direction 134 SE Angle -24	17T 325271E 5183471N	752931
<b>OC-11D</b>	Channel Cut	Road Zone	100	Length 100 cm Direction 125 SE Angle -2	17T 325271E 5183471N	752931
<b>OC-11E</b>	Channel Cut	Road Zone	74	Length 74 cm Direction 128 SE Angle -5	17T 325271E 5183471N	752931
<b>OC-12A</b>	Channel Cut	Road Zone	100	Length 1m Direction 126 SE Angle 19	17T 325288E 5183456N	752931
<b>OC-12B</b>	Channel Cut	Road Zone	100	Length 1m Direction 126 SE Angle 1	17T 325288E 5183456N	752931
<b>OC-12C</b>	Channel Cut	Road Zone	75	Length 75 cm Direction 135 SE Angle 15	17T 325288E 5183456N	752931
<b>OC-13A</b>	Channel Cut	Road Zone	27	Length 27 cm Direction 105 SE Angle 6	17T 325280E 5183519N	752931
<b>OC-13B</b>	Channel Cut	Road Zone	36	Length 36 cm Direction 110 Angle 21	17T 325280E 5183519N	752931
<b>OC-13C</b>	Channel Cut	Road Zone	35	Length 35 cm Direction 100 E Angle 26	17T 325280E 5183519N	752931

Table 5 Sample Descriptions

Sample #	Description
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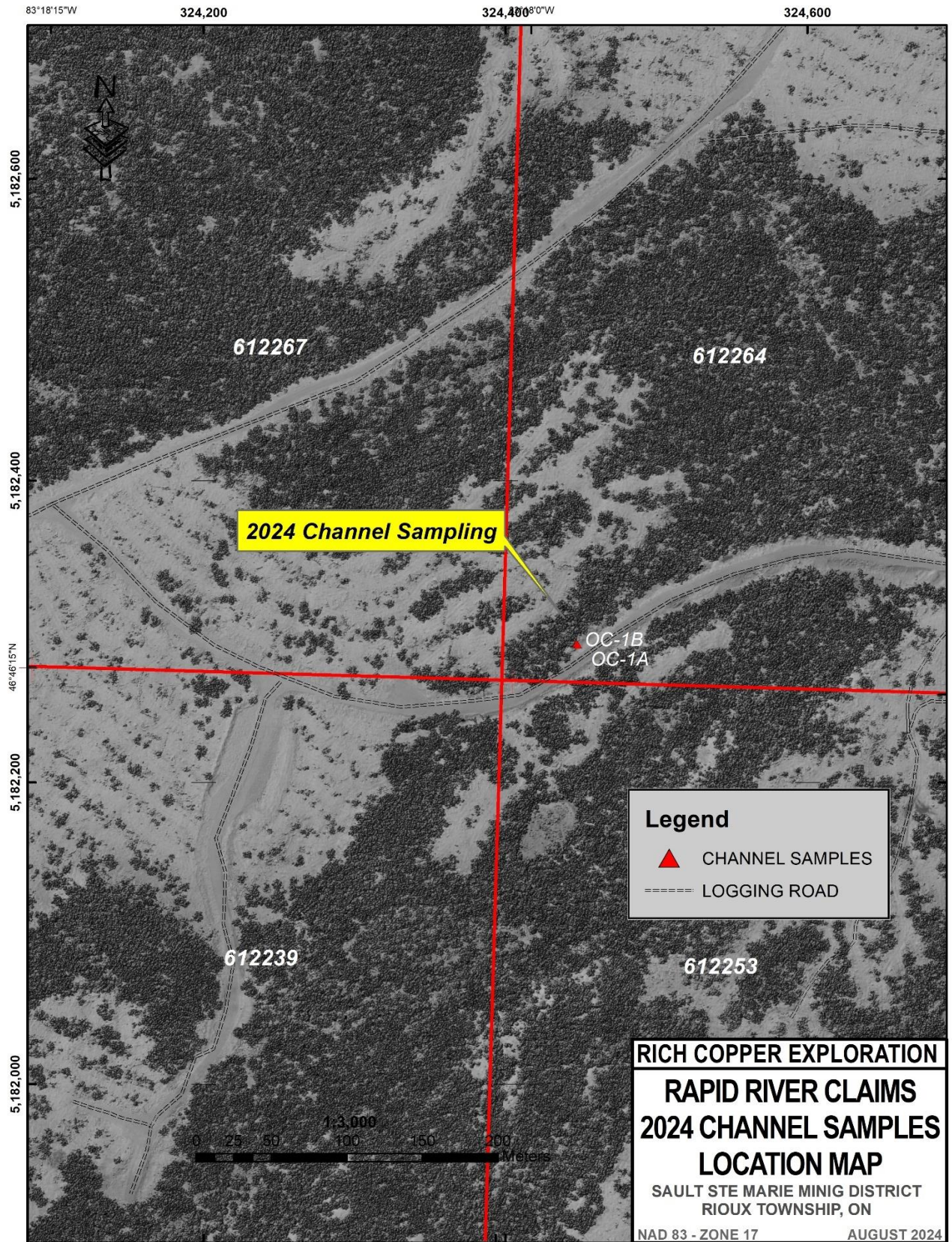
- OC-1A Red Granite with minor quartz as patches and veinlets
- OC-1B Red granite weak alteration and fractures
- OC-2A Granitic Gneiss with patchy Red Granite and random quartz veinlets
- OC-3A Granitic Gneiss with patchy Red Granite and random quartz veinlets
- OC-4A Quartz vein (50 cm) cutting Red Granite
- OC-4B Quartz veinlets cutting Red Granite
- OC-5A Brecciated Granitic Gneiss
- OC-5B Quartz Vein with dark patches
- OC-5C Brecciated Granitic Gneiss minor Red Granite
- OC-6A Quartz Vein 80 cm dark patches and? Vugs
- OC-7A Red Granite cut by random Quartz Veinlets
- OC-8A Granitic Gneiss minor Quartz Veinlets
- OC-8B Granitic Gneiss minor Quartz Veinlets
- OC-8C Granitic Gneiss minor Quartz Veinlets
- OC-8D Granitic Gneiss Quartz Veinlets and minor Red Granite
- OC-9A Granitic Gneiss Quartz Veinlets and minor Red Granite
- OC-9B Granitic Gneiss Quartz Veinlets and minor Red Granite
- OC-9C Granitic Gneiss Quartz Veinlets and minor Red Granite
- OC-9D Granitic Gneiss Quartz Veinlets and minor Red Granite
- OC-10A Quartz Vein - black Patches (Mn?) and vuggy
- OC-11A Granitic Gneiss with Quartz Veins (random)
- OC-11B Quartz Breccia and Vuggy with crystals
- OC-11C Quartz Vein
- OC-11D Quartz Vein wiith parallel NE fractures
- OC-11E Quartz Breccia and Vuggy with crystals
- OC-12A Quartz Vein
- OC-12B Quartz Vein
- OC-12C Quartz Vein
- OC-13A Chlorite ? Alteration zone in Red Granite
- OC-13B Random Oriented Quartz Breccia in Mafic?
- OC-13C Random Oriented Quartz Breccia in Mafic?

Widespread copper mineralization encountered in the 2022 prospecting program was sampled in two areas – the Road Zone and the Carbonate Zone using channel samples. Each exposure was cut using a rock saw. Each sample was collected along the saw cut and each rock sample taken over a maximum width of one meter. Copper mineralization in the form of disseminated to massive chalcopyrite, malachite, and azurite was observed in rock samples, with some rock samples containing either bornite or covellite as well as specular hematite. The host rock in most of the rock samples are felsic gneiss and/or brick red granite with the most mineralized rock samples occurring in a medium to coarse grained brecciated granitoid. Iron Carbonate (ankerite) and specularite (hematite) are secondary minerals common in most of the samples. Ankerite is especially common in the southern-most area – The Carbonate Zone.

