

**2011 GEOCHEMICAL WORK REPORT ON THE  
SOUTHEAST YUKON WHITE GOLD PROPERTY**

Located in the North Dawson Range

Whitehorse Mining District

NTS 1150/04

63°5'56" Latitude; 139°33'21.6" Longitude

UTM 573,000 E, 6,997,000 N (NAD 83 Z 7N)

WORK CONDUCTED ON JULY 29<sup>TH</sup>, 2011

Claims: MGK 932-939, 950-957, 996-1011, 1020-1021, 1032-1033, 1044-1045, and 1092

Prepared for:

**CACHE MINERALS INC.**

Suite G-19, 350 Wellington St., Toronto, ON, M5V 3W9

Prepared by:

**Kristy Beal, BSc. and David Lentz, PhD.**

**CACHE EXPLORATION INC.**

Suite G-19, 350 Wellington St., Toronto, ON, M5V 3W9

## Table of Contents

Introduction.....	2
Accessibility .....	2
Property Tenure.....	2
Exploration History .....	2
Geology.....	3
2011 Exploration Program.....	4
Results .....	5
Conclusions.....	6
Recommendations.....	6
References .....	9
Certificate of Qualifications .....	10
Statement of Expenditures.....	12

## List of Figures

Fig. 1: Claim Location Map.....	3
Fig. 2: Geology Map.....	4
Fig. 3: Sample Location Map.....	5
Fig. 4a-b: Result Map (Au and As) .....	7
Fig. 4c-d: Result Map (Mo and Sb) .....	8

## List of Tables

Table 1: Au Results.....	6
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## List of Appendices

Appendix A: Claim Information

Appendix B: Sample Data

Appendix C: Certificate of Analysis and Accuracy Measurements

## Introduction

Cache Exploration Inc., for Cache Minerals Inc., completed a small geochemical survey on July 29<sup>th</sup> 2011 on the Yukon White Gold Southeast Property (Yukon documented claim names: MGK). The property is located west of the Yukon River near the intersection with the White River, approximately 100 km south of Dawson City (see inset of Figure 1). The White River area is currently host to significant exploration interest since the discovery of the Golden Saddle Zone by Underworld Resources Inc. in 2009; the resources of this deposit includes 1,004,570 indicated ounces at 3.2 gpt Au, with an additional 407,413 inferred ounces at 2.5 gpt Au. The Golden Saddle Zone is located less than 15 km to the property of Cache Minerals Inc.

The purpose of further exploration on the property is to determine the potential to host an economic Au deposit with a similar style of mineralization to the nearby Saddle Zone Deposit and other Au deposits. Focus is to add to the small geochemical survey that was completed in 2010 (Swanton 2010).

## Accessibility

The area is accessible by helicopter from Dawson City; there are areas for landing on the relatively barren crest of the rolling hills in the area. Depending on the scale of project, supplies can be flown to the Thistle airstrip along Thistle Creek approximately 25 km southeast of the property.

The area is characterized by rolling hills typical of the Dawson Ranges with elevations between 600 and 1250 m; the property has a maximum elevation of 900 m. Vegetation towards the lower elevation or in creek valleys is dominated by spruce, birch, aspen, alder, and willow trees whereas at higher elevations is thick moss, grasses and scrub birch. Towards the river, the terrain appears to flatten and covered in long grass. It has been noted by a predecessor company that exploration can be carried out on the property from June until October during the cool, wet summer and fall.

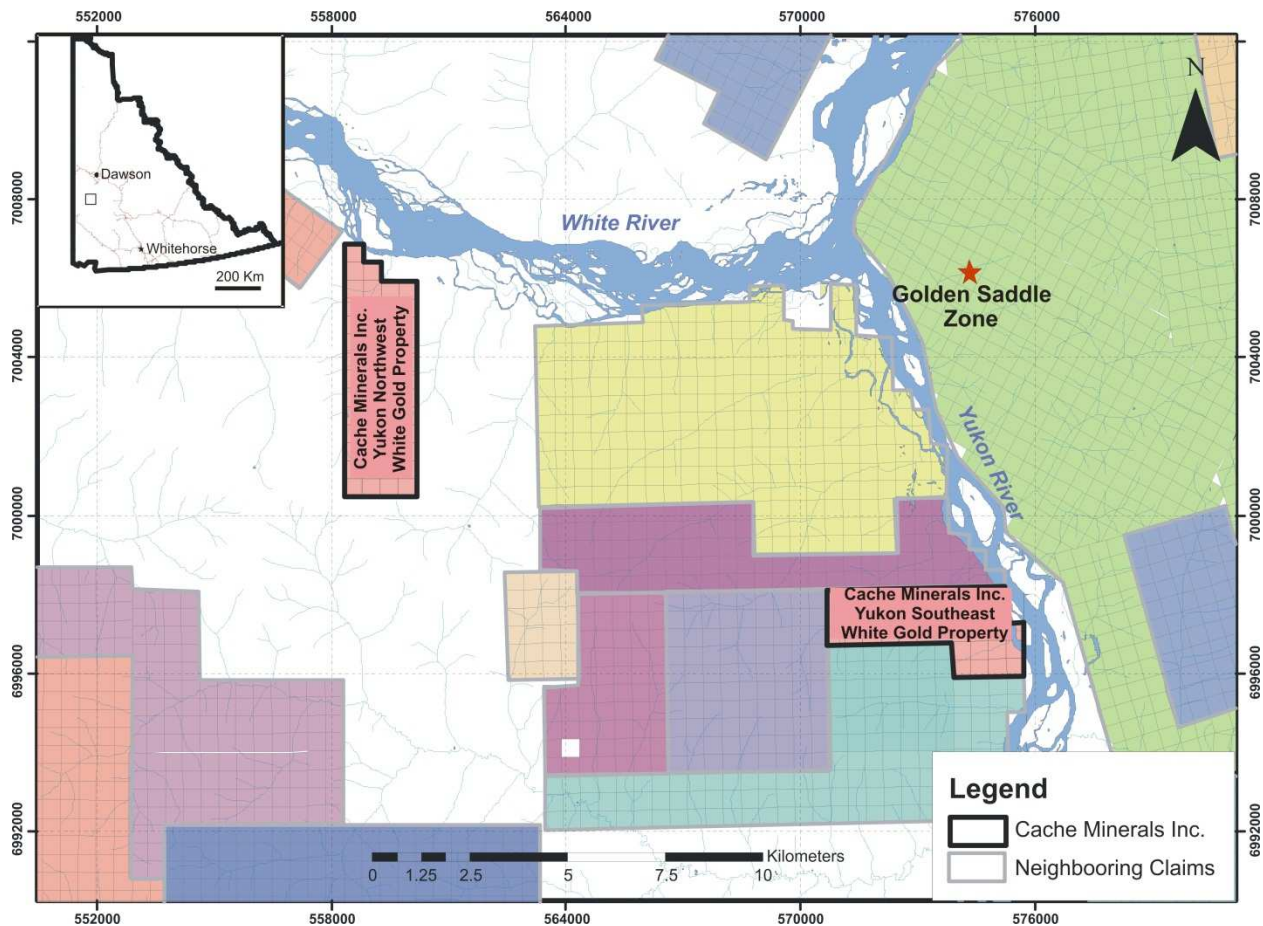
## Property Tenure

The Yukon White Gold Northwest Property consists of 39 quartz mineral claims covering approximately 7.9 km<sup>2</sup>, as summarized in **Appendix A** (Fig. 1). The claims were first recorded on July 3, 2009 and currently belong to Cache Minerals Inc. Surface rights over the property are owned by the Yukon Territory.

