# TECHNICAL REPORT on the STIRRUP CREEK Property Clinton Mining Division British Columbia NTS 0920/ 1E,1W

# **Geology, Mineralization and Potential**

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BC Geological Survey Assessment Report 32698



February 17, 2012 Prepared for Anglo-Canadian Mining Corp. 530-355 Burrard Street, Vancouver, BC. Canada V6C 2G8

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#### 1.0 SUMMARY

The STIRRUP CREEK Property consists of several old workings including trenches and drill holes (both Diamond and percussion holes). The old workings occur on the two post claim Stirrup 12. The claims cover the upper portions of Stirrup Creek, North of Lillooet B.C. (Figure 1).

The coordinates of the claims are 51° 07' 43.7" N latitude and 122° 13' 51.38" W longitude and are located on NTS Map Sheet 82 N/5W BC. and Trim Map Sheets 092O 19, 20.

The topography of the Stirrup Creek Workings is subdued with elevations ranging from about 1500 to 2010 metres above sea level.

The lower portions of the property are covered with a dense forest of fir, spruce, cedar and pine. The underbrush is mostly willow, alder and devil's club. Very few outcrops occur in the area, which is covered by thick layers (up to 200 m) of drift and glacial till. Thin overburden occurs on the higher elevations, where Pine is dominant.

The project area lies within a series of sedimentary, volcanic and intrusive rocks of the Lower Cretaceous Jackass Mountain Group.

The claims were acquired by: Anglo-Canadian Mining Corp. of Vancouver B.C. from Fayz Yakoub and Thomas Wright of Vancouver. Access is via helicopter or road from Lillooet B.C a distance of 100 km. A logging road has been constructed to the property.

One main area of mineralization has been worked on the property:

1. The STIRRUP CREEK WORKINGS at the head waters of Stirrup Creek and along the saddle and ridge area above the headwaters.

Much of the history of the area relates to the search for the bedrock source of placer gold extracted from Stirrup Creek. This search has centered largely on the old crown grants located near the headwaters.

The crown grants are owned by the Harry Warren family and the Dr. N. Davis family. Warren (1989) describes the early history thus:

"During the first World War I placer gold was discovered on Stirrup Creek, then known as the North Fork of Watson Bar. During the next 25 years from 3000 to 5000 ounces of gold were obtained from this creek. Virtually all of this was recovered from the gutter of the creek by a series of short drifts usually 300 feet ore less in length.

Exploration has continued over the years, Placer Dome and Chevron Minerals were the largest companies involved. This work was confined to the saddle area where

trenching, VLF-EM geophysics, soil and rock geochemistry and drilling took place in an area of 1-200m x 50 m.

Chevron's drilling program produced a number of significant gold intercepts that in part are thought to be related to the north to north-northeast trending fracture zones.

Two core holes were drilled, totaling 427.9 metres, in the saddle area of the ridge. Drill 88-5 contained 3 intersections of gold 3.32 gm, 2.2 gm and 14.99 gm over 27 cm, 45 cm and 1.10 m respectively.

In 2005 Anglo conducted diamond drilling on the saddle area the objective was to verify results obtained by Chevron Minerals drill hole 88-5.

"SC-05-02 intersected 0.8 m of 17.19 g/tAu. This would mean this higher grade structurally controlled zone has a strike of 85° and a near vertical depth.

Large sections of tens of metre of carbonate altered sandstone/siltstone, tuff and cataclastic were intersected in all three holes. These alteration zones are characterized by chaotic stockwork stringer zones of quartz and sulphides (pyrite and stibnite), one to three millimeters in width. Stibnite veins to 20 centimetres outcrop north of the area drilled. This mineralogy and the high mercury values seen in this drilling and reported historically would indicate that the area tested is very high in the mineralizing system. Better gold values should be encountered at depth."

The general geology, age and style of mineralization of the Stirrup Creek property are similar to the Round Mountain deposit in Nevada. This deposit is hosted in felsic volcanic pyroclastics and has produced millions of ounces of gold from heapleaching one to three g/t gold mineralization. This is the type of mineralization that should be the focus of further work on the property."

In September – October 2007 Anglo drilled 7 diamond drill holes with a total of 1,775.76 m. In addition Anglo upgraded some roads and renovated the camp site. The camp sits on the Crown Grants and was used by the permission of the owners. The drill program was designed to verify and extend mineralization found in previous drilling programs.

All of the holes were drilled in the area of the saddle and represent a 100x50 metre portion of the total claim area.

Total Assessment was: \$404,740.00

In 2011 Anglo conducted an Airborne Geophysics Survey over the Stirrup Property. Fugro Airborne Surveys of Toronto flew the survey which included 50 line kilometres of magnetics and radiometrics. These results to date verify previous results for the Stirrup Creek Property. Previous workers have shown that economic mineralization occurs on the property. The project warrants continued exploration.

In late 2011 Anglo staked and additional claim, the Stirrup 14, for an additional 507.28 hectares.

A program should include a detailed compilation of all data on the property. Most of the pre-existing data is not digital and not in any consistent coordinate system. This compilation should be done before the fieldwork. Phase I should also include detailed mapping and geochemical sampling and IP and Magnetics surveys.

#### 2.0 INTRODUCTION

#### 2.1 Qualified Person and Participating Personnel

The following report was commissioned by Anglo-Canadian Mining Corp. to summarize the geology and mineralization of the STIRRUP CREEK Epithermal Au, and Sb Vein property near Big Bar in western central British Columbia. James A. Turner was retained to summarise the geology and economic potential for STIRRUP CREEK Property in a form consistent with Canadian National Instrument NI 43-101.

In April 2008 Anglo-Canadian Mining Corp (hereon referred to as Anglo-Canadian). commissioned James A. Turner, PGeo, to conduct a property visit to the STIRRUP CREEK Property. The site visit was on September, 2007 and the duration of the visit was approximately 5 days. The author has visited the property several times since. James A. Turner was also the manager on site while diamond drilling was taking place. James A. Turner is the sole author of this report and it is consistent with NI 43-101 standards.

#### 2.2 Terms, Definitions and Units

All costs contained in this report are denominated in Canadian dollars. The term "ppm" refers to parts per million or grams per metric tonne and "ppb" refers to parts per billion or milligrams per metric tonne. The symbol "%" refers to weight percent unless stated otherwise. All other units are imperial except where noted. Cell claims refers to claims acquired by map "staking". These cells can be acquired over the Government of British Columbia's website MTO Online (www.mtonline.gov.bc.ca/). A group of cells form a claim. There are no cell claims that make up the **STIRRUP CREEK Property**. In the Stirrup Creek area a claim is about 25 ha. Legacy claims are ground staked claims acquired before map staking came into force. The **STIRRUP CREEK Property** consists of 12-two post claims and one grid claim, consisting of 20 units, the details are listed in Table 1. Total area of the claims is 1182.28 hectares. With two post claims fractions can occur, and there is no exception at the Stirrup Property.

It must be stated the crown grant occupy part of the area covered by the two post claims and since they take precedence, the actual area of the claims as plotted using GPS and a ground survey (BCDM) is near 450 ha.

#### 2.3 Source Documents

Limited previous data were also reviewed and incorporated as noted, including records of previous, trenching and rock-chip sampling, soil geochemistry and geophysics. Completed between 1970 and 1980 by operators not affiliated with Anglo-Canadian Mining Corp.

## 2.4 Limitations, Restrictions and Assumptions

James A. Turner did not fully audit or test the accuracy or completeness of data collected by Anglo-Canadian. In addition, Anglo-Canadian have informed the author that, to the best of their knowledge, no events have occurred, other than those taken into account in the report, which might, in their opinion, cause us to change our views. Although there are old trenches and diamond drill holes on the property, the author feels that the this work was done on as small portion of the property and the STIRRUP CREEK Property is at an early stage of exploration.

## 2.5 Scope of Review

To accomplish this review, James A. Turner, was asked to complete an evaluation of the exploration history, geology, mineralization and economic potential of the STIRRUP CREEK Property controlled by Anglo-Canadian Mining Corp. of Canada. James A. Turner is a director of Anglo-Canadian Mining Corp.

No metallurgical testing was conducted. James A. Turner has done a brief review of legal documentation and ownership and has assumed that the presented facts are correct.

## 3.0 RELIANCE ON OTHER EXPERTS

Information sources provided in the references section of this report and the authors' examination has been relied upon in preparing the current summary.

In arriving at our conclusions, we reviewed and relied to some extent upon the documents listed in the reference section of this report. Drill sections and were obtained from John Nebocat, PEng. Nebocat also completed the section on drilling. The author also reviewed the preliminary results from the diamond drilling survey conducted in the fall of 2007.

#### 4.0 PROPERTY DESCRIPTION AND LOCATION

#### 4.1 **Property Location: Figure 1**

The STIRRUP CREEK Property is situated at the head of the Stirrup Creek, a ridge above the creek. Stirrup Creek flows east into the Fraser River about 10 km distant.

The coordinates of the claims are 51° 07' 43.7" N latitude and 122° 13' 51.38" W longitude and are located on NTS Map Sheet 82 N/5W., and BC Trim Map Sheets 092O 19, 20.

This map is presented on the UTM projection in grid zone 10. The horizontal datum is NAD 83 and the vertical datum is NGVD 1983.





Figure 1

#### 4.2 **Property Description: Figure 2**

The property forms a continuous block of 14 un-patented claims totaling 1182.28 hectares and is located in the Clinton Mining Division of central British Columbia.

The claims were re-staked in 2006 and filed under the name of Anglo-Canadian Mining Corp. The claims are contiguous.

The claims, listed below, are all located on government (crown) land and are shown on Figure 2.

The author has verified the "cell" claims were acquired by using the modified grid system map staking of BC. ALL the claims on Stirrup Creek were acquired by ground staking and hence are Legacy claims. Claims 1-9 and 11-13 are two post claims and claim 10 and 14 are grid claims. The author can verify the position of the claims as shown in Figure 2 and 4 of this report. The author can verify that the two post claims have been surveyed by government agents in 2007.

#### Table 1: STIRRUP CREEK Property Summary

Tenure		Мар	Good To			Tag
Number	Claim Name	Number	Date	Status	Area	Number
407567	STIRRUP 1	0921019	2014/Jan/12	GOOD	25	717957M
407568	STIRRUP 2	0921019	2014/Jan/12	GOOD	25	717958M
407569	STIRRUP 3	0921019	2014/Jan/12	GOOD	25	721421M
407570	STIRRUP 4	0921019	2014/Jan/12	GOOD	25	721422M
407571	STIRRUP 5	0921019	2014/Jan/12	GOOD	25	721028M
407572	STIRRUP 6	0921019	2014/Jan/12	GOOD	25	721029M
408494	STIRRUP 7	0921019	2014/Jan/12	GOOD	25	725233M
547644	STIRRUP 8	0921019	2014/Jan/12	GOOD	25	725235M
547646	STIRRUP 9	0921019	2014/Jan/12	GOOD	25	721030M
408500	STIRRUP 10	0921019	2014/Jan/12	GOOD	375	245072M
408497	STIRRUP 11	0921019	2014/Jan/12	GOOD	25	725236M
408498	STIRRUP 12	0921019	2014/Jan/12	GOOD	25	725232M
408499	STIRRUP 13	0921019	2014/Jan/12	GOOD	25	725231M
408499	STIRRUP 14	0921019	2012/Oct/20	GOOD	507.28	725231M
	Tota	I			1182.28	



Mineral claims in British Columbia may be kept in good standing by applying assessment work, on the anniversary date.

#### 4.3 Tenure

Anglo-Canadian Mining Corp. has title to 85 % of the Stirrup Creek Property. The other 15 % is held by Fayz Yakoub (7.5%) and Thomas Wright (7.5%) of Vancouver B.C.

## 4.4 Environmental Liabilities

There appear to be no significant environmental issues related to the project. Previous disturbance of the area from road construction and trenching has apparently been properly reclaimed in accordance with regulations in effect at that time. Some clean–up of previous workings may be required.

## 4.5 Status of Required Permits

An annual Mineral & Coal Notice of Work and Reclamation Program permit has to be filed with the Ministry of Energy and Mines for British Columbia. This permit allows the user to conduct road building, drilling, trenching and timber cutting. Any use of water is also included. The permit forms consist of 11 schedules. A reclamation bond will also be required.

#### 5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

#### 5.1 Access

Access is to the property in August 2008 was either by Helicopter from Lillooet distance of 90 km or by Road access is via the West Pavillion Road from Lillooet, a distance of 85 km thence west for 8 km along an logging road to the property. Alternative access is from Clinton via the Big Bar Ferry. A one way trip from both locations takes about 2.5 hours, by helicopter it is about 25 minutes. The owner of 6 internal crown grants has constructed a small cabin on the property. During Anglo's previous drilling campaign a second cabin was constructed. Fugro used the Kamloops Airport for their base of operations.

#### 5.2 Climate and Physiography

The lower portions of the property are covered with a dense forest of fir, spruce, cedar and pine. The underbrush is mostly willow, alder and devil's club. Very few outcrops occur in the area, which is covered by thick layers (up to 200 m) of drift and glacial till.

Thin overburden occurs on the higher elevations, where Pine is dominant, and above tree line of the claims.

The topography of the Stirrup Creek Workings is subdued with elevations ranging from about 1500 to 2010 metres above sea level.

Several post-glacial drainage features or depressions are now swamps and streams. .

The area is within the Interior Dry Belt, the Cariboo, where precipitation averages about 25 cm per year. Winters, in the area are usually severe and bring several feet of snow-pack. The highest average temperatures occur in July at  $23^{\circ}$  C and average lowest temperatures occur in January at  $-30^{\circ}$  C (night).