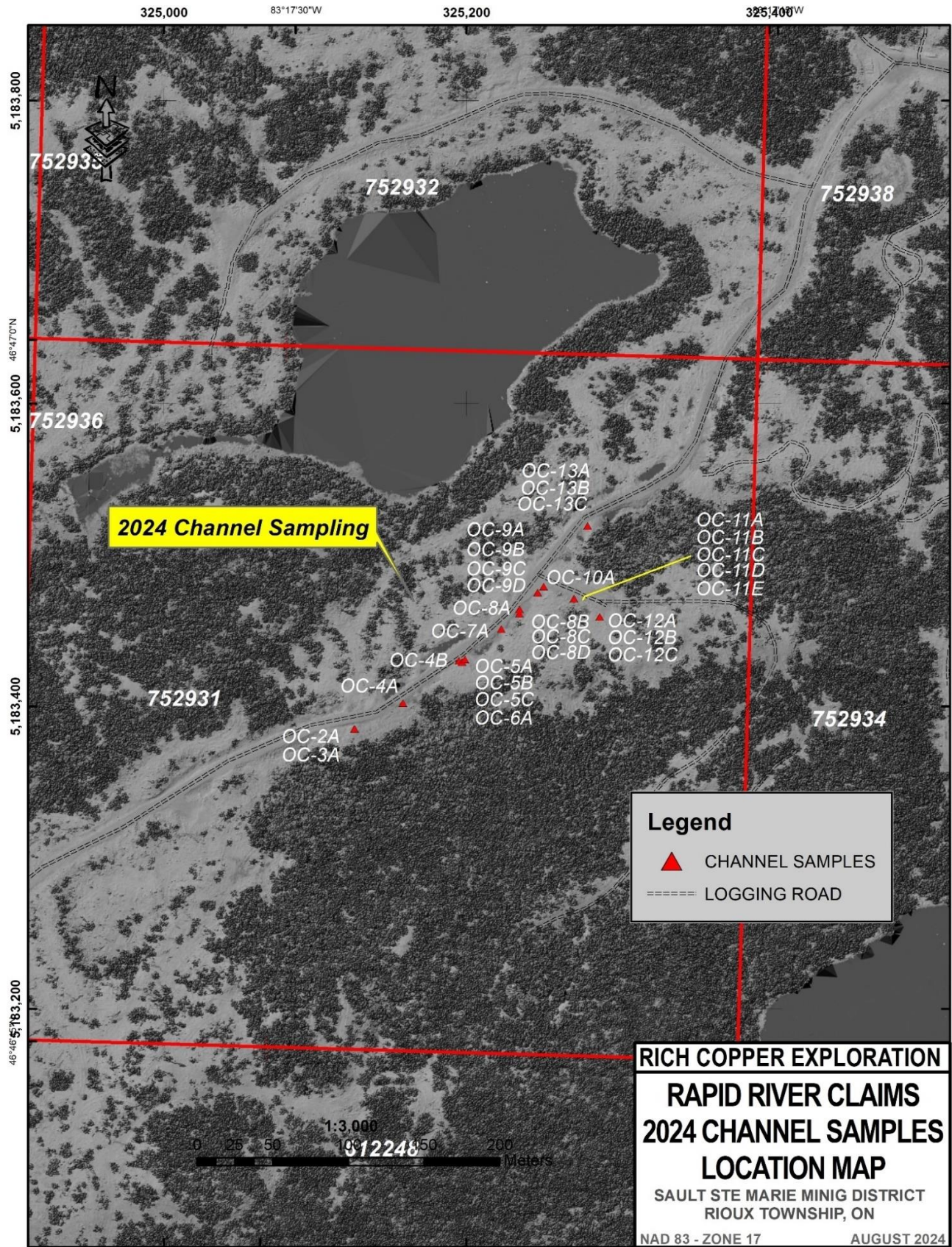
## Rock Sample Collection, Security and Analysis

All samples were removed form the saw cuts and "bagged" according to "Best Practice" procedures under implicit instructions as how to bag, tag, describe and secure each sample. The samples were individually bagged and sealed (with numbered seals) in 10x16 inch plastic bags and then a number of

individual samples were placed in plastic rice sacks and then sealed. At the end of the program the samples were delivered by the Senior Geologist directly to Actlabs Labs in Ancaster, Ontario.



Map 11: Channel Sampling Location Map Southern Area – Carbonate Zone



Map 12: Sampling Locations North Area - Road Zone

## Costs of Program

The following summarizes the costs associated with the current Work Program. Appropriate receipts are appended.

Costs		
Company	Activity	Invoice Amount
Noront	Field Work , Channel Sampling	\$8,251
Activation Labs	Chemical Analysis	\$0
JD Exploration	Report preparation, interpretation	\$3,000
Total		\$11,251

## Analytical results

The sampling was concentrated in two areas – the Carb Zone and the Road Zone. The channel sampling resulted in 31 samples submitted to Activation Laboratories for Whole rock Analysis of major elements and for multielement analysis including metals Analytical Code 4E-Expl.). The full results and certificates are included in Appendix A. Summary results are included in Table 5 – Whole Rock Analysis, Table 6 – Metals and Table 7 – Selected Alteration Elements. Results are described in two sections – the Carb Zone and the Road Zone.

Table 6: Results of Whole Rock Analysis sorted by Silica Content

	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub> (T)	Mn	Mg	Ca	Na <sub>2</sub>	K <sub>2</sub>	TiO <sub>2</sub>	P <sub>2</sub> O <sub>5</sub>	LOI	Total	
OC-13A	57.78	8.58	23.21	0.05	1.43	0.25	1.85	1.77	0.987	0.13	7	98.9	Altered by Bio/Chl?
OC-3A	65.99	10.36	8.41	0.05	1.89	1.94	0.34	1	1.02	0.11	9	98.7	
OC-13C	67.58	10.13	9.9	0.04	1.75	1.2	1.11	6	1.383	0.19	3	99.9	
												6	
OC-8A	72.32	13.41	3.29	0.02	0.69	0.74	4.5	6	0.348	0.11	1	98.9	Typical Granite ?
OC-8B	72.79	13.21	2.92	0.01	0.59	0.59	4.7	2.2	0.355	0.09	6	98.4	
OC-9B	73.52	13.32	2.73	0.02	0.7	0.71	5.03	9	0.249	0.07	9	99.2	
OC-5C	75.49	13.66	2.16	0.01	0.47	0.46	4.7	7	0.162	0.05	8	99.7	
OC-5A	75.86	12.79	2.92	0.02	0.7	0.29	4.33	6	0.198	0.05	9	100.	
OC-2A	76.2	12.61	1.78	0.02	0.43	0.54	4.26	7	0.158	0.05	5	100.	
OC-8D	76.2	12.61	1.78	0.02	0.43	0.54	4.26	7	0.158	0.05	5	99.7	
OC-8D	76.5	12.02	2.17	0.02	0.37	0.9	4.71	3	0.163	0.02	8	99.7	
OC-11A	76.75	12.02	2.21	0.01	0.26	0.32	2.9	6	0.182	0.04	7	99.8	
OC-8C	77.1	10.58	2.86	0.02	0.61	0.51	3.46	6	0.289	0.07	6	99.8	
OC-9A	77.14	11.85	3.27	0.02	0.71	0.75	4	8	0.253	0.07	3	98.4	
OC-9C	77.82	10.86	2.63	0.02	0.5	0.72	3.86	1	0.149	0.04	1	100.	
OC-9D	77.86	11.22	1.84	0.02	0.34	0.8	3.99	7	0.129	0.04	3	99.8	
												4	Increasing Amounts of Quartz?

OC-7A	78.6	4	9.47	3.49	0.02	0.74	0.42	3.54	1.7	4	0.249	0.07	1.2	99.6	Quartz Veins
OC-11E	81.3	6	8.03	2.63	0.09	0.27	0.21	2.65	1.4	3	0.128	0.04	1.8	98.6	
OC-4A	84.2	4	7.32	2.92	0.01	0.33	0.11	2.38	2.1	4	0.088	0.04	0.7	100.	
OC-10A	86.1	1.99	1	0.05	0.07	5.35	0.83	0.7	0.2	7	0.038	0.01	4.7	100.	
OC-4B	86.7	6	3.11	1.66	0.04	0.2	3.41	0.79	1.1	4	0.046	0.01	3.0	100.	
OC-11B	87.6	5	4.92	3.56	0.01	0.24	0.1	0.21	1.7	3	0.052	0.01	1.6	100.	
OC-13B	88.9	3	2.83	3.62	0.02	0.36	1.02	0.42	1.2	5	0.354	0.04	1.3	100.	
OC-12C	89.4	8	4.18	1.88	0.03	0.23	0.95	1.38	0.7	2	0.063	0.01	1.3	100.	
OC-5B	91.4	4	1.74	1.91	0.02	0.13	0.94	0.61	0.3	5	0.023	0.01	1.2	98.3	
OC-6A	91.6	6	2.18	2.24	0.01	0.26	0.14	0.64	0.1	0.5	0.039	0.01	0.6	98.3	
OC-11D	96.1	1	1.41	1.53	0.04	0.1	0.05	0.06	0.1	4	0.027	0.01	1.2	100.	
OC-11C	96.2	1	0.82	1.85	0.03	0.08	0.61	0.07	0.0	9	0.019	0.01	1.0	100.	
OC-12A	98.5	2	0.42	0.85	0.01	0.05	0.05	0.07	0.0	5	0.006	0.01	0.5	100.	
OC-12B	98.5	2	0.23	0.85	0.01	0.03	0.34	0.05	0.0	3	0.005	0.01	0.6	100.	