## Exploration History

Exploration west of the Yukon River prior to the 2009 Golden Saddle discovery was largely restricted to regional, government-based surveys. Airborne magnetics (200m interval as presented at the 2011 Vancouver Round-up by the Yukon Geological Survey) indicate that the Golden Saddle Zone and other deposits to the east of the Yukon River have predominant N-NW magnetic features; these features are generally absent on the west side of the river with the exception of towards the summit of the hills west of the Southeast White Gold Property that is one of the only areas barren of vegetation in the area.

The area came to prominence in 2007 when Underworld Resources Ltd. acquired the White Gold property and defined several gold-bearing showings within a 1.2 x 7.5 kilometre soil geochemical anomaly. Initial trenching and drilling results were encouraging and in May 2009, Underworld announced a drill hole with 104 metres grading 3.4 g/tonne Au. In 2009, the property was staked and a B-horizon soil sampling program was completed by Equity Exploration Consultants Ltd. in 2010 for a predecessor company with spacing of 75m between samples following a topographic contour on the property (Swanton 2010); the results indicated a 1.8 km long Au anomaly

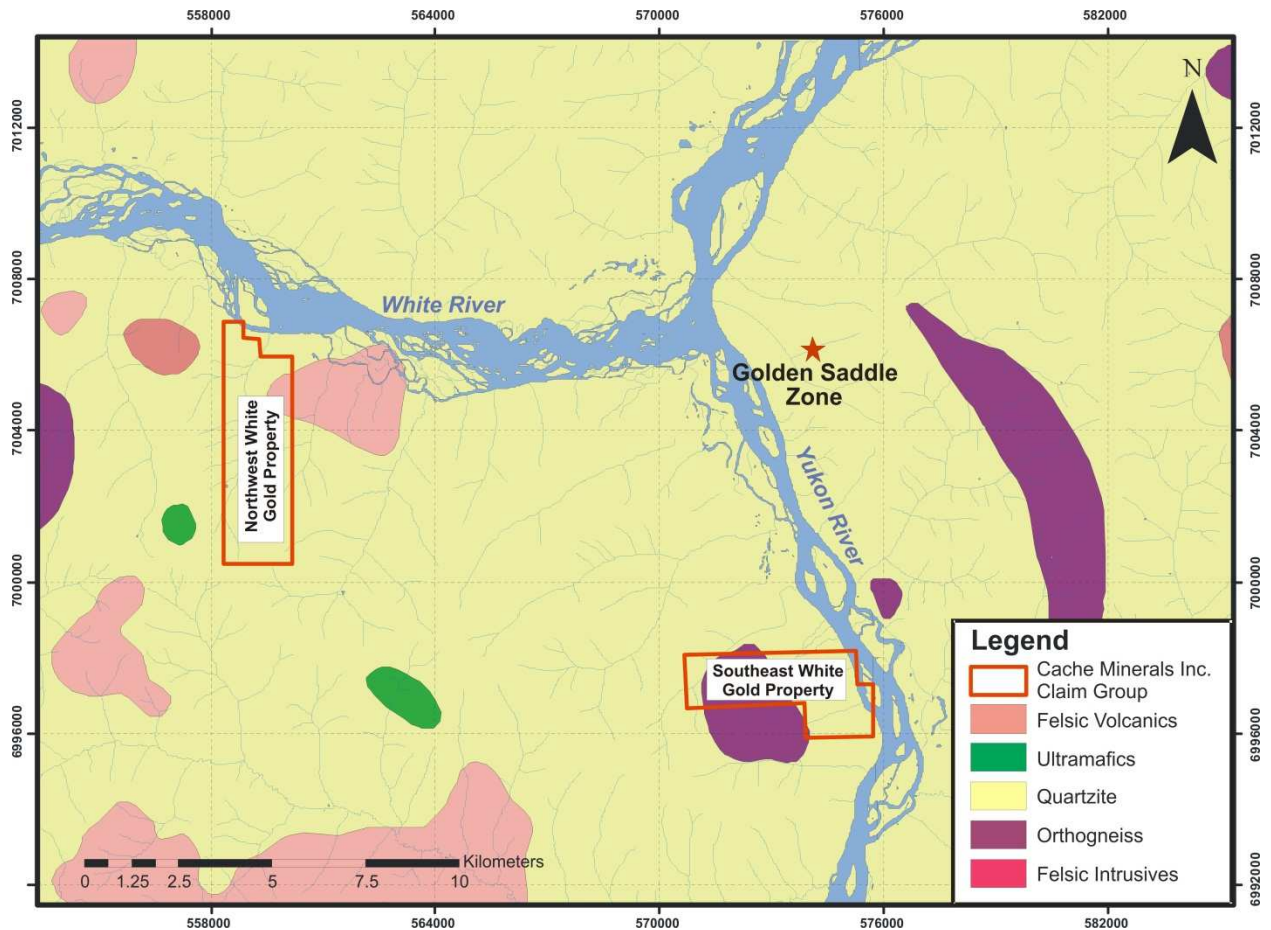


**Fig. 1:** Claim location map showing those of Cache Minerals Inc. and the location of the Golden Saddle Zone that initiated more focused Au exploration in the area.

with 29 samples of Au values greater than 5 ppb including four samples with values between 15 and 26 ppb Au. The 2010 sampling program was at 435 sites within several properties along the western side of the Yukon River.

### Geology

The White Gold District lies within the Tintina Gold Belt (a 200-km-wide, 1,200-km-long arc extending from northern British Columbia into southwest Alaska) and is underlain by rocks of the Yukon-Tanana geologic terrane. The basement rocks in the White River area consist of Paleozoic schists and gneisses that underwent Late Paleozoic deformation and metamorphism up to amphibolite facies (Fig. 2). The basement rocks include quartzite, marble, biotite gneiss, hornblende gneiss, and felsic gneiss that have been cut by brittle faults with predominately northward and eastward strikes. Hydrothermal alteration of the quartzite units by the tectonically and magmatically emplaced felsic and ultramafic bodies hosted within the amphibolite gneisses resulted in reduced graphite-arsenopyrite veins and associated disseminated arsenopyrite, pyrrhotite, and pyrite. In addition, the felsic gneiss has a relatively oxidised mineral assemblage with disseminated pyrite and intense alteration; hydrothermal alteration of this unit also resulted in the addition of As with minor Mo and Sb. Gold is associated with both types of alteration styles. While there are other metamorphosed units in the White Gold District, they were not as



**Fig. 2:** Regional Geology of the White Gold District (Gordey and Makepeace 1999).

fractured and altered by hydrothermal fluid that resulted from middle Cretaceous to early Tertiary extensional faults.

The Southeast White Gold Property is underlain by Paleozoic metamorphosed quartzite or quartz muscovite schist and towards the centre of the property is a circular unit of orthogneiss.

### 2011 Exploration Program

A four person crew from Cache Exploration Inc. completed a day helicopter trip on July 29<sup>th</sup>, 2011 to the Southeast White Gold Property. The objective was to do B-horizon sampling following topographic contours at a higher elevation than the 2010 soil sampling to further define the soil anomaly. The objective, more aggressive for one field day, had to be modified to 16 samples taken from a ridge that was never sampled previously. A total of 11 B-horizon soil samples and 5 stream sediment samples were taken at intervals of 200m along the 640 m topographic contour line (Fig. 3). In addition, one outcrop containing white quartz with local red discolouration (hematite) was sampled; however, no sulphides were noted and this was the only outcrop encountered during the field day. Sample type and description is available in **Appendix B**.



All samples were dropped off the Activation Laboratory Ltd. preparation lab in Stewart BC on August 3<sup>rd</sup> and were analysed by instrumental neutron activation analysis (INAA) and four acid digestion inductively coupled plasma methods (ICP). Canadian certified reference material for soil/stream sediment was submitted with the samples to test the laboratory for accuracy. Accuracy measurements and the certificate of analysis are available in **Appendix C**.

## Results

The results from the 2011 exploration program revealed several samples anomalous in Au. There were five samples that contained greater than 10 ppb Au; this included 3 stream sediment samples with 39, 30, and 12 ppb (11-SSYE-MM-0010, 009, and 001, respectively) and 2 soil samples with 50 and 11 ppb Au (11-SSYE-MM-0011 and 008, respectively). Four of the anomalous samples were taken beside one another covering a minimum length of 600m along the contour including the 50 ppb sample that is the maximum Au assay on the property.

A total of 70 samples (both stream sediment and soil) were taken on the property between 2010 and 2011. The average sample contains 6.6 ppb Au with a standard deviation of 8.6 ppb, which can be displayed following the statistical treatment of data (Table 1) presented in Rose et al. (1979) in Figure 4a. This statistical treatment of data indicates that the ridge sampled in 2011 shows the most promising potential for Au mineralization; however, the other elevated Au geochemistry towards the east of the property should not be discarded as insignificant.

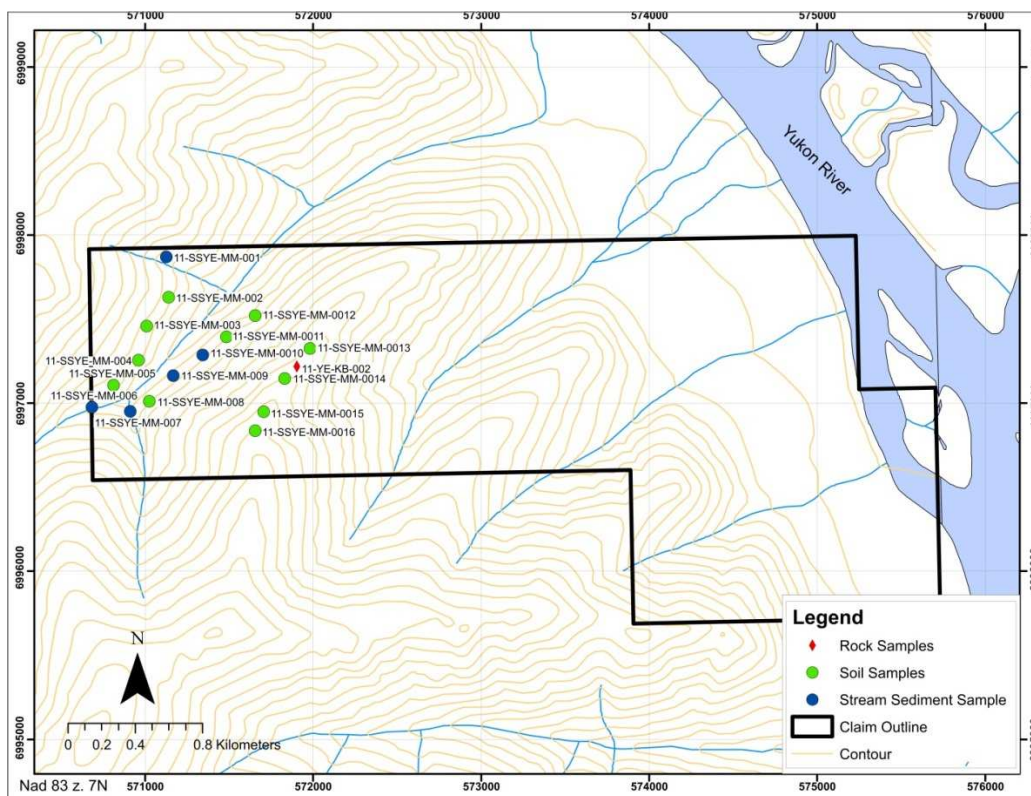


Fig. 3: Location map of samples collected from the 2011 exploration program.

**Table 1:** Statistical overview of Au geochemistry in soil and stream sediment samples taken on the Southeast White Gold Property in 2009 and 2011.

	As ppb
$\sigma$	6.6
$\sigma + \text{st.dev. (8.6 ppb)}$	15.2
$\sigma + 2*\text{st.dev.}$	23.8
$\sigma + 3*\text{st.dev.}$	32.4

As indicated by MacKenzie et al. (2010), there are several other elements that show a positive correlation with Au in the White River area; this includes As, Mo, and Sb as seen in Figures 4b-d. Following the same statistical treatment of 2010 to 2011 data as with Au, the average As content is 8.8 ppm (6.5 ppm standard deviation) with a maximum of 30 ppm, the average Mo content is 1.1 ppm (1.7 ppm standard deviation) with a maximum of 7 ppm, and the average Sb content is 1.4 ppm (0.8 ppm standard deviation) with a maximum of 6.2 ppm. It is apparent that many of the samples with elevated Au have an association with one or all of the other elements mentioned.

Only one orthogneiss outcrop was located during the field day and quartz vein material found as float adjacent to the outcrop (but suggested to be from a local heaved source) was subsequently sampled. The quartz vein material was milky in transparency, contained few fragments from the local host rock, and had a pink hue caused by hematite; in addition, there were vugs containing specular hematite. No sulphides were observed. The sample revealed no geochemical results of interest.

### Conclusions

Soil and stream sediment sampling on the property in 2011, despite disappointing results from a quartz vein sample, revealed encouraging results. One stream sediment sample yielded 50 ppb Au, while three neighboring samples yielded >10 ppb Au defining a clear anomaly with a strike length of at least 600m. This is in addition one other sample from 2011 and several samples from the 2010 soil survey with encouraging Au results. With respect to the correlation of Au with As, Mo, and Sb in the White Gold District identified by MacKenzie et al. (2010) several of the samples anomalous in Au showed elevated assays in at least one of the other elements.

### Recommendations

Due to the proximity to the Golden Saddle Deposit, other gold prospects, and a placer mining operation on the east of the Yukon River and the encouraging results from geochemical surveys completed in 2010 and 2011; more exploration should be completed on the Southeast White Gold Property to evaluate the potential for gold. Further soil and stream sediment sampling should be considered and sampling any outcrop that is located. However, consideration must be given to the cost of conducting exploration in the area that commonly experiences unpredictable and quickly-changing weather at high elevations; in addition, the property is a 40min helicopter ride from Dawson. It is suggested that if an exploration program continues for more than two days in the area that an exploration camp be set up and that there is one person per sampling crew that can carry a firearm so there can be more independence while sampling.