The field season lasts from early June to the latter part of October.

#### 5.3 Local Resources and Infrastructure

Lillooet (pop. 4,000), is one of the administrative and logistical centres of the region and offers many basic services such as food stores, fuel and lumber supplies. Helicopter services are also available. Lillooet is serviced by road (Trans-Canada Highway), and rail from Vancouver.

There are no apparent serious impediments to exploration in the form of surface rights alienation, but this would require careful checking before any development work was contemplated. At present, electrical power is not available on the property, but power lines are within 40 km. In the event of mining activities, there appear to be ample sites for processing facilities, waste storage areas, or tailing ponds.

Timber, water, sand and gravel are available on or near the property. Heavy-duty equipment is available in Lillooet. A suitable camp occurs on the property.

#### 6.0 HISTORY

Much of the history of the area relates to the search for the bedrock source of placer gold extracted from Stirrup Creek. This search has centered largely on the old crown grants located near the headwaters.

The crown grants are owned by the Harry Warren family and the Dr. N. Davis family. Warren (1989) describes the early history thus:

"During the first World War I placer gold was discovered on Stirrup Creek, then known as the North Fork of Watson Bar. During the next 25 years from 3000 to 5000 ounces of gold were obtained from this creek. Virtually all of this was recovered from the gutter of the creek by a series of short drifts usually 300 feet ore less in length. In 1942 the late Dr. N. F. G. Davis and the author commenced work in the Stirrup Creek area. By means of trenches, prospect pits, and panning, several lenses of stibnite were uncovered and an abundance of cinnabar and gold colours were found.

Further work revealed cinnabar colours occurred primarily on the right bank, were wide spread on the left bank. Furthermore, on the left bank there are numerous and widespread tiny veinlets of quartz in witch gold particles may be seen occasionally. These veinlets are commonly about one eighth of an inch in width and in some places may be traced for 10 to 20 feet. Soil samples were taken over most of this area and on approximately 300 acres of the left bank anomalous quantities of gold running between 0.03 and 0.5 ppm and occasionally exceeding 0.5 ppm were found. These soils also contained significant amounts of arsenic and some antimony and tellurium .

Near the source of Stirrup Creek, Dr. J. H. Hajek of Rio Tinto Canadian Exploration Ltd., discovered in 1969 some high grade float which ran 0.66 ounces to the ton. The gold in this sample was present in mircon-sized particles disseminated in a highly silicified and fine-grained member of the Jackass Formation. A polished section revealed that fine grained arsenopyrite was also present. This discovery led to renewed interest in the area around the headwaters of the creek. However, in spite of nine 100-200 foot percussion drill holes, two 300 foot diamond drill holes, several hundred feet of bulldozer trenching, 426 rock samples and 989 soil samples, no ore was found. Fifty feet of rock containing 0.04 ounces of gold per ton, 18 feet with 0.07 ounces of gold per ton, and 10 feet averaging 0.1 ounces of gold per ton, represented the most encouraging evidence that could be uncovered."

Mr. Warren concludes that:

Panning soils has produced numerous colours of gold with some 20% reveal crystal faces and indubitably have been deposited from gold bearing solutions."

In 1973, Canex Placer Limited conducted soil sampling on the northern portion of the present claims and the crown grants. They collected 1,322 samples and analysed them for Au, As, Sb, Te, and Hg. They also conducted 3000 feet of trenching and produced a geology map at a scale of 1"=100'.

Placer's conclusions were:

"...the gold appears to be of much too low a grade [0.04 oz/ton over 50 '] to be of economic interest. Most of the values were around 0.05 ppm gold.

The map area is underlain by an interesting altered and juiced up intrusive. High background gold levels in the intrusive would be sufficient to give the geochemical soil anomalies [i.e. Au > 0.1 ppm ], however I [J. M. Kowalchuk], believe that there is very little chance of economic mineralization in the area." In 1974 Chevron Minerals Limited optioned the property. They conducted geochemical and geological programs, trenching, and in 1975 drilled two 300 foot core holes.

In 1980 Asarco made detailed examinations of the claims.

In 1984 Placer Development conducted a limited VLF-EM test.

In 1987 Chevron conducted work on the Brent claims. They cover the area just north of the crown grants. The work program consisted of road building, 33 soil and 11 rock samples and some prospecting. The main focus of this work was directed on an antimony showing. Samples were analysed for Au, Ag, As and Sb.

Chevron's conclusions were:

"Anomalous geochemical areas found near the main BRENT Sb prospect in 1981 have been partly confirmed by the 1987 work.

The alteration and geological setting of the main stibnite occurrence is similar to the occurrences investigated on the nearby Stirrup Creek property further to the east. The special relationship of the stibnite occurrence and the high gold an arsenic geochemistry to limonitic intrusions suggest a genetic association. The geochemical results are sufficiently attractive to warrant a more detailed surface investigation including mapping, geochemistry and trenching."

Also in 1987 Chevron optioned the nearby Crown Grants and conducted cleaning of old trenches, a limited amount of new trenching was completed and sampled. In the fall four shallow drill tests were completed. The primary effort, directed to the saddle areas of the Stirrup Creek Ridge, revealed a number of anomalous and highly anomalous gold assays. Selected samples ran as high as5.472 oz/ton gold The highest channel sample over 1.0 metre assayed as 0.1 oz/ton gold, and the best drill intercept was 0.61 oz/ton gold over 0.18 metres.

"The bottom section of drill hole 87-2 revealed a large section of clay altreration accompanied by significant amounts of chalcedony. Areas of quartzpyrite arsenopyrite, locally associated with banded quartz, have given rise to strong geochemical anomalies that are believed to correlate with those in Placer trench west, and which may relate to a 075<sup>0</sup>/75<sup>0</sup>S/ fault zone. This is a prime exploration target that should be further investigated."

Recommendations were for more drilling and trenching.

In 1987 Cazador Explorations Limited examined what is now the Stirrup 10 Claim. They proposed a program of geophysics, geologic mapping and sampling. In the fall of the year they carried out some 330 soil samples, further work was recommended. In 1988 Chevron Minerals carried out more work on the BRENT claims. The work included geological, geochemical and geophysical surveys. A grid of 17.35 km was picketed and flagged at 100 and 50 m line spacings and 50 m stations. Three hundred and seventeen soil samples and seven rock samples were collected.

A VLF-EM survey over 11.1 km of grid, with 25 m centres was also conducted. Geologic mapping and prospecting was conducted at a scale of 1:2500.

"Geochemical data resulting from the exploration program revealed a wide range of values that include anomalous concentrations of gold, arsenic and antimony. The results are comparable to those found in earlier surveys at the headwaters of Stirrup Creek. The gold assays are sufficiently widespread and abundant to warrant further investigation.

A scarcity of outcrop exposure on the property make interpretation of a number of relatively weak VLF\_EM conductors difficult. One of these conductors near the south boundary of the property is upslope from anomalous geochemical samples and clearly requires further definition and investigation."

Also in 1988 Chevron conducted work conducted work on the Crown Grants. They carried out a program of geological, geochemical and geophysical surveys followed by trenching and drilling.

Chevron's conclusions are:

"A comparable range of geochemical data was obtained from work on the Brent claims to the northwest. Outcrop exposure in that area is very limited.

The VLF EM-16 geophysical survey revealed a number of fault structures on the Warren property [Crown Grants] that were trenched, sampled and yielded only low concentrations of gold. A strong VLF anomaly along the ridge crest of this property may mirror the topography of the ridge, however it should be noted that it also embraces most of the gold-arsenic occurrences on the property."

The drilling program produced a number of significant gold intercepts that in part are thought to be related to the north to north-northeast trending fracture zones.

Two core holes were drilled, totaling 427.9 metres, in the saddle area of the ridge. Drill 88-5 contained 3 intersections of gold 3.32 gm, 2.2 gm and 14.99 gm over 27 cm, 45 cm and 1.10 m respectively.

In 1988 Cazador conducted work including road construction, hand and dozer trenching, soil and rock sampling and minor VLF-EN and Magetometer work.

"The results of the exploration are very promising in that the area appears to hold the potential for an epithermal system that could host a bulk tonnage lowgrade gold deposit. Also a large zone of highly fractured, pyretic, fine grained rock that carries significant geochemical values in copper and arsenic was uncovered during road construction between Rabbit Creek and Lund Creek – this zone hold promise for its copper (porphyry) and gold potential."

In 1990 Cazador conducted VLF-EM and Magnetics covering 9.3 line km, 100 m line spacings at 25 m stations on what is now the Stirrup 10 claim. *"A significant Magnetic anomaly, with coincident low order VLF-EM response was discovered near the Southwest corner of the survey grid."* Diamond drilling was recommended

In 1995 D.H. Wood examined the area for Placer and commented on his 1994 examination. Two days were spent collecting four 45.5 litre gravel samples from various locations on the former Cazador property. Heavy concentrated were shipped to the Lab.

The results range from 1.784 mg -137.374 mg Au, or 0.039-3.022 mg/m<sup>3</sup> Au.

In 1999 Douglas Wood wrote: "combined with previous work on and in the area of the Woodland 1 and Woodland 2, mineral claims reveal a potential for Carlin-type Au-Sb-As mineralization."

The area sat idle until 2003 when the Chevron claims came open and Fayz Yakob staked them for Interactive Explorations Ltd., which changed it's name to Anglo Canadian Mining Corp.

In 2005 Anglo conducted a 649.94 metre NQ diamond drilling program. Three holes were drilled in the saddle area of the claims. This is the area where all Chevron and Placer drilling took place. The objective was to verify and possible extend Chevron's 88-5 drill intersection.

#### Interpretation and Conclusions

"In general, all holes were collared in a felsic intrusive then intersected inter bedded sandstone and siltstone of the Jackass Mountain Group with interbedded felsic cataclastic and tuff units. Hole SC-05-02 appears to have intersected the same high grade zone as Chevron 88-5 (1.1 m 14.99 g/t Au). SC-05-02 intersected 0.8 m of 17.19 g/tAu. This would mean this higher grade structurally controlled zone has a strike of 85° and a near vertical depth.

Large sections of tens of metre of carbonate altered sandstone/siltstone, tuff and cataclastic were intersected in all three holes. These alteration zones are characterized by chaotic stockwork stringer zones of quartz and sulphides (pyrite and stibnite), one to three millimeters in width. Stibnite veins to 20 centimetres outcrop north of the area drilled. This mineralogy and the high mercury values seen in this drilling and reported

historically would indicate that the area tested is very high in the mineralizing system. Better gold values should be encountered at depth.

The general geology, age and style of mineralization of the Stirrup Creek property are similar to the Round Mountain deposit in Nevada. This deposit is hosted in felsic volcanic pyroclastics and has produced millions of ounces of gold from heapleaching one to three g/t gold mineralization. This is the type of mineralization that should be the focus of further work on the property.

#### Recommendations

All historic work on the Stirrup Creek property should be assembled, compiled and put into a digital database. Base maps at a scale of 1:2,000 or smaller should be prepared. This work is estimated to cost \$3,500 and take one week to complete. A minimum of 1500 metres of diamond drilling should be carried out. At least two 500

metre holes should be drilled vertically in the area of the saddle. The remainder of the drilling should be carried out in three or four short holes to test other

geochemical and geophysical anomalies on the property. This work is estimated to cost \$225,000

In September – October 2007 Anglo drilled 7 diamond drill holes with a total of 1,775.76 m. In addition Anglo upgraded some roads and renovated the camp site. The camp sits on the Crown Grants and was used by the permission of the owners. The drill program was designed to verify and extend mineralization found in previous drilling programs.

All of the holes were drilled in the area of the saddle and represent a 100x50 metre portion of the total claim area.

## 6.1 Production

Dr. Harry Warren, in 1982, reported, that from the discovery of placer gold during World War I and "*during the next 25 years from 3,000 to 5,000 ounces of gold were obtained from this Creek* [Stirrup]." (Warren 1982 page 1).

## 7.0 GEOLOGICAL SETTING AND MINERALIZATION

The Stirrup Creek area is on the eastern margin of the Camelsfoot Range and is underlain by sedimentary rocks of the Lower Cretaceous Jackass Mountain Group (*Figure* 3).

## 7.1 Local Regional Geological Setting: Figure 3

The Jackass Mountain Group comprises volcanic-rich lithic-wackes, shale, sandstone, siltstone and conglomerate largely of marine origin. The sediments formed in the

Tyaughton Basin that developed at the intersection of several regional faults including the Fraser River and Yalakom faults, which are part of the Fraser River Fault System.