Table 7: Results for Metals Sorted by Copper Value

Analyte Symbol	Au	Ag	As	Co	Cr	Cu	Ni	Pb	S	U	W	Zn
Unit Symbol	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
OC-1A	6	< 0.5	< 2	21	56	4770	72	< 5	0.345	< 0.5	< 3	27
OC-1B	< 5	< 0.5	< 2	41	87	2420	116	< 5	0.243	< 0.5	< 3	31
OC-4B	< 5	< 0.5	< 2	12	33	878	4	< 5	0.113	< 0.5	< 3	7
OC-13A	< 5	< 0.5	51	35	38	806	28	< 5	0.116	3.1	16	19
OC-3A	7	< 0.5	< 2	81	119	622	34	< 5	0.319	2.6	< 3	29
OC-12A	7	< 0.5	< 2	16	50	571	7	< 5	0.049	< 0.5	< 3	8
OC-13C	< 5	< 0.5	5	87	50	538	39	< 5	0.384	2.1	< 3	23
OC-12C	17	< 0.5	< 2	13	40	344	8	< 5	0.036	< 0.5	< 3	10
OC-11C	12	< 0.5	< 2	12	56	331	8	< 5	0.025	< 0.5	< 3	10
OC-13B	< 5	< 0.5	< 2	23	49	304	9	< 5	0.104	< 0.5	< 3	9
OC-12B	22	< 0.5	< 2	14	51	212	8	< 5	0.015	< 0.5	< 3	7
OC-11B	< 5	< 0.5	< 2	6	35	198	6	< 5	0.021	< 0.5	4	10
OC-11A	< 5	< 0.5	< 2	10	27	187	7	< 5	0.05	< 0.5	< 3	20
OC-11E	< 5	< 0.5	< 2	20	26	117	10	< 5	0.026	< 0.5	< 3	12

OC-9D	< 5	< 0.5	< 2	12	29	102	5	< 5	0.041	< 0.5	< 3	14
OC-11D	6	< 0.5	< 2	11	48	99	6	< 5	0.016	< 0.5	< 3	8
OC-8C	< 5	< 0.5	< 2	12	26	78	8	< 5	0.022	0.7	< 3	17
OC-10A	< 5	< 0.5	< 2	12	34	72	4	< 5	0.034	< 0.5	< 3	8
OC-5B	< 5	< 0.5	< 2	13	39	63	4	< 5	0.124	< 0.5	< 3	10
OC-7A	< 5	< 0.5	< 2	24	25	56	11	< 5	0.045	< 0.5	< 3	17
OC-4A	< 5	< 0.5	< 2	9	37	31	6	< 5	0.016	< 0.5	< 3	10
OC-9A	< 5	< 0.5	< 2	15	34	30	7	< 5	0.031	< 0.5	< 3	19
OC-9B	< 5	< 0.5	< 2	10	16	29	7	< 5	0.011	< 0.5	< 3	15
OC-8B	< 5	< 0.5	< 2	20	28	21	7	< 5	0.023	< 0.5	< 3	16
OC-9C	< 5	< 0.5	< 2	13	20	21	6	< 5	0.035	< 0.5	< 3	14
OC-8A	< 5	< 0.5	< 2	15	27	20	8	< 5	0.025	< 0.5	< 3	18
OC-8D	< 5	< 0.5	< 2	3	24	20	5	< 5	0.006	< 0.5	< 3	18
OC-2A	< 5	< 0.5	< 2	9	21	14	5	< 5	0.009	< 0.5	< 3	16
OC-5A	< 5	< 0.5	< 2	8	21	8	7	< 5	0.014	< 0.5	< 3	32
OC-5C	< 5	< 0.5	< 2	7	32	8	4	< 5	0.018	< 0.5	< 3	16
OC-6A	< 5	< 0.5	< 2	11	51	8	6	< 5	0.056	< 0.5	< 3	11
Detection Limit	5	0.5	2	1	1	1	1	5	0.001	0.5	3	1

Table 8: Alteration Elements

Analyte Symbol	Al <sub>2</sub> O <sub>3</sub>	CaO	Na <sub>2</sub> O	K <sub>2</sub> O
Unit Symbol	%	%	%	%
Detection Limit	0.01	0.01	0.01	0.01
Analysis Method	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP
OC-1A	2.04	7.58	0.05	0.22
OC-1B	4.49	6.6	0.66	0.81
OC-2A	12.61	0.54	4.26	2.67
OC-3A	10.36	1.94	0.34	5.71
OC-4A	7.32	0.11	2.38	2.14
OC-4B	3.11	3.41	0.79	1.14
OC-5A	12.79	0.29	4.33	2.16
OC-5B	1.74	0.94	0.61	0.35
OC-5C	13.66	0.46	4.7	2.67
OC-6A	2.18	0.14	0.64	0.5
OC-7A	9.47	0.42	3.54	1.74

OC-8A	13.41	0.74	4.5	2.46
OC-8B	13.21	0.59	4.7	2.2
OC-8C	10.58	0.51	3.46	1.86
OC-8D	12.02	0.9	4.71	1.53
OC-9A	11.85	0.75	4	1.48
OC-9B	13.32	0.71	5.03	1.69
OC-9C	10.86	0.72	3.86	2.01
OC-9D	11.22	0.8	3.99	2.37
OC-10A	1.99	5.35	0.83	0.27
OC-11A	12.02	0.32	2.9	3.36
OC-11B	4.92	0.1	0.21	1.73
OC-11C	0.82	0.61	0.07	0.09
OC-11D	1.41	0.05	0.06	0.14
OC-11E	8.03	0.21	2.65	1.43
OC-12A	0.42	0.05	0.07	0.05
OC-12B	0.23	0.34	0.05	0.03
OC-12C	4.18	0.95	1.38	0.72
OC-13A	8.58	0.25	1.85	1.77
OC-13B	2.83	1.02	0.42	1.25
OC-13C	10.13	1.2	1.11	4.06

## Interpretation Of Results

### Overall

The general description of the samples was quartz veins or quartz stringers in brick red granite. To further understand the mineralization relationship to quartz veins and or alteration the copper results were arranged by silica (SiO<sub>2</sub>) content. The results are shown on Table 8. It can be seen that while there is a general relationship between the copper content and the amount of quartz (as indicated by the silica content) the highest values for copper are seen in the samples with higher iron and magnesium possibly indicating alteration by biotite and chlorite.

Table 9 : Results Sorted by SiO<sub>2</sub> with Copper to estimate Alteration and Quartz Content

Sample #	Description	Cu	Average ppm Cu
OC-13A	Altered by Bio/Chl?	806	656
OC-3A		622	
OC-13C		538	
OC-8A	Typical Granite ?	20	38
OC-8B		21	
OC-9B		29	
OC-5C		8	
OC-5A		8	
OC-2A		14	

OC-8D		20			
OC-11A		187			
OC-8C	Varying Amounts of Quartz?	78	185		
OC-9A		30			
OC-9C		21			
OC-9D		102			
OC-7A		56			
OC-11E		117			
OC-4A		31			
OC-10A		72			
OC-4B		878			
OC-11B		198			
OC-13B		304			
OC-12C		344			
OC-5B		Quartz Veins		63	209
OC-6A				8	
OC-11D	99				
OC-11C	331				
OC-12A	538				
OC-12B	212				

## Carb Zone

The results of the chemical analysis for metals in the channel samples from the Carb Zone indicate that this area has the highest copper results of the samples collected in this program with an average of 3,595 ppm copper. This is similar to results of samples collected during the 2022 program which had an average of 4,905 ppm Cu.

The whole rock analysis indicated Low SiO<sub>2</sub>, Low Al<sub>2</sub>O<sub>3</sub> with High MgO, High TiO<sub>2</sub> and Ni indicative of a mafic host to the mineralization, this agrees with the observation of suspected altered gabbro in this exposure. In addition, the high CaO, Fe<sub>2</sub>O<sub>3</sub> and MgO results confirm the observation of ankerite in these samples.

The elements that are generally used to identify alteration; CaO, Na<sub>2</sub>O and K<sub>2</sub>O indicate that the alteration is dominated by calcium minerals again signifying that ankerite is the dominant alteration mineral. A very elevated LOI also points to the altered nature of the outcrops and may indicate biotite or chlorite alteration as well.

## Road Zone

The most abundant number of samples were collected from the Road Zone, a 200 m long semi-continuous northeasterly trending exposure of quartz veins, breccia, and stockwork which culminates in a broad area of quartz and breccia at the northeast end.

The average copper content of the samples are lower than in the Carb Zone but there are indications of wider spread mineralization in the northern end of the Road Zone in areas OC-12 and OC-13.

Observations in this area suggest a wider distribution of quartz veins and breccia stretching over more than three meters wide.

The results for the whole rock analysis reflect the varied nature of the Road zone but the mineralization can be generally said to be enclosed in granitoid rocks. Observations point to a “brick red granite” as the general host to mineralization. This is confirmed by the elevated values for SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, Na<sub>2</sub>O and K<sub>2</sub>O. The results are obviously affected by the abundance of quartz in the samples and in fact several samples are certainly pure quartz veins with over 90% SiO<sub>2</sub>. A typical granite would be expected to have between 70% and 77% SiO<sub>2</sub>.

There is evidence of the presence of alteration in samples with the highest copper values. Samples OC-13A, OC-3A, and OC-13C appear to have experienced alteration as the SiO<sub>2</sub> values are lower than what would be expected in a typical granite and the values of Fe<sub>2</sub>O<sub>3</sub>, TiO, P<sub>2</sub>O<sub>5</sub> and LOI are higher. This could suggest alteration by biotite or chlorite in the original granitic host rocks. There may be other alteration indicated by the higher K<sub>2</sub>O, LOI and P<sub>2</sub>O<sub>5</sub> values and the lower NaO.

It does appear that some mineralization is carried by quartz veins as the highest values for copper – sample OC-4B and OC-12A which are assumed to be quartz veins based on their SiO<sub>2</sub> content and have among the highest copper values. In fact, examination of Table 8 indicates a general increase in copper related to increased SiO<sub>2</sub> content. However, all presumed quartz veins (based on SiO<sub>2</sub> content) do not have elevated copper values.

## **Conclusions**

The property appears to have excellent potential for hosting copper/iron mineralization in a Vein/breccia setting and may have characteristics similar to known mineralization which has been reported in the Batchawana Bay area to the immediate northwest.

