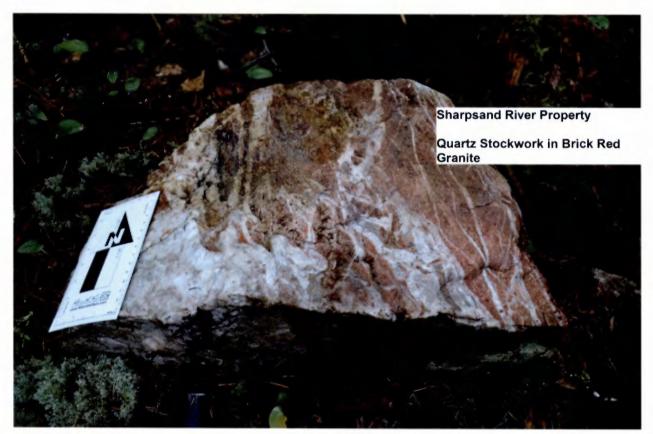
# Sharpsand River Project DETAILED Trench Mapping

# **Rioux Township**

# Sault Ste. Marie District

# 2.57034

PROVINCIAL RECORDING OFFICE SUDBURY RECEIVED JUL 2 2 2016 A.M. P.M. 7 8 9 10 11 12 1 2 3 4 5 6



Prepared by Jim Atkinson, M.Sc., P. Geo For JD Exploration Inc.

July 20, 2016

### Introduction

The Sharpsand River Project is focused on a copper bearing breccia in the area north of the Proterozoic rocks of the Southern Province of the Canadian Shield. The rocks of the Southern province in this area are famous for past copper production (i.e. Bruce Mines and Iron Bridge) and are actively being explored for copper, uranium, REE and gold mineralization.

The property has good access and is easily explored.

The copper mineralization appears to be hosted by a linear zone of breccia within granitic rocks and mafic dykes. Preliminary air photo and topographic interpretation indicates that there may be multiple northeast trending structures (045° to 055°) crossing the property. These are accompanied by west-northwest trending "cross faults" (290° to 300°). The junction of these structures could host significant copper mineralization. Past drilling work has identified a zone 20 to 25 m wide and trenching has exposed mineralization along a 700 m length. This report describes a program of detailed trench mapping, prospecting and sample collection carried out on the property in July 2016.

# Location, Access and Topography

The property is located approximately 85 kilometers north along Highway 129 north of the town of Thesselon (Figure 1: Location of Property) which is situated approximately 80 km east from Sault Ste. Marie along the Trans-Canada Highway. Two bush roads access the property off of Highway 129. The southernmost is accessible by car while the northern one is accessible by four wheel drive vehicle, ATV or snow machine. It is possible to drive a four wheel drive vehicle to within 200 m of the southern-most trench on the property along this road. The remainder of the trenches are readily accessible by ATV along the same road.

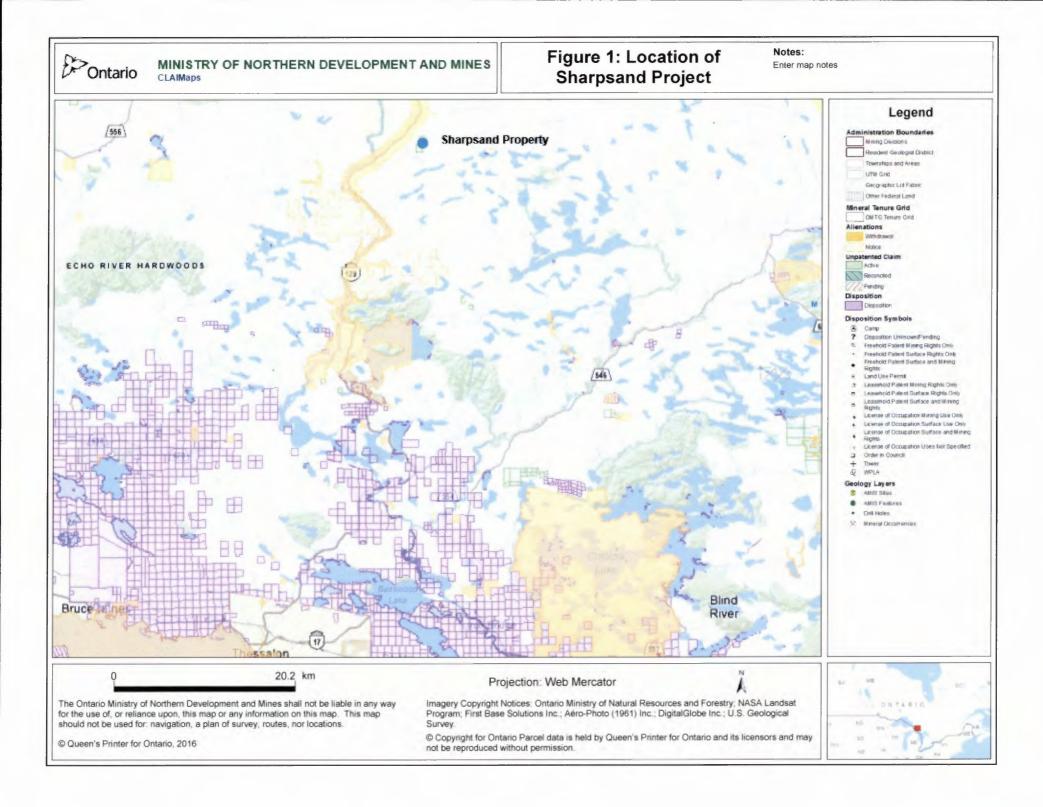
The property is located within NTS topographic map 41J 11/14 and the center of the property is at NAD 83 UTM coordinates: Zone 17, 325100E/5181850N.