![](_page_19_Figure_0.jpeg)

## GEOLOGICAL LEGEND

MiPICvb	Miocene to Pleistocene Chilcotin Group basaltic volcanic rocks	MmJBgs	Mississippian to Mi	ddle Juracssic Bridge River Complex chist, metamorphic rocks		
Evc	Eocene un-named volcaniclastic rocks	MmJBsv	Mississippian to Mi	ddle Jurassic Bridge River Complex and volcanic rocks		
Esc	Eocene conglomerate, coarse clastic sedimentary rocks	PTrCsv	sv Permian to Triassic Cache Creek Complex marine sedimentary and volcanic rocks			
Etp	Eocene feldspar intrusive volcanic rocks	PShus	Perman Shulaps Ultranafic complex-Serpentenite Melange Unit			
LKTgd	Late Cretaceous to Paleogene granodioritic intrusive rocks	PShum	Permian Shulaps Ul	tramafic complex-Harzburgite Unit		
LKTqp	Late Cretaceous to Paleogene high level quartz phyric, felsitic intrusive rocks	-	Extension fault			
LKTfp	Late Cretaceous to Paleogene feldspar porphyritic intrusive rocks	>	Thrust fault			
IKJs	Lower Cretaceous Jackass Mountain Group undivided sedimentary rocks	10 km		Anglo-Canadian Uranium Corp. Anglo-Canadian Gold Corp.		
IKSB	Lower Cretaceous Spences Bridge Group calc-alkaline volcanic rocks			STIRRUP CREEK PROPERTY		
UMT	Late Jurassic Mt Martley and Tiffin Creek Stocks granodioritic intrusive rocks			Clinton M.D. British Columbia		
ImJsc	Lower to Middle Jurassic coarse clastic sedimentary rocks			Regional Geology Map		
ImJLCsc	Lower to Middle Jurassic Last Creek Formation coarse clastic sedimentary rocks			fold the little support and the		
uTrCHsc	Upper Triassic Cadwallader Group - Hurley Formation coarse clastic sedimentary rocks			Date   November 2005   TRIM   920/009,019   Hg   3     By   DSD/AGB   NTS   920/1   3		

Movement along these major structures dissected the Jackass Mountain Group assemblages and separated remnants of the Group by as much as 150 and 110 kilometres along the Yalakom and Fraser River faults respectively.

The same movements are also believed to be responsible for a number of east to northeast directed faults that cut the large Jackass Mountain Group remnant wedged between the two structures in the Camelsfoot Range. Stirrup Creek lies close to one of these faults and a number of parallel to sub-parallel structures are evident in the area.

Property data, along with data filed in assessment reports on nearby properties indicate that the northeast margin of the Jackass Mountain Group is intruded by tabular masses of granodiorite and feldspar porphyry and quartz feldspar porphyry. The extent of the intrusions is not presently defined.

#### 7.2 Property Geology Figure 4

# Note: The following description is modified after that of Chevron from Assessment Report # 18352 part 1.

The sedimentary assemblage in the project area includes a coarse boulder conglomerate. The unit is clast supported with well-rounded quartz-rich intrusive clasts ranging up to  $\pm 0.70$  metres dominating. It is matrix supported at the base where it is interbedded with sandstone. The unit has been mapped only on the north side of the Warren claims north of the Stirrup Creek Ridge (Figure 4).

The sandstone is commonly medium grained. Lithic and feldspathic varieties are common. In places it grades to narrow pebble conglomerate or is interbedded with siltstone. Disseminated pyrite and pyrrhotite are locally present. In unaltered areas the rock is green to grey.

All intrusive rocks appear to occur as dykes or sills a few to several tens of metres thick. Dark hornblende-rich granodiorite dominates at the lower elevations and feldspar and quartz feldspar porphyry is more prevalent at the higher elevations. Gradations are evident in drill core including Anglo's. The intrusions are locally mineralized with fine pyrite and traces of arsenopyrite (?). Pyrrhotite, chalcopyrite, stibnite and minor galena are also locally present.

The highest gold assays from the property are from areas coincident with alteration zones and thin shears that mainly occur near the saddle area. To a lesser extent, gold is also indicated in more discreet structural trends on the lower portions of Stirrup Creek.

A number of vein or vein replacements are evident along the ridge and tend to occur within or close to bedding. Better known veins at the higher elevations of the ridge contain up to 15 cm. Of coarse stibnite associated with indistinct quartz and fine arsenopyrite and minor pyrite. The sulphide zone is commonly marked by a selvedge

of highly altered host rock. The smaller thinner zones may consist of narrow layers of solid sulphide in bedding, or less distinct dark-grey siliceous zones partly marked by a greenish-yellow cast.

The configuration of these zones is not presently well enough defined to indicate a common source. Where *exposures* have been sampled, gold *assays* range up to a few hundred ppb, but locally exceed 1,000 ppb. Arsenic and antimony assays are in the thousands of ppm, with anomalous mercury.

The highest gold assays have been located in the saddle area of the ridge and tend to occur in narrow north to north-northeast fault and fracture zones. These zones can be marked by limonitic vuggy crystalline quartz veinlets with minor pyrite, or by seams of red hematitic gouge. Traces of native gold have been noted in vuggy crystalline quartz veinlets in the vicinity of the ridge.

Weak to very strong argillic alteration, locally with significant concentrations of *grey* chalcedonic quartz, is evident and tends to occur Within or near faults and porphyritic intrusions. It may in part be stratigraphically controlled. This alteration in places is masked by limonitic stain that forms conspicuous near surface zones, but which has also been detected at depth around fault zones. The more highly altered sections are cut by clusters of brown limonitic fractures.

![](_page_22_Figure_0.jpeg)

#### 7.3 Structure

The general trend of the assemblage as mapped is north to northeast with dips from  $10^{\circ}$  to about  $50^{\circ}$  west to northwest. Many of the intrusions appear sill-like and follow this trend.

A number of faults have been mapped within about 15<sup>0</sup> of east and locally parallel a major lineament cutting the glaciated ridge near the saddle area, a second set trends northeast and in some areas bedding plane shears are evident at or near intrusive contacts

#### 8.0 DEPOSIT TYPES

Over the years this property has been referred to as a possible Epithermal Gold deposit, a possible porphyry gold or gold-copper and in the lower portions of Stirrup as possible Carlin type.

The indications are that it is a fault controlled system. The mineralization found in Anglo's drill holes from 2005 and 2007 suggest a large sulphide system that is confined to Quartz-feldspar intrusions, sediments and fine tuffs. Drilling also indicates the present mieralization is formed by, oxidation (to 150 m), of original gold bearing pyrite and arsenopyrite deposits. Drilling over the years has indicated gold to be confined to thin and/or brecciated shears.

#### 9.0 EXPLORATION-2006-2007

In 2006 Anglo was prepared to conduct a program suggested by Mr. Dunn, who had conducted the 2006 program. Unfortunately bad weather prevented a fall program.

This work was deferred until the fall of 2007. From August – October Anglo drilled 7 diamond drill holes with a total of 1,775.76m. In addition Anglo upgraded some roads and renovated the camp site. The camp sits on the Crown Grants and was used by the permission of the owners. The drill program was designed to verify and extend mineralization found in previous drilling programs.

All of the holes were drilled in the area of the saddle and represent a 100x50 metre portion of the total claim area.

#### 10.0 DRILLING

The history of drilling prior to Anglo's involvement was discussed previously. As cited above, Anglo drilled three holes in 2005 for a total of 650.38m and six holes in 2007 for a total of 1,775.76m. The drilling done by Chevron will be referred to for clarification and interpretation as needed.

All holes were drilled with inclinations varying from -45 degrees to -65 degrees, and the orientations ranged from northeast to northwest. The depths of the Anglo holes ranged from 164.9m to 334.36m. The holes drilled by Chevron had similar inclinations and orientations and ranged from 120.0m to 160.93m depth.

The orientation of the drill holes with respect to mineralization is not entirely known at this time, but many of the quartz veins seen in the trenches appear to dip quite steeply, if not vertical. Thus, most holes intercepted these styles of veins at a moderate angle to the drill hole.

Assay and geochemical data plotted on these holes includes Au, As and Cu, where available; only the analyses done by Anglo in 2005 and 2007 included multi-elements (ICP).

A review of all the holes in this database (16) shows that there is a general relationship between gold mineralization (and usually As and Cu) and the quartz feldspar porphyry (QFP) intrusive and to a lesser amount, the feldspar porphyry intrusive. However, exceptions to this would be like in the lower part of hole SC87-02 and SC05-03 where there is an enrichment in Au and As in the sandstone/volcaniclastic unit enveloped by the QFP unit. The As tends to be more widespread while the Au is more restricted. Often there appears to be an enrichment in Au and As along the contact between the QFP and surrounding host rocks, as seen in holes SC87-03, -04, SC05-02 and SC07-03. The anomalous Cu tends to coincide with anomalous As.

Of interest is the middle section of hole SC07-07, between 83m and 104m depth, approximately. This section contains highly anomalous Au with several contiguous samples assaying near, or above, the 1 g/t Au level. The As values are also depressed in this interval, which is abnormal. This section of the core should be examined more closely, and interpretations of its projection should be made once the geological datafiles are made available.

The mineralization observed by the author appears to have an epithermal nature. The quartz is often chalcedonic or open and vuggy. Dark quartz is usually a sign of finely disseminated pyrite and/or arsenopyrite; chalcopyrite is present but not as common, and stibnite occurs locally. The veining seems to be fairly restrictive, but it is often seen in-filling breccia zones. Carbonate alteration (propylitic) was noted by Dunn in the 2005 drill holes. Discrete pyrite stringers are observed at depth, but much of it has been Oxidized in the upper part of the holes.

The sections suggest that the QFP and feldspar porphyry are largely "dyke-size" as no massive intrusive body has been intercepted, yet. Some of the contacts appear to be intrusive, while others seem to be faulted contacts with the enveloping Jackass Mountain sediments. The setting seems to be at a sub-volcanic erosional level. These early Tertiary intrusions outcrop along the eastern flank of the Cascades/Coast Range mountains and have been interpreted as being the feeder source to the extensive Ootsa Lake volcanics that occur in the lower terrain north and east of this belt.

One of the largest of these intrusive complexes host the low grade Cu-Au Fish Lake deposit situated northwest of Stirrup Creek, and the Poison Mountain deposit a few kms west of the property. The Blackdome Mine is a precious metal, epithermal vein-style deposit hosted by Tertiary volcanics a few kms north of the property. The author of this section of the report has considerable experience looking for epithermal-style mineralization throughout the Ootsa Lake Group volcanics. Whenever any significant alteration or mineralization was found in the Ootsa Lake Group or older host rocks, either a QFP or feldspar porphyry intrusive was the cause. The geochemical signature of anomalous Au, As and Cu was a common occurrence.

#### 11.0 AIRBORNE GEOPHYSICSSURVEY

\*see Figure 5 for the geophysics coverage and Appendix I for a logistics report.

On August 29th, 2011 a high resolution magnetic and radiometric survey was flown for Anglo- Canadian Mining Corp, over the Stirrup Project in British Columbia. Coverage consisted of 41 line-km of traverse lines and 9 line-km of tie-lines. A logistics report is included in Appendix #I.

The survey area can be located on NTS map sheet 92 O1.

Flight lines were flown in an azimuthal direction of 90° (Stirrup Project) with a traverse line separation of 200 metres. Tie lines were flown orthogonal to the traverse lines with a line separation of 2000 metres for Zeus.

The survey employed the HM1 Stinger magnetic system. Ancillary equipment consisted of radar, laser and barometric altimeters, video camera, digital recorders, a 256-channel spectrometer and an electronic navigation system. The instrumentation was installed in A Euro copter AS350-B2 turbine helicopter, registration C-GYFS, provided by Great Slave Helicopters. The helicopter flew at an average airspeed of 150 km/h with the Sensor height of approximately 60 m.

Table 2: Airborne Geophysics Survey Area

Block	Corne rs	X-UTM (E)	Y-UTM (N)
	1	553008	5665104
	2	554508	5665104
	3	554508	5663904
Stirrup Creek	4	556233	5663904
Project	5	556233	5660904
	6	554233	5660904
	7	554233	5663704
	8	553008	5663704

![](_page_26_Figure_0.jpeg)

## 12.0 INTERPRETATION AND CONCLUSIONS

The Stirrup Creek Property contains thin shears and veins of anomalous gold. Thick sections of the core are also anomalous for Cu and As. Mineralization consists of micro-veins and shears of pyrite, arsenopyrite, chalcopyrite and minor galena. These features can occur near the contact with the feldspar porphyry unit and either sandstone or tuffs. Limonite alteration is ubiquitous down to +150 metres. Thin veinlets of sulphide with limonite selvages occur at greater depths. Clay and sericite alteration is patchy in all of the holes. A fracture model is proposed with some epithermal characteristics.

## 12.1 The STIRRUP CREEK PROPERTY:

- 1. Has been subjected to minor deformation and shearing
- 2. Are related to a major fault, the Fraser Fault
- 3. Have some epithermal component

The veinlets and shears on the Stirrup Creek may have down dip and on strike extent. Limited drilling may have limited this extent. As historic drilling has only taken place in a very small area of the property. Large areas of the property remain untested.

## 13.0 OTHER RELAVENT DATA AND INFORMATION

Any development project proposed for the STIRRUP CREEK PROPERTY may face environmental hurdles.

Exploration work completed to date has been done in compliance with all relevant regulations that existed at the time that the work was done. To the best of my knowledge, there are no environmental liabilities known to exist on the property that can be attributed to the Company or that would become the Company's responsibility.

Further drilling will require minimum new roadwork. Any serious work may Influence indigenous peoples who should be consulted. The STIRRUP CREEK Property is in an area in British Columbia that is used for recreation in both the summer and winter, and any development should include discussions with the people involved. Ranchers in the area would also have to be consulted.

## 14.0 RECOMMENDATIONS

A Phase I program should include a detailed compilation of all data on the property.

Most of the pre-existing data is not digital and not in any consistent coordinate system. Existing maps should be scanned and digitized. An airborne and ground geophysics survey is also proposed for phase I.

Phase II will depend on the results of Phase I. These two phases should be completed before any consideration of underground verification of previous results take place.