The channel sampling and chemical analysis has indicated that there is alteration associated with the mineralized zones which comprises biotite and chlorite in general and ankerite in one specific case. This alteration should be examined in more detail through petrography and/or spectrograph.

Two areas related to the linears were found through whole rock and trace element analysis to have characteristics of chemical alteration of the host granitic rocks.

The mineralization appears to be related to a series of prominent linears which can be traced as topographic feature for over 3.81 km. Poor exposure along this zone may have hampered past prospectors, however with new logging roads established in 2021 & 2022 mineralization has been exposed in four (4) separate mineralized areas on the property, the largest traces for over a distance of 920 meters and 135 meters wide.

LiDAR Survey confirmed and expanded the number of linear features on the property and confirmed the association of copper mineralization with suspected structures

Notably, at least three similar linear features were observed cutting the area to the south and north of the known mineralized zone. Prospecting and/or mapping of these areas has not been reported but work by the current owner has identified mineralized quartz and breccia boulders with chalcopyrite south of one of the linear features which occurs to the east of the known mineralization.

## **Recommendations**

Continued prospecting and rock sampling should be completed in the northeast corner of claims and along the identified LiDAR linears to the southwest of the area of the Road and Carb Zones

and submitted for petrological and chemical analysis to identify alteration and chemical signatures.

Samples obtained should be analyzed for a wide suite of major and trace elements to determine if other important metals are present and to detail any chemical alteration present. This may help in the identification of the mineralization style and help determine if the mineralization is part of a larger alteration system.

An IP Survey should be conducted to identify larger concentrations of copper mineralization at depth beneath the mineralized zones.

Anomalous features should be followed-up with ground- truthing using prospecting, trenching, sampling and drilling as appropriate.

Further examination of the geology should include petrographic work and possibly age-dating to establish the various geologic relationships between the host granitic gneiss, the “brick red granite”, the diabase dykes and the mineralization.

Regional reconnaissance mapping should be completed to identify the controls of the mineralization as the location of this mineralization is anomalous in the region being situated in granitic units.

## Anticipated Costs for Further Work

The proposed budget cost for work in 2024-2025 is estimated to be approximately \$210,000 (Table 10)

Table 10: Budget Estimate for Phase 2

<b>Rich Copper Exploration Inc.</b>				
<b><i>Proposed Budget Rapid River Phase 2</i></b>				
Item	Units	Number	Rate	Total
IP	km	25	5000	\$125,000
Interpretation	Days	10	1000	\$10,000
Prospecting	Days	20	850	\$17,000
Sampling	Days	10	500	\$5,000
Geology	Days	10	1000	\$10,000
Samples	Samples	150	60	\$9,000
Consulting	Days	2	1000	\$2,000
Accommodation/ Vehicles	Days	20	300	\$6,000
Mileage	km	2000	0.65	\$1,300
Site Visit		2	1500	\$3,000
Reporting	Days	5	850	\$3,000
Contingency	10%			\$19,130
<b>Total</b>				<b>\$210,430</b>

## References

- 2016 AFRI File **20000014220** Jim Atkinson, Sharpsand River Project J.D. Exploration I  
Inc. Assaying and Analyses, Prospecting by License Holder, Rock Sampling
- 1998 AFRI File **41J14SW2003** William Henry Douglas Diamond Drilling, Electromagnetic Very Low  
Frequency, Open Cutting
- 1962: AFRI File **41J11NW0002**, C.C. Huston & Associates Bedrock Trenching, Diamond Drilling,  
Electromagnetic, Geochemical, Geological Survey / Mapping, Magnetic / Magnetometer Survey
- 1956 AFRI File **41J11NW0001** Soil Testing Services Inc Diamond Drilling

## Certificate of Qualifications

I James Atkinson M.Sc., P.Geo of JD Exploration residing at 119 Pinewood Avenue, Cambridge Ontario N2H 2M3 hereby certify:

I am a graduate of Brock University (B.Sc. Geology, 1972) and University of Toronto (M.Sc. Geology, 1992);

I have practiced my profession since graduation with various mineral and environmental companies and consulting groups;

I supervised the Channel Sampling program on the Rapid River Property reported herein;

I prepared the Assessment Report entitled "Rapid River Property 2024 Channel Sampling Program" and completed the Interpretation of the results;

I am Vice President of Rich Copper Corp. the company which is the owner of the property which is the subject of this report.

James Atkinson, M.Sc., P.Geo, Ontario #1086

A handwritten signature in black ink, appearing to be 'JA', with a long horizontal stroke extending to the right.

Appendix A: List of Rich Copper's Rapid River Mining Claims

Tenure ID	Project	Cell Unit ID	Holder	Area in Hectares	Township/Area
752937	Rapid River	41J14C213	Rich Copper Exploration Corp.	22.10	Rioux
752933	Rapid River	41J14C214	Rich Copper Exploration Corp.	22.10	Rioux
752935	Rapid River	41J14C233	Rich Copper Exploration Corp.	22.10	Rioux
752932	Rapid River	41J14C234	Rich Copper Exploration Corp.	22.10	Rioux
752938	Rapid River	41J14C235	Rich Copper Exploration Corp.	22.10	Rioux
752936	Rapid River	41J14C253	Rich Copper Exploration Corp.	22.11	Rioux
752931	Rapid River	41J14C254	Rich Copper Exploration Corp.	22.11	Rioux
752934	Rapid River	41J14C255	Rich Copper Exploration Corp.	22.11	Rioux
612268	Rapid River	41J14C273	Rich Copper Exploration Corp.	22.11	Rioux
612248	Rapid River	41J14C274	Rich Copper Exploration Corp.	22.11	Rioux
612242	Rapid River	41J14C275	Rich Copper Exploration Corp.	22.11	Rioux
612231	Rapid River	41J14C291	Rich Copper Exploration Corp.	22.11	Rioux
612267	Rapid River	41J14C292	Rich Copper Exploration Corp.	22.11	Rioux
612264	Rapid River	41J14C293	Rich Copper Exploration Corp.	22.11	Rioux
612256	Rapid River	41J14C294	Rich Copper Exploration Corp.	22.11	Rioux
612249	Rapid River	41J14C295	Rich Copper Exploration Corp.	22.11	Rioux
612244	Rapid River	41J14C309	Rich Copper Exploration Corp.	22.11	Rioux
612237	Rapid River	41J14C310	Rich Copper Exploration Corp.	22.11	Rioux
612245	Rapid River	41J14C311	Rich Copper Exploration Corp.	22.11	Rioux
612239	Rapid River	41J14C312	Rich Copper Exploration Corp.	22.11	Rioux
612253	Rapid River	41J14C313	Rich Copper Exploration Corp.	22.11	Rioux
612234	Rapid River	41J14C314	Rich Copper Exploration Corp.	22.11	Rioux

612236	Rapid River	41J14C315	Rich Copper Exploration Corp.	22.11	Rioux
612258	Rapid River	41J14C328	Rich Copper Exploration Corp.	22.11	Rioux
612243	Rapid River	41J14C329	Rich Copper Exploration Corp.	22.11	Rioux
612261	Rapid River	41J14C330	Rich Copper Exploration Corp.	22.11	Rioux
612251	Rapid River	41J14C331	Rich Copper Exploration Corp.	22.11	Rioux
612263	Rapid River	41J14C332	Rich Copper Exploration Corp.	22.11	Rioux
612252	Rapid River	41J14C333	Rich Copper Exploration Corp.	22.11	Rioux
612240	Rapid River	41J14C334	Rich Copper Exploration Corp.	22.11	Rioux
612241	Rapid River	41J14C335	Rich Copper Exploration Corp.	22.11	Rioux
612250	Rapid River	41J14C348	Rich Copper Exploration Corp.	22.12	Rioux
612259	Rapid River	41J14C349	Rich Copper Exploration Corp.	22.11	Rioux
612260	Rapid River	41J14C350	Rich Copper Exploration Corp.	22.11	Rioux
612262	Rapid River	41J14C351	Rich Copper Exploration Corp.	22.11	Rioux
612233	Rapid River	41J14C352	Rich Copper Exploration Corp.	22.11	Rioux
612247	Rapid River	41J14C353	Rich Copper Exploration Corp.	22.11	Rioux
612255	Rapid River	41J14C354	Rich Copper Exploration Corp.	22.11	Rioux
612269	Rapid River	41J14C355	Rich Copper Exploration Corp.	22.11	Rioux
612265	Rapid River	41J14C368	Rich Copper Exploration Corp.	22.12	Rioux
612257	Rapid River	41J14C369	Rich Copper Exploration Corp.	22.12	Rioux
612266	Rapid River	41J14C370	Rich Copper Exploration Corp.	22.12	Rioux
612238	Rapid River	41J14C371	Rich Copper Exploration Corp.	22.12	Rioux
612232	Rapid River	41J14C372	Rich Copper Exploration Corp.	22.12	Rioux
612246	Rapid River	41J14C373	Rich Copper Exploration Corp.	22.12	Rioux
612254	Rapid River	41J14C374	Rich Copper Exploration Corp.	22.12	Rioux
612235	Rapid River	41J14C375	Rich Copper Exploration Corp.	22.12	Rioux

APPENDIX B: Laboratory Certificates for Samples Collected in

August 2024

From Activation Labs, Ancaster, ON

*Quality Analysis ...*



*Innovative Technologies*

**Report No.:** A24-09428  
**Report Date:** 05-Sep-24  
**Date Submitted:** 13-Aug-24  
**Your Reference:** RAPID RIVER

Rich Copper Exploration  
 119 Pinewood Ave.  
 Cambridge ON N3H 2M3  
 Canada

**ATTN:** James Atkinson

## CERTIFICATE OF ANALYSIS

31 Rock samples were submitted for analysis.

The following analytical package(s) were requested:		Testing Date:
4E-Expl (11+)	QOP INAAGEO/QOP WRA/QOP Total (INAA/Major Elements Fusion ICPOES/Total Digestion ICPOES)	2024-08-20 15:17:42

REPORT **A24-09428**

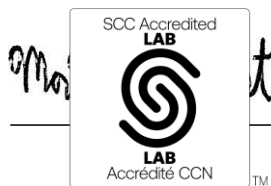
This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

Total includes all elements in % oxide to the left of total. Values above the upper limit should be assayed for most accurate values.