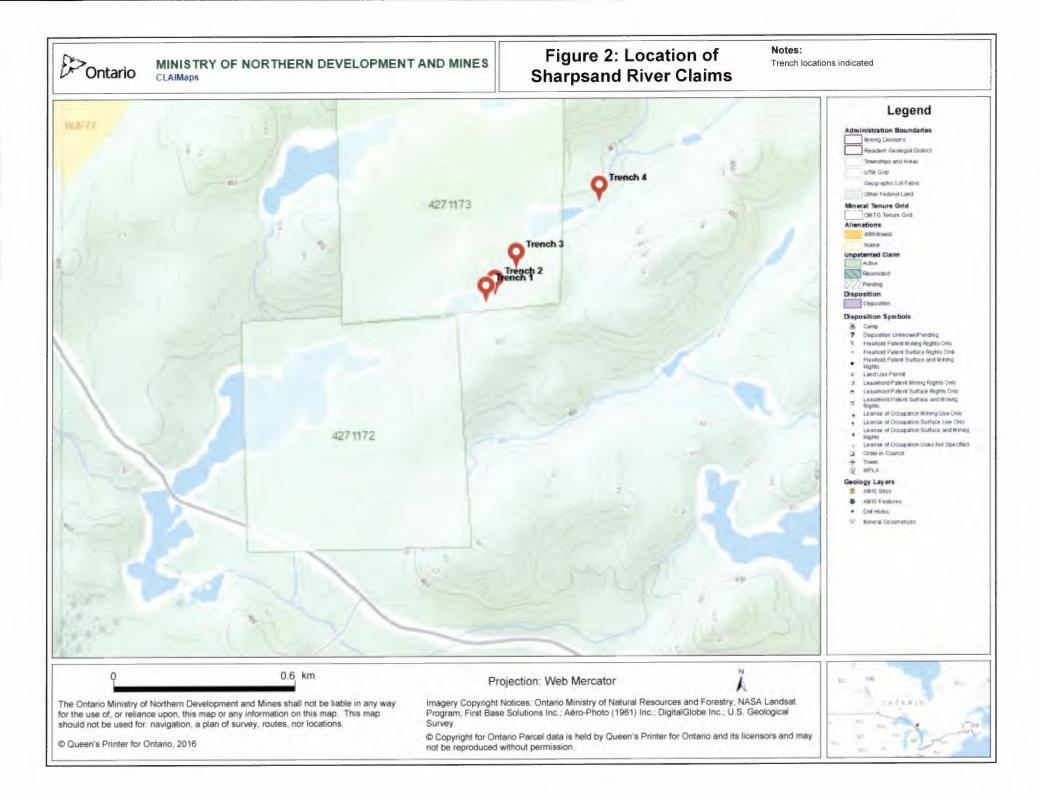
The area near the property is traversed by northeast trending valleys which are bounded by hills up to 70 meters high. Most of the area of the property is dominated by linear hills which trend parallel to the valleys (Figure 2: Claims and Topography) in a northeasterly direction.

# **Property Details**

The property comprises 8 units in four claim blocks as detailed in Table 1 below and is shown on the accompanying Claim Map (Figure 2).

Table 1 Claim Info	rmation	
Claim Number	Recorded	Units
4271172	20-Aug-14	4 Units
4271173	20-Aug-14	4 Units





The claims were acquired by staking in August 2104. A work commitment of \$400 per year is required for each unit to maintain the claims in good standing after an initial two year period. The present program is intended to produce at least one year's assessment. To date approximately \$7,000 has been spent by the current owners.

#### **History and Past Work**

The copper showing covered by this property can be seen on OGS Compilation Series Map 2419<sup>1</sup>. 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 discuss the property area.

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 complete 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 41JNW0002 Rioux11 Rioux Twp.). The report details a program of diamond drilling comprising approximately 300m (973 feet), mapping and sampling of four trenches and 1300 feet of magnetometer and electromagnetic surveys. The drilling and trenching revealed copper mineralization in a linear breccia zone.

In 2014 an assessment report detailing surface sampling and chemical analysis was submittet for the property (Atkinson, 2015). The report included chemical analysis of grab and select samples from four trenches located at that time. Significant copper mineralization was identified.

In 1999 two drill holes were completed as a follow-up to a VLF survey completed in the vicinity of the SW corner of the property (but outside the present claim boundary). The drill core logs describe "light coloured" granite and grey diorite. No significant sulphide mineralization was identified and no samples were reported to have been submitted for assay.

#### Geology

#### **Regional Geology**

The Ontario Geological Survey Map 2670 "Precambrian Geology Compilation Series Sault Ste. Marie-Blind River Sheet" (Figure 3: 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

<sup>1</sup> Giblin, P.E., Leahy, E.J., Robertson, James A. Robertson, 1974-1975 OGS Map 2419, Sault Ste. Marie-Elliot Lake Geological Compilation Series. Scale1:253,440 or 1 inch to 4 Miles

<sup>&</sup>lt;sup>2</sup> 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.

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 faulting in the area.



Figure 3: Regional Geology of the Sharpsand 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 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 Algoman granite which has been cut by numerous northwest to 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 main mineralized zone lies in a

topographic low with steep irregular granitic/diabase ridges on the flanks. 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 appear at least partly to pre-date the mineralization. In addition, there is extensive quartz veining and brecciation hosted by granitic rocks.

Initial topographic and satellite interpretation suggests that there are several parallel linear features to the east and west of the known breccia zone and that several "cross-over" features exist between the main linear features (Figure 4: Topographic Interpretation). It is thought that these may represent additional structural features of interest in the area, which should be investigated.

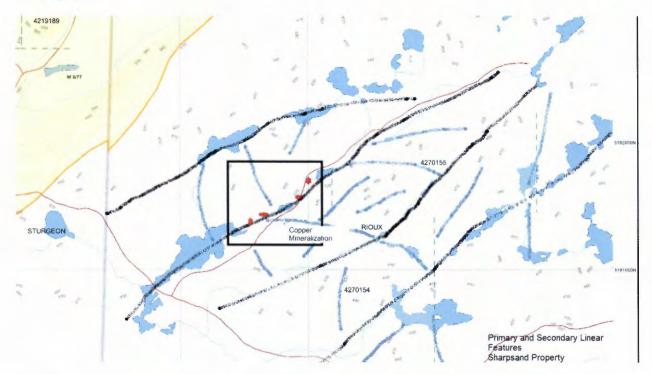


Figure 4: Interpretation of linear features in the vicinity of the Sharpsand Project. Note the apparent association of copper mineralization with NNE trending linear features and the presence of other NNE trending linear features in the area. Also note the presence of apparent "cross structures" typified by NW and NS trending linears.

# **Mineralization**

The trenching and diamond drilling reported by C.C.Huston exposed a zone of fault breccia that is described by the report as being 4,000 over feet (~1200 m) long in which variable amounts of copper mineralization in the form of chalcopyrite is seen.