- 1. The Crown Grants should be acquired.
- All existing data should be re-located and plotted in the UTM coordinate system.
- 3. Detailed mapping and sampling should be done.
- All drill holes should be re-logged and anomalous sections should be reanalyzed.
- 5. An Airborne EM-Mag survey is an option but ids not proposed.
- 6. Ground geophysics, IP and Mag is proposed for the entire claim group.
- 7. Drilling is proposed in phase II for up to 6 holes for the STIRRUP CREEK

PROPERTY. This drilling should be done after Phase I results are known.

#### 15.0 COST STATEMENT 2011

Table 3: Cost Statement 2011

Exploration Work type	Comment	Days			Totals
Personnel (Name) * /					
Position	Field Days	Days	Rate	Subtotal*	
Geologist		0	0.00	\$0.00	
Prospectors/samplers		0	0.00	\$0.00	
				\$0.00	\$0.00
Office Studies	List Personnel			·	-
Literature search		0.0	0.00	\$0.00	
Database compilation		0.0	0.00	\$0.00	
Computer modelling			0.00	\$0.00	
Reprocessing of data			0.00	\$0.00	
General research			0.00	\$0.00	
Report preparation		3.0	800.00	\$2,400.00	
Geophysical Interpretation		0	-	\$0.00	
				\$2,400.00	\$2,400.00
Airborne Exploration					
Surveys	Line Kilometres / Enter total invoid	ed amou	nt		
Airborne Magnetics		50	112.78	\$5,639.00	
					33

Radiometrics Electromagnetics Gravity Digital terrain modelling Other (specify)		50 0.0	112.78 0.00 0.00 0.00 0.00	\$5,639.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	¢11 279 00
Remote Sensing	Area in H	octaros / l	Entor total	φ11,270.00	\$11,270.00
Aerial photography	Area In He	ectares / I		\$0.00	t or list personnel
LANDSAT			0.00	\$0.00	
Other (specify)			0.00	\$0.00	
				\$0.00	\$0.00
Ground Exploration Surveys Geological mapping	Area in Hectares/List Personnel				
Regional		note: e	expenditu	res here	
Reconnaissance			S	hould be captu	red in Personnel
Prospect		field e.	xpenditure	es above	
Underground	Define by length and width			<b>\$</b> 0.00	** **
Irenches	Define by length and width			\$0.00	\$0.00
Ground goophysics		·····	/ Futou to		
Radiometrics	Line K	liometres	7 Enter to	tai amount invo	ced list personnel
Magnetics		0.0	0.00	\$0.00	
Gravity		0.0	0.00	\$0.00	
Digital terrain modelling				\$0.00	
Electromagnetics				\$0.00	
SP/AP/EP				\$0.00	
IP		0.0	0.00	\$0.00	
AMT/CSAMT				\$0.00	
Resistivity				\$0.00	
Complex resistivity				\$0.00	
Seismic reflection				\$0.00	
Seismic refraction				\$0.00	
Well logging		0.0	0.00	\$0.00	
Geophysical Interpretation		0.0	0.00	\$0.00 \$0.00	
Geophysical Interpretation		0.0	0.00	\$0.00 \$0.00	
Petrophysics				30.00 \$0.00	
Other (specify)				\$0.00	
				\$0.00	\$0.00
Geochemical Surveying	Number of Samples	No.	Rate	Subtotal	+0.00
Core sample assaving		0	0.00	\$0.00	
Core		0	0.00	\$0.00	
Core		0	0.00	\$0.00	
Rock		0	0.00	\$0.00	
Stream sediment		0.0	0.00	\$0.00	
Soil		0.0	0.00	\$0.00	
Water			0.00	\$0.00	
Biogeochemistry			0.00	\$0.00	
Whole rock			0.00	\$0.00	24

James A. Turner, P.Geo STIRRUP CREEK PROPERTY, B.C.

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Petrology Other (specify)		0.0 0.0	0.00 2.00	\$0.00 \$0.00		
		010	2.00	\$0.00		\$0.00
<b>Drilling</b> Diamond Reverse circulation (RC) Rotary air blast (RAB) Other (specify)	No. of Holes, Size of Core and Metres	<b>No.</b> 0.0	Rate 0.00 0.00 0.00	Subtotal \$0.00 \$0.00 \$0.00 \$0.00		¢0.00
<b>Other Operations</b> Trenching Bulk sampling Underground development	Clarify	<b>No.</b> 0.0	Rate 0 0.00 0.00	\$0.00 Subtotal \$0.00 \$0.00 \$0.00		\$0.00
Reclamation After drilling Monitoring Other (specify)	Clarify	No.	Rate 0.00 0.00 0.00	\$0.00 Subtotal \$0.00 \$0.00 \$0.00		\$0.00
Transportation		<b>No</b> . 0.00 0.00	Rate 0.00 0.00	Subtotal - - - \$0.00 \$0.00 \$0.00 \$0.00 \$0.00		
				\$0.00		¢0.00
Accommodation & Food	Rates per day	0.00 0.00 0 0.00	0.00 0.00 0 0.00	\$0.00 - - - -		\$0.00
Missellereeus				\$0.00		\$0.00
Telephone		0.00	0.00	\$0.00		
Other (Specify)				00.02		¢0.00
Equipment Rentals Field Gear (Rental) Field Gear (Purchase)			0.00	\$0.00 \$0.00 \$0.00		\$0.00
Marine terminal Barge to and from Campbell R.		0.0	0.00	\$0.00	35	

James A. Turner, P.Geo STIRRUP CREEK PROPERTY, B.C.

Water Taxi	0.0	0.00	\$0.00
Shipping	0.00	0.00	\$0.00
			\$0.00
			\$0.00
TOTAL Expenditures			

\$13,678.00

\$0.00

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#### 17.0 DATE

The effective date of this report is February 17, 2012.

"Signed and sealed" at Vancouver James A. Turner, PGeo.

## James A. Turner, PGeo.

14149-17 A Avenue Surrey B.C. V4A 6R8

> Dated at Surrey, B.C. this February, 17, 2012. Reg. No. 19843 <u>Association of</u> <u>Professional Engineers and Geoscientists of</u> <u>British Columbia.</u>

#### 18.0 CERTIFICATE OF QUALIFIED PERSON

#### **CERTIFICATE OF James A. Turner, PGeo**

#### DECLARATION

In regard to the report titled "TECHNICAL REPORT on the STIRRUP CREEK Property, Clinton Mining Division, British Columbia, NTS 0920/1E, 1W, Geology, Mineralization and Potential, Property Evaluation Report" and dated April 28, 2008, I, James A. Turner, PGeo, 14149 17 A Avenue of South Surrey, British Columbia, hereby certify that:

- 1. I am a graduate of the University of British Columbia with a Bachelor of Science Degree in Physics, Math and Geology in 1973 and 1976 and have practiced my profession since 1976 and continuously since 1980.
- 2. From 1998 to June 2001, I was a consultant to Pacific Geomatics Inc., a private remote sensing company specializing in data acquisition, processing and interpretation.
- 3. From March 1995 to April 1998 I was a principal of TerraSat Geomatics Inc., a private company, specialising in satellite imaging and its application to mining exploration.
- 4. From 1990 to March 1995, I subcontracted my services as an image analyst to MineQuest Exploration Associates Inc.
- 5. Since 1976 I have been involved in mineral exploration (with major mining companies such as Cominco, Noranda and Newmont) for copper, lead, zinc, gold, silver, tungsten, tin and diamonds. I have been involved in remote sensing and Geomatics since 1984. Since 1990 I have been involved in remote sensing and satellite interpretation for diamond deposits in the Lac de Gras area of the NWT. I have also conducted remote sensing work for companies working in Ghana, Guyana, Mali, Alberta, British Columbia, Mexico, Vietnam, China, Ireland, Arizona, Utah, Nevada, Bolivia, Chile, Peru, Nunavut, Quebec, Central America, Brazil, India and Indonesia.
- 6. I am a registered member of the Professional Engineers and Geoscientists of British Columbia, (Registration #19843).
- 7. I am a former fellow of the Geological Association of Canada.
- 8. I am the sole author of this report titled the STIRRUP CREEK Property, Clinton Mining Division, British Columbia NTS 0920/1E, 1W, Geology, Mineralization and Potential, Property Evaluation Report" and my compensation is strictly on a professional fee basis.

- 9. I am presently a Consulting Geologist and have been so since March 1989.
- 10. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- 11. I have read National Instrument 43-101 and Form 43-101F1. This technical report has been prepared in compliance with those documents.
- 12. I have read the several reports and historic documents, and am familiar with the subject matter of the report.
- 13. To the best of my knowledge, information and belief, the technical report, dated April 28, 2008, contains all scientific and technical information that is required to be disclosed to make the report not misleading.
- 14. I, in the company of Ian Cassidy and Len Harris have examined the STIRRUP CREEK PROPERTY on numerous occasions from September to October, 2007 and I also examined certain exposures of rock on the present location of the claims.

15. I have no interest, direct or indirect, in the STIRRUP CREEK Property or the property ownerships, nor do I expect to receive such interest. I am currently a Director of the company and was so when I examined the property and sampled certain sections of the core. I supervised the drilling program.

"Signed and sealed" at Vancouver James A. Turner, P.Geo.

# James A. Turner, P.Geo.

14149-17 A Avenue Surrey B.C. V4A 6R8

Dated at Surrey, B.C. this 28<sup>th</sup> day of

April 2008.

Reg. No. 19843 <u>Association of</u> <u>Professional Engineers and Geoscientists of</u> <u>British Columbia.</u>

## 19.0 APPENDICIES
Appendix I Fugro Geophysics Logistics Report

#### FUGRO AIRBORNE SURVEYS



Report #11072

#### HIGH RESOLUTION STINGER MOUNTED MAGNETIC AND RADIOMETRIC SURVEY FOR ANGLO CANADIAN URANIUM CORP.

ZEUS & STIRRUP CREEK PROJECTS, BRITISH COLUMBIA

NTS: 92 0/1 and NTS: 92 J/16

Fugro Airborne Surveys Corp. Mississauga, Ontario November, 2011

Fugro Airborne Surveys Corp., 2505 Meadowvale Blvd., Mississauga, Ontario, Canada L5N 5S2 Phone: 1 905 812 0212, Fax: 1 905 812 1504

### SUMMARY

This report describes the logistics, data acquisition and presentation of results from a high resolution magnetic and radiometric airborne geophysical survey carried out for Anglo Canadian Uranium Corp. over the Zeus & Stirrup Creek Projects, British Columbia. The survey was flown on August 29<sup>Th</sup>, 2011. Total coverage of all the survey blocks amounted to 103.68 km.

The purpose of the survey was to provide information that could be used to map the geology and structure of the survey area. This was accomplished by using a high sensitivity HM1 stinger system and a 256-channel spectrometer. The information from these sensors was processed to produce maps that display the magnetic and radiometric properties of the survey area. A GPS electronic navigation system ensured accurate positioning of the geophysical data with respect to the base maps.

The survey data were processed and compiled in the Fugro Airborne Surveys Toronto & Ottawa offices.

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#### **1. INTRODUCTION**

A high resolution magnetic and radiometric survey was flown for Anglo Canadian Uranium Corp., on August 29<sup>th</sup>,2011, over the Zeus & Stirrup Creek Projects in British Columbia. Coverage consisted of 87.63 line-km of traverse lines and 16.05 line-km of tie-lines. The survey area can be located on NTS map sheet 92 J/16 and NTS 92 O/1. Flight lines were flown in an azimuthal direction of 0° (Zeus Project) and 90° (Stirrup Creek Project) with a traverse line separation of 200 metres. Tie lines were flown orthogonal to the traverse lines with a line separation of 2000 metres for Zeus and 1400 m for Stirrup Creek.

The survey employed the HM1 Stinger magnetic system. Ancillary equipment consisted of radar, laser and barometric altimeters, video camera, digital recorders, a 256-channel spectrometer and an electronic navigation system. The instrumentation was installed in an Eurocopter AS350-B2 turbine helicopter, registration C-GYFS, provided by Great Slave Helicopters (Figure 1.1). The helicopter flew at an average airspeed of 150 km/h with sensor height of approximately 60 m.



Figure 1.1: Fugro Airborne Surveys HM1 with AS350B

# 2. SURVEY OPERATIONS

Base of operations for this survey was established at Lillooet, British Columbia from August 28  $^{th}$  to 30 $^{th}$ , 2011. The planned survey area can be located on NTS map sheet 92 J/16 and NTS 92 O/1

Table 2-1 and Table 2-2 list the corner coordinates of the flight planning for the survey blocks in NAD83, UTM Zone 10N, central meridian 123°W.

Block	Corners	X-UTM (E)	Y-UTM (N)
	1	542803	5636669
Zous Project	2	545403	5636669
Zeus Flojeci	3	545403	5634167
	4	542803	5634167

#### TABLE 2-1

#### TABLE 2-1

Block	Corners	X-UTM (E)	Y-UTM (N)
	1	553008	5665104
	2	554508	5665104
	3	554508	5663904
Stirrup Creek	4	556233	5663904
Project	5	556233	5660904
	6	554233	5660904
	7	554233	5663704
	8	553008	5663704

The survey specifications were as follows:

Parameter	Specifications
Traverse line direction	0° (Zeus Project) & 90° (Stirrup Creek Project)
Traverse line spacing	200 m
Tie line direction	90° (Zeus Project) & 180° (Stirrup Creek Project)

Tie line spacing	2000 m (Zeus) & 1400 m (stirrup Creek)
Sample interval	10 Hz, 4.2 m @ 151 km/h for mag; 1Hz, 42 m @
	151 km/h for spectrometry
Aircraft mean terrain clearance	60 m
Mag sensor mean terrain clearance	60 m
Average speed	150 km/h
Navigation (guidance)	±2 m, Real-time GPS
Post-survey flight path	±1 m, Differential GPS





Figure 2: Location map and sheet layout Zeus & Stirrup Creek Projects, British Columbia - Job # 11072

### 3. SURVEY EQUIPMENT

This section provides a brief description of the geophysical instruments used to acquire the survey data and the calibration procedures employed. The geophysical equipment was installed in an Eurocopter AS350-B2 helicopter. This aircraft provides a safe and efficient platform for surveys of this type.