Refer to the Scope of Accreditation for information on accredited elements.

CERTIFIED BY:



**ACTIVATION LABORATORIES LTD.**

41 Bittern Street, Ancaster, Ontario, Canada, L9G 4V5 TELEPHONE +905 648-9611  
 or +1.888.228.5227 FAX +1.905.648.9613  
 E-MAIL Ancaster@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Mark Vandergeest  
 Quality Control Coordinator

LabID: 266

Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Au	Ag	As	Ba	Be	Bi	Br	Cd	Co	Cr	Cs
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.005	0.01		0.01	5	0.5	2	3	1	2	1	0.5	1	1	0.5
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	GRAV	FUS-ICP	INAA	MULT INAA / TD-ICP	INAA	MULT I NAA/F USICP	FUS-ICP	TD-ICP	INAA	TD-ICP	INAA	INAA	INAA
OC-1A	69.23	2.04	4.87	0.15	3.15	7.58	0.05	0.22	0.206	0.03	10.62	98.14	6	< 0.5	< 2	718	< 1	< 2	2	< 0.5	21	56	< 0.5
OC-1B	69.83	4.49	4.93	0.13	2.52	6.60	0.66	0.81	0.486	0.07	9.31	99.83	< 5	< 0.5	< 2	1470	< 1	< 2	< 1	< 0.5	41	87	< 0.5
OC-2A	76.20	12.61	1.78	0.02	0.43	0.54	4.26	2.67	0.158	0.05	1.05	99.76	< 5	< 0.5	< 2	881	< 1	< 2	< 1	< 0.5	9	21	< 0.5
OC-3A	65.99	10.36	8.41	0.05	1.89	1.94	0.34	5.71	1.020	0.11	2.89	98.70	7	< 0.5	< 2	186	3	< 2	< 1	< 0.5	81	119	1.6
OC-4A	84.24	7.32	2.92	0.01	0.33	0.11	2.38	2.14	0.088	0.04	0.73	100.3	< 5	< 0.5	< 2	296	< 1	< 2	4	< 0.5	9	37	< 0.5
OC-4B	86.76	3.11	1.66	0.04	0.20	3.41	0.79	1.14	0.046	0.01	3.03	100.2	< 5	< 0.5	< 2	102	< 1	< 2	3	< 0.5	12	33	< 0.5
OC-5A	75.86	12.79	2.92	0.02	0.70	0.29	4.33	2.16	0.198	0.05	1.39	100.7	< 5	< 0.5	< 2	301	< 1	< 2	< 1	< 0.5	8	21	< 0.5
OC-5B	91.44	1.74	1.91	0.02	0.13	0.94	0.61	0.35	0.023	< 0.01	1.22	98.38	< 5	< 0.5	< 2	54	< 1	< 2	4	< 0.5	13	39	< 0.5
OC-5C	75.49	13.66	2.16	0.01	0.47	0.46	4.70	2.67	0.162	0.05	0.98	100.8	< 5	< 0.5	< 2	541	< 1	< 2	< 1	< 0.5	7	32	< 0.5
OC-6A	91.66	2.18	2.24	0.01	0.26	0.14	0.64	0.50	0.039	< 0.01	0.66	98.36	< 5	< 0.5	< 2	74	< 1	< 2	3	< 0.5	11	51	< 0.5
OC-7A	78.64	9.47	3.49	0.02	0.74	0.42	3.54	1.74	0.249	0.07	1.29	99.66	< 5	< 0.5	< 2	139	< 1	< 2	3	< 0.5	24	25	< 0.5
OC-8A	72.32	13.41	3.29	0.02	0.69	0.74	4.50	2.46	0.348	0.11	1.00	98.90	< 5	< 0.5	< 2	710	< 1	< 2	1	< 0.5	15	27	0.8
OC-8B	72.79	13.21	2.92	0.01	0.59	0.59	4.70	2.20	0.355	0.09	0.96	98.42	< 5	< 0.5	< 2	554	< 1	< 2	< 1	< 0.5	20	28	< 0.5
OC-8C	77.10	10.58	2.86	0.02	0.61	0.51	3.46	1.86	0.289	0.07	1.06	98.41	< 5	< 0.5	< 2	560	< 1	< 2	2	< 0.5	12	26	< 0.5
OC-8D	76.50	12.02	2.17	0.02	0.37	0.90	4.71	1.53	0.163	0.02	0.78	99.20	< 5	< 0.5	< 2	272	< 1	< 2	< 1	< 0.5	3	24	< 0.5
OC-9A	77.14	11.85	3.27	0.02	0.71	0.75	4.00	1.48	0.253	0.07	1.13	100.7	< 5	< 0.5	< 2	357	< 1	< 2	2	< 0.5	15	34	< 0.5
OC-9B	73.52	13.32	2.73	0.02	0.70	0.71	5.03	1.69	0.249	0.07	1.19	99.23	< 5	< 0.5	< 2	287	1	< 2	< 1	< 0.5	10	16	< 0.5
OC-9C	77.82	10.86	2.63	0.02	0.50	0.72	3.86	2.01	0.149	0.04	1.21	99.82	< 5	< 0.5	< 2	539	< 1	< 2	3	< 0.5	13	20	< 0.5
OC-9D	77.86	11.22	1.84	0.02	0.34	0.80	3.99	2.37	0.129	0.04	1.23	99.84	< 5	< 0.5	< 2	613	< 1	< 2	< 1	< 0.5	12	29	< 0.5
OC-10A	86.10	1.99	1.00	0.05	0.07	5.35	0.83	0.27	0.038	< 0.01	4.70	100.4	< 5	< 0.5	< 2	49	< 1	< 2	5	< 0.5	12	34	< 0.5
OC-11A	76.75	12.02	2.21	0.01	0.26	0.32	2.90	3.36	0.182	0.04	1.77	99.83	< 5	< 0.5	< 2	903	< 1	< 2	< 1	< 0.5	10	27	< 0.5
OC-11B	87.65	4.92	3.56	0.01	0.24	0.10	0.21	1.73	0.052	< 0.01	1.63	100.1	< 5	< 0.5	< 2	356	< 1	< 2	4	< 0.5	6	35	1.0
OC-11C	96.21	0.82	1.85	0.03	0.08	0.61	0.07	0.09	0.019	< 0.01	1.06	100.8	12	< 0.5	< 2	11	< 1	< 2	5	< 0.5	12	56	< 0.5
OC-11D	96.11	1.41	1.53	0.04	0.10	0.05	0.06	0.14	0.027	0.01	1.20	100.7	6	< 0.5	< 2	14	< 1	< 2	4	< 0.5	11	48	< 0.5
OC-11E	81.36	8.03	2.63	0.09	0.27	0.21	2.65	1.43	0.128	0.04	1.84	98.67	< 5	< 0.5	< 2	285	< 1	< 2	3	< 0.5	20	26	0.8
OC-12A	98.52	0.42	0.85	< 0.01	0.05	0.05	0.07	0.05	0.006	< 0.01	0.57	100.5	7	< 0.5	< 2	8	< 1	3	6	< 0.5	16	50	< 0.5
OC-12B	98.52	0.23	0.85	0.01	0.03	0.34	0.05	0.03	< 0.005	< 0.01	0.61	100.7	22	< 0.5	< 2	4	< 1	< 2	5	< 0.5	14	51	< 0.5
OC-12C	89.48	4.18	1.88	0.03	0.23	0.95	1.38	0.72	0.063	< 0.01	1.39	100.3	17	< 0.5	< 2	122	< 1	< 2	5	< 0.5	13	40	< 0.5
OC-13A	57.78	8.58	23.21	0.05	1.43	0.25	1.85	1.77	0.987	0.13	2.87	98.90	< 5	< 0.5	51	104	1	< 2	2	< 0.5	35	38	< 0.5
OC-13B	88.93	2.83	3.62	0.02	0.36	1.02	0.42	1.25	0.354	0.04	1.32	100.2	< 5	< 0.5	< 2	52	< 1	< 2	5	< 0.5	23	49	< 0.5
OC-13C	67.58	10.13	9.90	0.04	1.75	1.20	1.11	4.06	1.383	0.19	2.63	99.96	< 5	< 0.5	5	153	2	< 2	5	< 0.5	87	50	< 0.5

