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**2013 TECHNICAL ASSESSMENT REPORT  
ON PROSPECTING AND SAMPLING  
OF THE KELLY CREEK PROPERTY**

Terrace Area  
Omineca Mining Division  
British Columbia

**BC Geological Survey  
Assessment Report  
34768**

NTS: 103I  
(Zone 9 – NAD83)  
UTM Co-ordinates 555830E – 6031950N

**Event #5479018**

**Tenure #'s:**

539053, 547949, 547960, 1014701, 1014702, 1014703, 1014704, 1014705,  
1014706, 1014707, 1014932, 1014933 and 1014938

**Prepared for:  
Richard Billingsley**

**Prepared by:  
Richard Beck, President,  
Kay Mackenzie, Geologist MIT,  
UTM Exploration Services Ltd.  
Smithers, BC**

**November 2013**

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## 1. SUMMARY

In late November 2013, UTM Exploration Services Ltd provided personnel to Richard Billingsley to apply fieldwork to the Kelly Creek group of claims east of Terrace, British Columbia. Past field work had resulted in the identification of significant copper intercepts in historical surface and underground drilling along what is tentatively being ruled as a strongly mineralized shear zone within the calc-alkalic Hazelton Group volcanics. To date no significant follow up on the past historical findings has been performed on the property. A single day was physically spent on the property. The time of year that the work was performed was in the height of snow coverage and extreme winter conditions. Eight (8) outcrop samples were taken. One outcrop sample of strongly malachite stained volcanics was the most interesting find.

## 2. INTRODUCTION AND TERMS OF REFERENCE

This report was prepared by Richard Beck, President and Kay MacKenzie, MIT, of UTM Exploration Services Ltd., on behalf of Richard Billingsley for the Kelly Creek property located 30km east-southeast of Terrace, British Columbia.

This report relies on government assessment reports from previous exploration programs. All references used are listed in the References section of this report.

This report is based in part on various government publications. It is believed the information contained in these reports is accurate and reliable, but there are possibilities for error or difference of opinion. Sources have been referenced where data by others have been used, but the accuracy of the source data cannot be guaranteed.

This report borrows/quotes from historical assessment reports of the area as noted in the References section.

### 3. PROPERTY DESCRIPTION AND LOCATION

#### 3.1 ACCESSIBILITY AND INFRASTRUCTURE

The Kelly Creek property is located in northwestern British Columbia, approximately 30km east-southeast of Terrace, B.C. and 70km southwest of Smithers, B.C. (Figure 1). The property is located around a fairly central point of 555830E and 6031950N (NAD 83 Zone 9) on NTS map sheet 103I.

Access to the property is possible by pick-up truck/ATV as well as by helicopter. The closest helicopters that are available are from both Smithers and Terrace. For this project a helicopter was sourced from Smithers, approximately 70km northeast of the Kelly Creek property.

Smithers and Terrace all have groceries, gas, lodging and other small resources.

#### 3.2 MINERAL TENURE INFORMATION

The Kelly Creek Property includes thirteen (13) contiguous claims, which are listed in Table 1. The total area of the claims is 2106.55 hectares (Figures 2 and 3) which lies with NTS map sheet 103I. Richard Billingsley is the sole owner of the claims.

TABLE 1. MINERAL TENURE DETAILS.

Tenure #	Claim Name	Owner	Tenure Type	Map #	Issue Date	Good To Date	Status	Area (ha)
539053	KELLY NORTH	139085 (100%)	Mineral	103I	2006/aug/10	2014/sep/30	GOOD	18.7987
547959	KELLY CREEK	139085 (100%)	Mineral	103I	2006/dec/26	2014/sep/30	GOOD	150.4155
547960		139085 (100%)	Mineral	103I	2006/dec/26	2014/sep/30	GOOD	18.7986
1014701	2	139085 (100%)	Mineral	103I	2006/aug/11	2014/sep/30	GOOD	37.6097
1014702	A	139085 (100%)	Mineral	103I	2006/aug/11	2014/sep/30	GOOD	18.8062
1014703	B	139085 (100%)	Mineral	103I	2006/aug/11	2014/sep/30	GOOD	18.8043
1014704	C	139085 (100%)	Mineral	103I	2006/aug/11	2014/sep/30	GOOD	18.8138
1014705	D	139085 (100%)	Mineral	103I	2006/aug/11	2014/sep/30	GOOD	37.6307
1014706	E	139085 (100%)	Mineral	103I	2006/aug/10	2014/sep/30	GOOD	37.6355
1014707	F	139085 (100%)	Mineral	103I	2006/aug/10	2014/sep/30	GOOD	18.8182
1014932	KELLY CREEK 1	139085 (100%)	Mineral	103I	2012/dec/01	2014/sep/30	GOOD	864.9757
1014933	KELLY CREEK 2	139085 (100%)	Mineral	103I	2012/dec/01	2014/sep/30	GOOD	827.7998
1014938	KELLY CREEK 4	139085 (100%)	Mineral	103I	2012/dec/01	2014/sep/30	GOOD	37.6396