### **Airborne Magnetometer**

Model:	Fugro HeliDAS processor with Scintrex CS3 sensor
Туре:	Optically pumped cesium vapour
Sensitivity:	0.01 nT
Sample rate:	10 per second

The magnetometer sensor is housed in a stinger mounted on the helicopter.

### **Magnetic Base Station**

Two magnetic base stations were installed at the Lillooet Airport during course of the survey. The second unit was used as a backup in case of failure of the primary unit.

#### Primary Magnetic Base stations

Model:	Fugro CF1 base station with timing provided by integrated GPS GEM base station with timing provided by integrated GPS		
Sensor type: Counter specifications:	Scintrex CS-2 Accuracy: Resolution: Sample rate	±0.1 nT 0.01 nT 1 Hz	
GPS specifications:	Model: Type: Sensitivity: Accuracy:	Novatel Allstar with CMT-1200 antenna Code and carrier tracking of L1 band, 12-channel, C/A code at 1575.42 MHz -90 dBm, 1.0 second update Manufacturer's stated accuracy for differential corrected GPS is 2 metres	
Environmental Monitor specifications:	Temperature: • Accuracy: • Resolution: • Sample rate: • Range:	±1.5°C max 0.0305°C 1 Hz -40°C to +75°C	
	<ul> <li>Barometric press</li> <li>Model:</li> <li>Accuracy:</li> <li>Resolution:</li> <li>Sample rate:</li> <li>Range:</li> </ul>	ure: Motorola MPXA4115AP ±3.0º kPa max (-20ºC to 105ºC temp. ranges) 0.013 kPa 1 Hz 55 kPa to 108 kPa	

A digital recorder is operated in conjunction with the base station magnetometer to record the diurnal variations of the earth's magnetic field. The clock of the base station is synchronized with that of the airborne system, using GPS time, to permit subsequent removal of diurnal drift. The location for primary base station set-ups, in WGS84 geographic coordinates was as follows:

Location	Date (2011)	Latitude	Longitude
Lillooet Airport	Aug 28 –	50º 54' 41.26626"N	122º 14' 12.32616"W
Primary	Aug 30		

# Navigation (Global Positioning System)

Airborne Receiver for	Flight Path	Recovery and	Navigational	Guidance
	i ngine i auri	i tooovory ana	rigational	Caraanoo

Model:	Novatel OEM4/V		
Туре:	Code and carrier tracking of L1-C/A code at 1575.42 MHz, 24 channel.		
Sample rate:	10 Hz update		
Accuracy:	Manufacturer's stated accuracy for differential corrected GPS is better than 1 metre.		
Antenna:	Mounted on tail of aircraft.		
Primary GPS Base Static	<u>n</u>		
Model:	Novatel OEM4/V		
Туре:	Code and carrier tracking of L1-C/A code at 1575.42 MHz Dual frequency, 24-channel.		
Sample rate:	1 Hz update and recording		
Accuracy:	Manufacturer's stated accuracy for differential corrected GPS is better than 1 metre.		

#### Secondary GPS Base Station

Model:	Marconi Allstar OEM, CMT-1200
Туре:	Code and carrier tracking of L1 band, 12-channel, C/A code at 1575.42 MHz
Sensitivity:	-90 dBm, 1.0 second update
Accuracy:	Manufacturer's stated accuracy for differential corrected GPS is 2 metres.

The Novatel OEM4/V is a line of sight, satellite navigation system that utilizes time-coded signals from at least four of forty-eight available satellites. NAVSTAR satellite constellations along with Wide Area Augmentation Service (WAAS) signal are used to calculate the position and to provide real time guidance to the helicopter. A similar system was used as the primary base station receiver. The mobile and base station raw XYZ data were recorded, thereby permitting post-survey differential corrections for theoretical accuracies of better than 1 metre. A Novatel Allstar GPS unit, part of the CF-1, was used as a secondary (back-up) base station.

Each base station receiver is able to calculate its own latitude and longitude by recording data over a 24 hour period and calculating the average position. For this survey, primary and two secondary GPS base stations were established. The GPS location for each base, in WGS84 geographic coordinates, was as follows:

#### - 3.4 -

Location	Date (2011)	Latitude	Longitude	Height (Orthometric)
Lillooet Airport	Aug 28 –	50º 54' 41.21"N	122º 14' 12.19"W	695.85
Primary	Aug 30			
Lillooet Airport	Aug 28 –	50º 54' 41.27"N	122º 14' 12.33"W	694.05
Secondary	Aug 30			

# **Radar Altimeter**

Manufacturer:	Honeywell/Sperry
Model:	AT300/RT220
Туре:	Short pulse modulation, 4.3 GHz
Sensitivity:	0.3 m
Sample rate:	10 per second

The radar altimeter measures the vertical distance between the helicopter and the ground,

except in areas of dense trees.

# **Barometric Pressure and Temperature Sensors**

Model:	DIGHEM D130	0
Туре:	Motorola MPX AD592AN high	1115AP analog pressure sensor -impedance remote temperature sensors
Sensitivity:	Pressure: Temperature:	150 mV/kPa 100 mV/℃ or 10 mV/℃ (selectable)
Sample rate:	10 per second	

The D1300 circuit is used in conjunction with one barometric sensor and up to three temperature sensors. Three sensors are installed in the data acquisition system in the aircraft, to monitor pressure and internal and external operating temperatures.

# Laser Altimeter

Manufacturer:	Optech
Model:	ADM GPA 100
Туре:	Fixed pulse repetition rate of 1600 kHz
Sensitivity:	±5 cm from 10°C to 30°C ±10 cm from -20°C to +50°C
Sample rate:	10 per second

The laser altimeter is mounted on a cross bar underneath the helicopter, and measures the distance from the helicopter to the ground.

# **Digital Data Acquisition System**

Manufacturer:	Fugro
Model:	HeliDAS
Recorder:	Compact Flash Card

The stored data are downloaded to the field workstation PC at the survey base for verification, backup and preparation of in-field products.

# **Compensation System**

Manufacturer:	Fugro
Model:	HeliDAS, with fluxgate magnetometer

The presence of the helicopter in close proximity to the sensors causes considerable deviations on the readings. The orientation of the aircraft with respect to the sensors and the motion of the aircraft through the earth's magnetic field are contributing factors. A special calibration flight is flown to record the information necessary to remove these effects.

The manoeuvre consists of flying a series of calibration lines at high altitude to gain information in each of the required line directions. During this procedure, the pitch, roll and yaw of the aircraft are varied. Each variation is conducted in succession (first vary pitch, then roll, then yaw). This provides a complete picture of the effects of the aircraft at designated headings in all orientations. The HeliDAS compensation system derives a set of coefficients for each line direction and for each magnetometer sensor. The coefficients can be applied real-time or in a post-processing environment.

### Video Flight Path Recording System

Туре:	Axis 2420 Digital Network Camera
Recorder:	Axis 241S Video Server and tablet computer
Format:	Blocked binary digital format with index to allow for extraction of
	individual JPEG images (.BDX, .BIN files)

Fiducial numbers are recorded continuously and are displayed on the margin of each digital image. This procedure ensures accurate correlation of data with respect to visible features on the ground.

# Spectrometer

Manufacturer:	Exploranium
Model:	GR-820
Туре:	256 Multichannel, Thorium stabilized
Accuracy:	1 count/sec.
Update:	1 integrated sample/sec.

The GR-820 Airborne Spectrometer consisted of with four downward looking crystals (1024 cu.in.- 16.8 L) and one upward looking crystal (256 cu.in.- 4.2 L). The downward

crystals record the radiometric spectrum from 410 KeV to 3 MeV over 256 discrete energy windows, as well as a cosmic ray channel which detects photons with energy levels above 3.0 MeV. From these 256 channels, the standard Total Count, Potassium, Uranium and Thorium channels are extracted. The upward crystal is used to measure and correct for Radon.

Each crystal pack in the GR-820 is automatically gain stabilized using a sophisticated multi-peak approach. The GR-820 spectral stabilization is conducted on the ground with test sources. Repeat test lines were flown to determine if there were any differences in background and allow corrections to be applied to each survey flight, to eliminate any differences that might result from changes in temperature or humidity.

The GR-820 does not measure dead time in a traditional sense. A live clock is adjusted for loss of system measured pile-up rejections to give an apparent dead time to ensure the absolute count rate is correct.

### 4. QUALITY CONTROL AND IN-FIELD PROCESSING

Digital data for each flight were transferred to the field workstation, in order to verify data quality and completeness. A database was created and updated using Geosoft Oasis Montaj and proprietary Fugro Atlas software. This allowed the field personnel to calculate, display and verify both the positional (flight path) and geophysical data on a computer screen. Records were examined as a preliminary assessment of the data acquired for each flight.

In-field processing of Fugro survey data consists of differential corrections to the airborne GPS data, spike rejection and filtering of all geophysical and ancillary data, verification of flight videos, diurnal correction, preliminary levelling of magnetic data, and verification of spectrometer spectra and the repeat test line.

All data, including base station records, were checked on a daily basis, to ensure compliance with the survey contract specifications. Reflights were required if any of the following specifications were not met.

Navigation - Digital positioning must be available; PDOP of less than 10 and 4 or more satellites to be available for GPS solution.

Flight Path - No lines to exceed ±50 m departure from planned flight path over a continuous distance of more than 1000 m, except for reasons of safety.

- Clearance Mean terrain sensor clearance of 60 m with altitude deviation from planned clearance not to exceed +/- 12 m over a continuous distance of 2000 m, except where precluded by safety considerations, e.g., restricted or populated areas, severe topography, obstructions, tree canopy, aerodynamic limitations, etc., as decided by the pilot.
- Airborne Mag The typical Figure of Merit for the magnetometer will be no greater than 2.0 nT The non-normalized 4<sup>th</sup> difference not to exceed 1.6 nT over a continuous distance of 1000 m excluding areas where this specification is exceeded due to natural anomalies. Noise envelope for the magnetometer data not to exceed +/- 0.1 nT over a continuous distance of 2000 m
- Base Mag Diurnal variations not to exceed 10 nT peak to peak over a straight line time chord of 1 minute.

### 5. DATA PROCESSING

### **Flight Path Recovery**

The raw range data from at least four satellites are simultaneously recorded by both the base and mobile GPS units. The geographic positions of both units, relative to the model ellipsoid, are calculated from this information. Differential corrections, which are obtained from the base station, are applied to the mobile unit data to provide a post-flight track of the aircraft, accurate to within 1 m. Speed checks of the flight path are also carried out to determine if there are any spikes or gaps in the data.

The corrected WGS84 latitude/longitude coordinates are transformed to the local coordinate system used on the final maps. Images or plots are then created to provide a visual check of the flight path.

### **Residual Magnetic Intensity**

The magnetic data were corrected to produce a final levelled total field product by the application of the following sequence of procedures:

- Data quality check on the raw and compensated magnetic data
- Lag correction.
- Loading, checking and application of the measured diurnal data.
- Removal of the diurnal data
- Levelling of total magnetic field data

• Removal of the IGRF.

The data quality check was accomplished in the field by viewing the raw and compensated data together in profile and grid format after loading into Oasis Montaj. Spikes were removed manually with the aid of a fourth difference calculation and small gaps (less then 150 metres) were interpolated using an Akima spline. This also allowed monitoring of the noise levels that were superimposed on the data during survey activities. Magnetometer noise levels were maintained within stated specifications.

A lag correction of 1.0 second was applied to the magnetic data to remove the effects of temporal delay inherent in the data acquisition system.

The diurnal variations recorded by the base station were edited for any cultural interference and filtered to remove high-frequency noise. This diurnal magnetic data was then subtracted from the de-spiked, lagged TMI to provide a first order diurnal correction. The diurnal removed magnetic field data was then gridded and compared to a grid of the de-spiked, lagged magnetic data to ensure that the data quality was improved by diurnal removal.

The lagged and diurnally corrected data was gridded before being examined in shadow. Tie line levelling was not required as no large line by line levelling errors was noted. A procedure known as micolevelling was then applied to remove any persistent, lowamplitude component of flight line noise. A series of directional filters were applied to the magnetic grid to produce a decorrugation "noise" grid. This grid was then re-sampled back into the database where the resultant "noise" channel was filtered to remove any remaining short wavelength responses that could be due to geologic sources. The amplitude of the "noise" channel was limited to +/- 4 nT to restrict the effect the microlevelling might have on strong geologic response. Finally, the "noise" channel is subtracted from the levelled channel created earlier in the processing sequence, resulting in the final levelled magnetic field channel.

The International Geomagnetic Reference Field (IGRF) was calculated for the survey area using a date that was representative of the entire survey, height above the WGS spheroid and the latitude and longitude of each survey point. Information on the model used for the calculation can be found at <u>http://www.ngdc.noaa.gov/seg/geomag</u>. The IGRF was removed from the final magnetic field channel to create the residual magnetic intensity.