Analyte Symbol	Cu	Hf	Hg	Ir	Mo	Ni	Pb	Rb	S	Sb	Sc	Se	Sr	Ta	Th	U	V	W	Y	Zn	Zr	La	Ce
Unit Symbol	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	1	0.5	1	5	2	1	5	20	0.001	0.2	0.1	3	2	1	0.5	0.5	5	3	1	1	2	0.2	3
Method Code	TD-ICP	INAA	INAA	INAA	TD-ICP	TD-ICP	TD-ICP	INAA	TD-ICP	INAA	INAA	INAA	FUS-ICP	INAA	INAA	INAA	FUS-ICP	INAA	FUS-ICP	TD-ICP	FUS-ICP	INAA	INAA
OC-1A	4770	< 0.5	< 1	< 5	2	72	< 5	< 20	0.345	0.6	22.8	< 3	53	< 1	< 0.5	< 0.5	58	< 3	41	27	16	12.4	29
OC-1B	2420	0.5	< 1	< 5	< 2	116	< 5	< 20	0.243	0.5	20.1	< 3	81	< 1	< 0.5	< 0.5	88	< 3	65	31	41	30.9	62
OC-2A	14	2.4	< 1	< 5	2	5	< 5	40	0.009	< 0.2	1.5	< 3	133	< 1	2.2	< 0.5	13	< 3	1	16	75	7.4	12
OC-3A	622	1.2	< 1	< 5	< 2	34	< 5	110	0.319	< 0.2	20.8	< 3	14	< 1	1.6	2.6	212	< 3	51	29	83	95.2	163
OC-4A	31	1.5	< 1	< 5	3	6	< 5	< 20	0.016	< 0.2	2.2	< 3	31	< 1	0.7	< 0.5	16	< 3	3	10	54	2.5	< 3
OC-4B	878	0.7	< 1	< 5	3	4	< 5	< 20	0.113	0.3	2.6	< 3	20	< 1	0.6	< 0.5	7	< 3	5	7	22	8.0	15
OC-5A	8	2.3	< 1	< 5	4	7	< 5	< 20	0.014	< 0.2	2.3	< 3	84	< 1	3.5	< 0.5	16	< 3	2	32	116	20.4	36
OC-5B	63	< 0.5	< 1	< 5	4	4	< 5	< 20	0.124	0.3	1.4	< 3	15	< 1	0.8	< 0.5	13	< 3	3	10	15	8.7	15
OC-5C	8	3.3	< 1	< 5	3	4	< 5	30	0.018	< 0.2	1.5	< 3	137	< 1	1.8	< 0.5	12	< 3	< 1	16	119	9.5	15
OC-6A	8	< 0.5	< 1	< 5	5	6	< 5	< 20	0.056	0.3	1.2	< 3	13	< 1	0.9	< 0.5	9	< 3	< 1	11	13	2.0	5
OC-7A	56	3.0	< 1	< 5	3	11	< 5	90	0.045	< 0.2	3.3	< 3	31	< 1	4.9	< 0.5	24	< 3	2	17	117	14.0	29
OC-8A	20	2.0	< 1	< 5	2	8	< 5	< 20	0.025	< 0.2	2.2	< 3	314	< 1	4.4	< 0.5	26	< 3	4	18	161	28.0	52
OC-8B	21	3.7	< 1	< 5	4	7	< 5	< 20	0.023	< 0.2	1.7	< 3	254	< 1	3.7	< 0.5	25	< 3	4	16	151	16.6	30
OC-8C	78	3.3	< 1	< 5	2	8	< 5	< 20	0.022	0.3	2.2	< 3	174	< 1	3.5	0.7	20	< 3	4	17	124	15.0	26
OC-8D	20	2.9	< 1	< 5	3	5	< 5	< 20	0.006	< 0.2	1.4	< 3	184	< 1	< 0.5	< 0.5	13	< 3	2	18	113	10.4	19
OC-9A	30	2.4	< 1	< 5	< 2	7	< 5	< 20	0.031	< 0.2	1.9	< 3	138	< 1	4.1	< 0.5	26	< 3	3	19	100	11.9	24
OC-9B	29	3.3	< 1	< 5	2	7	< 5	< 20	0.011	< 0.2	1.8	< 3	152	< 1	4.3	< 0.5	19	< 3	2	15	125	13.9	21
OC-9C	21	2.2	< 1	< 5	2	6	< 5	40	0.035	0.3	1.5	< 3	112	< 1	1.5	< 0.5	16	< 3	2	14	69	8.2	13
OC-9D	102	1.2	< 1	< 5	2	5	< 5	40	0.041	< 0.2	1.5	< 3	106	< 1	3.1	< 0.5	14	< 3	4	14	74	7.8	16
OC-10A	72	< 0.5	< 1	< 5	2	4	< 5	< 20	0.034	0.2	1.6	< 3	26	< 1	< 0.5	< 0.5	< 5	< 3	7	8	15	2.6	7
OC-11A	187	2.8	< 1	< 5	2	7	< 5	80	0.050	< 0.2	1.7	< 3	110	< 1	1.6	< 0.5	15	< 3	1	20	66	6.7	13
OC-11B	198	< 0.5	< 1	< 5	3	6	< 5	20	0.021	0.3	2.8	< 3	46	< 1	0.6	< 0.5	42	4	4	10	22	6.5	12
OC-11C	331	< 0.5	< 1	< 5	4	8	< 5	< 20	0.025	0.4	4.6	< 3	11	< 1	< 0.5	< 0.5	5	< 3	17	10	8	8.6	18
OC-11D	99	< 0.5	< 1	< 5	4	6	< 5	< 20	0.016	0.4	1.3	< 3	11	< 1	0.7	< 0.5	6	< 3	31	8	12	6.5	44
OC-11E	117	1.1	< 1	< 5	2	10	< 5	30	0.026	< 0.2	3.5	< 3	41	< 1	2.0	< 0.5	15	< 3	30	12	52	18.9	69
OC-12A	571	< 0.5	< 1	< 5	4	7	< 5	< 20	0.049	0.4	0.3	< 3	7	< 1	< 0.5	< 0.5	< 5	< 3	1	8	8	1.2	3
OC-12B	212	< 0.5	< 1	< 5	5	8	< 5	< 20	0.015	0.6	0.8	< 3	5	< 1	< 0.5	< 0.5	< 5	< 3	3	7	< 2	1.8	< 3
OC-12C	344	0.6	< 1	< 5	3	8	< 5	< 20	0.036	0.2	1.1	< 3	41	< 1	1.1	< 0.5	8	< 3	9	10	31	5.2	13
OC-13A	806	2.5	< 1	< 5	< 2	28	< 5	< 20	0.116	0.2	28.2	< 3	29	< 1	2.8	3.1	207	16	26	19	114	10.9	24
OC-13B	304	< 0.5	< 1	< 5	3	9	< 5	30	0.104	0.4	3.8	< 3	11	< 1	0.8	< 0.5	56	< 3	7	9	35	6.3	13
OC-13C	538	3.7	< 1	< 5	< 2	39	< 5	80	0.384	0.4	19.8	< 3	16	< 1	2.8	2.1	263	< 3	22	23	139	13.9	33

Analyte Symbol	Nd	Sm	Eu	Tb	Yb	Lu	Mass
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	g
Lower Limit	5	0.1	0.1	0.5	0.1	0.05	
Method Code	INAA	INAA	INAA	INAA	INAA	INAA	INAA
OC-1A	10	6.8	1.7	1.0	3.6	0.44	1.344
OC-1B	36	10.7	2.4	1.6	5.1	0.74	1.395
OC-2A	< 5	1.0	0.1	< 0.5	0.2	< 0.05	1.607
OC-3A	98	18.1	4.9	1.5	2.8	0.36	1.501
OC-4A	< 5	0.6	< 0.1	< 0.5	< 0.1	0.05	1.343
OC-4B	11	1.8	0.4	< 0.5	0.5	0.07	1.376
OC-5A	10	2.3	0.4	< 0.5	< 0.1	< 0.05	1.349
OC-5B	7	1.4	0.3	< 0.5	0.3	0.07	1.438
OC-5C	< 5	1.1	< 0.1	< 0.5	< 0.1	< 0.05	1.199
OC-6A	< 5	0.3	< 0.1	< 0.5	< 0.1	< 0.05	1.417
OC-7A	7	2.3	0.3	< 0.5	0.4	< 0.05	1.430
OC-8A	16	3.8	0.6	< 0.5	0.2	< 0.05	1.326
OC-8B	15	2.7	0.3	< 0.5	< 0.1	< 0.05	1.394
OC-8C	5	2.3	0.2	< 0.5	0.2	0.06	1.515
OC-8D	< 5	1.2	0.3	< 0.5	< 0.1	< 0.05	1.358
OC-9A	< 5	1.6	< 0.1	< 0.5	< 0.1	< 0.05	1.443
OC-9B	7	1.8	< 0.1	< 0.5	0.1	< 0.05	1.361
OC-9C	< 5	1.2	< 0.1	< 0.5	0.2	< 0.05	1.299
OC-9D	< 5	1.5	0.1	< 0.5	0.6	0.09	1.315
OC-10A	< 5	1.3	0.2	< 0.5	0.5	< 0.05	1.309
OC-11A	< 5	1.1	< 0.1	< 0.5	0.2	< 0.05	1.506
OC-11B	7	1.1	< 0.1	< 0.5	0.4	0.09	1.440
OC-11C	7	3.7	0.6	0.6	1.5	0.23	1.372
OC-11D	12	6.6	1.3	1.0	2.7	0.42	1.525
OC-11E	35	11.6	2.2	0.7	2.8	0.40	1.301
OC-12A	< 5	0.4	< 0.1	< 0.5	< 0.1	< 0.05	1.503
OC-12B	< 5	0.9	< 0.1	< 0.5	0.4	0.07	1.370
OC-12C	6	2.3	0.5	< 0.5	0.9	0.12	1.460
OC-13A	< 5	4.2	0.9	< 0.5	2.6	0.41	1.564
OC-13B	< 5	1.9	0.4	< 0.5	0.7	0.13	1.268
OC-13C	21	4.8	0.9	< 0.5	2.6	0.45	1.441

Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Au	Ag	Ag	As	Ba	Ba	Be	Bi	Br	Cd	Co	
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
Lower Limit	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.005	0.01		0.01	5	0.5	5	2	2	50	1	2	1	0.5	1	
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	GRAV	FUS-ICP	INAA	TD-ICP	INAA	INAA	FUS-ICP	INAA	FUS-ICP	TD-ICP	INAA	TD-ICP	INAA	
NIST 694 Meas	11.20	1.90	0.75	0.01	0.34	42.84	0.87	0.54	0.118	30.98														
NIST 694 Cert	11.2	1.80	0.790	0.0116	0.330	43.6	0.860	0.510	0.110	30.2														
NCS DC71305 (GBW 07113) Meas	72.98	12.60	3.29	0.14	0.13	0.58	2.50	5.48	0.277	0.04							491		4					
NCS DC71305 (GBW 07113) Cert	72.8	13.0	3.21	0.140	0.160	0.590	2.57	5.43	0.300	0.0500							506		4.00					
NIST 696 Meas	3.87	53.49	8.62	< 0.01	0.02	0.04		< 0.01	2.679	0.04														
NIST 696 Cert	3.79	54.5	8.70	0.00400	0.0120	0.0180		0.00900	2.64	0.0500														
DTS-2b Meas	39.25	0.39			50.55	0.13												12						
DTS-2b Cert	39.4	0.450			49.4	0.120												16.0						
OREAS 100a (4 Acid) Meas																							17	
OREAS 100a (4 Acid) Cert																								17.5
OREAS 101b (4 Acid) Meas																								
OREAS 101b (4 Acid) Cert																								
OREAS 98 (4 Acid) Meas														41.9							51			
OREAS 98 (4 Acid) Cert														45.1000	0						97.2			
DNC-1a Meas	46.84	18.31	9.70	0.15	10.06	11.38	1.91	0.22	0.488	0.07								103						
DNC-1a Cert	47.15	18.34	9.97	0.150	10.13	11.49	1.890	0.234	0.480	0.07								118						
BHVO-2 Meas	50.98	13.70	12.48		7.23	11.71	2.27	0.51	2.744	0.27								133						
BHVO-2 Cert	49.9	13.5	12.3		7.23	11.4	2.22	0.52	2.73	0.27								130						
OREAS 903 (4 Acid) Meas														0.7							6		< 0.5	
OREAS 903 (4 Acid) Cert														0.432							8.90		0.200	
OREAS 96 (4 Acid) Meas														10.7							31			
OREAS 96 (4 Acid) Cert														11.5							26.3			
OREAS 520 (4 Acid) Meas														0.7							< 2			
OREAS 520 (4 Acid) Cert														0.450							2.94			
Oreas 77b (4 Acid) Meas														1.5							11		0.8	
Oreas 77b (4 Acid) Cert														1.62							3.44		1.20	
Oreas 72b (4 Acid) Meas														< 0.5							< 2		< 0.5	
Oreas 72b (4 Acid) Cert														0.230							0.680		0.310	
W-2b Meas	52.78	15.15	10.71	0.17	6.16	11.02	2.21	0.61	1.107	0.13								172		< 1				
W-2b Cert	52.68	15.45	10.83	0.167	6.370	10.860	2.200	0.626	1.06	0.140								170		1.3				
OREAS 683 (4 Acid) Meas														< 0.5							< 2		< 0.5	
OREAS 683 (4 Acid) Cert														0.172							0.16		0.072	
OREAS 681 (4														< 0.5							< 2			

Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Au	Ag	Ag	As	Ba	Ba	Be	Bi	Br	Cd	Co	
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
Lower Limit	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.005	0.01		0.01	5	0.5	5	2	2	50	1	2	1	0.5	1	
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	GRAV	FUS-ICP	INAA	TD-ICP	INAA	INAA	FUS-ICP	INAA	FUS-ICP	TD-ICP	INAA	TD-ICP	INAA	
Acid) Meas																								
OREAS 681 (4 Acid) Cert															0.118						0.0980			
OREAS 681 (4 Acid) Meas															< 0.5						< 2			
OREAS 681 (4 Acid) Cert															0.118						0.0980			
OREAS 148 (4 Acid) Meas																					10			
OREAS 148 (4 Acid) Cert																					18.9			
OREAS 70b (4 Acid) Meas															< 0.5						< 2		< 0.5	
OREAS 70b (4 Acid) Cert															0.2						0.8		0.4	
OREAS 620 (4 Acid) Meas															38.3						4		166	
OREAS 620 (4 Acid) Cert															38.5						2		163	
OREAS 603c (4 Acid) Meas															150						77		32.4	
OREAS 603c (4 Acid) Cert															294						89		31.4	
OREAS 601c (4 acid) Meas															48.6						15		2.1	
OREAS 601c (4 acid) Cert															50.3						21.1		2.77	
OREAS 504 (4 Acid) Meas															3.0									
OREAS 504 (4 Acid) Cert															3.13									
GMO-04 Meas															1.9							74		
GMO-04 Cert															1.930							95.00		
GMO-04 Meas															2.0							69		
GMO-04 Cert															1.930							95.00		
OREAS 45h (4-Acid) Meas															0.6							< 2		
OREAS 45h (4-Acid) Cert															0.147							0.17		
OREAS 520 (INAA) Meas													175				148		7790					207
OREAS 520 (INAA) Cert													176				156		8058.00					207.00
OC-4A Orig															< 0.5							< 2	< 0.5	
OC-4A Dup	84.24	7.32	2.92	0.01	0.33	0.11	2.38	2.14	0.088	0.04		100.3			< 0.5			296		< 1	< 2	< 0.5		
OC-8D Orig	76.50	12.02	2.17	0.02	0.37	0.90	4.71	1.53	0.163	0.02		99.20			< 0.5			272		< 1	< 2	< 0.5		
OC-8D Dup															< 0.5						< 2	< 0.5		
OC-12C Orig															< 0.5						< 2	< 0.5		
OC-12C Dup															< 0.5						< 2	< 0.5		
OC-13B Orig														< 5		< 5	< 2		< 50			5	23	
OC-13B Dup														< 5		< 5	< 2		< 50			5	23	
OC-13C Orig	67.58	10.13	9.90	0.04	1.75	1.20	1.11	4.06	1.383	0.19	2.63	99.96	< 5	< 0.5	< 5	5	153	130	2	< 2	5	< 0.5	87	
OC-13C Split Prep dup	65.40	10.44	10.46	0.04	1.86	1.23	1.14	4.14	1.429	0.20	2.70	99.04	< 5	< 0.5	< 5	7	156	< 50	2	< 2	< 1	< 0.5	89	
Method Blank															< 0.5						< 2	< 0.5		

Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Au	Ag	Ag	As	Ba	Ba	Be	Bi	Br	Cd	Co
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.005	0.01		0.01	5	0.5	5	2	2	50	1	2	1	0.5	1
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	GRAV	FUS-ICP	INAA	TD-ICP	INAA	INAA	FUS-ICP	INAA	FUS-ICP	TD-ICP	INAA	TD-ICP	INAA
Method Blank														< 0.5						< 2		< 0.5	
Method Blank														< 0.5						< 2		< 0.5	
Method Blank														< 0.5						< 2		< 0.5	
Method Blank														< 0.5						< 2		< 0.5	