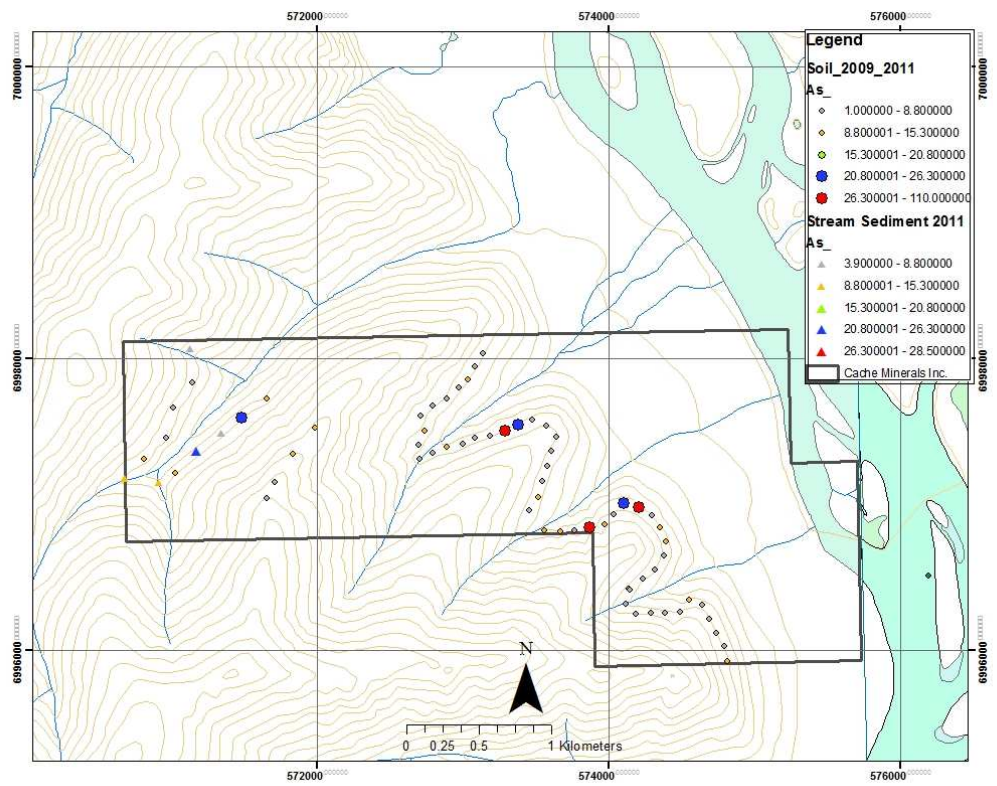
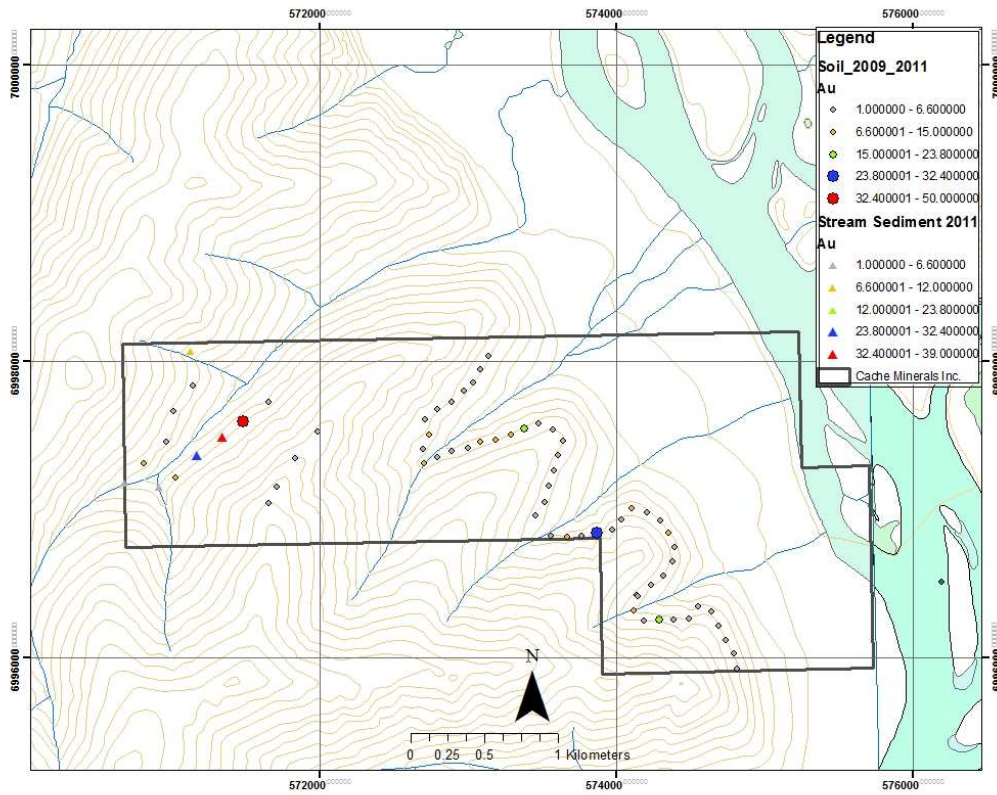


Fig. 4a-b: Compiled 2010 and 2011 results for a) Au and b) As at the Southeast White Gold Property.



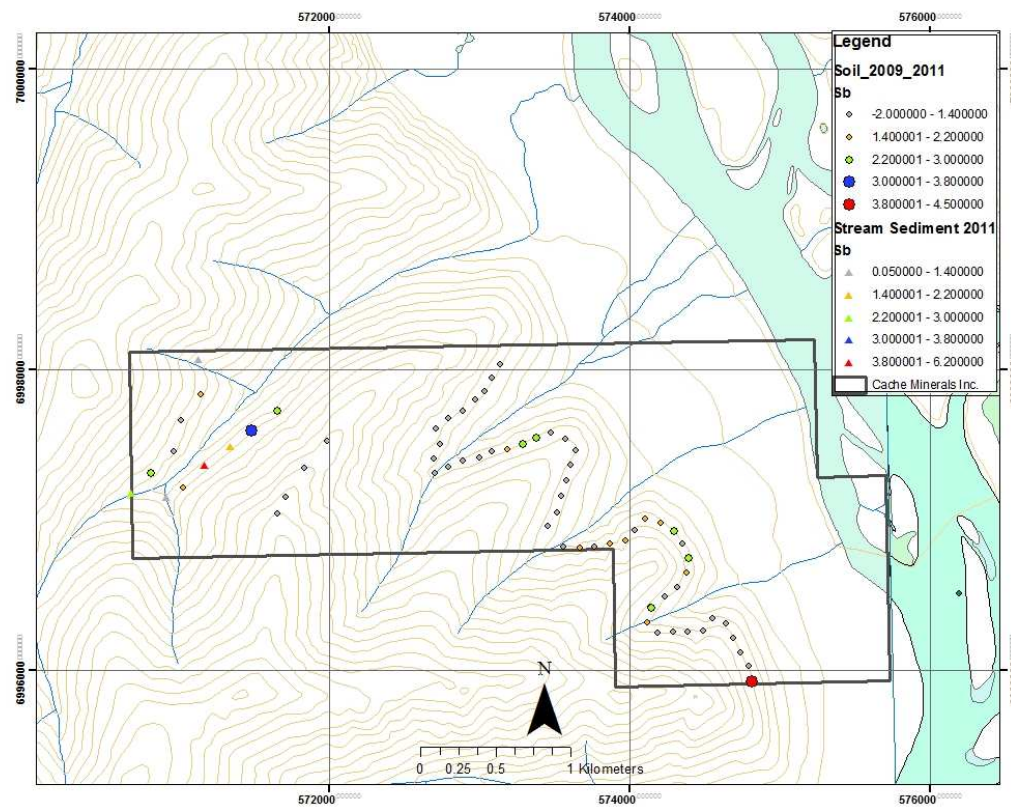
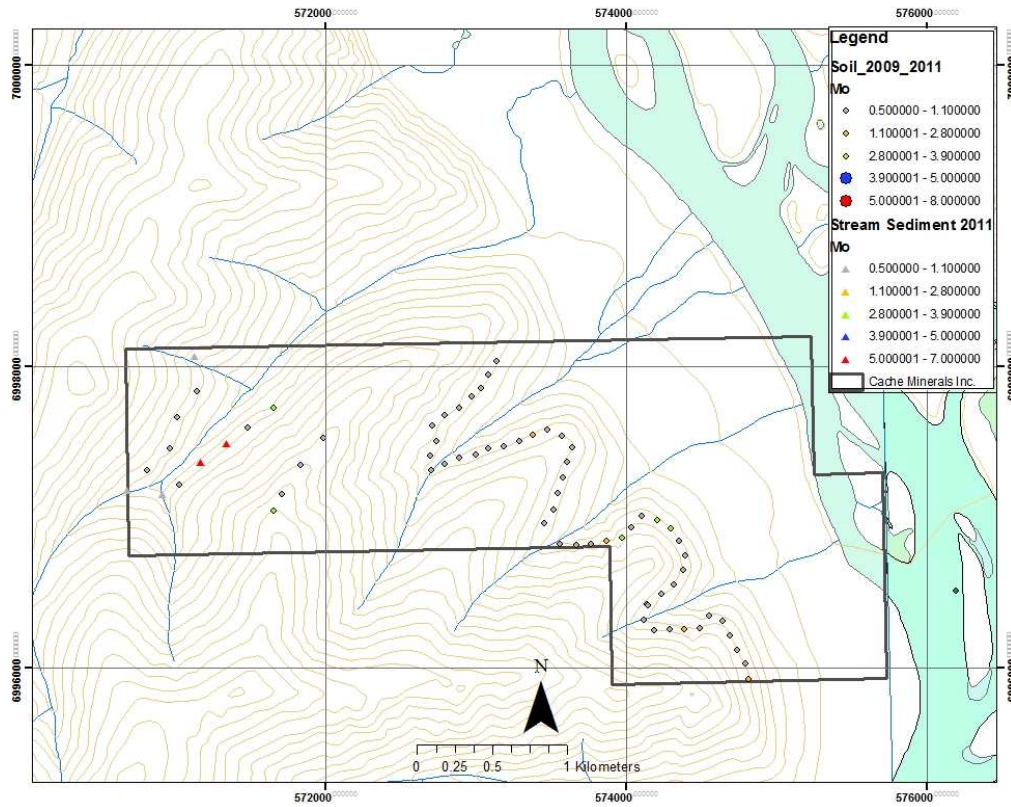


Fig. 4c-d: Compiled 2010 and 2011 results for c) Mo and d) Sb at the Southeast White Gold Property.

## References

Gordey, S.P. and Makepeace, A.J. 1999. Yukon bedrock geology in Yukon digital geology. Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, Open File 1999-1 (D).

MacKenzie, D., Craw, D., Cooley, M., and Fleming, A. 2010. Lithogeochemical localisation of disseminated gold in the White River area, Yukon, Canada. *Mineralium Deposita*, 45, 683-705.

Rose, A.W., Hawkes, H.E., and Webb, J.S. 1979. *Geochemistry in Mineral Exploration*. Second Edition, Academic Press, 657 p.

Swanton, D. 2010. 2010 Geochemical Work Report on the Yukon Gold Project. NTS # 115N/01 and 115O/04. Whitehorse and Dawson Mining Districts, Yukon, 84 pgs.

## Certificate of Qualifications

I, Kristy-Lee Beal, do hereby certify that:

- I am the Exploration Manager with Cache Exploration Inc. (Suite G-19, 350 Wellington St., Toronto, ON) since May of 2011.
- I am a graduate of the University of New Brunswick (BSc. In geology, 2008) and am currently completing my MSc. at the University of New Brunswick in Earth Sciences.
- In addition to attending school, I have practiced my profession since 2005.
- I am a Member-In-Training registered with the Association of Professional Engineers And Geoscientists of the Province of New Brunswick as a resident member, #J3683
- This report is based on work carried out on the Southeast White Gold Property in early August 2011 where I was the supervisor. I have full confidence in the abilities of the persons taking samples in the 2011 program and am satisfied that samples were taken properly and with care.

This report was prepared solely for satisfying assessment work requirements in accordance with government regulations.

Dated at Fredericton, NB, this 11<sup>th</sup> day of January 2012.



Kristy-Lee Beal, BSc.

I, David R. Lentz, do hereby certify that:

1. I am a mineral property consultant with an office at 208 Stanley Street, Fredericton, NB
2. I am a graduate of the University of New Brunswick (B.Sc. Honours Geology, 1983; M.Sc. Geology, 1986) and the University of Ottawa (Ph.D. Geology, 1992)
3. I am a Professional Geologist registered with the Association of Professional Engineers and Geoscientists in the Province of New Brunswick (M5612) and been register since 2001.
4. I have practiced my profession since 1982.
5. This report is based upon work carried out on the Yukon White Gold Southeast Property. All people on the project were supervised by Kristy Beal and myself, so all sampling and analytical protocols were followed.
6. I am a principle of Cache Exploration Inc. and Cache Minerals Inc., owner of the Yukon White Gold Properties; this report was prepared solely for satisfying assessment work requirements in accordance with government regulations.

Dated at Fredericton, NB this 14<sup>th</sup> day of January, 2012.

A handwritten signature in black ink, appearing to read "David R. Lentz". The signature is written in a cursive style with a large initial "D" and "L".

David R. Lentz PhD, P.Geo.



## Statement of Expenditures

Main Cost Item	Description/Comments	Unit Cost (\$)	Units	# of Units	Estimated Cost	Subtotals
<b>Staff</b>	<b>Description</b>					
<b>Preparation</b>	Geologist - Kristy Beal	\$375	day	4.3	\$1,612.50	
<b>Mobilization and demobilization</b>	Supervisor (Dave Lentz)	\$1,200	day	1	\$1,200.00	
	Geologist - Kristy Beal	\$375	day	1	\$375.00	
	Junior Geologist	\$250	day	1	\$250.00	
	Junior Geologist	\$200	day	1	\$200.00	
<b>Field Staff</b>	Supervisor (Dave Lentz) - Field	\$1,200	day	1.5	\$1,800.00	
	Geologist - Kristy Beal - Field	\$375	day	1.5	\$562.50	
	Junior Geologist - Field	\$250	day	1.5	\$375.00	
	Junior Geologist - Field	\$200	day	1.5	\$300.00	
<b>Report Writing and Review</b>	Supervisor (David Lentz)	\$1,200	day	0.5	\$600.00	
	Geologist - Report writing	\$375	day	2	\$750.00	
						<b>\$8,025.00</b>
<b>Rentals</b>	Field Truck Rental	\$174	days	2.5	\$435.38	
	Satellite Phone		project		\$74.20	
	Helicopter	2-way return	day	1	\$4,702.50	
						<b>\$5,212.08</b>
<b>Expenses</b>	Fuel	\$58	day	2.5	\$144.68	
	Food				\$176.26	
	Accommodations				\$655.00	
	Geochemical Analysis				\$375.18	
	Used supplies (safety + equipment)				\$137.65	
						<b>\$1,488.77</b>
<b>TOTAL</b>						<b>\$14,726</b>

## Appendix A: Claim Information



## Appendix B: Sample Data



Site ID	Sample Type	Nad 83 z. 7N			Soil Characteristics					
		Easting	Northing	Date	Colour	Tone	Grain-size	Moisture	Organics	Clasts?
11-SSYC-MM-008	STANDARD	TILL-4								
11-SSYE-MM-017	STANDARD	TILL-4								
11-SSYE-MM-001	STREAM SED	571125	6998069	29-Jul-11	Brown	Medium	sandy-pebbly	damp	<2%	common
11-SSYE-MM-002	SOIL	571138	6997829	29-Jul-11	Brown	Medium	sandy-pebbly	damp		common
11-SSYE-MM-003	SOIL	571007	6997658	29-Jul-11	Brown	Medium	sandy-pebbly	damp		common
11-SSYE-MM-004	SOIL	570959	6997454	29-Jul-11	Brown	Medium	silt	damp	5%	
11-SSYE-MM-005	SOIL	570810	6997305	29-Jul-11	Brown	Medium	silty to pebbly	damp	<2%	common
11-SSYE-MM-006	STREAM (SEEP)	570682	6997175	29-Jul-11	Brown	Medium	silt to sandy	wet		
11-SSYE-MM-007	STREAM SED	570911	6997149	29-Jul-11	Brown	Light	pebbly	wet		
11-SSYE-MM-008	SOIL	571024	6997210	29-Jul-11	Brown	Medium	silt/sand	damp		few
11-SSYE-MM-009	STREAM (SEEP)	571166	6997363	29-Jul-11	Brown	Dark	silt	wet		
11-SSYE-MM-010	STREAM (SEEP)	571341	6997485	29-Jul-11	Brown	Medium	silt	wet	5%	minor
11-SSYE-MM-011	SOIL	571482	6997592	29-Jul-11	Brown	Medium	sandy-pebbly	damp		
11-SSYE-MM-012	SOIL	571654	6997719	29-Jul-11	Brown	Medium	sandy-pebbly			
11-SSYE-MM-013	SOIL	571980	6997524	29-Jul-11	Orange Brown	Medium	fine	dry		minor
11-SSYE-MM-014	SOIL	571830	6997344	29-Jul-11	Brown	Medium	mud	dry		
11-SSYE-MM-015	SOIL	571705	6997147	29-Jul-11	Brown	Medium	fine sand/silt	dry		
11-SSYE-MM-016	SOIL	571654	6997035	29-Jul-11	OB	Medium	fine-med	dry		
11-SSYE-KB-001	ROCK	571901	6997417	29-Jul-11						

## Appendix C: Certificate of Analysis and Accuracy Measurements

		11-SSYE-MM-0017	11-SSYC-MM-008	TILL-4	% difference
Au	ppb	< 2	< 2	5	
As	ppm	115	115	111	3.6
Ba	ppm	450	500	395	20.3
Br	ppm	9.2	8.7	8.6	4.1
Co	ppm	9	6	8	-6.3
Cr	ppm	45	44	53	-16.0
Cs	ppm	11	12	12	-4.2
Fe	ppm	3.78	3.62	3.97	-6.8
Hf	ppm	10	10	10	0.0
Mo	ppm	14	10	16	-25.0
Rb	ppm	140	136	161	-14.3
Sb	ppm	1.7	1.5	1	60.0
Sc	ppm	10.4	10.1	10	2.5
Th	ppm	20.4	19.2	17.4	13.8
U	ppm	5.5	4.8	5	3.0
W	ppm	220	219	204	7.6
La	ppm	43.7	42.3	41	4.9
Ce	ppm	81	77	78	1.3
Nd	ppm	35	41	30	26.7
Eu	ppm	1	0.9	<1.0	
Yb	ppm	3.2	2.9	3.4	-10.3
Lu	ppm	0.49	0.45	0.5	-6.0



**Date Submitted:** 05-Aug-11  
**Invoice No.:** A11-8181  
**Invoice Date:** 29-Sep-11  
**Your Reference:** Yukon Project

**Cache Exploration**  
**350 Wellington Street West, G19**  
**Toronto ON M5V 3W9**  
**Canada**

**ATTN: President George - President and CE**

## CERTIFICATE OF ANALYSIS

1 Rock sample and 33 Soil samples were submitted for analysis.

The following analytical package was requested: Code 1D Enh INAA(INAAGEO)

REPORT **A11-8181**

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:

For values exceeding the upper limits we recommend assays.

CERTIFIED BY :

A handwritten signature in black ink, appearing to be "Emmanuel Esemé", written over a horizontal line.

Emmanuel Esemé , Ph.D.  
Quality Control

**ACTIVATION LABORATORIES LTD.**

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**Activation Laboratories Ltd.      Report:    A11-8181**

<b>Analyte Symbol</b>	Au	Ag	As	Ba	Br	Ca	Co	Cr	Cs	Fe	Hf	Hg	Ir	Mo	Na	Ni	Rb	Sb	Sc	Se	Sn	Sr	Ta	Th
<b>Unit Symbol</b>	ppb	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	%	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm
<b>Detection Limit</b>	2	5	0.5	50	0.5	1	1	5	1	0.01	1	1	5	1	0.01	20	15	0.1	0.1	3	0.02	0.05	0.5	0.2
<b>Analysis Method</b>	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA
11-SSYE-MM-001	12	< 5	8.2	2550	1.8	3	13	155	4	3.92	15	< 1	< 5	< 1	1.26	< 20	56	1.4	16.9	< 3	< 0.02	< 0.05	3.7	12.6
11-SSYE-MM-002	< 2	< 5	5.2	5530	< 0.5	2	36	179	5	6.88	5	< 1	< 5	< 1	1.24	< 20	65	1.7	18.3	< 3	< 0.02	< 0.05	2.9	7.8
11-SSYE-MM-003	< 2	< 5	8.7	1870	< 0.5	2	16	110	3	4.49	5	< 1	< 5	< 1	1.45	< 20	51	1.4	14.2	< 3	< 0.02	< 0.05	2.6	7.7
11-SSYE-MM-004	4	< 5	7.1	2040	< 0.5	< 1	17	92	3	3.77	5	< 1	< 5	< 1	1.46	< 20	71	1.3	12.9	< 3	< 0.02	< 0.05	< 0.5	6.6
11-SSYE-MM-005	9	< 5	15.3	1530	< 0.5	< 1	16	125	4	3.74	5	< 1	< 5	< 1	1.51	< 20	64	2.5	15.7	< 3	< 0.02	< 0.05	2.2	8.0
11-SSYE-MM-006	< 2	< 5	12.1	1450	< 0.5	3	21	204	3	4.04	3	< 1	< 5	< 1	1.60	< 20	50	2.8	18.6	< 3	< 0.02	< 0.05	2.0	6.8
11-SSYE-MM-007	< 2	< 5	9.2	1700	< 0.5	< 1	17	126	7	4.25	6	< 1	< 5	< 1	1.46	< 20	126	1.1	16.5	< 3	< 0.02	< 0.05	< 0.5	10.9
11-SSYE-MM-008	11	< 5	11.6	2210	< 0.5	< 1	22	106	9	4.93	4	< 1	< 5	< 1	1.10	< 20	76	2.2	15.1	< 3	< 0.02	< 0.05	1.9	8.1
11-SSYE-MM-009	30	< 5	24.8	2720	2.9	3	38	204	12	5.58	5	< 1	< 5	7	0.96	< 20	96	6.2	16.9	< 3	< 0.02	< 0.05	2.7	13.0
11-SSYE-MM-0010	39	< 5	8.7	2550	3.0	< 1	17	124	8	4.64	4	< 1	< 5	6	1.22	< 20	113	1.8	13.8	< 3	< 0.02	< 0.05	< 0.5	7.5
11-SSYE-MM-0011	50	< 5	24.4	1870	< 0.5	< 1	19	119	10	4.01	5	< 1	< 5	< 1	1.18	< 20	53	3.7	14.2	< 3	< 0.02	< 0.05	1.4	12.3
11-SSYE-MM-0012	< 2	< 5	9.1	2210	< 0.5	2	13	98	5	3.43	4	< 1	< 5	3	1.18	< 20	85	2.3	11.9	< 3	< 0.02	< 0.05	< 0.5	8.8
11-SSYE-MM-0013	< 2	< 5	12.2	850	1.5	3	16	97	3	3.99	5	< 1	< 5	< 1	1.65	< 20	< 15	1.2	15.0	< 3	< 0.02	< 0.05	3.3	10.2
11-SSYE-MM-0014	< 2	< 5	12.5	800	< 0.5	2	9	93	4	3.47	5	< 1	< 5	< 1	1.58	< 20	95	1.0	11.8	< 3	< 0.02	< 0.05	< 0.5	10.0
11-SSYE-MM-0015	< 2	< 5	8.8	940	< 0.5	< 1	11	88	3	3.36	5	< 1	< 5	< 1	1.46	< 20	71	0.7	11.8	< 3	< 0.02	< 0.05	2.1	10.5
11-SSYE-MM-0016	< 2	< 5	8.1	1110	< 0.5	< 1	17	90	10	5.65	9	< 1	< 5	3	0.79	< 20	186	0.6	16.2	< 3	< 0.02	< 0.05	< 0.5	8.8
11-SSYE-MM-0017	< 2	< 5	115	450	9.2	< 1	9	45	11	3.78	10	< 1	< 5	14	1.90	< 20	140	1.7	10.4	< 3	< 0.02	< 0.05	< 0.5	20.4
11-SSYC-MM-001	< 2	< 5	22.8	1110	< 0.5	< 1	9	89	7	2.81	6	< 1	< 5	8	1.25	< 20	115	1.5	11.2	< 3	< 0.02	< 0.05	2.6	24.1
11-SSYC-MM-002	< 2	< 5	110	1280	4.1	< 1	14	87	5	2.93	4	< 1	< 5	6	1.33	< 20	70	2.1	11.6	< 3	< 0.02	< 0.05	< 0.5	11.3
11-SSYC-MM-003	< 2	< 5	6.4	1620	1.9	3	19	166	3	4.39	3	< 1	< 5	< 1	1.30	< 20	79	0.7	24.4	< 3	< 0.02	< 0.05	< 0.5	5.9
11-SSYC-MM-004	< 2	< 5	28.5	1110	3.9	3	23	171	< 1	4.66	3	< 1	< 5	< 1	1.26	< 20	57	0.8	21.3	< 3	< 0.02	< 0.05	< 0.5	5.5
11-SSYC-MM-005	< 2	< 5	7.3	540	4.6	4	28	322	2	4.61	3	< 1	< 5	< 1	0.93	< 20	< 15	0.6	27.3	< 3	< 0.02	< 0.05	< 0.5	2.3
11-SSYC-MM-006	< 2	< 5	5.5	700	< 0.5	5	24	402	2	4.58	3	< 1	< 5	< 1	1.15	< 20	< 15	0.2	27.7	< 3	< 0.02	< 0.05	< 0.5	2.9
11-SSYC-MM-007	< 2	< 5	3.9	610	< 0.5	5	25	314	2	4.85	3	< 1	< 5	< 1	1.49	< 20	51	0.5	24.2	< 3	< 0.02	< 0.05	< 0.5	3.4
11-SSYC-MM-008	< 2	< 5	115	500	8.7	< 1	6	44	12	3.62	10	< 1	< 5	10	1.89	< 20	136	1.5	10.1	< 3	< 0.02	< 0.05	< 0.5	19.2
11-SSYC-AF-001	< 2	< 5	41.5	2070	< 0.5	< 1	8	110	5	2.27	4	< 1	< 5	< 1	0.35	< 20	89	1.2	13.7	< 3	< 0.02	< 0.05	< 0.5	8.0
11-SSYC-AF-002	< 2	< 5	20.7	1170	2.3	< 1	12	110	4	3.19	5	< 1	< 5	2	1.65	< 20	61	1.2	14.7	< 3	< 0.02	< 0.05	1.6	9.2
11-SSYC-AF-003	< 2	< 5	5.8	1350	< 0.5	4	14	87	< 1	3.71	7	< 1	< 5	< 1	1.54	< 20	70	0.4	23.5	< 3	< 0.02	< 0.05	< 0.5	6.4
11-SSYC-AF-004	< 2	< 5	5.1	670	3.1	5	24	307	< 1	4.02	3	< 1	< 5	< 1	1.24	< 20	< 15	0.5	24.2	< 3	< 0.02	0.07	< 0.5	3.8
11-SSYC-AF-005	< 2	< 5	5.6	590	< 0.5	4	25	344	< 1	4.41	3	< 1	< 5	< 1	1.35	< 20	45	< 0.1	27.6	< 3	< 0.02	< 0.05	< 0.5	2.8
11-SSYC-AF-006	< 2	< 5	6.6	480	< 0.5	5	32	453	< 1	4.94	3	< 1	< 5	< 1	1.27	210	< 15	0.5	26.1	< 3	< 0.02	< 0.05	< 0.5	2.9
11-SSYC-AF-007	< 2	< 5	15.5	1260	< 0.5	4	20	173	3	4.08	3	< 1	< 5	3	1.50	160	47	0.9	21.4	< 3	< 0.02	< 0.05	< 0.5	4.4
11-SSYC-AF-008	10	< 5	19.7	1440	< 0.5	3	19	122	2	3.72	4	< 1	< 5	< 1	1.50	< 20	40	0.4	18.9	< 3	< 0.02	< 0.05	< 0.5	5.6
11-YE-KB-002	< 2	< 5	1.4	150	< 0.5	< 1	2	33	< 1	0.34	< 1	< 1	< 5	< 1	0.14	< 20	< 15	< 0.1	0.4	< 3	< 0.02	< 0.05	< 0.5	< 0.2

**Activation Laboratories Ltd.      Report:    A11-8181**

Analyte Symbol	U	W	Zn	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu	Mass
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	g
Detection Limit	0.5	1	50	0.5	3	5	0.1	0.2	0.5	0.2	0.05	
Analysis Method	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA
11-SSYE-MM-001	4.6	< 1	160	41.8	75	27	7.4	1.7	< 0.5	4.1	0.70	36.6
11-SSYE-MM-002	1.9	< 1	290	35.8	58	28	6.3	1.6	1.7	2.4	0.37	32.9
11-SSYE-MM-003	3.3	< 1	160	28.4	50	19	5.0	1.3	< 0.5	2.0	0.27	29.6
11-SSYE-MM-004	4.5	< 1	< 50	31.1	53	23	5.7	1.4	0.7	2.0	0.31	27.0
11-SSYE-MM-005	2.6	< 1	220	27.6	47	41	6.2	1.3	0.9	3.3	0.49	30.2
11-SSYE-MM-006	2.9	< 1	160	19.9	36	22	3.9	1.0	< 0.5	2.3	0.20	34.1
11-SSYE-MM-007	2.6	< 1	130	27.1	47	17	5.0	1.0	< 0.5	2.5	0.50	21.0
11-SSYE-MM-008	2.8	< 1	200	30.2	51	28	5.3	1.5	< 0.5	2.1	0.35	31.5
11-SSYE-MM-009	3.0	< 1	150	44.0	78	45	7.5	1.6	< 0.5	2.5	0.30	25.8
11-SSYE-MM-0010	2.0	< 1	220	30.3	52	21	5.2	1.2	< 0.5	1.8	0.30	25.4
11-SSYE-MM-0011	4.2	< 1	90	34.8	64	21	5.8	1.2	1.0	2.1	0.42	25.7
11-SSYE-MM-0012	2.9	< 1	180	22.8	38	18	3.9	1.0	< 0.5	2.1	0.31	31.5
11-SSYE-MM-0013	2.4	< 1	< 50	21.8	38	22	3.6	0.9	< 0.5	2.2	0.29	29.9
11-SSYE-MM-0014	2.1	< 1	< 50	23.1	41	24	4.0	1.0	< 0.5	1.8	0.24	28.3
11-SSYE-MM-0015	3.0	< 1	< 50	23.1	40	17	3.8	0.9	< 0.5	1.8	0.21	30.6
11-SSYE-MM-0016	5.0	< 1	130	15.7	34	11	2.9	1.0	< 0.5	3.2	0.38	28.0
11-SSYE-MM-0017	5.5	220	< 50	43.7	81	35	6.8	1.0	< 0.5	3.2	0.49	30.0
11-SSYC-MM-001	15.5	< 1	< 50	56.3	92	52	12.2	< 0.2	1.6	5.0	0.82	30.0
11-SSYC-MM-002	2.8	< 1	140	35.7	61	26	6.0	0.7	1.0	2.2	0.34	25.8
11-SSYC-MM-003	2.3	< 1	190	19.1	37	18	4.5	1.1	< 0.5	2.4	0.36	31.3
11-SSYC-MM-004	2.9	< 1	390	22.4	41	24	5.2	1.3	< 0.5	2.6	0.47	21.6
11-SSYC-MM-005	< 0.5	< 1	120	12.2	18	19	3.7	0.9	< 0.5	2.3	0.41	21.6
11-SSYC-MM-006	< 0.5	< 1	< 50	13.7	30	14	3.6	1.0	< 0.5	1.9	0.21	30.3
11-SSYC-MM-007	< 0.5	< 1	150	14.1	30	14	3.8	0.7	< 0.5	2.1	0.30	27.3
11-SSYC-MM-008	4.8	219	< 50	42.3	77	41	6.8	0.9	0.9	2.9	0.45	28.1
11-SSYC-AF-001	3.2	6	200	26.9	46	23	5.3	0.9	< 0.5	2.5	0.46	26.5
11-SSYC-AF-002	2.4	4	< 50	24.4	45	21	4.4	0.8	< 0.5	2.2	0.39	29.7
11-SSYC-AF-003	1.8	< 1	130	20.1	39	23	4.6	0.9	< 0.5	3.2	0.44	33.2
11-SSYC-AF-004	2.1	< 1	120	13.5	28	14	3.5	0.9	< 0.5	2.2	0.41	30.5
11-SSYC-AF-005	< 0.5	< 1	< 50	10.4	23	13	3.2	0.8	< 0.5	2.2	0.18	36.8
11-SSYC-AF-006	< 0.5	< 1	140	11.4	21	6	3.2	0.8	< 0.5	1.4	0.17	34.9
11-SSYC-AF-007	2.6	< 1	210	16.0	32	20	3.7	0.9	< 0.5	2.1	0.21	32.5
11-SSYC-AF-008	2.0	< 1	< 50	17.8	32	< 5	4.0	0.7	< 0.5	1.9	0.34	30.5
11-YE-KB-002	< 0.5	< 1	< 50	0.6	< 3	< 5	< 0.1	< 0.2	< 0.5	< 0.2	< 0.05	35.4

<b>Quality Control</b>															
<b>Analyte Symbol</b>	Au	As	Ba	Ca	Co	Cr	Fe	Mo	Na	Sb	Sc	U	La	Ce	Sm
<b>Unit Symbol</b>	ppb	ppm	ppm	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm
<b>Detection Limit</b>	2	0.5	50	1	1	5	0.01	1	0.01	0.1	0.1	0.5	0.5	3	0.1
<b>Analysis Method</b>	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA
DMMAS 114 Meas	2100	1760	1530	6	40	87	3.41	106	1.93	12.0	7.2	18.4	16.7	23	2.5
DMMAS 114 Cert	2199	1624	1561	6	42	84	3.31	103	1.78	11.2	6.5	17.4	15.1	23.7	2.4

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## 1D - (1D Enh) INAA

Instrumental Neutron Activation Analysis (INAA) is an analytical technique, which is dependent on measuring gamma radiation induced in the sample by irradiation with neutrons. The primary source of neutrons for irradiation is usually a nuclear reactor. Each element which is activated emits a "fingerprint" of gamma radiation which can be measured and quantified. Multi-element analyses of practically any material from the smallest sample which can be weighed accurately to very large samples have been analyzed routinely by INAA.

Determining rock types, alteration patterns and levels of pathfinder elements are key for the geologist to assess exploration potential. Actlabs' "Au+34" (Code 1D) is a cost effective multi-element approach to Au, PGE and base metal exploration. Code 1D enhanced with enhanced detection limits is also available.

A 30 g aliquot, if available, is encapsulated in a polyethylene vial and irradiated with flux wires and an internal standard (1 for 11 samples) at a thermal neutron flux of  $7 \times 10^{12} \text{ n cm}^{-2} \text{ s}^{-1}$ . After a 7-day decay to allow Na-24 to decay the samples are counted on a high purity Ge detector with resolution of better than 1.7 KeV for the 1332 KeV Co-60 photopeak. Using the flux wires, the decay-corrected activities are compared to a calibration developed from multiple certified international reference materials. The standard present is only a check on accuracy and is not used for calibration purposes. From 10-30% of the samples are rechecked by re-measurement. For values exceeding the upper limits, assays are recommended. One standard is run for every 11 samples. One blank is analyzed per work order. Duplicates are analyzed when samples are provided.

Further details are available on isotopes and gamma-ray energies used in: Hoffman, E.L., 1992. Instrumental Neutron Activation in Geoanalysis. Journal of Geochemical Exploration, volume 44, pp. 297-319.

### Code 1D (Au+34) Elements and Detection Limits (ppm)

Element	Detection Limit	Upper Limit
Au	5 ppb	30,000 ppb
Ag	5	100,000
As	2	-
Ba	100	-
Br	1	-
Ca	1%	-
Ce	3	10,000
Co	5	5,000
Cr	10	100,000
Cs	2	-
Eu	0.2	-
Fe	0.02%	-

Element	Detection Limit	Upper Limit
Hf	1	-
Hg	1	-
Ir	5 ppb	-
La	1	10,000
Lu	0.05	-
Mo	5	10,000
Na	0.05%	10%
Nd	5	10,000
Ni	50	10,000
Rb	30	-
Sb	0.2	10,000
Sc	0.1	-

Element	Detection Limit	Upper Limit
Se	5	-
Sr	0.1%	-
Sm	0.1	10,000
Sn	0.05%	10%
Ta	1	10,000
Th	0.5	10,000
Tb	0.5	-
U	0.5	10,000
W	4	10,000
Yb	0.2	-
Zn	50	100,000

### Code 1D Enhanced (Au+34) Elements and Detection Limits (ppm)

Element	Detection Limit	Upper Limit
Au	2 ppb	30,000 ppb
Ag	5	100,000
As	0.5	-
Ba	50	-
Br	0.5	-
Ca	1%	-
Ce	3	10,000
Co	1	5,000
Cr	5	100,000
Cs	2	-
Eu	0.2	-

Element	Detection Limit	Upper Limit
Hf	1	-
Hg	1	-
Ir	5 ppb	-
La	0.5	10,000
Lu	0.05	-
Mo	1	10,000
Na	0.01%	10%
Nd	5	10,000
Ni	20	10,000
Rb	15	-
Sb	0.1	10,000

Element	Detection Limit	Upper Limit
Se	3	-
Sr	0.05%	-
Sm	0.1	10,000
Sn	0.02%	10%
Ta	0.5	10,000
Th	0.2	10,000
Tb	0.5	-
U	0.5	10,000
W	1	10,000
Yb	0.2	-
Zn	50	100,000