### **Calculated Vertical Magnetic Gradient**

The levelled magnetic field data were subjected to a processing algorithm that enhances the response of magnetic bodies in the upper 500 m and attenuates the response of deeper bodies. The resulting vertical gradient map provides better definition and resolution of near-surface magnetic units. It also identifies weak magnetic features that may not be evident on the total field map. However, regional magnetic variations and changes in lithology may be better defined on the total magnetic field map.

### Radiometrics

All radiometric data reductions performed by Fugro rigorously follow the procedures described in the IAEA Technical Report<sup>1</sup>.

All processing of radiometric data was undertaken at the natural sampling rate of the spectrometer, i.e., one second. The data were not interpolated to match the fundamental 0.1-second interval of the magnetic data.

The following sections describe each step in the process.

#### NASVD

Fugro Airborne Surveys utilizes a multi-channel technique developed by Hovgaard and Gratsy to reduce statistical noise in AGS data. This method (described as *noise adjusted single valve decomposition* or "nasvd"), analyses the 256-channel survey data to identify all statistically significant spectral shapes. These "spectral components" are used to reconstruct new potassium, uranium, thorium, and total count window values, which then have significantly less noise than the original raw windows. This is particularly effective for the uranium window because of the low count rates. The spectral component method results in a more accurate measure of the ground concentration, which improves

<sup>&</sup>lt;sup>1</sup> Exploranium, I.A.E.A. Report, Airborne Gamma-Ray Spectrometer Surveying, Technical Report No. 323, 1991. Revised and improved in 2003 : Technical Report no 1363, IAEA, Vienna

considerably the discrimination between background and anomalous ground concentrations.

#### Spectrum Stability

In order to monitor spectral drift, the average spectrum for each flight line was examined and peak position analysis was performed on the K, U and Th peaks. The centroid position for each peak is reported to one tenth of a channel and is reviewed according to the radiometric QC requirement of less than one channel change in peak position for the Th peak. The spectral analysis for the Zeus & Stirrup Creek Projects is shown in Appendix D.

#### Pre-filtering

Four parameters were filtered, and returned to the database:

- Radar altimeter, pressure and temperature data was processed with a 3-point median filter to remove spikes and then smoothed with a 3-point Hanning filter
- The Cosmic window was smoothed with a 9-point Hanning filter (Cos<sub>f</sub>).

#### **Reduction to Standard Temperature and Pressure**

The radar altimeter data were converted to effective height (h<sub>e</sub>) in metres using the acquired temperature and pressure data, according to the following formula:

$$h_e = h * \frac{273.15}{T + 273.15} * \frac{P}{1013.25}$$

where: *h* is the observed crystal to ground distance in metres*T* is the measured air temperature in degrees Celsius*P* is the barometric pressure in kilopascals

#### **Live Time Correction**

The spectrometer, a GR-820, uses the notion of "live time" to express the relative period of time the instrument was able to register new pulses per sample interval. This is the opposite of the traditional "dead time", which is an expression of the relative period of time the system was unable to register new pulses per sample interval.

The GR-820 measures the live time electronically, and outputs the value in milliseconds. The live time correction is applied to the total count, potassium, uranium, thorium, upward uranium and cosmic channels. The formula used to apply the correction is as follows:

$$C_{lt} = C_{raw} * \frac{1000.0}{L}$$

where:  $C_{tt}$  is the live time corrected channel in counts per second  $C_{raw}$  is the raw channel data in counts per second L is the live time in milliseconds

#### Aircraft and Cosmic Background

Aircraft background and cosmic stripping corrections were applied to the total count, potassium, uranium, thorium and upward uranium channels using the following formula:

 $C_{ac} = C_{lt} - (a_c + b_c * \cos_f)$ 

where:  $C_{ac}$  is the background and cosmic corrected channel  $C_{tt}$  is the live time corrected channel  $a_c$  is the aircraft background for this channel  $b_c$  is the cosmic stripping coefficient for this channel  $Cos_f$  is the filtered Cosmic channel

#### **Radon Background**

The determination of calibration constants that enable the stripping of the effects of atmospheric radon from the downward-looking detectors through the use of an upward-looking detector is divided into two parts:

1) Determine the relationship between the upward- and downward-looking detector count rates for radiation originating from the ground.

2) Determine the relationship between the upward- and downward-looking detector count rates for radiation due to atmospheric radon.

The procedures to determine these calibration factors are documented in IAEA Report #323 on airborne gamma-ray surveying. The calibrations for the first part were determined as outlined in the report.

The latter case normally requires many over-water measurements where there is no contribution from the ground. Where this is not possible, it is standard procedure to establish a test line over which a series of repeat measurements are acquired. From these repeat flights, any change in the downward uranium window due to variations in radon background would be directly related to variations in the upward window and the other downward windows.

The validity of this technique rests on the assumption that the radiation from the ground is essentially constant from flight to flight. Inhomogeneities in the ground, coupled with deviations in the flight path between test runs, add to the inaccuracy of the accumulated results. Variations in flying heights and other environmental factors also contribute to the uncertainty.

The use of test lines is a common solution for a fixed-wing acquisition platform. The ability of rotary wing platforms to hover at a constant height over a fixed position eliminates a number of the variations which degrade the accuracy of the results required for this calibration.

A test line was established in or near the survey area. The tests were carried out at the start and end of each day. Data were acquired over the test line at the nominal survey altitude (60 m). The data were then corrected for live time, aircraft background and cosmic activity.

Once the survey was completed, the relationships between the counts in the downward uranium window and in the other four windows due to atmospheric radon were determined using linear regression for each of the hover sites. The following equations were used:

 $u_r = a_u Ur + b_u$  $K_r = a_K U_r + b_K$  $T_r = a_T U_r + b_T$  $I_r = a_I U_r + b_I$ 

where: u<sub>r</sub> is the radon component in the upward uranium window
 K<sub>r</sub>, U<sub>r</sub>, T<sub>r</sub> and I<sub>r</sub> are the radon components in the various windows of the downward detectors
 the various "a" and "b" coefficients are the required calibration constants

In practice, only the "a" constants were used in the final processing. The "b" constants, which are normally near zero for over-water calibrations, were of no value as they reflected the local distribution of the ground concentrations measured in the five windows.

The thorium, uranium and upward uranium data for each line were copied into temporary arrays, then smoothed with a 51 point Hanning filter to produce Th<sub>f</sub>, U<sub>f</sub>, and u<sub>f</sub> respectively. The radon component in the downward uranium window was then determined using the following formula:

$$U_r = \frac{u_f - a_1 * U_f - a_2 * Th_f + a_2 * b_{Th} - b_u}{a_u - a_1 - a_2 * a_{Th}}$$

where:  $U_r$  is the radon component in the downward uranium window  $u_f$  is the filtered upward uranium  $U_f$  is the filtered uranium Th<sub>f</sub> is the filtered thorium  $a_1, a_2, a_u$  and  $a_{Th}$  are proportionality factors and  $b_u$  and  $b_{Th}$  are constants determined experimentally

The effects of radon in the downward uranium are removed by simply subtracting  $U_r$  from  $U_{ac}$ . The effects of radon in the total count, potassium, thorium and upward uranium are then removed based upon previously established relationships with  $U_r$ . The corrections are applied using the following formula:

 $C_{rc} = C_{ac} - (a_c * U_r + b_c)$ 

where:  $C_{rc}$  is the radon corrected channel  $C_{ac}$  is the background and cosmic corrected channel  $U_r$  is the radon component in the downward uranium window  $a_c$  is the proportionality factor and  $b_c$  is the constant determined experimentally for this channel

#### **Compton Stripping**

Following the radon correction, the potassium, uranium and thorium are corrected for spectral overlap. First,  $\alpha$ , $\beta$  and  $\gamma$  the stripping ratios, are modified according to altitude. Then an adjustment factor based on a, the reversed stripping ratio, uranium into thorium, is calculated. (Note: the stripping ratio altitude correction constants are expressed in change per metre. A constant of 0.3048 is required to conform to the internal usage of height in feet):

 $\alpha_h = \alpha + h_{ef} * 0.00049$  $\alpha_r = \frac{1.0}{1.0 - a * \alpha_h}$  $\beta_h = \beta + h_{ef} * 0.00065$  $\gamma_h = \gamma + h_{ef} * 0.00069$ 

where:  $\alpha$ ,  $\beta$ ,  $\gamma$  are the Compton stripping coefficients  $\alpha_h$ ,  $\beta_h$ ,  $\gamma_h$  are the height corrected Compton stripping coefficients  $h_{ef}$  is the height above ground in metres  $\alpha_r$  is the scaling factor correcting for back scatter a is the reverse stripping ratio

The stripping corrections are then carried out using the following formulas:

$$Th_{c} = (Th_{rc} - a * U_{rc}) * \alpha_{r}$$
$$U_{c} = (U_{rc} - \alpha_{h} * Th_{rc}) * \alpha_{r}$$
$$K_{c} = K_{rc} - \gamma_{h} * U_{c} - \beta_{h} * Th_{c}$$

where:  $U_c$ ,  $Th_c$  and  $K_c$  are corrected uranium, thorium and potassium

$$\label{eq:alpha} \begin{split} \alpha_h,\beta_h,\gamma_h \text{ are the height corrected Compton stripping coefficients} \\ U_{rc}, \ Th_{rc} \ \text{and} \ K_{rc} \ \text{are radon-corrected uranium, thorium and} \\ potassium \end{split}$$

 $\alpha_r$  is the backscatter correction

#### **Attenuation Corrections**

The total count, potassium, uranium and thorium data are then corrected to a nominal survey altitude, in this case 60 m. This is done according to the equation:

 $C_a = C * e^{\mu(h_0 - h_{ef})}$ 

where:  $C_a$  is the output altitude corrected channel C is the input channel  $e^{\mu}$  is the attenuation correction for that channel  $h_{ef}$  is the effective altitude  $h_0$  is the nominal survey altitude to correct to

### **Contour, Colour and Shadow Map Displays**

The magnetic geophysical data are interpolated onto a regular grid using a bi-directional technique. The resulting grid is suitable for image processing and generation of contour maps. The grid cell size is 25% of the line interval.

The radiometric geophysical data are interpolated onto a regular grid using a bi-directional technique. The grid cell size is 25% of the line interval.

Colour maps are produced by interpolating the grid down to the pixel size. The parameter is then incremented with respect to specific amplitude ranges to provide colour "contour" maps.

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### 6. PRODUCTS

This section lists the final maps and products that have been provided under the terms of the survey agreement. Other products can be prepared from the existing dataset, if requested.

### **Base Maps**

Base maps of the survey area were produced by scanning published topographic maps to a bitmap (.bmp) format. This process provides a relatively accurate, distortion-free base that facilitates correlation of the navigation data to the map coordinate system. The topographic files will be combined with geophysical data for plotting the final maps. Maps will be created using the following parameters:

#### Projection Description:

0N)

All maps include flight lines, contours and topography, unless otherwise indicated. Final map products will be prepared at a scale of 1:20 000.

# **Final Products**

	No. of Map Sets	
	Blackline	Colour
Residual Magnetic Field		2
Calculated Vertical Gradient		2
Total Count		2
K (cps)		2
U (cps)		2
Th (cps)		2

### Additional Products

Geosoft archive (1) ASCII archive (1) Geosoft grids (mag, cvg, TC , K, Th, U) PDF maps (1), Logistics Report (2 paper copies and 1 digital copy in PDF format) Flightpath Digital Video

### 7. CONCLUSIONS AND RECOMMENDATIONS

This report provides a very brief description of the survey results and describes the equipment, data processing procedures and logistics of the survey.

The various digital maps included with this report display the magnetic and radiometric properties of the survey area. It is recommended that a complete assessment and detailed evaluation of the survey results be carried out, in conjunction with all available geophysical, geological and geochemical information.

It is also recommended that image processing of existing geophysical data be considered, in order to extract the maximum amount of information from the survey results. Current software and imaging techniques often provide valuable information on structure and lithology, which may not be clearly evident on the contour and colour maps. These techniques can yield images that define subtle, but significant, structural details.

Respectfully submitted,

FUGRO AIRBORNE SURVEYS CORP.
#### **APPENDIX A**

#### LIST OF PERSONNEL

The following personnel were involved in the acquisition, processing, interpretation and presentation of data, relating to a high resolution magnetometer and radiometric airborne geophysical survey carried out for Great Western Minerals Group Ltd.

David Miles	Manager, Geophysical Projects
Duane Griffith	Manager, Geophysical Services
Graham Konieczny	Manager, Data Processing and Interpretation
Adriana Pagliero	Project Manager
Terry Lacey	Geophysical Operator
Don Ellis	Crew Leader
Amanda Heydorn	Data Processor
Eric Rooen	Data Processor
Harry Nichols	Pilot, Great Slave Helicopters
Matt Kelly	AME, Great Slave Helicopters
Lyn Vanderstarren	Drafting Supervisor

The survey consisted 86.5 km of coverage, flown on August 29<sup>th</sup> of 2011. All personnel are employees of Fugro Airborne Surveys, except as indicated.

**APPENDIX B** 

**BACKGROUND INFORMATION** 

#### - Appendix B.1 -

#### **BACKGROUND INFORMATION**

#### **Magnetic Responses**

The measured total magnetic field provides information on the magnetic properties of the earth materials in the survey area. The information can be used to locate magnetic bodies of direct interest for exploration, and for structural and lithological mapping.

The total magnetic field response reflects the abundance of magnetic material in the source. Magnetite is the most common magnetic mineral. Other minerals such as ilmenite, pyrrhotite, franklinite, chromite, hematite, arsenopyrite, limonite and pyrite are also magnetic, but to a lesser extent than magnetite on average.