Analyte Symbol	Cr	Cs	Cu	Hf	Hg	Ir	Mo	Ni	Pb	Rb	S	Sb	Sc	Se	Sr	Ta	Th	U	V	W	Y	Zn	Zr
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	1	0.5	1	0.5	1	5	2	1	5	20	0.001	0.2	0.1	3	2	1	0.5	0.5	5	3	1	1	2
Method Code	INAA	INAA	TD-ICP	INAA	INAA	INAA	TD-ICP	TD-ICP	TD-ICP	INAA	TD-ICP	INAA	INAA	INAA	FUS-ICP	INAA	INAA	INAA	FUS-ICP	INAA	FUS-ICP	TD-ICP	FUS-ICP
NIST 694 Meas																			1641				
NIST 694 Cert																			1740				
NCS DC71305 (GBW 07113) Meas															41				< 5		45		424
NCS DC71305 (GBW 07113) Cert															43.0				5.00		43.0		403
NIST 696 Meas																			394				1078
NIST 696 Cert																			403.0000				1037.0000
DTS-2b Meas																			18				
DTS-2b Cert																			22.0				
OREAS 100a (4 Acid) Meas																	44.1	116					
OREAS 100a (4 Acid) Cert																	49.2	130					
OREAS 101b (4 Acid) Meas			429				21	8	16														
OREAS 101b (4 Acid) Cert			412				20.1	8.2	23														
OREAS 98 (4 Acid) Meas			> 10000						292														1270
OREAS 98 (4 Acid) Cert			148000.0						345														1360
DNC-1a Meas															145				151		14		36
DNC-1a Cert															144				148		18.0		38.0
BHVO-2 Meas															403				331		22		166
BHVO-2 Cert															389				317		26		172
OREAS 903 (4 Acid) Meas			6660				5	57	8		0.510												27
OREAS 903 (4 Acid) Cert			6520				4.32	54.0	11.3		0.500												24.3
OREAS 96 (4 Acid) Meas			> 10000						89		4.22												460
OREAS 96 (4 Acid) Cert			39300						101		4.19												457
OREAS 520 (4 Acid) Meas			2960				64	77	12		0.961												25
OREAS 520 (4 Acid) Cert			2930				65.0	76.0	5.85		1.01												22.7
Oreas 77b (4 Acid) Meas			3300					> 10000	65														180
Oreas 77b (4 Acid) Cert			3426					113000	61.0														205
Oreas 72b (4 Acid) Meas			231				4	6320	15		1.53												97
Oreas 72b (4 Acid) Cert			222				4.01	6860	14.9		1.49												99.0
W-2b Meas															196				268		18		91
W-2b Cert															190				260		23.0		100
OREAS 683 (4 Acid) Meas			416				5	1140	8		0.202												90
OREAS 683 (4 Acid) Cert			404				1.00	1180	10.2		0.205												92
OREAS 681 (4			259				< 2	469	12		0.103												87

Analyte Symbol	Cr	Cs	Cu	Hf	Hg	Ir	Mo	Ni	Pb	Rb	S	Sb	Sc	Se	Sr	Ta	Th	U	V	W	Y	Zn	Zr
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	1	0.5	1	0.5	1	5	2	1	5	20	0.001	0.2	0.1	3	2	1	0.5	0.5	5	3	1	1	2
Method Code	INAA	INAA	TD-ICP	INAA	INAA	INAA	TD-ICP	TD-ICP	TD-ICP	INAA	TD-ICP	INAA	INAA	INAA	FUS-ICP	INAA	INAA	INAA	FUS-ICP	INAA	FUS-ICP	TD-ICP	FUS-ICP
Acid) Meas																							
OREAS 681 (4 Acid) Cert			264				1.38	503	10.2		0.109											88.0	
OREAS 681 (4 Acid) Meas			276				< 2	448	5		0.106											81	
OREAS 681 (4 Acid) Cert			264				1.38	503	10.2		0.109											88.0	
OREAS 148 (4 Acid) Meas			360				8	23	23													168	
OREAS 148 (4 Acid) Cert			338				8.86	22.2	24.9													162	
OREAS 70b (4 Acid) Meas			52				3	1910	10		0.299											101	
OREAS 70b (4 Acid) Cert			52				3	2180	14		0.309											112	
OREAS 620 (4 Acid) Meas			1770				15	16	> 5000		2.57											> 10000	
OREAS 620 (4 Acid) Cert			1730				9.5	15	7740		2.47											31500	
OREAS 603c (4 Acid) Meas			> 10000				56	28	> 5000		3.55											8620	
OREAS 603c (4 Acid) Cert			12100				60	26.9	10428		4											8030	
OREAS 601c (4 acid) Meas			1080				4	7	326		1.52											458	
OREAS 601c (4 acid) Cert			1160.00 0				3.66	6.83	328		1.58											425	
OREAS 504 (4 Acid) Meas			> 10000				662				1.41												
OREAS 504 (4 Acid) Cert			11370.0 00				643				1.37												
GMO-04 Meas			240				7410		39		0.634											137	
GMO-04 Cert			239.50				7949.0		45.7		0.71											128.0	
GMO-04 Meas			248				8190		33		0.736											126	
GMO-04 Cert			239.50				7949.0		45.7		0.71											128.0	
OREAS 45h (4-Acid) Meas			796				3	404	14		0.035											38	
OREAS 45h (4-Acid) Cert			767				1.55	423	11.9		0.035											39.7	
OREAS 520 (INAA) Meas	42	< 0.5			3.4					130		3.2	17.0			< 1	8.2	14.7			46		
OREAS 520 (INAA) Cert	44	0.9			3.8					110		3.4	16.6			0.5	10	18.1			45		
OC-4A Orig			30				3	6	< 5		0.015											10	
OC-4A Dup			31				3	6	< 5		0.016					31		16			3	10	54
OC-8D Orig			19				3	5	< 5		0.006					184		13			2	19	113
OC-8D Dup			20				3	5	< 5		0.005											17	
OC-12C Orig			343				3	8	< 5		0.035											10	
OC-12C Dup			346				3	8	< 5		0.036											10	
OC-13B Orig	51	< 0.5		0.5	< 1	< 5				30		0.4	3.8	< 3		< 1	0.9	< 0.5			< 3		
OC-13B Dup	47	< 0.5		< 0.5	< 1	< 5				30		0.4	3.8	< 3		< 1	0.7	< 0.5			< 3		
OC-13C Orig	50	< 0.5	538	3.7	< 1	< 5	< 2	39	< 5	80	0.384	0.4	19.8	< 3	16	< 1	2.8	2.1	263	< 3	22	23	139
OC-13C Split Prep dup	50	< 0.5	576	3.0	< 1	< 5	< 2	40	< 5	90	0.426	0.7	20.2	< 3	16	< 1	3.8	3.0	273	< 3	23	23	137
Method Blank			1				< 2	< 1	< 5		< 0.001											< 1	

Analyte Symbol	Cr	Cs	Cu	Hf	Hg	Ir	Mo	Ni	Pb	Rb	S	Sb	Sc	Se	Sr	Ta	Th	U	V	W	Y	Zn	Zr
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	1	0.5	1	0.5	1	5	2	1	5	20	0.001	0.2	0.1	3	2	1	0.5	0.5	5	3	1	1	2
Method Code	INAA	INAA	TD-ICP	INAA	INAA	INAA	TD-ICP	TD-ICP	TD-ICP	INAA	TD-ICP	INAA	INAA	INAA	FUS-ICP	INAA	INAA	INAA	FUS-ICP	INAA	FUS-ICP	TD-ICP	FUS-ICP
Method Blank			< 1				< 2	< 1	< 5		< 0.001											< 1	
Method Blank			< 1				< 2	< 1	< 5		0.001											< 1	
Method Blank			2				< 2	< 1	< 5		0.002											< 1	
Method Blank			< 1				< 2	< 1	< 5		< 0.001											< 1	

Analyte Symbol	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu	Mass
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	g
Lower Limit	0.2	3	5	0.1	0.1	0.5	0.1	0.05	
Method Code	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA
NIST 694 Meas									
NIST 694 Cert									
NCS DC71305 (GBW 07113) Meas									
NCS DC71305 (GBW 07113) Cert									
NIST 696 Meas									
NIST 696 Cert									
DTS-2b Meas									
DTS-2b Cert									
OREAS 100a (4 Acid) Meas	252	425	164	25.9	3.8	1.3	12.6		
OREAS 100a (4 Acid) Cert	259	467	152	23.8	3.7	3.25	11.4		
OREAS 101b (4 Acid) Meas									
OREAS 101b (4 Acid) Cert									
OREAS 98 (4 Acid) Meas									
OREAS 98 (4 Acid) Cert									
DNC-1a Meas									
DNC-1a Cert									
BHVO-2 Meas									
BHVO-2 Cert									
OREAS 903 (4 Acid) Meas									
OREAS 903 (4 Acid) Cert									
OREAS 96 (4 Acid) Meas									
OREAS 96 (4 Acid) Cert									
OREAS 520 (4 Acid) Meas									
OREAS 520 (4 Acid) Cert									
Oreas 77b (4 Acid) Meas									
Oreas 77b (4 Acid) Cert									
Oreas 72b (4 Acid) Meas									
Oreas 72b (4 Acid) Cert									
W-2b Meas									
W-2b Cert									
OREAS 683 (4 Acid) Meas									
OREAS 683 (4 Acid) Cert									
OREAS 681 (4 Acid) Meas									
OREAS 681 (4 Acid) Meas									

Analyte Symbol	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu	Mass
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	g
Lower Limit	0.2								
		3	5	0.1	0.1	0.5	0.1	0.05	
Method Code									
Acid) Cert									
OREAS 681 (4									
Acid) Meas									
OREAS 681 (4									
Acid) Cert									
OREAS 148 (4									
Acid) Meas									
OREAS 148 (4									
Acid) Cert									
OREAS 70b (4									
Acid) Meas									
OREAS 70b (4									
Acid) Cert									
OREAS 620 (4									
Acid) Meas									
OREAS 620 (4									
Acid) Cert									
OREAS 603c (4	90.7	78	18	4.2		< 0.5	2.2	0.52	
Acid) Meas	90.0	85	23	4.3		0.7	2.4	0.38	
OREAS 603c (4									
Acid) Cert									
OREAS 601c (4									
acid) Meas	6.3	13	< 5	1.9	0.3	< 0.5	0.7	0.15	1.251
OREAS 601c (4	6.3	13	8	1.9	0.4	< 0.5	0.7	0.11	1.284
acid) Cert									
OREAS 504 (4									
Acid) Meas									



## Appendix C: Sample location information

Page: