GEOPHYSICAL REPORT AIRBORNE MAGNETIC SURVEY ON THE HAWK PROPERTY BC

OMINECA MINING DIVISION, BRITISH COLUMBIA, CANADA BC Geological Survey Assessment Report 33084

NTS: 094C.002 Latitude 56° 02' 33"N Longitude 125° 40' 49.8"W (UTM NAD 83 333029mE, 6214050mN)

for

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May 5th, 2012

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Item 1: Summary

The Hawk mineral property is located approximately 200 kilometres northwest of the town of Fort St. James and approximately 300 kilometres northwest of the city of Prince George, in north central British Columbia. The property is owned by Alton Resource Corp. The mineral tenures comprising the property are registered to R. M Durfeld of Williams Lake.

The Hawk property, consisting of 15 mineral tenures, covering some 5,765 hectares is situated within a large intrusive complex broadly called the Hogem Batholith. The Hogem batholith itself occurs within the Mesozoic aged Quesnel Terrane and includes alkalic (quartz under saturated) intrusive bodies and calc-alkaline (quartz saturated) intrusive bodies. At the Hawk property, both types of intrusions occur, and in a general sense, the claims straddle the contact separating the two types.

Two types of mineralization have been discovered on the Hawk property; epithermal/mesothermal gold-silver veins hosted in both alkaline and calcalkaline intrusive rocks and porphyry copper-gold mineralization hosted in alkalic intrusive rocks.

The Hawk Property area was explored by Amoco (Canada) Petroleum Company Ltd. ("Amoco") in the early 1970's for alkalic copper-gold porphyry mineralization similar to the Lorraine deposit located 20 kilometres to the southeast. Amoco drilled four holes at Hawk with the best intersections being 36.2 m grading 0.39% copper, 15.2 m grading 0.76% copper and 20.9 m grading 0.27% copper (Amoco did not assay for gold). Exploration continued in 1990, this time by Cyprus (Gold) Canada Ltd. ("Cyprus"), who discovered gold mineralization in veins hosted in both alkalic and calcalkaline intrusive rocks. Veins discovered by Cyprus included the AD vein where initial surface sampling returned 96.0 g/t gold over 3.0 meters, and a subsequent drill program of 8 holes included intersections of 19.9 g/t gold over 1.5 metres and 9.3 g/t gold over 2.8 meters. Exploration continued in 1995 by Castleford Resources Ltd. with further sampling and

surface surveys and in 2002 by Redcorp Ventures Ltd. who completed further sampling and surface surveys and more diamond drilling and the location of the Zulu and Rainbow vein systems.

The most recent exploration at Hawk was completed by Alton Resource Corp in 2010 and 2011. The first campaign completed in July 2010 took drill core originating from drill programs completed in 1990 and in 2002 that was in disarray and reorganized it. Twenty-two silt samples were collected and analyzed and, along with the historic data set for the project, digitized. In the second campaign, completed in late September 2010, additional soil and rock sampling (largely focused on the alkalic copper gold potential) was completed in the south central property area. During 2011, Alton expanded the claim holdings by tenure acquisition and contracted New-Sense Geophysics Limited of Toronto to complete a High Resolution Helicopter Magnetic Airborne Geophysical Survey over the entire claim holdings. The survey was flown between September 14th and 19th, 2011. A total of 397 line kilometres of field magnetic data was flown, collected, processed and plotted. The results of this survey were analyzed by Lou O'Connor, a geophysical consultant and are included in this report.

Infrastructure on and in the vicinity of the Hawk claims includes the Omineca Mine Road and the 230kV Kemess power line both located approximately 40 kilometres by road to the east of the property and the BC Rail line (now owned by Canadian National Railway) located 50 kilometres to the west of the property.

The Hawk property is considered by the author to be prospective for both porphyry copper-gold mineralization and for vein hosted higher grade gold mineralization.

Item 2: Introduction

In September 2011 Alton Resource Corp. commissioned a helicopter magnetic survey to be flown over the area of the Hawk property. This report documents the survey and compiles the data with previous geological and geochemical survey results.

Item 3: Reliance on Other Experts

Not Applicable.

Hawk Location Map



Figure 1

Item 4: Property Description and Location

The Hawk Mineral Property is located in the Omineca Mining Division of British Columbia and consists of ten mineral claims covering 5,765 hectares (14,246 acres). These claims are all recorded in the name of Rudolf M. Durfeld and owned by Alton Resource Corp. The claim boundaries are shown in Figure 2 which has been downloaded from the British Columbia Mineral Titles Online website. The author is unaware of any environmental or other liabilities to which the Hawk Property may be subject. The holding of mineral claims in British Columbia does not immediately entitle the holder to surface rights which must be acquired separately at a later date. In the case of claims on Crown (government) land, which is the case at the Hawk property, the process is straight forward and established. The area of the Hawk is covered by a general Indian Land Claim which also includes most of the Province of British Columbia including the cities of Vancouver and Prince George. The author is not aware of any specific archeological sites of significance that occur on the Hawk property.

The following table summarizes the status of the mineral claims comprising the Hawk Project. The Good to Date reflects the Statement of Work filed on May 3, 2012 event #5297424

Number	Owner	Tenure Type	Claim Name	Good to Date	Area (ha)
728342	107306 (100%)	Mineral		2017/may/26	741.1
728382	107306 (100%)	Mineral		2018/dec/27	54.2
728402	107306 (100%)	Mineral		2018/dec/27	36.2
728422	107306 (100%)	Mineral		2017/may/26	614.3
728442	107306 (100%)	Mineral		2017/may/26	470.2
728463	107306 (100%)	Mineral		2017/may/26	433.8
728482	107306 (100%)	Mineral		2017/may/26	253.2
728502	107306 (100%)	Mineral	HAWK 1	2017/may/26	451.8
728522	107306 (100%)	Mineral		2017/may/26	451.6
728542	107306 (100%)	Mineral		2017/may/26	451.6
895672	107306 (100%)	Mineral	HAWK E	2015/sep/01	451.9
895680	107306 (100%)	Mineral	HAWK EAST	2015/sep/01	433.9
895694	107306 (100%)	Mineral		2015/sep/01	451.7
895702	107306 (100%)	Mineral	HAWK SE	2015/sep/01	18.1
895709	107306 (100%)	Mineral		2015/sep/01	451.7
				Total Property Area:	5765.3

Table 1	l: Hawk	Property	Claims
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In British Columbia, acquisition of Crown mineral rights is governed by the Mineral Tenure Act and administered by the Mineral Titles Branch. The mineral tenure locations are map based and each claim is defined by a UTM coordinate which is used to define the boundary on the ground. Once a claim is staked it is good for one year and then must be maintained by completing a prescribed amount of assessment work or by paying the equivalent amount in cash (cash in lieu). The amount required is \$4.00 per hectare per year in the first, second and third anniversary years of the claim after which it rises to \$8.00 per hectare per year. A filing fee of \$0.40 per hectare per year is also required.



Item 5: Accessibility, Climate, Local Resources, Infrastructure and Physiography

The Hawk mineral property (NTS 094C002) is located approximately 200 kilometres north northwest of the town of Fort St. James and approximately 300 kilometres northwest of the city of Prince George, in north central British Columbia. Access to the property is from the town of Fort St. James using the all-weather Thutade Forest Service Road or from the town of Mackenzie, BC, using the Findlay Forest Service Road. Logging roads constructed along the Osilinka River in the 1990's and early 2000's (the Thutade-Osilinka Forest Service Road) provide access onto the claims. Logs harvested along the Osilinka Road were (and are) transported to Mackenzie for sawmilling and consequently the route to Mackenzie is probably currently the fastest and best maintained access to the project (about four hours by pickup truck). Uslika Lake, located 25 kilometres by road east of the property, can be accessed by float plane while Silver Creek Camp, located 40 kilometres south of the property, is road accessible from Fort St. James and is routinely used as a summer helicopter base and was utilized as a base of operations in 2010.

The Hawk property covers a largely mountainous terrain that varies from lower elevation Lodgepole pine forests along the Osilinka River and its immediate tributaries to alpine tundra at the higher elevations. The climatic zone classification is within the Engleman Spruce-Subalpine Fir biogeoclimatic zone. Elevations on the claims range from 1,150 metres (3,780 feet) in the valley bottom to 2,160 metres (7,100 feet) on peak tops. Precipitation averages approximately 100 cm (25 inches) with much of it occurring as snow in the winter months.

The Hawk claims occur within a continental cool temperate climatic zone typified by moderate warm moist summers and cold winters. Permanent snow is usually on the ground in the area of current interest from the middle of October until the beginning of June and can accumulate up to three metres in depth at the higher elevations. A realistic available operating season at the present stage of exploration for the Hawk property is from the third week of June until the first week of October – roughly four months. At a more evolved stage of exploration this could be easily increased to six months or more by winterizing the camp and adopting winter operating procedures.

The nearest BC Hydro power grid is located approximately 40 kilometres to the east. The landscape includes steep side hills, rolling uplands and a flat lower elevation river bottom that collectively would offer several options for the construction of surface facilities and tailings impoundment sites. Numerous sources of water are readily available.

The British Columbia Railway line (now owned by Canadian National Railway) is located approximately 60 kilometres to the west of the Hawk property.

Item 6: History

In the early 1970's, numerous mining companies conducted exploration programs in the area of the Hawk property. The Hogem Batholith was of particular interest for porphyry copper-molybdenum deposits, and the first detailed recorded work on the property was conducted in 1971 by Amoco (Canada) Petroleum Company Ltd ("Amoco"). A total of 7,376 silt, water, rock, and soil samples were collected throughout 2,400 square kilometres, all of which were assayed for copper and molybdenum. The ensuing values showed regions with anomalous copper and/or molybdenum, and lead to the staking of four areas including the Hawk prospect. Resultant work continued from 1972 to 1974 and included detailed geological mapping and soil sampling. In 1974, Amoco Canada conducted a drilling program in which 749 metres of core from four different holes on Hawk were completed and analyzed for copper and molybdenum (gold content was not determined). The most successful hole returned 0.39% copper over 36.2 metres and a second intercept of 0.76% copper over 15.2 metres. A summary of significant 1974 drill holes is as follows:

Hole #	From (metres)	To (metres)	Interval (metres)	Copper %
74-1	18.6	54.9	36.3	0.39
74-1	70.7	86.0	15.3	0.76
74-2	103.6	108.2	4.6	0.35
74-3	102.4	105.4	3.0	0.34
74-3	121.3	132.3	11.0	0.27

 Table 2: Significant 1974 Drill Results

After the 1974 drilling program, no further work was conducted on the property by Amoco and the claims were allowed to lapse. Cyprus Gold (Canada) Ltd. re-staked the Hawk prospect and, in 1990, began an exploration program that involved extensive rock and soil sampling, a magnetic survey, and a VLF survey. The results indicated anomalous values of gold and copper in the Radio vein, AD zone, and HSW regions. Drilling commenced on the AD zone in October of 1990, and a total of 898 metres of core from eight different holes (HK90-1 to HK90-8) was completed. The following table lists significant gold values obtained for holes one through five (holes six through eight did not return any significant values).

Hole	Interval (metres)	Width (metres)	Au oz/ton	Au g/tonne			
1112 00 1	57.5-62.7	5.2	0.200	6.857			
пк 90-1	59.7-61.2	1.5	0.580	19.886			
HK 90-2	64.1-66.9	2.8	0.270	9.257			
HK 90-3	54.0-54.5	0.5	0.194	6.651			
НК 90-4	79.0-80.0	1.0	0.860	29.486			
	100.0-101.3	1.3	0.440	15.086			
HK 90-5	31.6-33.6	2.0	0.128	4.389			

 Table 3: Significant 1990 Drill Results

Cyprus recommended additional work on the Radio vein and HSW area because of the anomalous gold/copper values found in the area, however no additional work was conducted by Cyprus and the claims lapsed in 1995.

The area was then staked by Nicholson and Associates and R.M. Durfeld in 1995, and optioned to Castleford Resources Ltd. who spent \$101,473 on a 1995 work program which was focused on expanding and detailing the known zones of mineralization and completing additional prospecting. No further work was completed by Castleford and the claims, except HK3 and HK4, eventually lapsed.

In 2001, Redcorp Ventures Ltd. re-staked claims surrounding the HK3 and HK4 claims and in 2002 acquired an option on the HK3 and HK4 claims. Redcorp then completed an exhaustive program at Hawk that included surface surveys, sampling, prospecting and diamond drilling. A total of 1,534 metres of drilling in twelve holes were completed with five holes being in the Radio Zone (HK02001-HK02005), three in the AD Zone (HK02006-HK02007), and four in the Zulu zone (HK02008-HK02012). Drill core was logged and based on visible mineralization or alteration, sampled (120 samples in total). A summary of significant results from the 2002 drilling is as follows:

HOLE	From	To (m)	Length	Width	Au	Metallic	Ag	Cu
	(m)		(m)	True (m)	(gpt)	Au (gpt)	(gpt)	(%)
Radio								
Vein								
HK02001	29.97	30.18	0.21	0.19	11.60	18.79	7.40	1.62
	32.02	32.17	0.15	0.07	6.75	8.97	4.40	1.11
	43.75	43.98	0.23	0.14	10.80	11.18	17.80	2.06
HK02002	15.97	16.40	0.43	0.33	16.10	14.50	7.60	1.62
HK02003	90.65	90.81	0.16	0.14	3.92		3.00	0.52
HK02004	58.60	59.55	0.95	0.90	4.42	4.19	3.61	0.33
HK02005	27.30	27.62	0.32	0.20	11.51	12.30	5.14	0.57
	50.60	51.10	0.50	0.40	6.19	5.16	2.20	0.26
	104.51	104.57	0.06	0.06	12.80	12.20	10.00	0.69
AD								
Vein								
HK02006	103.72	108.18	4.46	1.90	4.62	4.41	31.94	0.33
	118.18	129.77	11.59	5.00	4.66		25.06	0.48
incl.	119.00	122.85	3.85	1.60	8.60		35.37	0.99
incl.	140.50	142.34	1.84	0.76	1.30		1.20	0.03
incl.	148.65	149.81	1.16	0.48	2.64		3.00	0.30
HK02007	103.77	104.91	1.14	0.47	4.69		7.84	0.58
Zulu Vein								
HK02008	104.85	105.18	0.33	0.20	3.97	4.07	1.60	0.07
HK02009	63.93	64.70	0.77	0.70	3.92	3.51	6.60	0.92
HK02010	116.74	117.64	0.90	0.50	0.11		0.20	0.01
HK02011	67.00	69.30	2.30	1.80	4.43		1.47	0.19
Incl	67.00	67.25	0.25	0.20	28.20	29.27	6.80	0.82
HK02012	106.65	107.03	0.38	0.20	11.23	14.70	9.20	1.15

 Table 4: Significant 2002 Drill Results

Redcorp subsequently experienced financial difficulty related to its Tulsequah project and allowed most of the Hawk claims to expire and returned the key claims to Durfeld in January 2010.

Year	Soil	Rock	I.P.	Mag	Airborne	VLF	Drill	Drill
Entity	Samples	Samples	Surveys	Surveys	Surveys	Surveys	Hole	Hole
					(km)		#	(m)
1974	unknown	unknown	unknown	unknown		unknown	4	749
1990	1145	366		±40 km		1.6 km	8	898
1995	579	127				10.6		
2002	813	99					12	1,534
2010	112	15		±16 km				
2011					397			
Totals	+2,649	+607		+56 km	397 km	+12.2 km	24	3,181 m

 Table 5: Summary of Exploration Completed at the Hawk Property

Item 7: Geological Setting

7.1 Regional Geology

The Hawk property straddles the boundary between the Early to Mid Jurassic Duckling Creek Complex and slightly younger Osilinka intrusion, both of which are included in the composite Triassic to Cretaceous aged Hogem Batholith with the Duckling Creek Complex occupying the central portion of it. Work undertaken by a cooperative industry government research project in 2002 (*Innovative Gold Targets in the Pinchi Fault/Hogem Batholith Area: The Hawk and Axelgold Properties, Central British Columbia (94C/4, 94N/13) by JoAnne Nelson, Bob Carmichael and Michael Gray)*, included the collection and subsequent age dating of a specimen from the granitic Osilinka intrusion. The age date proved to be approximately 192.3 million years dispelling speculation that it might be substantially younger.

The Hogem Batholith, including its associated rafts of sedimentary and volcanic rocks, measures ± 150 kilometres by 30 kilometres with its long axis aligned in a north

northwest orientation. It intrudes volcanic and sedimentary sequences of the Late Triassic Takla Group and the Early Jurassic Chuchi – Twin Creek successions to the south and east. On its west side, the Hogem Batholith is truncated by the Pinchi Fault which juxtapositions the Hogem against the older Cache Creek Terrane rocks to the west. The Quesnel Terrane, to which the Hogem is part, is a northwest-southeast trending Mesozoic remnant of a west facing volcanic arc. The tectostratigraphic setting of the Quesnel Terrane has also been referred to as the Takla-Nicola-Stuhini Volcanic Arc in some reports. Internally, the Hogem Batholith is subdivided into peripheral plutons of dioritic composition (Hogem Basic Suite) and a central granodioritic zone. The Duckling Creek Complex is a north-westerly oriented intrusion measuring approximately 30 kilometres by 5 kilometres and has been described by Woodsward (et al 1991) as being the largest alkali intrusion in British Columbia. It occupies the central portion of the Hogem and is thought to be a slightly younger body than the Hogem "Basic" or "Granodioritic" zones although its contact relationship is not well expressed and is often defined by zones of potassium metasomatism in which foliated rock (pseudostratified) of several derivations have developed by way of compositional layering caused by focused potassic alteration. Many, if not most, of the known copper-gold porphyry prospects of the Hogem Batholith are located in Duckling Creek Complex Rocks.

Internally, the Duckling Creek Complex was originally subdivided into foliated syenite "migmatite" and younger cross cutting sills and dykes of leucocratic syenite with aplitic to pegmatitic textures and potassium feldspar dominant porphyry. More recent work broadly subdivides the Duckling Creek Complex into two distinctive intrusive phases. The oldest phase (Phase 1) is dominated by feldspathic pyroxenite, mela-syenite and monzonite. The younger phase (Phase 2) is dominated by leuco-syenite and potassium megacrystic K-feldspar porphyry. All varieties of both phases can be variably foliated (sometimes referred to as "foliate"). The foliated varieties appear to represent zones of metasomatic compositional layering and net veining developed within more extensive zones of potassium alteration which accompanied the emplacement of syenitic intrusives.



Well developed copper-gold mineralization at the nearby Lorraine prospect (\pm seventeen kilometres to the southeast) is interpreted to have a clear special relationship with the emplacement of the younger Phase 2 intrusions of the Duckling Creek Complex. During the September 17, 2010 property tour, the author noted megacrystic k-feldspar porphyry (similar to Phase 2 Duckling megacrystic porphyry at Lorraine). The presence of this unit suggests that the younger and assumed mineralizer of the Duckling Group suite rocks occurs on the Hawk property and consequently Hawk has considerable potential for the discovery of copper-gold porphyry mineralization of the "alkalic" style.

The Hawk property itself is broadly divided into the quartz under saturated ("alkalic") Duckling Creek Complex rocks in the southern region of the claims and the quartz normative ("calc-alkaline") Osilinka intrusion in the north. The contact separating the two suites is broadly east-west in orientation.

7.2 Property Geology

Three rock types dominate the Hawk property. These rocks are calc-alkaline granite assigned to the middle Jurassic Osilinka intrusive suite, megacrystic feldspar porphyry assigned to the Jurassic aged Duckling Creek alkalic intrusive suite and a foliated, mafic rich unit (foliate) also assigned to the Jurassic aged Duckling Creek alkalic intrusive suite and a solution suite.

Calc-Alkaline Granite

The granite is assigned to the Osilinka Intrusive suite although it is noted as being somewhat unusual. It is typically pale pink to pale greenish white weathering, medium grained and homogenous over tens of kilometers. Mafic minerals are relatively sparse and include hornblende, biotite and sphene. Potassium feldspar megacrysts occur near the contact with the Duckling Creek Suite possibly because of assimilation of Duckling Creek into the granite implying a younger age for the Osilinka Granite. This observation and conclusion is supported by a decrease in grain size of the granite near the contact possibly because of chilling.

Megacrystic K-feldspar Porphyry

The Megacrystic Porphyry is assigned to Phase 2 (the younger phase) of the Duckling Creek alkalic complex. It is typically dominated by large k-feldspar phenocrysts several centimetres in size. The rock is faint brown to pinkish brown in colour and weathers to a light brown colour. Mafic minerals, although minor, are dominated by pyroxene and lesser biotite with hornblende being absent or rare. Magnetite is common and occurs as disseminations and occasionally as lenses and veinlets. Smaller grained varieties can assume a trachytic texture. Free quartz is rare.

Foliate

The foliate is assigned to the Duckling Creek Alkalic suite. It probably occurs in several varieties which can include Phase 1 (older) and Phase 2 (younger) varieties much as is the case at the nearby Lorraine occurrence. The rock has a pseudostratified appearance with alternating segregations of pink feldspar dominant material and darker pyroxene and biotite dominant material. Depending on the relative proportions of these segregations the rock can be classified as a syenite or a pyroxenite. The rock typically contains 2% to greater than 5% magnetite. Sulphides, when present, are dominated by chalcopyrite and bornite with pyrite being relatively minor. The foliated texture is derived from effects of deformation and focused potassium metasomatism.



Item 8: Deposit Types

The Hawk property is host to mineralization of two deposit types; porphyry copper-gold and mesothermal precious metal veins.

Alkalic Porphyry Copper-Gold Deposit.

Alkalic porphyry deposits include some of the world's highest-grade porphyry gold resources with examples including Cadia, Cadia Hill and Ridgeway in Australia and several well-known deposits in British Columbia. The British Columbia deposits include Mount Polley, Copper Mountain, Mount Milligan, and Galore Creek. The Lorraine occurrence, located approximately 18 kilometers to the east of Hawk, is currently being explored by Teck Corporation and Lorraine Copper Corporation. Lorraine has been well researched and provides a potentially useful analogue for copper-gold exploration at Hawk. Cu-Au porphyry deposits in general associated with alkaline igneous rocks can be characterized by distinctive alteration zones that include sodic and calc-potassic mineral assemblages. The systems are typically low in sulphur encouraging higher tenor copper minerals and only minor quantities of pyrite.

Mesothermal Quartz Veins

Although more an example of discrete individual veins the Hawk precious metal veins share a number of commonalities with reduced intrusion-related gold systems such as the Fort Knox (low grade-bulk tonnage deposit) located north of Fairbanks Alaska excepting that the Hawk veins are actually quite high grade. The low grade of the Fort Knox deposit is not a function of the grade of the individual veins rather it is a function of the relatively small volume that the veins contribute to the overall size of the deposit. Precious metal mineralization at Fort Knox occurs in narrow discrete quartz veins within otherwise barren host rocks. It is mined as a bulk deposit accepting the dilution attributable to the unmineralized host rocks. Fort Knox is characterized by an Au-Bi-Te-W metal assemblage similar to the Dublin Gulch deposit located in the Yukon Territory. Like Hawk, Fort Knox and Dublin Gulch both bismuth and tungsten are associated with gold mineralization at Hawk. Precious metal veins at Hawk are more singular in their occurrence that is the sheeted veins that typify Fort Knox and Dublin Gulch but would

appear to be thicker. Other occurrences which have been described as sharing many characteristics with the reduced intrusion related gold model include Kidston Australia, Donlin Creek Alaska and Rio Narcia Spain. The Nixon Fork deposit, owned by Fire River Gold Corp. also located in Alaska is currently being developed as a high grade narrow vein deposit with many of the attributes of this model. Evidence to date suggests that individual high grade albeit relatively narrow quartz veins at Hawk have potential for a high grade vein deposit. Several mineable deposits are possible. Hawk also has potential for an alkalic copper-gold deposit similar to the nearby Lorraine occurrence.

Item 8.1: Mineralization

Two styles of mineralization occur at Hawk; namely porphyry copper-gold mineralization occurring in Duckling Creek Complex rocks and gold silver vein mineralization occurring in both Duckling Creek Complex rocks (alkalic) and granitic Osilinka rocks (calc-alkaline). The two styles are each summarized as follows:

PORPHYRY COPPER-GOLD MINERALIZATION

Porphyry copper gold mineralization was discovered at Hawk in the early 1970's and was drill tested by Amoco (Canada) Petroleum Company Ltd. in 1974 with four diamond drill holes totaling 749 metres being completed. Reports describing the 1974 work are no longer available although this work is summarized in the 1991 report by Stevenson for Cyprus Gold (Canada) Ltd. Copper gold mineralization is described as occurring in a biotite gneiss; probably what is now termed foliate and what has also been referred to as migmatite at the nearby Lorraine property which is currently the subject of a joint venture between Teck Corporation and Lorraine Copper Corporation and where significant work has been undertaken in recent times. At Lorraine this type of rock (biotite gneiss-migmatite-foliate) is believed to be largely a result of potassium metasomatic alteration of Duckling Creek Complex alkalic intrusive rock. At Lorraine a distinctive unit that also occurs is termed megacrystic k-feldspar porphyry and is thought to be temporally associated with the copper-gold mineralizing event. Megacrystic k-feldspar porphyry was observed by the author to be common lithology on the southern half of the Hawk

property. The 1974 drill holes at Hawk were not assayed for gold but did confirm that significant copper occurs in the system. The significant results from this drilling are as follows:

Hole #	From (metres)	To (metres)	Interval (metres)	Copper %
74-1	18.6	54.9	36.3	0.39
74-1	70.7	86.0	15.3	0.76
74-2	103.6	108.2	4.6	0.35
74-3	102.4	105.4	3.0	0.34
74-3	121.3	132.3	11.0	0.27

PRECIOUS METAL VEINS

Exploration completed at Hawk in 1990, 1995 and 2002 successfully defined four

principal gold-silver \pm copper veins or vein systems, namely:

- 1.) the AD Vein System
- 2.) the Zulu Vein System
- 3.) the Radio Vein System
- 4.) the Rainbow Vein

In addition to these veins, a number of rock samples, which in some cases contain upwards of 30.0 grams per tonne gold, suggest that other undefined veins are also present.

The veins are structurally controlled and include both singular discrete veins and vein stockworks hosted by both the Duckling Creek Syenite rocks and the Osilinka granitic rocks. The veins typically consist of white to grey coarse grained quartz containing trace to upwards of 40% sulphides (pyrite, chalcopyrite and galena), some hematite. The veins often contain appreciable amounts of bismuth and higher values commonly have considerable accessory tungsten both suggesting high temperatures at the time of mineralization.

AD VEIN

The AD Vein has been drill tested over a strike length of 250 metres and a vertical range of 120 metres by ten diamond drill holes ($\pm 1,200$ metres total). The vein trends east west ($\pm 90^{\circ}$) and dips $\pm 83^{\circ}$ to the south. It is hosted in Osilinka intrusive rocks just to the north of the contact to the Duckling Creek Syenitic rocks. The vein is strongly fractured

and brecciated in the 2002 Redcorp drill intercepts possibly because of proximity to a north-south trending fault. Most holes completed in this vein encountered at least one significant gold and silver intercept with the more significant intercepts including: hole 90-1 with 6.86 g/t Au over 5.1 metres, hole 90-2 with 9.26 g/t Au over 2.8 metres, hole 90-3 with 29.49 g/t Au over 1.0 metre and hole HK02-006 with 4.66 g/t Au over 5.0 metres (the 90 series holes are not corrected for true thickness while hole HK02-006 has been corrected to true thickness). In 2002, Redcorp prospected a possible extension to this vein (the AD extension) and located a 20cm x 30cm sized piece of mineralized quartz float (22.1 g/t gold) along strike approximately 700 metres further to the northwest. During the September 17, 2010 field investigation the author sampled mineralized quartz on the north side of the AD vein gulley. This grab sample returned 3.32 g/t gold indicating potential for other parallel or obtusely trending veins in this area.

ZULU VEIN

The Zulu Vein was discovered by prospecting conducted by Redcorp in 2002. The vein is hosted in Osilinka intrusive rocks and outcrops at several locations. It occupies a very distinct linear feature which can be easily observed from surface and has been traced over a strike length of 450 metres and a vertical range of 120 metres. The vein trends eastward-westward (\pm 99°) and dips \pm 80° to the south. It has been tested by five diamond drill holes all completed in 2002. The more significant drill intercepts (corrected to true width) are: HK02009 with 3.51 g/t gold over 0.70 metres, HK02011 with 4.43 g/t gold over 1.8 metres and HK02012 with 14.70 g/t gold over 0.2 metres. During the September 17, 2010 field investigation, the author collected three samples including a high sulphide bearing section of the vein over a thickness of ± 0.8 metres (resulting in a determination of 52.42 g/t gold) and a low sulphide bearing section predominantly consisting of quartz over a thickness of ± 1.0 metres (resulting in a determination of 26.65 g/t gold). One conclusion of the apparently higher values that can be obtained from surface outcrop samples versus the 2002 drill intersections is that the higher grade mineralized sections of the vein may have "shoot like" characteristics and may not have been drill successfully tested within the rake of the shoots.

THE RADIO VEIN SYSTEM

The Radio Veins were discovered by Cyprus (Gold) Canada in 1991 and this initial discovery was expanded by Castleford Resources Ltd. in 1995 and again by Redcorp in 2002. The original \pm 100 metres of strike length was expanded to approximately 3,200 metres by the 2002 program when several additional discoveries along strike were interpreted to be part of the same vein system (still open on both ends). The Radio Vein System has been sampled through a vertical range of 400 metres and appears to consist of several narrow parallel veins generally less than 0.5 metres and often closer to 0.2 metres. They consist primarily of white or pink quartz with a variable sulphide component. As opposed to the AD and Zulu Veins the Radio System is entirely hosted in the Duckling Creek Syenite Complex. Copper values are elevated in the Radio Veins relative to ratios in the AD or Zulu veins. Redcorp completed five diamond drill holes in the Radio Veins in 2002 with the more significant intercepts as follows (corrected to true width): hole HK02-001 with 18.79 g/t Au over 0.19 metres and a second intercept of 11.18 g/t over 0.14 metres, HK02-002 with 14.50 g/t Au over 0.33 metres, HK02-004 with 4.19 g/t Au over 0.90 metres and HK02-005 with 12.30 g/t Au over 0.20 metres and a second intercept of 5.16 g/t over 0.40 metres.

The Rainbow vein sampled by Redcorp in 2002 is described as being up to 0.75 metres thick and generally consisting of massive white quartz. It is hosted in leucocratic syenite and has returned results up to 26.20 g/t gold. No drilling has yet been completed in the Rainbow Vein.

The compiled results of various rock sampling programs are indicated on Figure 4, Copper (ppm) in Significant Rock Samples / Geology and Figure 5, Gold (ppb) in significant Rock Samples / Geology. The compiled results of various soil sampling programs are indicated on Figure 4a, Copper (ppm) in Significant Soil Samples / Geology and Figure 5a, Gold (ppb) in significant Soil Samples / Geology.











Item 9: Exploration

Alton Resource Corp. contracted New Sense Geophysics of Toronto to fly a 397 kilometre helicopter borne aeromagnetic survey in September 2011. Durfeld Geological Management Ltd was retained to coordinate the survey and report the results. To this end Durfeld retained Lou O'Connor, a professional geophysicist with offices in Spokane Washington to interpret the survey which in turn have been incorporated with the geology, geochem and drilling in this report.

In 2011 Alton Resource Corp. expanded the project by 1800 hectares by claim acquisition.

Item 9.1: 2011 Airborne Magnetic Survey

During the 2010 mapping program, it was noted that there was a magnetic zoning of the different lithologies that could be mapped with the regional historic Airborne and limited ground magnetic surveys. Based on these observations, it was recommended that an Airborne magnetic survey would be an asset in guiding ongoing exploration on the Hawk property. In mid-September, Alton Resource Corp contracted New-Sense Geophysics of Toronto to fly the area of the property at 200 metre line spacing. During the period of September 14th to 19th, 2011, New-Sense flew 397 line kilometers of High Resolution Helicopter Magnetic Airborne Geophysical Survey. To evaluate the results of the geophysical survey, Lou O'Connor, a consultant geophysicist, was contracted to interpret the data and make recommendations toward ongoing work in the project area.

Lou O'Connor summarized his findings and made recommendations:

"After review and quality checking, the total magnetic intensity grid created by the contractor was reduced to the pole, upward continued, residualized and used to calculate derivatives of the field. The one kilometer upward continued magnetics map (figure 7a) which emphasizes basement features, shows a broad, generally NW oriented magnetic low covering about 20 square kilometers in the NW quadrant of the survey and a small discrete magnetic low in the east central area of the survey. The large low of about a relative -400 nT is centered about 331000E, 6216000N and the smaller local anomaly is centered about 338500E, 6214500N. Mapping indicates these magnetic lows are

Geophysical Report 'Airborne Magnetic' On The Hawk Property May 5, 2012

probably associated with the Osilinka Granodiorite. Three discrete magnetic highs occur in the south and east areas of the survey block. The strongest magnetic high is a near circular feature, approximately 3 kilometer diameter, located in the SW quadrant of the survey within an area mapped as a syenite granodiorite. This positive anomaly has a relative amplitude of about +500 nT. Ten of the thirteen selected geologic and/or geochemical targets plot in close proximity to this magnetic high. The other distinct lower level positives occur in the SE centered about 337250E, 6211750N and in the NE centered at about 340000E, 6216250N. They both are oval shaped anomalies aligned E-W to NW-SE with footprints of about 4 square kilometers. They are located outside the area of geologic mapping, but map trends suggest that they could be related to mesocratic granite and/or biotite migmatite gneiss. A better understanding of both the positive and negative basement anomalies and their relationship to mineralization would help advance the exploration for porphyry Cu-Au mineralization. Reconnaissance lines of deep IP/Resistivity over these individual anomalies could be warranted if there is geochemical or geologic evidence to support a porphyry target.

The residual and phase (figure 7b) (potential field tilt) maps which emphasize shallow and shorter wavelength features are best for comparison with surface geology and the interpretation of shallow contacts and structures. These maps show a number of narrow (< 1 kilometer wide) positive linear magnetic features with generally N to NW trends. These magnetic highs show a strong but not perfect correlation to ridges and topographic highs while magnetic lows are commonly associated with valleys and topographic lows. This correlation could be the result of ridges being cored or capped by more magnetic rocks. At the SW Zone, the Radio Veins and the Zulu Vein the contacts defined by the magnetic residual and phase maps parallel the veins and could be reflecting a control on vein locations. Detailed mapping and sampling in these areas using the magnetic data as a base could improve the interpretation of these veins.

A number of geophysical linears have been interpreted on the residual magnetic map (figure 7c). These interpreted linear features are very subjective and need ground checking to determine their significance. They show NW, N and NE trends that in general cross-cut topographic trends. Areas of known mineralization generally plot in areas where a number of interpreted linears intersect, suggesting some structural control on the mineralization."

New Sense's Logistics and Interpretation Report for the High Resolution Helicopter Magnetic Airborne Geophysical Survey flown over the Hawk Block is attached as Appendix I.

Lou O'Connor's comprehensive report (Interpretation of a High Resolution Helicopter Magnetic Survey on the Hawk Property) is attached as Appendix II.

Raw data files for the magnetic data database are attached in Appendix III in Geosoft .*gdb* format.







Item 10: Drilling

The Issuer, Alton Resource Corp., has not completed any drilling at Hawk.

Drill programs were completed at Hawk in 1974, 1990 and 2002 by previous operators. A total of 3,181 metres of diamond drilling in 24 holes has been completed. A brief summary of prior drilling is as follows:

In 1990, Cyprus Gold (Canada) Ltd. completed eight BQ sized diamond holes (898 metres) in the AD precious metal target using J.T. Thomas Drilling of Smithers BC as the drill contractor.

In 2002, Redcorp Ventures Ltd. completed twelve BQ sized diamond drill holes totaling 1,534 metres in the Radio, AD and Zulu precious metal targets. Drilling services were provided by Hy-Tech Drilling Ltd. of Smithers, BC.

Drill core, in poor condition, from the 1974 drill program is stored in a partially collapsed core farm in a high elevation meadow in the southern region of the claims. Core from the 1990 and 2002 drill programs is stored and well preserved in a core farm located adjacent to the Osilinka Forestry Road in the northern quadrant of the property.

Drill hole locations are indicated on figure 8, the Drill Hole Location Map.


Item 11: Sampling Preparation, Analyses and Security

Item 12: Data Verification

Item 13: Mineral Processing and Metallurgical Testing

The author is not aware of any metallurgical testing of materials from the Hawk property.

Item 14: Mineral Resource Estimate

There are no mineral resources or estimates computed for the Hawk property.

Item 15: Mineral Reserve Estimate

There are no mineral reserves or estimates computed for the Hawk property.

Item 16: Mining Methods

Not Applicable

Item 17: Recovery Methods

Not Applicable

Item 18: Project Infrastructure

Existing all weather logging roads extend to the edge of the property. The existing BC hydro power grid extends to within 40 kilometres of the property.

Item 19: Market Studies and Contract

Not Applicable

Item 20: Environmental Studies, Permitting and Social or Community Impact

No environmental studies have yet been undertaken at Hawk, and no comprehensive dialogue with the community at large yet undertaken. Exploration permits have been obtained without significant difficulty following circulation of the exploration application by the BC Ministry of Mines to all known affected parties.

Item 21: Capital and Operating Costs

Not Applicable

Item 22: Economic Analysis

Not Applicable

Item 23: Adjacent Properties

The Omineca Mining Division of west-central British Columbia is currently host to several past producing and currently producing mines, as well as numerous exploration stage projects.