In some geological environments, an EM anomaly with magnetic correlation has a greater likelihood of being produced by sulphides than one which is non-magnetic. However, sulphide ore bodies may be non-magnetic (e.g., the Kidd Creek deposit near Timmins, Canada) as well as magnetic (e.g., the Mattabi deposit near Sturgeon Lake, Canada).

Iron ore deposits will be anomalously magnetic in comparison to surrounding rock due to the concentration of iron minerals such as magnetite, ilmenite and hematite.

Changes in magnetic susceptibility often allow rock units to be differentiated based on the total field magnetic response. Geophysical classifications may differ from geological classifications if various magnetite levels exist within one general geological classification. Geometric considerations of the source such as shape, dip and depth, inclination of the earth's field and remanent magnetization will complicate such an analysis.

In general, mafic lithologies contain more magnetite and are therefore more magnetic than many sediments which tend to be weakly magnetic. Metamorphism and alteration can also increase or decrease the magnetization of a rock unit.

Textural differences on a total field magnetic contour, colour or shadow map due to the frequency of activity of the magnetic parameter resulting from inhomogeneities in the distribution of magnetite within the rock, may define certain lithologies. For example, near surface volcanics may display highly complex contour patterns with little line-to-line correlation.

Rock units may be differentiated based on the plan shapes of their total field magnetic responses. Mafic intrusive plugs can appear as isolated "bulls-eye" anomalies. Granitic intrusives appear as sub-circular zones, and may have contrasting rings due to contact metamorphism. Generally, granitic terrain will lack a pronounced strike direction, although granite gneiss may display strike.

Linear north-south units are theoretically not well-defined on total field magnetic maps in equatorial regions due to the low inclination of the earth's magnetic field. However, most

- Appendix B.2 -

stratigraphic units will have variations in composition along strike that will cause the units to appear as a series of alternating magnetic highs and lows.

Faults and shear zones may be characterized by alteration that causes destruction of magnetite (e.g., weathering) that produces a contrast with surrounding rock. Structural breaks may be filled by magnetite-rich, fracture filling material as is the case with diabase dikes, or by non-magnetic felsic material.

Faulting can also be identified by patterns in the magnetic total field contours or colours. Faults and dikes tend to appear as lineaments and often have strike lengths of several kilometres. Offsets in narrow, magnetic, stratigraphic trends also delineate structure. Sharp contrasts in magnetic lithologies may arise due to large displacements along strikeslip or dip-slip faults.

#### Gamma Ray Spectrometry

Radioelement concentrations are measures of the abundance of radioactive elements in the rock. The original abundance of the radioelements in any rock can be altered by the subsequent processes of metamorphism and weathering.

Gamma radiation in the range that is measured in the thorium, potassium, uranium and total count windows is strongly attenuated by rock, overburden and water. Almost all of the total radiation measured from rock and overburden originates in the upper 0.5 metres. Moisture in soil and bodies of water will mask the radioactivity from underlying rock. Weathered rock materials that have been displaced by glacial, water or wind action will not reflect the general composition of the underlying bedrock. Where residual soils exist, they may reflect the composition of underlying rock except where equilibrium does not exist between the original radioelement and the products in its decay series.

Radioelement counts (expressed as counts per second) are the rates of detection of the gamma radiation from specific decaying particles corresponding to products in each radioelements decay series. The radiation source for uranium is bismuth (Bi-214), for thorium it is thallium (TI-208) and for potassium it is potassium (K-40).

The uranium and thorium radioelement concentrations are dependent on a state of equilibrium between the parent and daughter products in the decay series. Some daughter products in the uranium decay are long lived and could be removed by processes such as leaching. One product in the series, radon (Rn-222), is a gas which can easily escape. Both of these factors can affect the degree to which the calculated uranium concentrations reflect the actual composition of the source rock. Because the daughter products of thorium are relatively short lived, there is more likelihood that the thorium decay series is in equilibrium.

Lithological discrimination can be based on the measured relative concentrations and total, combined, radioactivity of the radioelements. Feldspar and mica contain potassium. Zircon, sphene and apatite are accessory minerals in igneous rocks that are sources of

uranium and thorium. Monazite, thorianite, thorite, uraninite and uranothorite are also sources of uranium and thorium which are found in granites and pegmatites.

In general, the abundance of uranium, thorium and potassium in igneous rock increases with acidity. Pegmatites commonly have elevated concentrations of uranium relative to thorium. Sedimentary rocks derived from igneous rocks may have characteristic signatures that are influenced by their parent rocks, but these will have been altered by subsequent weathering and alteration.

Metamorphism and alteration will cause variations in the abundance of certain radioelements relative to each other. For example, alterative processes may cause uranium enrichment to the extent that a rock will be of economic interest. Uranium anomalies are more likely to be economically significant if they consist of an increase in the uranium relative to thorium and potassium, rather than a sympathetic increase in all three radioelements.

Faults can exhibit radioactive highs due to increased permeability which allows radon migration, or as lows due to structural control of drainage and fluvial sediments which attenuate gamma radiation from the underlying rocks. Faults can also be recognized by sharp contrasts in radiometric lithologies due to large strike-slip or dip-slip displacements. Changes in relative radioelement concentrations due to alteration will also define faults.

Similar to magnetics, certain rock types can be identified by their plan shapes if they also produce a radiometric contrast with surrounding rock. For example, granite intrusions will appear as sub-circular bodies, and may display concentric zonations. They will tend to lack a prominent strike direction. Offsets of narrow, continuous, stratigraphic units with contrasting radiometric signatures can identify faulting, and folding of stratigraphic trends will also be apparent.

APPENDIX C

DATA ARCHIVE AND GRID DESCRIPTIONS

#### **APPENDIX C**

#### **ARCHIVE DESCRIPTION**

Project #:11072Type of Survey:Fugro Radiometrics and MagneticsClient:Anglo Canadian Uranium Corp.Area:Zeus & Stirrup Creek Projects, British Columbia

Output field format : Geosoft database channels Number of fields : 547

#### Linedata Archive:

ASCII and Geosoft Line Archive File Layout (AREA .xyz & AREA.gdb):

Field	Variable	Description	Units
1	line	Line Number	-
2	flight	Flight Number	-
3	date	Date of the Survey Flight	yyyymmdd
4	fid	HeliDAS Fiducial Counter	sec.
5	time	Universal Time (Seconds Since Midnight)	sec
6	lat	Latitude in NAD83	degrees
7	lon	Longitude in NAD83	degrees
8	х	Easting (X) in NAD83 UTM Zone 10N	m
9	У	Northing (Y) in NAD83 UTM Zone 10N	m
10	gpsz	GPS Elevation (Referenced to Mean Sea Level)	m
11	alt_radar	Radar Altimeter (Above Ground)	m
12	alt_laser	Radar Laser (Above Ground)	m
13	dem	Terrain (Referenced to Mean Sea Level)	m
14	diurnal	Magnetic Ground Base Station	nT
15	diurnal_lfc	Long Wavelength Component of the Magnetic Ground Base Station	nT
16	mag_raw	Total Magnetic Intensity (Uncompensated)	nT
17	mag_comp	Total Magnetic Intensity (Compensated, Lagged & Diurnally Corrected)	nT
18	tmi	Total Magnetic Intensity (Levelled)	nT
19	igrf	International Geomagnetic Reference Field	nT
20	rmi	Residual Magnetic Intensity (Levelled)	nT
21	tc_raw	Total Count Raw	cps
22	k_raw	Potassium Count Raw	cps
23	u_raw	Uranium Count Raw	cps
24	th_raw	Thorium Count Raw	cps
25	u_up_raw	Upward Uranium Count Raw	cps
26	cosmic	Cosmic Count Raw	cps
27	livetime	Spectrometer Live Time	ms
28	alt_stp	Standard Temperature and Pressure Altitude	m
29	pres	Air Pressure	kPa

30	temp	Air Temperature	degrees celcius
31	tc	Total Count	cps
32	k	Potassium	cps
33	u	Uranium	cps
34	th	Thorium	cps
35	u_up	Upward Uranium	cps
36-291	spec256_down	Raw Downward Looking Radiometric Spectra	cps
292-547	spec256_down_nas	NASVD Downward Looking Radiometric Spectra	cps

Note - The null values in the ASCII archive are displayed as \*

#### **GRID DESCRIPTIONS**

The grids are in Geosoft format. A grid cell size of 50m was used for all area grids.

File	Description	Units
AREA_rmi.grd	Residual Magnetic Intensity	nT
AREA_vd1.grd	First Vertical Derivative	nT/m
AREA_tc(_deh).grd	Total Count	cps
AREA_k(_deh).grd	Potassium	cps
AREA_th(_deh).grd	Thorium	cps
AREA_u(_deh).grd	Uranium	cps

The \*\_deh files are the grid files corrected for minor asymmetric variations ("de-herringboned").

#### Maps

PDF files of delivered maps at a scale of 1:20,000. One map set consists of one sheet.

File	Description	Units
RMI	Residual Magnetic Intensity	nT
VD1	First Vertical Derivative	nT/m
TC	Total Count	cps
К	Potassium	cps
Th	Thorium	cps
U	Uranium	cps

#### Report

A logistics report for Project #11067 in PDF format:

R11072.pdf

#### Video

Digital video in BIN/BDX format are archived for all survey flights. To view the files, a video viewer is included.

FUGROVIDEOVIEWER.ZIP

APPENDIX D

**TESTS AND CALIBRATIONS** 

#### - Appendix D.2 -

#### **Aircraft Registration C-FDQA**

#### LAG TEST

A magnetic lag test is flown to calculate the positional lag that develops between the time a reading is made and the time it is recorded in the data. A large metallic body such as railway tracks, a bridge, buildings or a distinct magnetic anomaly is flown over along a single line, at survey altitude, in opposite directions. This allows the time constant value that will line-up the magnetic anomaly peaks or troughs that are produced to be determined. This time shift constant is then applied to the data collected during the survey.

Lag test for C-FDQA was flown on October 21, 2009 while on Job 09037. The lag was determined to be 1.6 seconds.



#### **FIGURE OF MERIT**

Compensation of magnetic readings is required when the magnetometers are mounted on, or in close proximity to, the aircraft. The aircraft with its metallic parts and surfaces creates secondary magnetic fields while the aircraft moves through the earth's magnetic field. Therefore the compensation calibration test is flown to calculate the effects of the aircraft and its control surfaces on the magnetic field. The test is flown at high altitude, outside the effect of geology on the magnetic readings. The aircraft flies in each of the survey directions performing a series of manoeuvres that moves the aircraft along each of its three axis of rotation. The aircrafts affect on the magnetic data is calculated and then subtracted from the magnetic data collected during the survey.

MAGNETIC COMPENSATION CALIBRATION									
Project Number:				Survey Type: MAGNETICS / RADIOMETRICS			RICS		
Date Flown:	Aug. 23, 2011		Helico	pter Registration:	C-GYFS				
Flight Number:	17004			Database Name:	SYS17_FL00004.g	db			
	Sensor Position:	Stinger	Pitch	Roll	Yaw				
BOX 2	Raw Mag Channel:	MAG2U	Residual Peak	Residual Peak	<b>Residual Peak</b>	Total	Figure of Merit		
	Line Number	Heading	to Peak to Peak		to Peak				
Direction 1:		090	0.14	0.17	0.18	0.48			
Direction 2:		180	0.33	0.14	0.21	0.69	4 90		
Direction 3:		270	0.16	0.14	0.12	0.42	1.09		
Direction 4:		360	0.11	0.11	0.08	0.30			

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#### **COSMIC / AIRCRAFT BACKGROUND TEST**

A cosmic test is conducted to determine both the effects of cosmic radiation and aircraft background radiation on the spectrometer readings. This test is conducted at high altitude, outside the geological effect on the spectrometer data and well above the maximum altitude that will be achieved during survey. The aircraft is flown at a series of altitudes for a set amount of time to minimize statistical error. The effects of altitude on the level of cosmic radiation are calculated and this data is extrapolated to and corrected for in the data collected during the survey.

	COSMIC CORRECTION COEFFICENTS													
J	ob Number:	b Number:		Crystal Pack Volume:		One Crystal Pack 16.8 L Down, 4.2 L Up				Spec Pack Serial Number	(s) 2644 er:			
	Date Flown:	Aug. 2	Aug. 21, 2011			Helic	opter Registra	ation:	C-FGYFS	C-FGYFS			Spec Conso Typ	GR820
Fliç	ght Number:	17002	2				Database N	lame:	SYS17_FLT00002.gdb			Spec Conso Serial Number	er: 8228	
LINE	AVERAGE TC_DOWN	Use Data Point	AVERAGE K_DOWN	Use Data Point	AVERAGE U_DOWN	Use Data Poin t	AVERAGE TH_DOWN	Use Data Point	AVERAGE U_UP	Use Data Point	AVERAGE COSMIC	Sumr	nary of Cosm Coefficie Cosmic Stripping	ic Correction nts Aircraft Background
7000	157 07300	<u> </u>	10.06346	<u> </u>	6 21027	<u> </u>	6 5 / 8 1 7	<u> </u>	1 62126	<u> </u>	180 26246	тс	(Slope)	(Intercept)
8000	179.79402	<u> </u>	12.52824	<b>▼</b>	7.24253	<u>v</u>	7.77409	<u>د</u>	1.90365	<u></u>	209.93023	K	0.04074	3.80951
9000	201.68771	ح	14.07641	¥ ت	7.81395		8.75415	<u>د</u>	2.08638	<u>त</u>	247.67774	U	0.02805	1.17396
10000	231.26246		15.49502		9.46512		10.09635	V	2.62459		290.57143	Th	0.03137	1.01180
												U Up	0.00872	0.03545

#### **ALTITUDE ATTENUATION TEST**

An altitude attenuation test is conducted to determine the drop off rate of the spectrometer signal with altitude. A test line is flown at several different altitudes and the attenuation, with increased ground clearance, of the various spectral elements is determined. These attenuation factors are applied to the data collected throughout the survey. During processing these factors were refined to those documented in the radiometric processing control file.

	ALTITUDE ATTENUATION COEFFICENTS											
	Job Number:			С	Crystal Pack Volume: One Crystal Pack Volume:		ack 16.8 L o	Spec Pack(s) Serial Number:	2644			
	Date Flown:	Aug. 23, 2011			Heli	copter Registr	ation:	C-FQDA	C-FQDA		GR820	
FI	light Number:	17005			Database Name:			SYS17_FLT00005.gdb		Spec Console Serial Number:	8228	
LINE	AVERAGE TC_DOWN_ ATTENCOR	Use Data Point	AVERAGE K_DOWN_ ATTENCO R	Use Data Poin	AVERAGE U_DOWN_ ATTENCOR	Use Data Point	AVERAGE TH_DOWN_ ATTENCOR	Use Data Point	AVERAGE EFFECTIVE HEIGHT			
150	172.67708		20.943702		2.257315		2.499403		56.619085	Summary of Altitude Attenuation		enuation
200	175.97040		20.513028	<u> </u>			3.103742		57.594694 86 339773	TC		egative)
400	94.95196		10.474686	\  -	1.05503	N 5	1.074371	V.	105.050938	K	-0.00	822
500	150.78935		15.718685	I I	1.944595		2.368415		139.012134	U	-0.00	661
1000	45.69252	<u>v</u>	4.099366		0.636813		1.055893		266.375217	Th	-0.00	631



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#### **RESULTS OF PEAK ANALYSIS**

#### # InputSpectrum = GR820\_DOWN\_NASVD PEAK CENTROID POSITION AND RESOLUTION NASVD CORRECTED

#### Zeus Property

L10010:17001	124.013 6.435	149.298 5.164	219.486 6.136
L10020:17001	124.019 6.406	149.268 5.095	219.531 5.941
L10030:17001	124.037 6.441	149.279 5.139	219.485 6.081
L10040:17001	123.983 6.441	149.276 5.344	219.280 6.061
L10050:17001	124.003 6.451	149.268 5.219	219.446 6.126
L10060:17001	123.896 6.445	149.122 5.462	219.294 5.963
L10070:17001	123.887 6.466	149.147 5.387	219.435 6.265
L10080:17001	123.835 6.472	149.148 5.446	219.469 6.397
L10090:17001	123.924 6.479	149.275 5.274	219.538 6.607
L10100:17001	123.945 6.485	149.268 5.266	219.459 6.545
L10110:17001	124.039 6.470	149.274 5.186	219.429 6.207
L10120:17001	124.053 6.438	149.188 5.247	219.339 5.906
L10130:17001	124.121 6.433	149.224 5.145	219.383 5.868
T19010:17001	123.940 6.428	149.189 5.319	219.497 5.933
T19020:17001	124.075 6.522	149.237 5.222	219.297 6.211
Global	123.988 6.452	149.262 5.252	219.427 6.158

Stirrup Creek Property

L20010:17001	123.811	6.553	149.118	5.416	219.002	5.741
L20020:17001	123.861	6.547	149.171	5.349	218.947	5.957
L20030:17001	123.815	6.583	149.256	5.453	218.983	5.753
L20040:17001	123.954	6.534	149.161	5.518	218.960	5.987
L20050:17001	123.880	6.563	149.188	5.391	219.025	5.710
L20060:17001	123.965	6.559	149.275	5.596	219.181	5.762
L20070:17001	123.883	6.555	149.244	5.461	219.056	5.855
L20080:17001	123.924	6.530	149.259	5.505	218.982	6.136
L20090:17001	123.821	6.575	149.203	5.469	218.987	5.709
L20100:17001	123.811	6.554	149.248	5.575	219.148	5.780
L20110:17001	123.864	6.567	149.180	5.610	219.231	5.608
L20120:17001	123.976	6.474	148.846	5.591	219.458	5.875
L20130:17001	123.852	6.548	149.199	5.645	219.123	5.809
L20140:17001	123.834	6.529	149.157	5.479	219.053	5.974
L20150:17001	123.831	6.565	149.161	5.414	218.982	5.778
L20160:17002	123.719	6.564	148.925	5.114	218.673	5.573
L20170:17002	123.740	6.574	149.097	5.123	218.610	5.731
L20180:17002	123.767	6.553	149.111	5.197	218.691	5.864
L20190:17002	123.747	6.538	148.924	5.181	218.761	5.615
L20200:17002	123.813	6.564	148.989	5.231	218.856	5.685

#### Appendix D8.

L20210:17002	123.781 6.583	149.112 5.192	218.672 5.695
T29010:17002	123.830 6.562	149.043 5.266	218.768 5.648
T29020:17002	123.846 6.548	149.143 5.429	218.957 5.765
T29030:17002	123.742 6.571	149.104 5.169	218.642 5.717
Global	123.831 6.555	149.174 5.377	218.944 5.850

APPENDIX E

#### **RADIOMETRICS COEFFICIENTS**

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#### **RADIOMETRICS COEFFICIENTS FOR C-GYFS**

#### Background removal:

Cosm (c/	ic Coeff. /sec)	Aircraft Background
TC	0.66193	38.81279
K	0.04074	3.80951
U	0.02805	1.17396
TH	0.03137	1.01180
UPU	0.00872	0.03545

#### Radon removal:

Radon	Ration	Skyshine						
a <sub>tc</sub> =	9.7559	A <sub>1</sub> = 0.10270 (Zeus Project)						
			0.02703 (Stirrup Creek Project					
а <sub>к</sub> =	-2.765	A <sub>2</sub> =	-0.02688 (Zeus Project)					
			0.03173 (Stirrup Creek Project)					
а <sub>тн</sub> =	0.3545		Filter					
a <sub>upu</sub> =	-0.3832	Type =	LP Hanning					
All 'b' ratios = 0		Length =	51 sec					

#### **Compton Stripping:**

Strip	oing Coe	Height Adjustment (m <sup>-1</sup> )		
Alpha =	0.222	a =	0.055	0.00049
Beta =	0.371	b =	0.004	0.00065
Gamma =	0.707	C =	0.006	0.00069

#### Altitude Attenuation:

Height Attenuation Coefficients (m <sup>-1</sup> )							
TC	-0.0073						
K	-0.0094						
U	-0.0082						
TH	-0.0070						





## TECHNICAL SUMMARY Navigation . . . . . . . . . . . Differentially—corrected GPS Data reduction grid interval . . . 50 metres Terrain clearance . . . . . . . . . Helicopter, Spectrometer 60 m Magnetometer 60 m ∃((N))

#### FLIGHT LINES

	Flight direction Flight number
	Flight line number 1 <u>102</u> 0 Line Number Area Number
$\geq$	Fiducials identified on profiles

### RESIDUAL MAGNETIC FIELD CONTOURS

	•	•••	•	•	•	•	•	•	250	nT
	•	•••	•	•	•	•	•	•	50	nT
 	•		•	•	•	•	•	٠	10	nT
 	•		•	•	•	•	•	•	5	nT
		• •	•	•	•	m	na	gne	etic	low

Magnetic inclination within the survey area: 72 degrees N Magnetic declination within the survey area: 18 degrees E



Scale 1:10 000







### TECHNICAL SUMMARY Navigation . . . . . . . . . . Differentially—corrected GPS Data reduction grid interval . . . 50 metres Terrain clearance . . . . . . . . Helicopter, Spectrometer 60 m Magnetometer 60 m ≡((N)) FLIGHT LINES

 $\sim$ 0 < 1301

CALCULATED VER

122'30'\ NTS: 92 0/1

ANGLO CANADIAN URANIUM CORP. STIRRUP CREEK PROJECT, BC CALCULATED VERTICAL MAGNETIC GRADIENT NTS: 92 0/1 GEOPHYSICIST: FUGRO MAG/RAD SURVEY JOB: 11072 SHEET: 1 DATE: OCTOBER, 2011 Fugro Airborne Surveys Scale 1:10 000

FUGRO AIRBORNE SURVEYS

	Flight direction Flight number
	Flight line number 1 <u>102</u> 0
$\geq$	Fiducials identified on profiles

RTICAL	GRADIENT							CON	TOURS	
	•	•	•	٠	•	•	•	•	2.5	nT/metre
	•	٠	•	٠	•	•	•	•	0.5	nT/metre
	•	•	•	•	•	•	•	•	0.1	nT/metre
				•					0.05	nT/metre













524.5

466.6

462.7

456.4

398.6

388.7

380.5

ANGLO CANADIAN URANIUM CORP. STIRRUP CREEK PROJECT, BC RADIOMETRIC TOTAL COUNT NTS: 92 0/1 GEOPHYSICIST: FUGRO MAG/RAD SURVEY DATE: OCTOBER, 2011 JOB: 11072 SHEET: 1 Fugro Airborne Surveys 10 Km Scale 1:10 000

FUGRO AIRBORNE SURVEYS

NTS: 92 0/1

## TECHNICAL SUMMARY Navigation . . . . . . . . . . Differentially—corrected GPS Data reduction grid interval . . . 50 metres Terrain clearance . . . . . . . . Helicopter, Spectrometer 60 m Magnetometer 60 m FLIGHT LINES

- Flight direction — Flight number - Flight line number it line . 1<u>102</u>0 ↑ ↑ ↓ \_\_\_\_ Reflight Number ∵re Number ——— Area Number - Fiducials identified on profiles

### CONTOUR INTERVALS

	 •	•	•	•	•	•	•	•	•	500	cps
		•	•	•	•	•	•	•	•	100	cps
	 •	•	•	•	•	•	•	•	•	20	cps
_		•	•	•	•	•	•	•	•	10	cps
		•	•	•	•	•	٠	•	•		low









## TECHNICAL SUMMARY Navigation . . . . . . . . . Differentially-corrected GPS Data reduction grid interval . . . 50 metres Terrain clearance . . . . . . . . Helicopter, Spectrometer 60 m Data sampling interval . . . . 0.1 second Magnetometer / sensitivity . . . Cesium / 0.01 nT Spectrometer . . . . . . . . . . . GR820 Spectrometer data sampling . . . 1.0 second $\exists (N)$

122'30'\

NTS: 92 0/1

ANGLO CANADIAN URANIUM CORP. STIRRUP CREEK PROJECT, BC RADIOMETRIC POTASSIUM COUNTS NTS: 92 0/1 GEOPHYSICIST: FUGRO MAG/RAD SURVEY JOB: 11072 SHEET: 1 DATE: OCTOBER, 2011 Fugro Airborne Surveys 10 Km Scale 1:10 000

FUGRO AIRBORNE SURVEYS

#### FLIGHT LINES

2

<13010:

	Flight direction Flight number
	Flight line number 1 <u>102</u> 0
$\geq$	Fiducials identified on profiles

CONTOUR	ΙΝΤ	E	R	V	41	LS	5					
		•	•	•	•	•	•	•	•	•	100	cps
		•	•	•	•	•	•	•		•	20	cps
		•	•	•	•	•	•	•	•	•	4	cps
		•	•	•	•	•		•		•	2	cps
		•	•	•	•	•	•	•	•	•		low









# TECHNICAL SUMMARY Navigation . . . . . . . . . . Differentially-corrected GPS Data reduction grid interval . . . 50 metres Terrain clearance . . . . . . . Helicopter, Spectrometer 60 m Data sampling interval . . . . 0.1 second Magnetometer / sensitivity . . . Cesium / 0.01 nT Spectrometer . . . . . . . . . . . . GR820 Spectrometer data sampling . . . 1.0 second FLIGHT LINES

cps

<13010:2

122°30'

NTS: 92 0/1

FUGRO MAG/RAD SURVEY DATE: OCTOBER, 2011

FUGRO AIRBORNE SURVEYS

	Flight direction Flight number
	Flight line number 1 <u>102</u> 0
$\geq$	Fiducials identified on profiles





### ANGLO CANADIAN URANIUM CORP. STIRRUP CREEK PROJECT, BC RADIOMETRIC THORIUM COUNTS NTS: 92 0/1 GEOPHYSICIST: JOB: 11072 SHEET: 1 Fugro Airborne Surveys

Scale 1:10 000







# TECHNICAL SUMMARY Navigation . . . . . . . . . . Differentially-corrected GPS Data reduction grid interval . . . 50 metres Terrain clearance . . . . . . . Helicopter, Spectrometer 60 m Data sampling interval . . . . 0.1 second Magnetometer / sensitivity . . . Cesium / 0.01 nT Spectrometer . . . . . . . . . . . . GR820 Spectrometer data sampling . . . 1.0 second FLIGHT LINES

122°30'

 $\sim$ 

0 <1301

NTS: 92 0/1 ANGLO CANADIAN URANIUM CORP. STIRRUP CREEK PROJECT, BC RADIOMETRIC URANIUM COUNTS NTS: 92 0/1 FUGRO MAG/RAD SURVEY JOB: 11072 SHEET: 1 DATE: OCTOBER, 2011 Fugro Airborne Surveys Scale 1:10 000

FUGRO AIRBORNE SURVEYS

	Flight direction Flight number
	Flight line number 1 <u>102</u> 0 Reflight Number Line Number Area Number
$\geq$	Fiducials identified on profiles