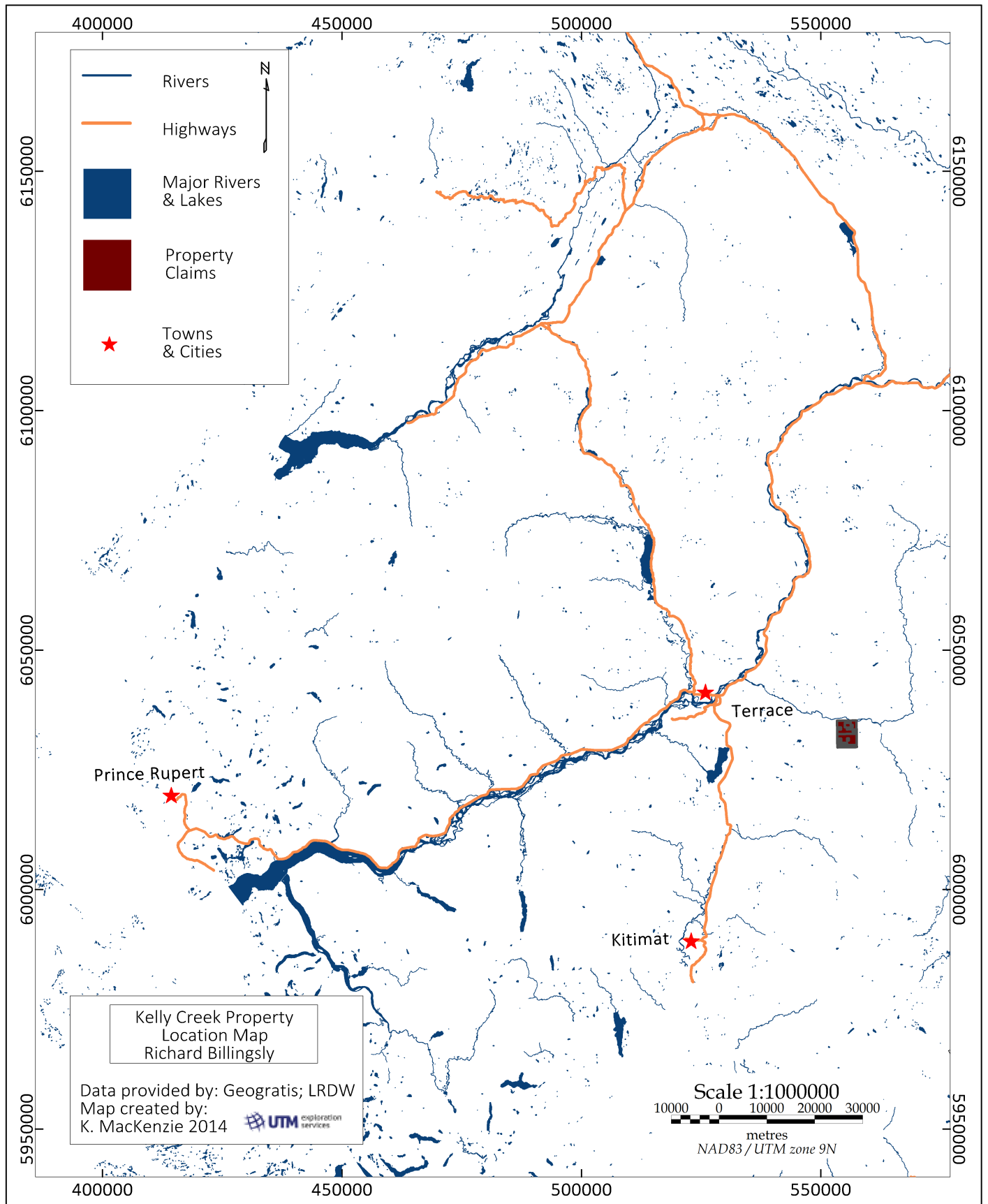


Figure 1. Kelly Creek Location Map.

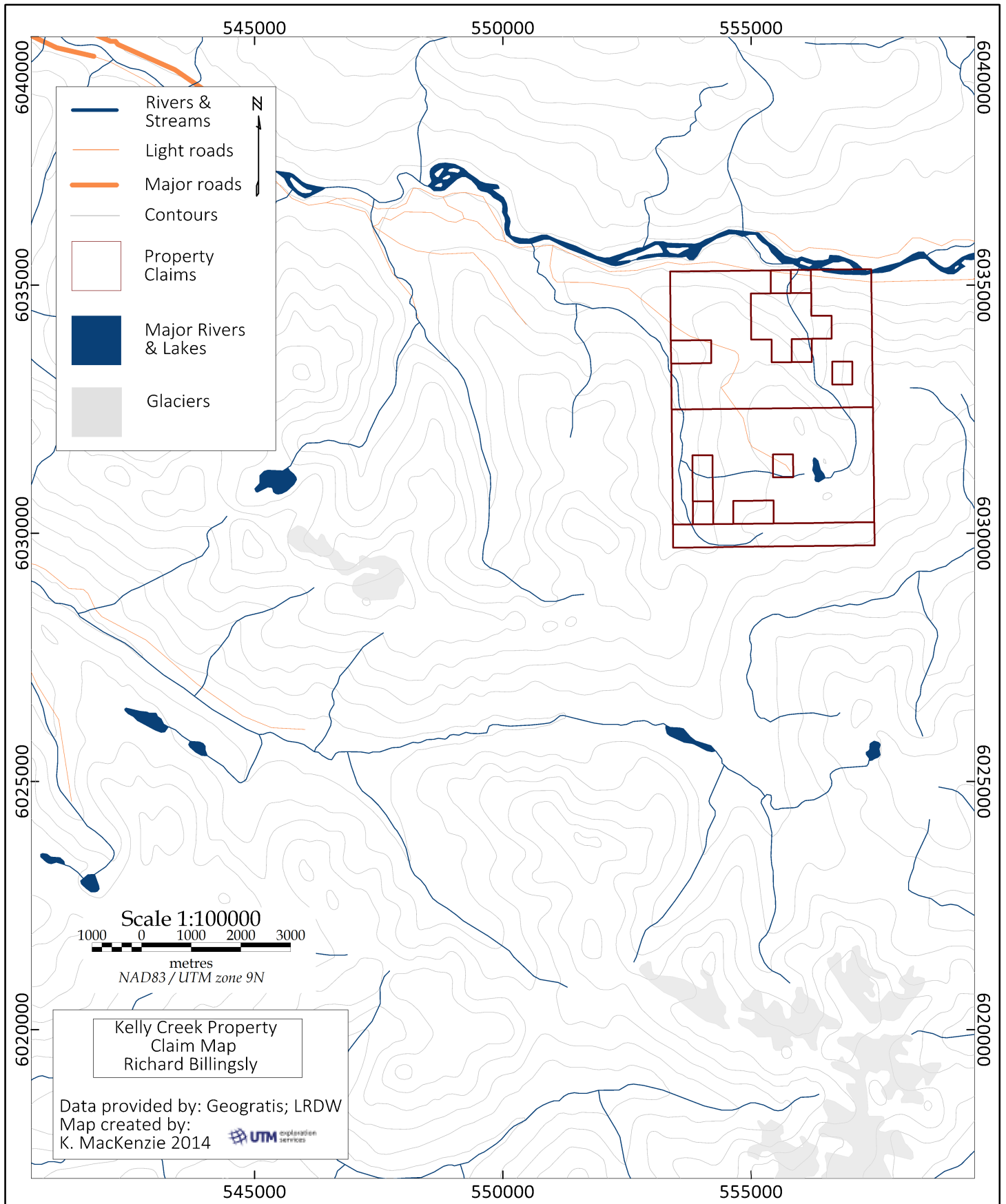


Figure 2. Kelly Creek Mineral Tenures Map (100K).

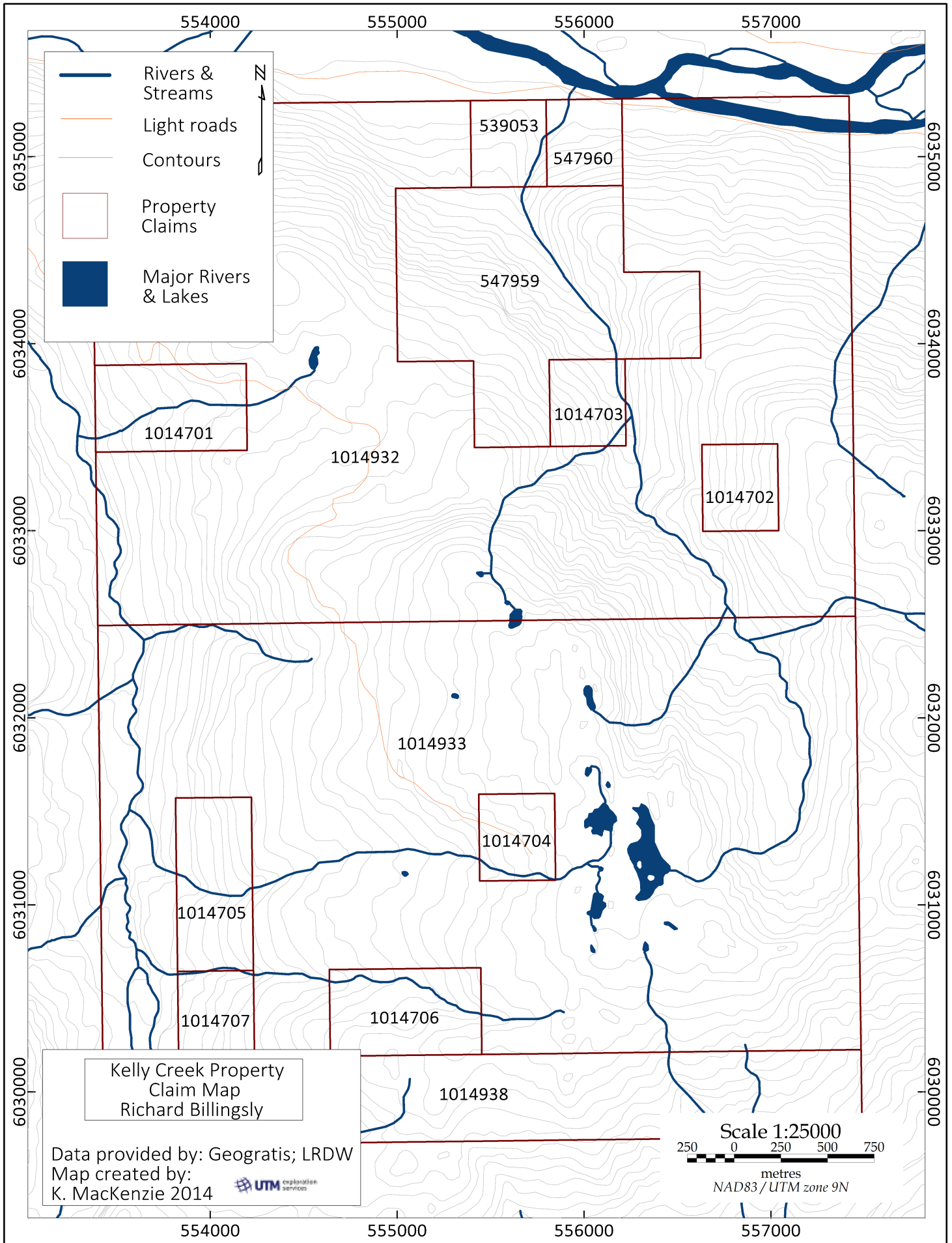


Figure 3. Kelly Creek Mineral Tenures Map (25K).



### 3.3 PHYSIOGRAPHY AND CLIMATE

Most of the Kelly Creek property is found covering moderate terrain. The Zymoetz River sits to the north of the property. Elevations range from 200 to 1450m. Moving from higher to lower elevations is made easy by the presence of an all-season ATV trail that access a microwave tower atop the property peak. Snow covers much of the property from late October to early June, cutting the field season down significantly.

Vegetation in the higher elevations includes small shrubs and grasses, while the valley and shallower slopes consist of trees and larger shrubs.

## 4. HISTORY

(Delancey, 1990)

The Property was first staked in 1964. Native Explorations Ltd. optioned the property in 1965 and carried out trenching, mapping and prospecting. Two areas of significant mineralization were outlined – the upper showing and the lower showing. In 1966 exploration included 13 diamond drill holes totaling 2947 feet, 1650 feet of trenching, 20.5 miles of geochemical survey and 7.3 miles of IP survey. In 1967, 7 additional drill holes totaling 2493 feet were drilled on the upper showing. In 1967 Pechiney Development optioned the property and continued exploration. The objective was to develop a large tonnage, low-grade open-pit copper mine.

During 1968 to 1970 geological mapping, soil sampling and prospecting were carried out, a 1000 foot adit was driven into the upper showing and 7 underground holes were drilled. The claims were allowed to lapse.

In 1979 the claims were acquired and a joint venture program initiated by Invex Resources Ltd. and Cathedral Minerals Ltd. was formed. The intent of the program was to delineate the full potential of the mineralization outlined by Pechiney, paying particular attention to the precious metal values associated with the copper mineralization.

During 1980, 519 meters of underground diamond drilling and 365 meters of drilling from surface was completed. Geological mapping was carried out as part of a thesis (see Cheetham, 1981). Nine hundred and fifty line meters of self-potential survey and a limited soil survey was completed.

Work during 1981 included 1000 meters of surface drilling and 142 meters of underground development, and some additional mapping, soil geochemistry and IP

were carried out over a wide area. The purpose of the underground development was to extend the workings to allow for an underground drilling station and to put 2 raises through the mineralized zone. Only one of the raises passed through the significant mineralization. Although further recommendations were made to explore the down-dip extent of the mineralization from the newly developed underground drill station, the program was terminated. The property remained dormant until 2006. Mr. Richard Billingsley acquire the claims in 2007.

## 5. GEOLOGICAL SETTING

### 5.1 REGIONAL GEOLOGY

(Delancey, 1990)

The Kelly Creek property occurs near the boundary between the Coast Plutonic Complex and the Intermontane Belt. The volcanic and sedimentary strata in the region are dominated by the Stikine terrane, an extensive area of volcanic and sedimentary rocks covering much of west-central B.C. These rocks include volcanoclastic, sedimentary and volcanic rocks of the early to middle Jurassic Hazelton Group which underlies the Kelly Creek property.

The Hazelton Group is a calc-alkaline island arc assemblage characterized by numerous lateral and vertical facies changes. The Group has been divided into three formations; lowermost Telkwa Formation, Nilkitkwa Formation and Smithers Formation. The Kelly Creek property is underlain by members of the Telkwa Formation.

The formation is a mixture of marine and subaerial, reddish-purple to grey-green pyroclastic and flow rocks. Andesites and basalts are the predominant volcanic lithologies but siliceous pyroclastic flows and rhyolite flows occur locally. The rhyolites include spherulitic flows, dense vitric tuffs and welded tuffs. Thicker accumulations of felsic volcanics appear to be associated with volcanic centres. Elsewhere domes and small plugs of rhyolite and quartz-feldspar porphyry occur locally.

The above volcanic sequences overlie Triassic to Permian sedimentary rocks (limestone, greywacke, chert) and lesser greenstone.

The eastern boundary of the Coast Plutonic Complex is located approximately 10 km west of the property. Several small intrusive stocks associated with the Plutonic Complex are common near this boundary and several of these occur on or near the

Kelly Creek property. Woodsworth et al (1985 mapped the main intrusive body on the property as Late Cretaceous to Tertiary granodiorite, tonalite and granite.

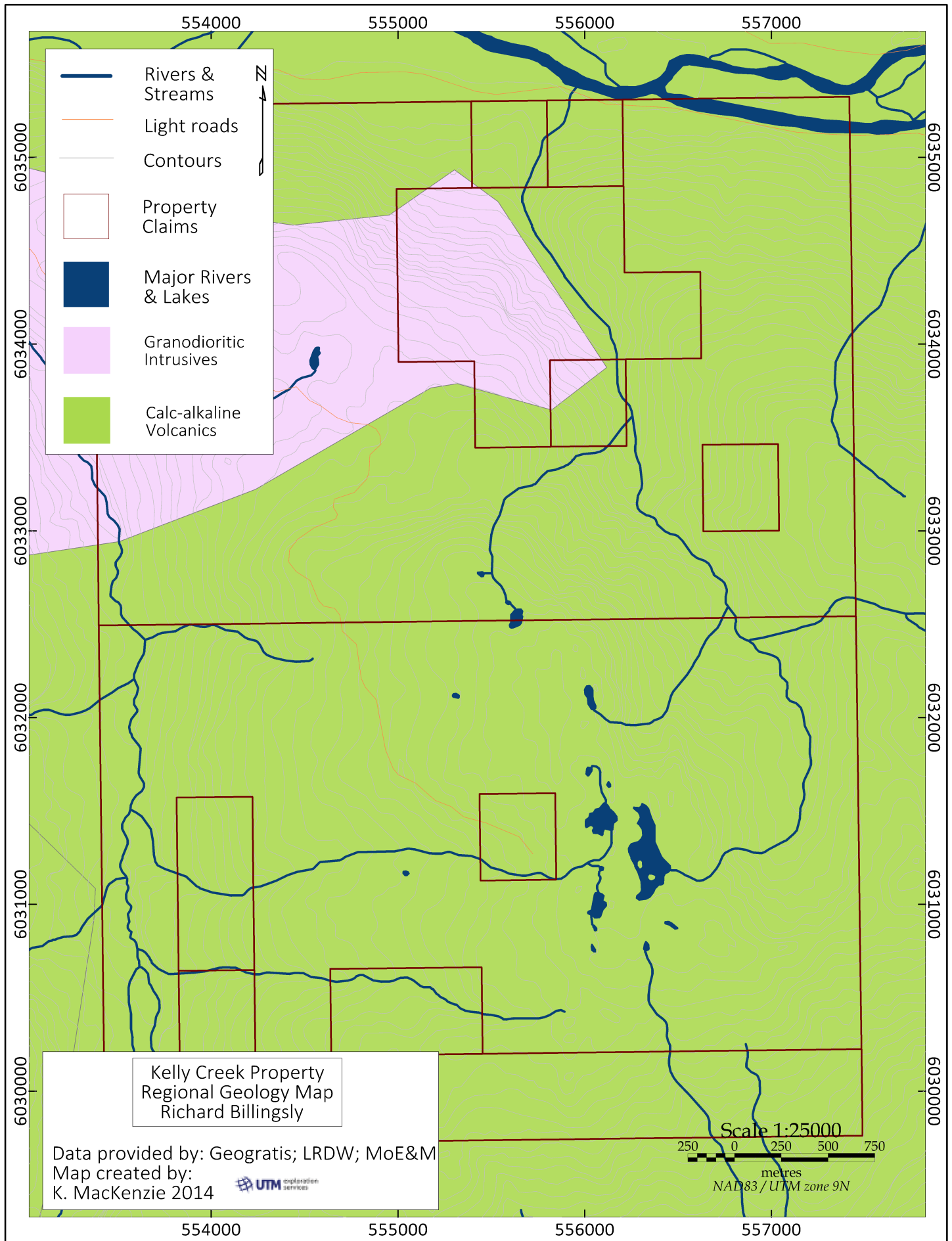


Figure 4. Regional Geology Map.

## 5.2 LOCAL GEOLOGY

(Delancey, 1990)

The property is underlain by a sequence of red and green andesites, dacites and rhyolites of the Telkwa Formation of the Hazelton Group. Regionally these rocks strike north-south and dip moderately easterly. Quin, 1982 describes the sequence as variable in colour and appearance and to contain both flow rocks and tuffs. Cheetham, 1981, describes many of the geological units as amygdaloidal occasionally up to 30% by volume. This feature plus the widespread hematite and magnetite within the volcanics suggest that much of the sequence is subaerial. All rocks show evidence of sub-greenschist metamorphism which appears to be a regional feature.

A distinctive rock type, occurring within the property and associated with the mineralization, is megacrystic (3cm) feldspar porphyry which has both intrusive and flow feature characteristics of a hypabyssal intrusive. The unit is typically massive and is prominent in the area of mineralization.

Structure is an important control to the mineralization. The Kelly Creek property is crosscut by several faults which can be grouped into three sets:

- A. NW-SE striking
- B. 110°-120° strike, 30°-65° dip
- C. NE-SW striking

Regionally NW-SE striking faults are prominent; several of which has been traced for several kilometers. One of these regional faults crosses the Kelly Creek property; the trace of which extends along Kelly Creek below the mineralized zones.

The mineralized zones are orientated at 110°-120° strike with 30° dip, suggesting that they are related to the 110°-120° strike set of faults.

## 6. EXPLORATION

### 6.1 METHODOLOGY AND PROCEDURE

From November 28<sup>th</sup> – 30<sup>th</sup> 2013, Richard Beck, President of UTM Exploration Services Ltd, conducted pre-field preparatory studies to research the areas to target as well as attempted to reach new areas of the property to try and locate possible new sources of mineralization. The area was access via helicopter as this was our only available option at this time of year.

Historically the main zone near the adit (to the north of the property) contains significant mineralization as does many of the local minfile showings strewn throughout the Kelly Creek group of claims. The winter 2013 program was designed to spend money on the claims all the while targeting areas that were free of snow as well as areas not sampled in previous years.

Eight (8) outcrop samples were taken over a single day. Andesites, amygdaloidal andesites, malachite stained botryoidally formed andesites and granite was sampled. All sites were recorded and marked with a Garmin handheld GPS unit (refer to Table 2) and tags were left on site with flagging to visibly mark the location.

Table 2. Sample Points and Descriptions.

Sample #	Easting	Northing	Rock description
8451	555941	6031989	appears to be an amygdaloidal andesite with fine grained groundmass
8452	555857	6032091	fine grained tuffaceous rhyolite
8453	555819	6032189	fine grained light coloured - brownish tan rhyolite
8454	555550	6033778	fe-stained weathered surface to fine -medium grained andesite
8455	555525	6033795	fe-stained weathered surface to fine -medium grained andesite
8456	554383	6033426	tabular micro faulted granitic body - this intrusive is exactly where it listed to be in the regional maps; sample taken close to andesite/granite regional contact
8457	554290	6033402	granitic sample taken west of sample #8456 away from andesite/granite contact area
8458	555961	6030426	ropy textured, dark green to purplish andesite with abundant malachite staining throughout

## 6.2 ROCK SAMPLING

Eight rock samples were taken over the Kelly Creek property. All samples were taken from outcrop. The property was targeted to follow areas that have not seen extensive sampling in years past. All samples were photographed before being placed in their 12x20 6mm poly bag, as were the outcrop from which the sample was taken, to show the extent of mineralization or lithology type. The poly bags had the sample number written on the outside to match the sample tag that was placed inside the bag, which was then sealed with a zap strap. Details on rocks sampled and geological points of interest are listed in Table 2.

## 7. SAMPLING

### 7.1 SAMPLING METHOD AND APPROACH

See section 6.2 for details of on-site sampling methods. After sample collection, samples were bagged, sealed with a sample list, and stored by UTM personnel until they were delivered to ACME Labs in Smithers, BC.

### 7.2 SAMPLE PREPARATION, ANALYSES, AND SECURITY

Lab methodology is described in Appendix II.

### 7.3 DATA VERIFICATION

No standards or blanks were submitted, although ACME runs their own tests regularly.

### 7.4 RESULTS

All assay results may be found in Appendix I. See Figure 5 for the sample locations and geochemical map.

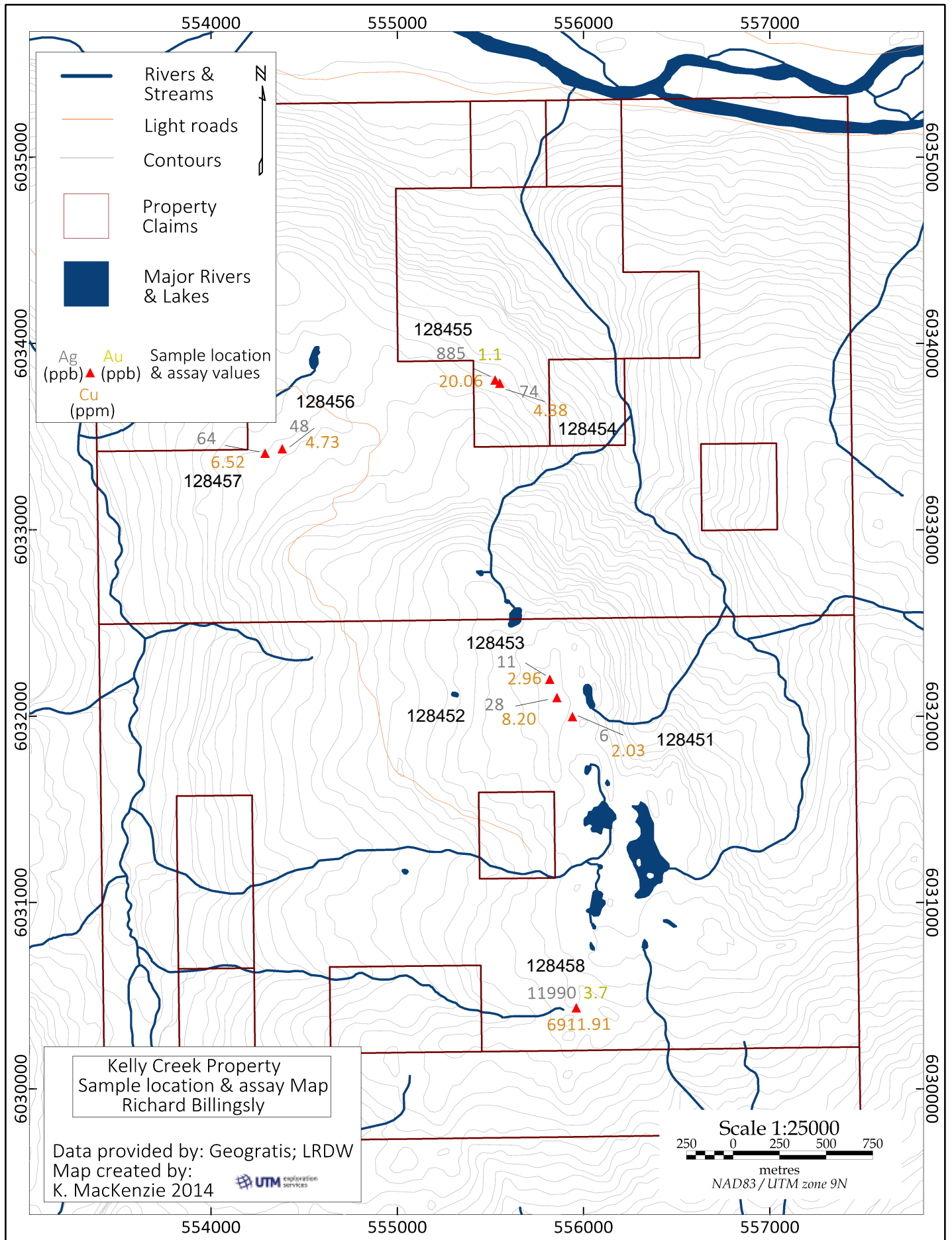


Figure 5. Sample Locations and Assay Results.



## 8. INTERPRETATION AND CONCLUSION

The Kelly Creek property has shown much potential with the historical work performed on the main showing in the northern section of the claims. Additionally, there are numerous minfile showings scattered throughout the claim group. Significant mineralization has been encountered in many different drill holes in years past, minfile showings have yielded comparably favourable results of copper mineralization, however, the property has not yet seen an exploration year that has targeted the extensions of these known and open ended mineralized corridors. Sample #8458 was sampled along a regional fault (assumed) in malachite stained andesites; another location that has not been sampled before, nor discovered until now, and yet more copper mineralization is found on the property.

After researching and reading the historical reports and being on site and firsthandly seeing the topography the stream layouts, the possible faults and then systematically applying all of this with the available location of the mineralization it appears that there is an apparent relationship with the 110-120 structural features and mineralization. The conjugate faults also documented in the regional geology may also play an offsetting role ( if they are indeed later faults) or an additional mineralized conduit (if they are earlier faults).

## 9. RECOMMENDATIONS

With respect to a “moving forward” exploration program, it is suggested that an exploration plan be organized that focuses on the main Kelly Creek Showing (assessment report #8559) and effectively evaluate this area.

With this in mind, the following program is suggested:

**Phase I:** complete database compilation of all historical data resulting in the generation of new maps of the property outlining the geology, drilling, geochemical anomalies, etc

- Estimated budget: \$5000

**Phase II:** One month mapping, sampling and prospecting program in July-August with focus on due diligence as well as extensions to the main mineralized corridor. Revisiting the location of the historical adit and drill fences, all historical areas are suggested to be G.P.S. located for the purpose of adding to the new maps and determining the true sense and size of the mineralized corridor. During the 30 day program, the crew would be based out of Terrace, B.C. (closer road access to the property in summer months) and utilize ATV's to access the existing trails on the property.

Coupled with the focus on the main zone, attention should be given to a few days re-evaluating the closer of the minfile showings in proximity to the main showing, therefore potentially extending mineralization beyond the known location.

- Estimated budget: \$75,000

## 10. STATEMENT OF COSTS

Richard Billingsley					
Geological Sampling Program					
Kelly Creek Property					
<b>Personnel (Name) * / Position</b>	<b>Field Days (list actual days)</b>	<b>Days</b>	<b>Rate</b>	<b>Subtotal</b>	
Richard Beck	November 29-30 2013	2	\$650.00	\$1,300.00	
				\$1,300.00	<b>\$1,300.00</b>
<b>Office Studies</b>	<b>List Personnel (note - Office only, do not include field days)</b>				
		<b>Hours</b>	<b>Rate</b>	<b>Subtotal</b>	
Map/field preparation	Richard Beck (Nov 28)	7.0	\$55.00	\$385.00	
Pre-field organization	Dave Holland (Nov 28)	2.0	\$55.00	\$110.00	
Post-field clean-up	Dave Holland (Nov 30)	3.0	\$55.00	\$165.00	
Post-field assay/geological	Richard Beck (Dec 1)	3.0	\$55.00	\$165.00	
Report preparation	R.Beck	24.0	\$55.00	\$1,320.00	
Report preparation	GIS	8.0	\$65.00	\$520.00	
				\$2,145.00	<b>\$2,145.00</b>
<b>Geochemical Surveying</b>	<b>Number of Samples</b>	<b>No.</b>	<b>Rate</b>	<b>Subtotal</b>	
Drill (cuttings, core, etc.)			\$0.00	\$0.00	
Stream sediment			\$0.00	\$0.00	
Soil	<i>note: This is for assays or</i>		\$0.00	\$0.00	
Rock	<i>laboratory costs</i>	8.0	\$52.40	\$419.20	
Water			\$0.00	\$0.00	
Biogeochemistry			\$0.00	\$0.00	
Whole rock			\$0.00	\$0.00	
Petrology			\$0.00	\$0.00	
Other (specify)	freight and shipping		\$0.00	\$0.00	
				\$419.20	<b>\$419.20</b>
<b>Transportation</b>		<b>No.</b>	<b>Rate</b>	<b>Subtotal</b>	
Airfare			\$0.00	\$0.00	
Taxi			\$0.00	\$0.00	
truck rental		1.00	\$110.00	\$110.00	
kilometers		20.00	\$0.78	\$15.60	
ATV			\$0.00	\$0.00	
fuel			\$0.00	\$0.00	
Helicopter (hours)			\$0.00	\$2,187.61	
Fuel (litres/hour)			\$0.00	\$0.00	
Other			\$0.00	\$0.00	
				\$2,313.21	<b>\$2,313.21</b>
<b>Accommodation &amp; Food</b>	<b>Rates per day</b>	<b>No.</b>	<b>Rate</b>	<b>Subtotal</b>	
Hotel			\$0.00	\$0.00	
Camp			\$0.00	\$0.00	
Meals		1.00	\$6.00	\$6.00	
				\$6.00	<b>\$6.00</b>
<b>Miscellaneous</b>					
Propane				\$0.00	
Field supplies	rentals			\$35.00	
Other (Specify)	consumables			\$10.00	
				\$45.00	<b>\$45.00</b>
<b>Equipment Rentals</b>					
Sattelite phone/radios				\$0.00	
Geological tool kits				\$0.00	
				\$0.00	<b>\$0.00</b>
<b><i>SUB-TOTAL Expenditures</i></b>					<b>\$6,228.41</b>
<b>Project Management</b>				\$0.00	
				\$0.00	
			\$0.00	\$0.00	
				\$0.00	<b>\$0.00</b>
<b><i>TOTAL Expenditures</i></b>	<b>w/o taxes</b>				<b>\$6,228.41</b>

## 11. REFERENCES

Cheetham, P., 1980, B.Sc. Thesis, Royal School of Mines, London.

Campbell, D., 1967; Final Report, Zymoetz property, Native Mines Ltd.

Quin, S., 1981: Preliminary progress & Summary Report, Kelly Creek Joint Venture.

Delancey, P and Gore, D., 1990: Geological and Geochemical Report on the Kelly Creek Mineral Property for Imperial Metals Corporation; AR# 20743.

## 12. STATEMENT OF QUALIFICATIONS

I, Richard Beck, residing at 4901 Slack Road, Smithers, British Columbia, and do hereby certify that:

- I am part owner of and currently employed as the President and Director of Exploration by
  - UTM Exploration Services Ltd
  - PO BOX 5037
  - Smithers, B.C. V0J 2N0
- I attended Dalhousie University from 1985 to 1989, specializing in geology;
- Between 1987 and 1990, and 1996 to present I have been continuously employed as a junior geologist/senior exploration geologist/project manager in the mineral exploration sector;
- I did visit the property and performed the work, both preparatory research and field work

Dated at Smithers, British Columbia, this 23<sup>rd</sup> day of June 2014

Richard Beck

President

UTM Exploration Services Ltd



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## APPENDIX I: ASSAY CERTIFICATES



www.acmelab.com

Acme Analytical Laboratories (Vancouver) Ltd.  
 9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA  
 PHONE (604) 253-3158

Client: **UTM Exploration Services Ltd.**  
 104-1165 Main Street  
 Box 5037  
 Smithers BC V0J 2N0 CANADA

Submitted By: Richard Beck  
 Receiving Lab: Canada-Smithers  
 Received: January 28, 2014  
 Report Date: February 06, 2014  
 Page: 1 of 2

**CERTIFICATE OF ANALYSIS**

**SMI14000002.1**

**CLIENT JOB INFORMATION**

Project: K. Creek  
 Shipment ID:  
 P.O. Number  
 Number of Samples: 8

**SAMPLE PREPARATION AND ANALYTICAL PROCEDURES**

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
R200-250	8	Crush, split and pulverize 250 g rock to 200 mesh			SMI
1F03	8	1:1:1 Aqua Regia digestion Ultratrace ICP-MS analysis	30	Completed	VAN

**SAMPLE DISPOSAL**

RTRN-PLP Return  
 RTRN-RJT Return

**ADDITIONAL COMMENTS**

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

Invoice To: UTM Exploration Services Ltd.  
 104-1165 Main Street  
 Box 5037  
 Smithers BC V0J 2N0  
 CANADA

CC:



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



www.acmelab.com

Acme Analytical Laboratories (Vancouver) Ltd.  
 9050 Shaughnessy St. Vancouver BC V6P 6E5 CANADA  
 PHONE (604) 253-3158

Client: **UTM Exploration Services Ltd.**  
 104-1165 Main Street  
 Box 5037  
 Smithers BC V0J 2N0 CANADA

Project: K. Creek  
 Report Date: February 06, 2014

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Part: 1 of 2

**CERTIFICATE OF ANALYSIS** SMI14000002.1

Method	Analyte	Unit	MDL	WGHT	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30
				Wgt	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca		
				kg	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
128451	Rock			3.68	0.38	2.03	2.56	16.5	6	0.7	0.7	133	1.32	0.5	0.30	<0.2	4.2	4.6	0.02	0.11	0.04	5	0.05		
128452	Rock			3.33	0.21	8.20	7.87	86.3	28	2.1	4.4	815	2.36	0.7	0.43	<0.2	1.3	8.3	0.05	0.17	0.05	26	0.12		
128453	Rock			3.04	0.23	2.96	1.25	122.8	11	0.3	1.6	305	1.99	0.4	0.16	<0.2	1.5	2.9	0.02	0.05	<0.02	9	0.07		
128454	Rock			3.23	0.72	4.38	5.87	22.5	74	0.3	4.4	1502	1.96	2.3	0.11	<0.2	0.5	78.3	0.14	0.23	0.15	5	4.00		
128455	Rock			2.59	0.45	20.06	5.90	114.9	885	6.5	12.9	1109	3.96	6.1	0.19	1.1	0.6	28.3	0.06	0.17	0.42	53	0.34		
128456	Rock			3.95	0.49	4.73	7.89	54.0	48	0.6	2.7	451	1.61	<0.1	0.46	<0.2	5.1	6.4	0.35	0.08	0.03	7	0.16		
128457	Rock			2.33	0.67	6.52	9.14	84.7	64	0.8	8.2	979	3.50	1.3	0.44	<0.2	3.3	26.2	0.44	0.15	0.06	33	1.32		
128458	Rock			2.37	0.15	6911.91	9.87	162.4	11990	9.7	8.7	763	2.53	<0.1	0.78	3.7	2.0	31.5	0.09	0.20	0.02	174	0.49		

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Project: K. Creek  
 Report Date: February 06, 2014

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**CERTIFICATE OF ANALYSIS** SMI14000002.1

Method	Analyte	1F30		1F30		1F30		1F30		1F30		1F30		1F30		1F30		1F30		1F30	
		P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Ti	S	Hg	Se	Te	Ga		
Unit		%	ppm	ppm	%	ppm	%	ppm	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm	ppm		
MDL		0.001	0.5	0.5	0.01	0.5	0.001	1	0.01	0.001	0.01	0.05	0.1	0.02	0.02	5	0.1	0.02	0.1		
128451	Rock	0.026	25.4	2.0	0.01	35.8	0.010	<1	0.22	0.048	0.12	0.21	1.1	0.02	<0.02	<5	<0.1	<0.02	0.9		
128452	Rock	0.054	8.6	2.2	0.30	80.0	0.010	2	0.91	0.025	0.28	<0.05	6.1	0.04	<0.02	6	<0.1	0.02	3.2		
128453	Rock	0.051	21.6	1.0	0.10	34.0	0.012	<1	0.55	0.064	0.14	0.08	3.8	0.02	<0.02	<5	<0.1	<0.02	3.3		
128454	Rock	0.099	8.6	0.8	0.21	180.7	0.002	3	0.49	0.023	0.27	<0.05	4.0	0.04	0.49	17	0.6	0.47	1.7		
128455	Rock	0.055	5.8	8.8	1.30	126.4	0.081	1	1.94	0.088	0.10	0.08	7.5	<0.02	0.36	5	0.4	0.90	9.1		
128456	Rock	0.042	12.3	1.3	0.21	67.4	0.026	1	0.50	0.061	0.13	0.11	2.1	<0.02	<0.02	6	<0.1	<0.02	3.3		
128457	Rock	0.171	16.4	1.1	0.80	382.2	0.022	2	1.29	0.054	0.21	<0.05	8.0	<0.02	<0.02	<5	<0.1	<0.02	6.6		
128458	Rock	0.057	9.7	2.1	1.03	208.4	0.008	1	1.11	0.031	0.16	0.36	4.9	<0.02	0.15	<5	2.3	0.09	9.4		

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**QUALITY CONTROL REPORT**

**SMI14000002.1**

Method	Analyte	Unit	WGHT	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30	1F30										
			Wgt	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	MDL											
			kg	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%									
<b>Pulp Duplicates</b>																																		
128453	Rock		3.04	0.23	2.96	1.25	122.8	11	0.3	1.6	305	1.99	0.4	0.16	<0.2	1.5	2.9	0.02	0.05	<0.02	9	0.07												
REP 128453	QC			0.27	2.88	1.27	137.7	7	0.3	1.7	317	2.00	0.3	0.19	<0.2	1.5	2.8	0.02	0.06	<0.02	9	0.07												
128458	Rock		2.37	0.15	6911.91	9.87	182.4	11990	9.7	8.7	763	2.53	<0.1	0.78	3.7	2.0	31.5	0.09	0.20	0.02	174	0.49												
REP 128458	QC			0.19	7279.76	10.26	186.1	11920	8.5	8.1	805	2.64	<0.1	0.82	3.3	2.2	33.1	0.11	0.20	0.02	181	0.50												
<b>Reference Materials</b>																																		
STD DS10	Standard		14.38	155.77	159.26	351.4	1968	74.1	12.9	892	2.76	45.4	2.57	78.7	7.4	64.4	2.39	8.90	10.63	43	1.08													
STD DS10	Standard		14.52	156.57	167.38	350.8	2034	72.9	13.8	900	2.74	47.1	2.64	80.1	8.0	64.9	2.57	9.55	11.33	44	1.08													
STD OXC109	Standard		1.45	35.57	11.03	35.3	91	73.5	18.1	448	2.82	1.6	0.58	194.0	1.4	147.4	<0.01	0.03	0.14	46	0.69													
STD OXC109	Standard		1.47	35.24	11.52	37.4	32	67.6	19.1	425	2.79	0.4	0.59	180.9	1.5	129.3	0.04	0.06	0.03	47	0.67													
STD DS10 Expected			14.69	154.61	150.55	352.9	1960	74.6	12.9	861	2.7188	43.7	2.59	91.9	7.5	67.1	2.48	7.8	11.65	43	1.0355													
STD OXC109 Expected														201																				
BLK	Blank		<0.01	0.02	<0.01	<0.1	2	<0.1	<0.1	<1	<0.01	<0.1	<0.05	<0.2	<0.1	<0.5	<0.01	0.04	0.05	<2	<0.01													
<b>Prep Wash</b>																																		
G1-SMI	Prep Blank		0.12	2.11	2.77	49.8	12	3.8	3.9	612	2.04	0.2	1.19	<0.2	4.7	55.4	0.05	0.05	0.08	37	0.60													

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## APPENDIX II: LAB METHODOLOGIES

**METHOD SPECIFICATIONS**  
**GROUP 1D AND 1F – GEOCHEMICAL AQUA REGIA DIGESTION**

**Package Codes:** 1D01 to 1D03, 1DX1 to 1DX3, 1F01 to 1F07  
**Sample Digestion:** HNO<sub>3</sub>-HCl acid digestion  
**Instrumentation Method:** ICP-ES (1D), ICP-MS (1DX, 1F)  
**Applicability:** Sediment, Soil, Non-mineralized Rock and Drill Core

**Method Description:**

Prepared sample is digested with a modified Aqua Regia solution of equal parts concentrated HCl, HNO<sub>3</sub> and DI H<sub>2</sub>O for one hour in a heating block of hot water bath. Sample is made up to volume with dilute HCl. Sample splits of 0.5g, 15g or 30g can be analyzed.

Element	Group 1D Detection	Group 1DX Detection	Group 1F Detection	Upper Limit
Ag	0.3 ppm	0.1 ppm	2 ppb	100 ppm
Al*	0.01%	0.01%	0.01%	10%
As	2 ppm	0.5 ppm	0.1 ppm	10000 ppm
Au	2 ppm	0.5 ppb	0.2 ppb	100 ppm
B* <sup>A</sup>	20 ppm	20 ppm	20 ppm	2000 ppm
Ba*	1 ppm	1 ppm	0.5 ppm	10000 ppm
Bi	3 ppm	0.1 ppm	0.02 ppm	2000 ppm
Ca*	0.01%	0.01%	0.01%	40%
Cd	0.5 ppm	0.1 ppm	0.01 ppm	2000 ppm
Co	1 ppm	0.1 ppm	0.1 ppm	2000 ppm
Cr*	1 ppm	1 ppm	0.5 ppm	10000 ppm
Cu	1 ppm	0.1 ppm	0.01 ppm	10000 ppm
Fe*	0.01%	0.01%	0.01%	40%
Ga*	-	1 ppm	0.1 ppm	1000 ppm
Hg	1 ppm	0.01 ppm	5 ppb	50 ppm
K*	0.01%	0.01%	0.01%	10%
La*	1 ppm	1 ppm	0.5 ppm	10000 ppm
Mg*	0.01%	0.01%	0.01%	30%
Mn*	2 ppm	1 ppm	1 ppm	10000 ppm
Mo	1 ppm	0.1 ppm	0.01 ppm	2000 ppm
Na*	0.01%	0.001%	0.001%	5%
Ni	1 ppm	0.1 ppm	0.1 ppm	10000 ppm
P*	0.001%	0.001%	0.001%	5%
Pb	3 ppm	0.1 ppm	0.01 ppm	10000 ppm
S	0.05%	0.05%	0.02%	10%

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Element	Group 1D Detection	Group 1DX Detection	Group 1F Detection	Upper Limit
Sb	3 ppm	0.1 ppm	0.02 ppm	2000 ppm
Sc	-	0.1 ppm	0.1 ppm	100 ppm
Se	-	0.5 ppm	0.1 ppm	100 ppm
Sr*	1 ppm	1 ppm	0.5 ppm	10000 ppm
Te	-	0.2 ppm	0.02 ppm	1000 ppm
Th*	2 ppm	0.1 ppm	0.1 ppm	2000 ppm
Ti*	0.01%	0.001%	0.001%	5%
Tl	5 ppm	0.1 ppm	0.02 ppm	1000 ppm
U*	8 ppm	0.1 ppm	0.05 ppm	2000 ppm
V*	1 ppm	2 ppm	2 ppm	10000 ppm
W*	2 ppm	0.1 ppm	0.05 ppm	100 ppm
Zn	1 ppm	1 ppm	0.1 ppm	10000 ppm
Be*	-	-	0.1 ppm	1000 ppm
Ce*	-	-	0.1 ppm	2000 ppm
Cs*	-	-	0.02 ppm	2000 ppm
Ge*	-	-	0.1 ppm	100 ppm
Hf*	-	-	0.02 ppm	1000 ppm
In	-	-	0.02 ppm	1000 ppm
Li*	-	-	0.1 ppm	2000 ppm
Nb*	-	-	0.02 ppm	2000 ppm
Rb*	-	-	0.1 ppm	2000 ppm
Re	-	-	1 ppb	1000 ppb
Sn*	-	-	0.1 ppm	100 ppm
Ta*	-	-	0.05 ppm	2000 ppm
Y*	-	-	0.01 ppm	2000 ppm
Zr*	-	-	0.1 ppm	2000 ppm
Pt*	-	-	2 ppb	100 ppm
Pd*	-	-	10 ppb	100 ppm
Pb <sub>204</sub>	-	-	0.01 ppm	10000 ppm
Pb <sub>206</sub>	-	-	0.01 ppm	10000 ppm
Pb <sub>207</sub>	-	-	0.01 ppm	10000 ppm
Pb <sub>208</sub>	-	-	0.01 ppm	10000 ppm

\* Solubility of some elements will be limited by mineral species present.

<sup>^</sup>Detection limit = 1 ppm for 15g / 30g analysis.

**Limitations:**

Au solubility can be limited by refractory and graphitic samples.

**APPENDIX III: SAMPLE PHOTOS SAMPLES #8451 THRU #8458**





