Photo 1: Examples of Mineralized Breccia

The brecciated and mineralized zone is up to 23 m (75 feet) wide in drilling but poor exposure in trenches (the zone occurs beside and within a stream) allowed sampling to be completed by previous explorers only on narrower sections as indicated in Table 2 below:

# Table 2: Trench Sampling from C.C. Huston Report on McClasky Property

Trench Number	Length	%Cu	Location (from C.C. Huston Report
TR1	3'	4.50	Southern most exposure
TR1	5'	0.75	
TR1	8'	1.29	
TR1	GRAB	5.40	
TR1	GRAB	0.11	
TR2	10'	0.47	200 feet NE from TR1
TR2	GRAB	0.38	
TR2	GRAB	1.55	
TR3	9'	0.50	1300 feet NE from TR2
TR3	6'	0.44	
TR3	GRAB	1.12	
TR4	8'	0.32	3000 feet NE from TR 3
TR4	8'	0.22	
TR4	8'	0.12	
TR4	GRAB	0.50	

#### From AFR 43J11NW002

The brecciated and mineralized zone is up to 23 m (75 feet) wide in drilling but poor exposure in trenches (the zone occurs beside and within a stream) allowed sampling to be completed by previous explorers only on narrower sections as indicated in Table 2 below:

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TR1	GRAB	5.40	
TR1	GRAB	0.11	
TR2	10'	0.47	200 feet NE from TR1
TR2	GRAB	0.38	
TR2	GRAB	1.55	
TR3	9'	0.50	1300 feet NE from TR2
TR3	6'	0.44	
TR3	GRAB	1.12	
TR4	8'	0.32	3000 feet NE from TR 3
TR4	8'	0.22	
TR4	8'	0.12	
TR4	GRAB	0.50	

#### Table 2: Trench Sampling from C.C. Huston Report on McClasky Property

The mineralization exposed in the trenches is described as either quartz filled breccia or quartz veins in fracture zones containing chalcopyrite and hematite. There are often diabase fragments in the fractured and brecciated zones and the wall rocks are brick red granite and dark green diorite (called diabase by the C.C. Huston report). The exposures are often oxidized and show leaching of sulphide to form malachite. The trenching appeared to indicate that to the north the zone is typified by fracturing rather than brecciation but wide quartz veins persist in the northern-most trench examined.

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Photo 2 – Trench 2 Quartz Veins

To test the mineralized zone below the trenches four drill holes were completed (one was abandoned) for a total of approximately 300 m (973 feet). The approximate location of the drill holes with respect to the trenches (from C.C Huston Report) are shown in Figure 5.

The brecciated zone was found by drilling to be up to 23 m wide and comprised quartz veins, quartz-filled breccia and fractures. Variable amounts of "diabase" material are seen in the zone and often occur as brecciated fragments. The results of the assays reported in the C.C. Huston report from drill core are presented below:

		Breccia	Zone Identi	fied		Assay		
Drill Hole #	From	То	Length	Width	%Cu	length	Width	Location
	feet	feet	feet	metres		feet	metres	

Table 3: Drill Intersections from CC Huston Drilling AFR 43J11NW002

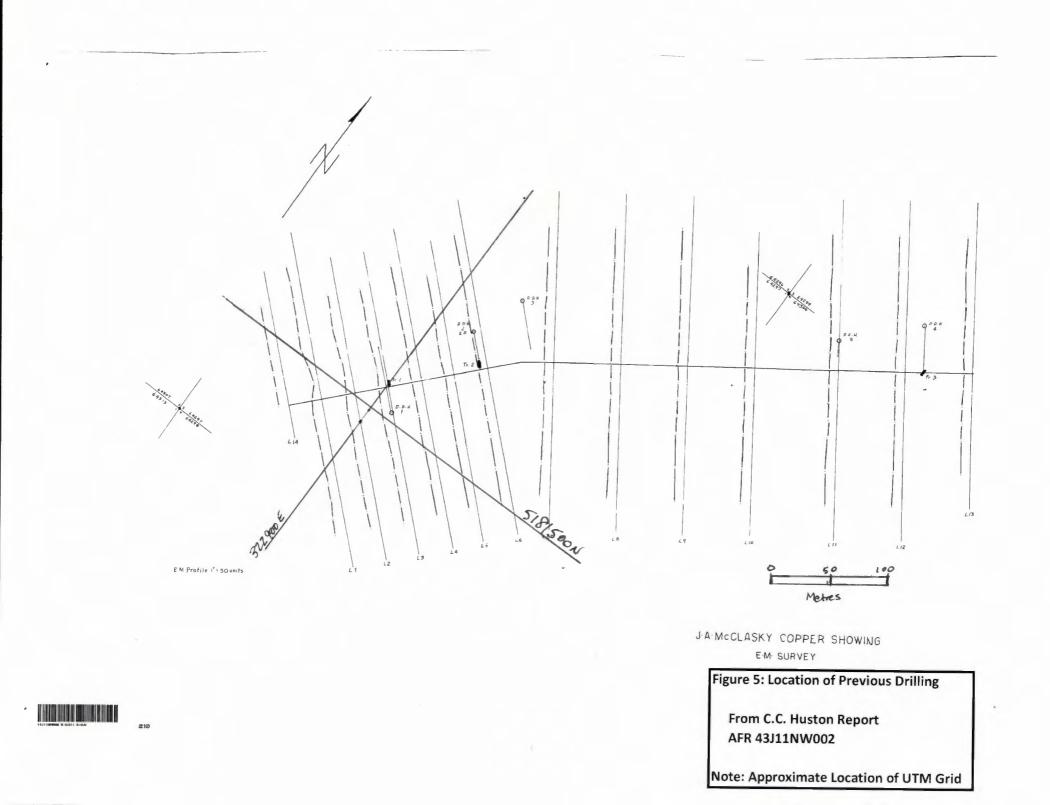


Figure 6 shows the relationship between the drilling and trenching conducted by C.C. Huston to explore the shallow depth extensions of the mineralized zone in the areas of Trenches 1 and 2. The significantly longer section of quartz, breccia and mineralization obtained in the diamond drilling indicates that the trenching may not be representative of the width (or possibly the tenor) of the mineralization present.

# **Current Work Program**

#### Work Completed

In July 2016 the author, along with a prospector and a helper, conducted a field program of detailed trench mapping, sample collection and analysis on the property and surrounding area. The main purpose of the field program was to:

- Attempt to resolve the relationship between the northwest trending diabase dykes and copper mineralization
- Attempt to determine if the granitic rocks in the property area are younger than the regional granitic gneisses described in the Regional mapping.
- Evaluate (as much as possible) the mineralizing styles and mineralizing controls
- Collect confirmatory rock chip samples from the exiting trenches for submission to a commercial laboratory for chemical analysis for an extensive suite of elements to detail the presence of other metals revealed in earlier work (such as silver, and Rare Metals).

The author and crew travelled from Oakville, Ontario to the site on June 30, 2016 and spent 2 days on site along with a prospector and a helper. The return trip was completed on July 4, 2016. The author also spent two days in data compilation, evaluation of analytical results and preparing a report and diagrams.

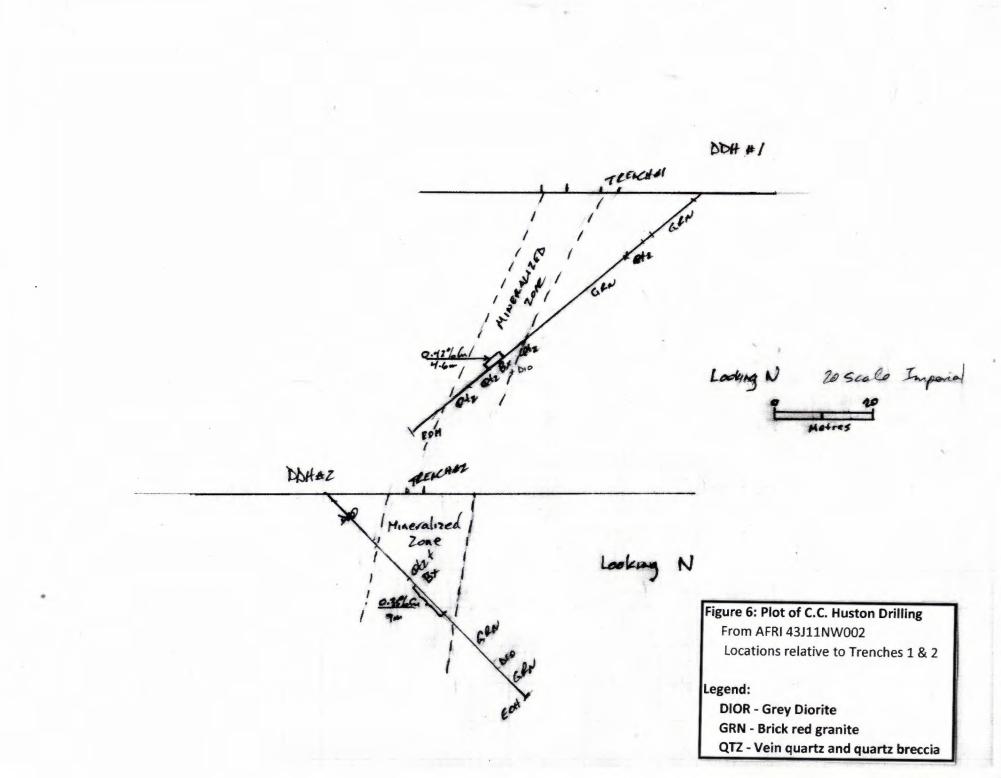
#### Results

#### Mapping

Details of the trenches visited and samples collected are included in Appendix A: Field Notes and in the Figures 7 to 10 inclusive.

The trenches were found to be generally easily identified however all were filled to partially filled with overburden, boulders and occasionally trees. (Photo 3)

The current mapping program confirmed the presence of a breccia and quartz vein mineralized zone at least 700 meters long using hand-held GPS. The zone appears to be covered by overburden in the north and disappears beneath a lake in the south. Where exposed the zone consists of brick red granite and diabase host rocks cut by quartz vein swarms and breccia containing varying amounts of specular hematite and chalcopyrite (Photo 1) In Trench 2, near the center of the exposed zone, the mineralization appears to be related to veins that have a slightly "sheared" appearance and show a steep southeast dip (Photo 2). The breccia observed



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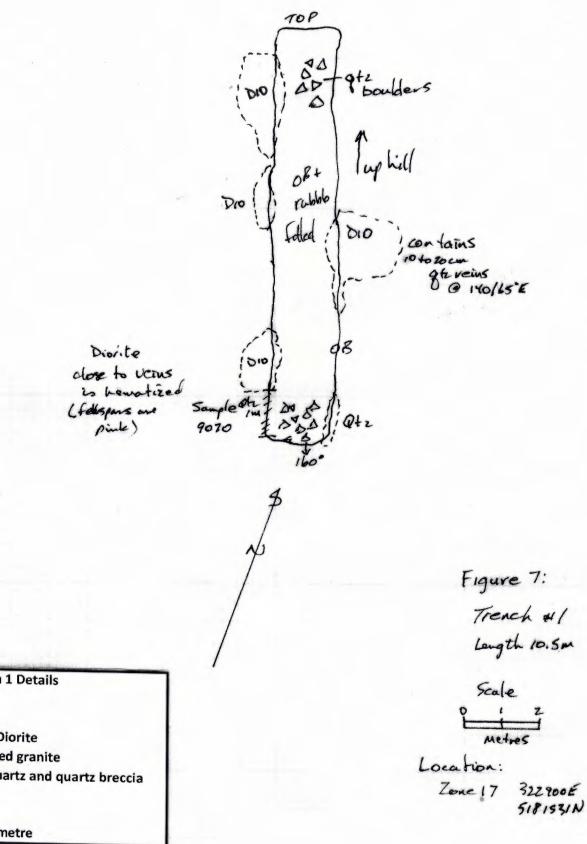
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Photo 4: Specular Hematite filled quartz breccia.

#### Sampling

A total of 10 chip samples were collected from the four trenches mapped and submitted to Actlabs in Ancaster, ON for chemical analysis for base metals, silver and other elements including Rare Earths. Locations of the samples submitted are shown on the trench maps in Figures 7 to 10.

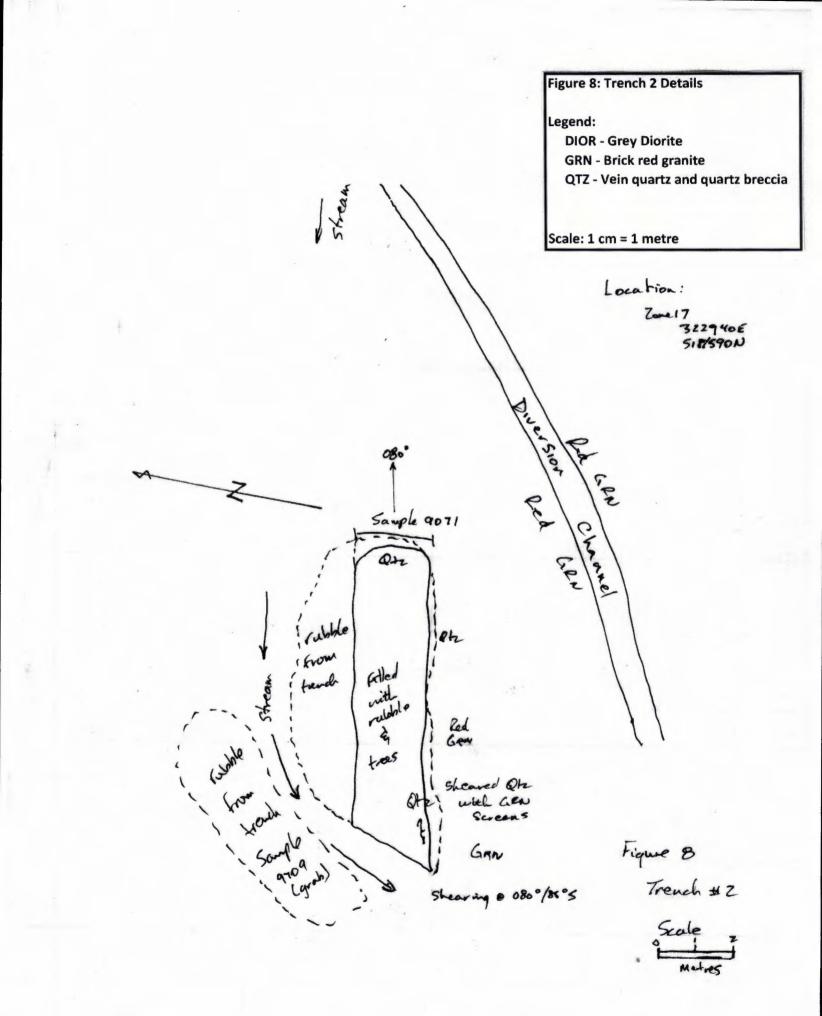


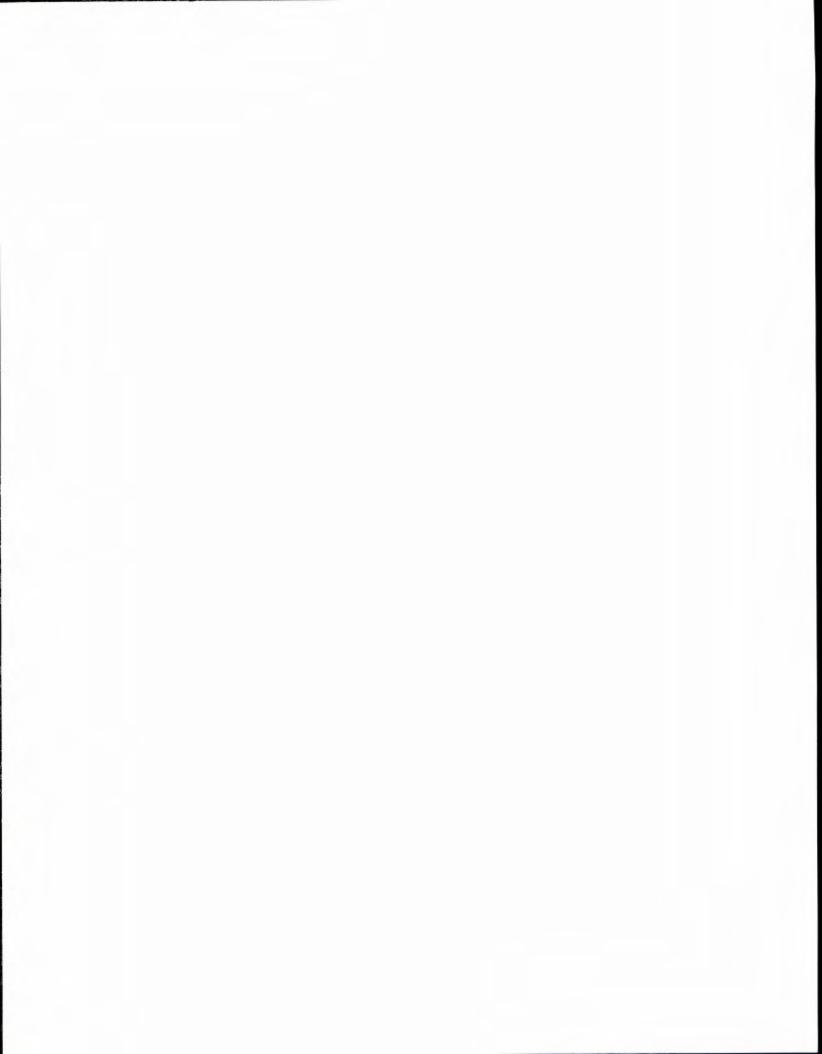
# Figure 7: Trench 1 Details

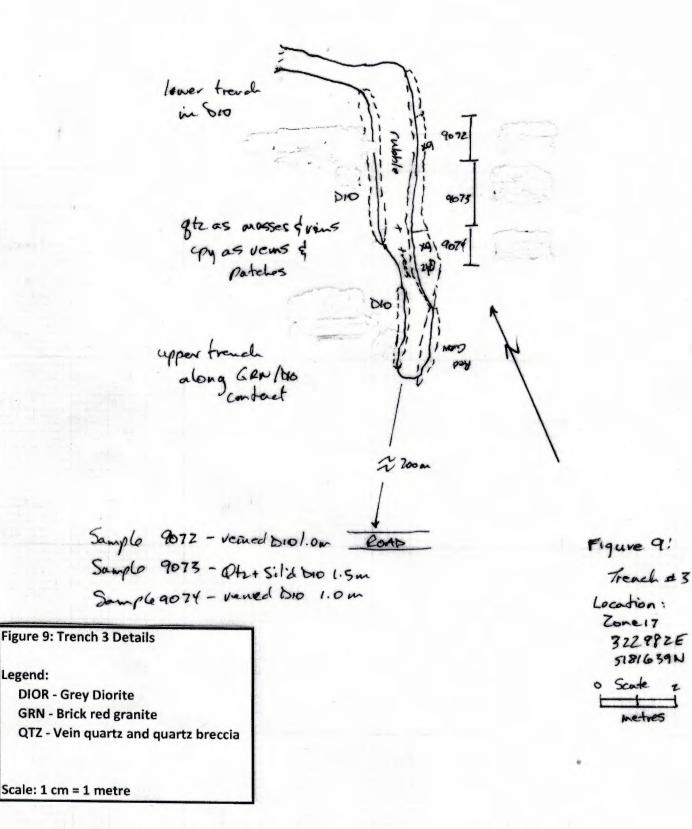
Legend:

- **DIOR Grey Diorite**
- **GRN** Brick red granite
- QTZ Vein quartz and quartz breccia

Scale: 1 cm = 1 metre







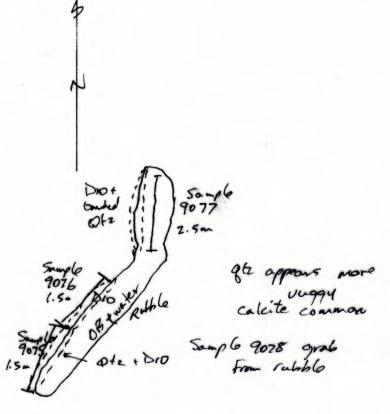


Figure 10 Trench #4 Locator Zone 17 323360E 5181879N

Sca le

# Figure 10: Trench 4 Details

Legend:

DIOR - Grey Diorite GRN - Brick red granite QTZ - Vein quartz and quartz breccia

Scale: 1 cm = 1 metre

#### Analytical results

A selected suite suite of geochemical results is presented in Table 4 while the Laboratory Certificates are included in Appendix B: Laboratory Certificates and QA/QC.

# Table 4 Chemical Results

\_\_\_\_\_

Analyte Symbol	Ag	Cu	Мо	Ni	Zn	Co	Cr	Fe	S
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%
Detection Limit	0.2	1	1	1	2	1	1	0.01	0.01
9070 Trench #1	< 0.2	4030	< 1	13	9	16	100	2.81	0.37
9071 Trench #2	< 0.2	1340	< 1	5	6	3	147	0.75	0.1
9072 Trench #3 Sample 1	0.2	6350	< 1	44	57	39	69	6.05	0.78
9073 Trench #3 Sample 2	0.2	4200	< 1	8	11	10	119	1.61	0.37
9074 Trench #3 Sample 3	0.6	8860	< 1	44	41	31	64	7.33	0.75
9075 Trench #4 Sample 1	0.5	7090	7	22	27	13	78	3.48	0.62
9076 Trench #4 Sample 1	0.6	4320	1	8	12	29	71	1.74	0.63
9077 Trench #4 Sample 2	0.4	2130	1	16	12	39	111	3.93	0.43
9078 Trench #4 Sample 3	1.1	7940	< 1	19	16	9	55	4.1	0.77
9079 Trench #2 Grab	0.9	1.12%	10	24	28	15	80	3.9	1.07

For purposes of interpretation, and to determine if differences in geochemistry exist, the samples are discussed based on which trenches they were obtained from and by location with Trench 1 being in the south, Trenches 2 and 3 in the central part and Trench 4 to the north part of the explored zone. The current 10 samples were assessed in combination with 13 samples collected in 2014 (Atkinson, 2015) to evaluate any trends that appear from the geochemical data.

All 10 rock samples contain anomalous copper values with an average of all samples greater than 0.5% copper (Cu) and a maximum of 1.21% Cu. The precious metals values were known to be low and gold was not included in the analysis. Values are in the in the 0.2 to 1.1 ppm range for silver. There is no obvious relationship between the base metals - Cu, lead (Pb) and/or zinc (Zn). There does appear to be an elevated range of values for Zn in trench 3 in the central part of the mineralized zone (Table 4). This appears to confirm the relationship noted previously (Atkinson, 2015).

The marked increase in Rare Earth, Radiogenic and light elements described in the previous assessment report (Atkinson 2015) is not apparent in the channel samples collected during this program.

Alteration is not evident in the samples submitted for chemical analysis (other than the introduction of silica as quartz and the presence of abundant hematite) but the geochemistry of the samples collected does suggest elevated values in calcium (Ca) in trench number 4 that could be related to the presence of abundant calcite veinlets noted in this area. In addition although not necessarily reflected in the chemistry there are samples of diorite which display "pink" alteration of the feldspars probably related to addition of hematite.

# Conclusions

- The property appears to have potential for hosting significant copper/iron mineralization in a breccia setting and may have characteristics similar to known IOGC-type of mineralization which has been reported in the Batchawana area to the immediate northwest.
- The mineralization appears to be related to a prominent linear which can be traced as topographic feature for a distance of over 2 km. Poor exposure along this zone may have hampered past prospectors, however, the mineralization has been exposed in four areas on the property over a distance of 700 metres.
- Trenching and more importantly, Diamond Drilling has indicated that the zone averages at least 12 m wide and contains sections of 0.3% to 0.5% Cu over 4.5 to 7.8 meters.
- The IOCG deposit model in the broadest sense is applicable to the Sharpsand River prospect. The prospect fits the IOCG deposit model due to: (1) presence of copper and hematite, (2) hydrothermal ore styles and strong structural controls, (3) abundant magnetite and hematite and (4) clear spatial associations with igneous intrusions. To constrain a specific IOCG deposit subtype, more research should be conducted through geochemical analysis to determine (1) the presence of LREE enrichment and low S sulphides, (2) the range in depth of formation of the prospect and the changes in mineralization to depth.
- Past geophysical surveys have not been successful at delineating the zone due to poor equipment and improper line orientation.
- Notably, at least three similar linear features are seen 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.
- While rock and core sampling carried out in the 1960s did not identified significant (at the time) gold or silver associated with the copper mineralization, the laboratory results have indicated "trace" contents of silver. Chemical analysis indicated that there is low values of silver associated with the copper while gold is not detected. In addition other metals (including REE and uranium) are known to occur in these types of deposits and the

presence of at least some of these elements has been confirmed by the sampling and chemical analysis carried out in 2014.

## Recommendations

- The logical next step would be to perform a program of diamond drilling to test the continuity of and changes to the mineralization at depth and along strike.
- Rock samples should be collected from the known (and any new) showings and diamond drilling and submitted for petrological and chemical analysis to identify alteration and chemical signatures.
- Samples obtained should be analysed 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 of IOGC-type.
- The zone appears to be related to a significant regional magnetic anomaly, based on the Ontario Geological Survey results, and is manifest as a weakening of the response related to the NW-SE trending mafic dykes in the areas of copper mineralization. Modern airborne geophysical testing would be useful in the exploration of the known mineralization and in locating other mineralisation in the area. To this end a detailed airborne survey is recommended including magnetic, Electromagnetic (EM) and radiometric detectors. The survey should be flown with flight lines in an east-west direction. While this is not an optimal direction for the mineralization it is recommended as a compromise for testing both the NE-SW trending mineralized structural zones and the NW-SE trending mafic dykes.
- Anomalous magnetic, EM or radiometric features should be followed-up with groundtruthing using prospecting, trenching, sampling and drilling as appropriate.

# **Costs for Current Program**

The table below summarizes the applicable costs for the July 2016 Geological, Prospecting and Sampling program carried out on the Sharpsand River Project.

Table 4: Expenses July 2016 Work At Sharpsand Property										
Date	ltem	Amount								
July 01/2016	Dinner X3	\$95.24								
July 02/2016	Breakfast X3	\$41.12								
July 02/2016	Dinner X3	\$99.80								
July 03/2016	Dinner X3	\$100.12								

July 04/2016	lunch JRA	\$24.11			
July 04/2016	Parking JRA	\$37.46			
July 03/2016	Hotel	\$288.12			
07/29/2016	Dan's food	\$95.00			
	SubTotal	\$780.97			
July 04/2016	Sample delivery	\$50.44			
July 15/2016	Sample Analysis	\$290.98			
	TOTAL	\$1,122.39			

# J Atkinson Consulting Invoice

Travel and Field Work	4 Days @ \$600/day	\$2,400.00
Report Preparation	2 Days @ \$600/day	\$1,200.00
	TOTAL	\$3,600.00

# Treefrog and Company Invoice

Prospecting and Labour	4 Days @ \$250	\$1,000.00	
Mileage	1542 km @ \$.52/km	\$801.84	
	TOTAL	\$1,801.84	
GRAND TOTAL		\$6,524.23	

# Certification

#### Certification

I James R. Atkinson M. Sc. P. Geo. of #99 Miller Road, Oakville, Ontario L6H 1J8 do Hereby Certify:

- 1. That I am a Registered Professional Geoscientist (No.1086) of the Association Of Professional Geoscientists of Ontario;
- 2. That I am a graduate of the University of Toronto (M. Sc.), and Brock University (B. Sc.);
- 3. I have been practicing my profession as a consultant and employee of mining consulting and exploration companies since graduation;
- 4. I personally supervised and conducted the work referenced in the enclosed report;
- 5. I completed the attached report;
- 6. I have an interest in the referenced property as President of JD Exploration Inc.

vly 20/2016 Dated: O Signed:

APPENDIX A: Field Notes from July 2016 Prepared by J Atkinson P. Geo For JD Exploration Inc.

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Sharp sand Date July LOCATION Presson / Editoria Note to past at hencle HZ MIAN C 322953E/ SI81603 N red G.R.N has N/5 180/360 Frachene / Swan zone 3 4m wide 382982 E/ 5181639 TRENCH # 2 150°/ 330° losof photos - 23695? bit vend bo overall trench TREACH#3 Sample 1 - ( In NWSdo -1.Sm Qtz 1.5 m SESich TRENCH#4 frends D40° in vened DIO 2000 extends to 323360 E 5181829N where alon if boulders of at in stream of get venal Red GRN - probable otc.

**APPENDIX B: Laboratory Certificates for Samples Collected** 

in July 2016

From Actlabs, Ancaster, ON

Quality Analysis ...



# Innovative Technologies

Date Submitted:04-Jul-16Invoice No.:A16-06238Invoice Date:13-Jul-16Your Reference:SHARPSAND RIVER

Jim Atkinson (JD exploration) #902-105 Sanford Ave. N Hamilton ON Canada

ATTN: Jim Atkinson

# **CERTIFICATE OF ANALYSIS**

10 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1E3 Aqua Regia ICP(AQUAGEO)

#### REPORT A16-06238

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:

Values which exceed the upper limit should be assayed for accurate numbers.

CERTIFIED BY:

Emmanuel Eseme , Ph.D. Quality Control

ACTIVATION LABORATORIES LTD.

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#### Activation Laboratories Ltd.

Report: A16-06238

Analyte Symbol	Th	Ag	Cd	Cu	Mn	Mo	Ni	РЬ	Zn	Al	As	в	Ва	Be	Bi	Ca	Co	Cr	Fe	Ga	Ha	к	Ita
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%		ppm	%	ppm	ppm	0/.	000
Lower Limit	20	0.2	0.5	1	5	1	1	2	2	0.01	2	10	10	0.5		0.01	1	1	0.01	10	1	0.01	ppm 10
Method Code	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP			AR-ICP							
9070	< 20	< 0.2	< 0.5	4030	164	< 1	13	<2	9	0.58	< 2	< 10	-		<2	0.39	16	100	-	< 10	<1 <1	0.02	< 10
9071	< 20	< 0.2	< 0.5	1340	90	< 1	5	< 2	6	0.07	<2	< 10	11	< 0.5	< 2	0.18	3	147	0.75		1	0.02	< 10
9072	< 20	0.2	< 0.5	6350	491	< 1	44	< 2	57	2.04	< 2	< 10	13		< 2	0.46	39			20		0.02	. 10
9073	< 20	0.2	< 0.5	4200	146	< 1	8	< 2	11	0.34	< 2	< 10	13	< 0.5	< 2	0.27	10	-	1.61	< 10	- 1	0.02	< 10
9074	< 20	0.6	< 0.5	8860	404	< 1	44	2	41	2.34	< 2	< 10	15	0.5	<2	0.24	31	64	7.33	20	1	0.02	10
9075	< 20	0.5	< 0.5	7090	393	7	22	< 2	27	1.03	<2	< 10	17	< 0.5	<2	0.63	13		3.48	< 10	-	0.02	10
9076	< 20	0.6	< 0.5	4320	357	1	8	< 2	12	0.34	< 2	< 10			<2	3.67	29	70	1.74			0.03	< 10
9077	< 20	0.4	< 0.5	2130	124	1	16	<2	12	0.70	< 2	< 10	12	< 0.5	<2	0.20	39	111	3.93	< 10		0.02	< 10
9078	< 20	1,1	< 0.5	7940	492	< 1	19	< 2	16		< 2	< 10			-	3.79	35	55	4.10	< 10		0.02	-
9079	< 20	0.9	< 0.5	> 10000	526	10	24	11	28		2	< 10	23		<2	1.21	15		3.90	< 10		0.05	< 10

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#### Activation Laboratories Ltd.

Report: A16-06238

Analyte Symbol	Mg	Na	Р	S	Sb	Sc	Sr	Tì	Te	TI	U	V	W	Y	Zr	Cu
Unit Symbol	%	%	%	%	ppm	ppm	ppm	%	ppm	%						
Lower Limit	0.01	0.001	0.001	0.01	2	1	1	0.01	1	2	10	1	10	1	1	0.001
Method Code	AR-ICP	ICP-OES														
9070	0.40	0.043	800.0	0.37	< 2	4	6	< 0.01	< 1	< 2	< 10	48	< 10	4	4	
9071	0.06	0.033	0.001	0.10	< 2	<1	4	< 0.01	< 1	< 2	< 10	4	< 10	3	<1	
9072	1.54	0.084	0.035	0.78	2	10	5	0.01	< 1	< 2	< 10	179	< 10	11	32	
9073	0.15	0.035	0.009	0.37	< 2	2	4	< 0.01	< 1	< 2	< 10	30	< 10	5	5	
9074	1.37	0.082	0.046	0.75	3	12	3	0.06	< 1	< 2	< 10	228	< 10	8	30	
9075	0.48	0.063	0.022	0.62	< 2	5	5	< 0.01	< 1	< 2	< 10	103	< 10	13	13	
9076	0.28	0.051	0.011	0.63	< 2	4	14	< 0.01	< 1	<2	< 10	23	< 10	11	8	
9077	0.64	0.043	0.013	0.43	< 2	6	3	< 0.01	< 1	<2	< 10	96	< 10	4	11	
9078	0.43	0.077	0.039	0.77	< 2	9	14	0.05	< 1	< 2	< 10	122	< 10	16	28	
9079	0.49	0.043	0.020	1.07	< 2	5	7	< 0.01	< 1	< 2	< 10	87	< 10	12	10	1,12

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Report: A16-06238

Analyta Symbol	Th	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	AI	As	В	Ва	Be	Bi	Ca	Co	Cr	Fe	Ga	Hg	к	La
Unit Symbol	ppm	ppm	ppm	mqq	ppm	ppm	ppm	ppm	ppm	1%	ppm	ppm	ppm	ppm	ppm	%	mag	ppm	%		ppm	%	ppm
Lower Limit	20	0.2	0.5	1	5	1	1	2	2	0.01	2	10	10	0.5	2	0.01	1	1	0.01	10	1	0.01	10
Method Code	AR-ICP		AR-ICP	AB-ICP	AR-ICP																		
GXR-1 Meas	< 20	28.0	2.5	1180	797	16	33	554	629	0.36	374	< 10	560	0.8	1410	0.77	6	7	22.6	< 10	2	0.03	
GXR-1 Cert	2.44	31.0	3.30	1110	852	18.0	41.0	730	760	3.52	427	15.0	750	1.22	1380	0.960	8.20	12.0	23.6	13.8	3.90	0.050	
GXR-4 Meas	< 20	3.2	< 0.5	6210	145	312	36	37	65	2.86	103	< 10	97	1.4	13	0.89	13	55	_	10	<1	1.73	
GXR-4 Cert	22.5	4.0	0.860	6520	155	310	42.0	52.0	73.0	7.20	98.0	4.50	1640	1.90	19.0	1.01	14.6	64.0	3.09	20.0	0.110		
GXR-6 Meas	< 20	0.3	< 0.5	70	1090	2	22	85	118	7.25	255	< 10	1120	0.9	< 2	0.16	13	83	5.48	20	< 1	1.18	
GXR-6 Cert	5.30	1.30	1.00	66.0	1010	2.40	27.0	101	118	17.7	330	9.80	1300	1,40	0.290	0.180	13.8	96.0	5.58	35.0	0.0680	1.87	
MP-1b Meas									1											0010	010000		10.0
MP-1b Cert																							
CCU-1d Meas												1											
CCU-1d Cert								-								-							
CZN-4 Meas																							-
CZN-4 Cert																			-				
PTC-1b Meas										1													
PTC-1b Cert																							
9075 Orig	< 20	0.5	< 0.5	7160	396	7	22	< 2	27	1.04	< 2	< 10	18	< 0.5	< 2	0.63	13	76	3.51	< 10	< 1	0.03	15
9075 Dup	< 20	0.5	< 0.5	7030	389	7	22	< 2	27	1.02	< 2	< 10	16	< 0.5	<2	0.62	13	79		< 10	<1	0.03	
9079 Orig																						1	10
9079 Dup																				-			
Method Blank	< 20	< 0.2	< 0.5	< 1	< 5	< 1	<1	< 2	< 2	< 0.01	< 2	< 10	< 10	< 0.5	< 2	< 0.01	< 1	< 1	< 0.01	< 10	<1	< 0.01	< 10
Method Blank								-													~ .		10

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Analyte Symbol	Mg	Na	P	S	Sb	Sc	Sr	Ti	Te	TI	U	V	W	Y	Zr	Cu
Unit Symbol	%	%	%	%	ppm	ppm	ppm	%	ppm	%						
Lower Limit	0.01	0.001	0.001	0.01	2	1	1	0.01	1	2	10	1	10	1	1	0.001
Method Code	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AB-ICP	AR-ICP	ICP-OES
GXR-1 Meas	0.13	0.049	0.044	0.19	77	1	190	< 0.01	11	<2	32	82	142	24	14	
GXR-1 Cert	0.217	0.0520	0.0650	0.257	122	1.58	275	0.036	13.0	0.390	34.9	80.0	164	32.0	38.0	
GXR-4 Meas	1.58	0.151	0.119	1.63	3	7	81	0.13	< 1	< 2	< 10	84	14	12	12	
GXR-4 Cert	1.66	0.564	0.120	1.77	4.80	7.70	221	0.29	0.970	3.20	6.20	87.0	30.8	14.0	186	
GXR-6 Meas	0.41	0.074	0.034	0.01	3	24	34		< 1	<2	< 10	189	< 10	7	18	
GXR-6 Cert	0.609	0.104	0.0350	0.0160	3.60	27.6	35.0		0.0180	2.20	1.54	186	1.90	14.0	110	
MP-1b Meas								1		1						3.01
MP-1b Cert										1						3.069
CCU-1d Meas																23.9
CCU-1d Cert	-															23.93
CZN-4 Meas																0,409
CZN-4 Cert																0.403
PTC-1b Meas										-						7.86
PTC-1b Cert									-							7.97
9075 Orig	0.49	0.064	0.022	0.62	< 2	5	5	< 0.01	< 1	<2	< 10	104	< 10	13	13	7.07
9075 Dup	0.48	0.062	0.022	0.61	< 2	4	5	< 0.01	< 1	<2	< 10	101	< 10	13	12	
9079 Orig										-					14	1.12
9079 Dup		-										-				1.12
Method 8lank	< 0.01	0.011	< 0.001	< 0.01	< 2	<1	< 1	< 0.01	< 1	< 2	< 10	< 1	< 10	<1	< 1	1.16
Method Blank					_					-	4.0		2.10			< 0.001

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