The Lorraine property is located approximately 18 kilometres east of Hawk. At Lorraine, porphyry copper-gold mineralization is hosted in Duckling Creek Alkalic Suite rocks. Teck Resource Corp has been funding exploration at Lorraine in accordance with an option agreement with Lorraine Resource Corp. since 2005 and has advised the author that it will have spent more than nine million dollars by December 31, 2010.

The Kwanika Project, owned by Serengeti Resources Inc., is located 50 kilometres southeast of Hawk on the western edge of the Hogem Batholith. It hosts significant porphyry copper-gold mineralization in two zones. In 2010 Serengeti released a 43-101 compliant resource estimate for Kwanika Creek which is not referenced in this report.

The Mt. Milligan copper gold development project, owned by Thompson Creek Metals Corporation, is located 120 kilometres southeast of the Hawk Property. It is currently under construction with production targeted for 2013. The mine is being developed as an open pit operation with mill throughput of 60,000 tonnes per day.

The Kemess (South) Mine, owned by Northgate Minerals Corporation, is located 155 kilometres northwest of Hawk. It is an open pit gold-copper mine operation with a daily throughput of 52,000 tonnes per day. In production since 2000, Kemess South suspended mining in March 2011. Exploration is however currently underway to define deeper underground resources that would, if successfully delimitated, be exploited using underground block caving methods.

The Endako molybdenum mine (owned by Thompson Creek Metals Company Inc.) is located 210 kilometres south of Hawk. Endako is an open pit operation that has been in production since 1965. It currently operates at a daily mill throughput rate of 31,000 tons per day and is being expanded to 55,000 tons per day.

Item 24: Other Relevant Data and Information

The author is not aware of any other relevant data of information that should be in this report that the omission of which would make this report incomplete or misleading.

Item 25: Interpretation and Conclusions

The 2011 Helicopter borne magnetic survey was completed over all of the Hawk property to map the magnetic response in greater detail. Lou O'Connor in his interpretation makes the following comments:

A better understanding of both the positive and negative basement anomalies and their relationship to mineralization would help advance the exploration for porphyry Cu-Au mineralization. Reconnaissance lines of deep IP/Resistivity over these individual

anomalies could be warranted if there is geochemical or geologic evidence to support a porphyry target.

At the SW Zone, the Radio Veins and the Zulu Vein the contacts defined by the magnetic residual and phase maps parallel the veins and could be reflecting a control on vein locations. Detailed mapping and sampling in these areas using the magnetic data as a base could improve the interpretation of these veins.

These interpreted linear features are very subjective and need ground checking to determine their significance. They show NW, N and NE trends that in general cross-cut topographic trends. Areas of known mineralization generally plot in areas where a number of interpreted linears intersect, suggesting some structural control on the mineralization."



Item 26: Recommendations

Item 27: Cost Statement

	HAWK COPPER/GOL	D PRC)JECT	2011-12	
	July 1st, 2011 to May 5th, 2				
Helicopterb	orne Aeromagnetic Survey				
•	New Sense Geophysics Ltd.				
	Regional	365	km	\$139.33/km	\$50,855.45
	Infil	39	km	\$139.33/km	\$5,433.87
	Mobilization/Demobilization				\$9,500.00
				Total Aeromagnetic	\$65,789.32
Consulting (Geophysicist				
	Lou O'Connor				\$5,429.23
Secretarial					
	Katelyn Pocha	40	hour	\$36 / hour	\$1,440.00
Drafting and	d Compilation				
	Casey Map				\$1,500.00
Geological	Consulting and Reporting				
	RM Durfeld, P.Geo				
	- coordinate airborne				
	survey	15	hour	\$125/hr	\$1,875.00
	- reporting and compilation	25	hour	\$125/hr	\$3,125.00
	TOTAL	COST	\$79,158.55		

Dated at Williams Lake, British Columbia this 5th day of May 2012.

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R.M. Durfeld, B.Sc., P.Geo.

Item 28: References

- Adamson, R.S. 1974, Geochemical Report on the Flame Mineral Property, Haha Creek Area, BC, for L.M. Hart, Assessment Report filed with the BC Geological Survey Branch.
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- Stevenson, David B., 1991, A Geological, Geochemical, Geophysical and Diamond Drilling Report on the Hawk Property, Germansen Landing Area, Central British Columbia, for Cyprus Gold (Canada), Ltd., filed for assessment with the BC Geological Survey Branch.

Geophysical Report 'Airborne Magnetic' On The Hawk Property May 5, 2012

Woodsworth, G.J, Anderson, R.G. and Armstrong, R.L., 1991, Plutonic Regimes: In Geology of the Cordilleran Orogen in Canada, Geological Survey of Canada.

Item 29: Certificate of Author, RM Durfeld

I, Rudolf M. Durfeld, P.Geo. do hereby certify that:

- I am currently employed as a consulting geologist by Durfeld Geological Management Ltd.
- 2. I am a graduate of the University of British Columbia, B.Sc. Geology 1972.
- I am a member of the Canadian Institute of Mining and Metallurgy. That I am registered as a Professional Geoscientist by the Association of Engineers and Geoscientists of B.C. (No. 18241).
- 4. I have worked as a geologist for some 30 plus years since my graduation from university.
- 5. I am the author of this report which is based on:
 - a. my supervision, observations and participation in the 2011 Hawk Project.
 - b. compilation of the 2011 data with the historic data on the Hawk Project.
 - c. my personal knowledge of the property area and a review of available government maps and assessment reports.

Dated at Williams Lake, British Columbia this 5th day of May 2012.



R.M. Durfeld, B.Sc., P.Geo.

Item 30: Additional Requirements for Technical Reports on Development Properties and Production Properties

Item 31: Illustrations

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Appendix I	Logistics and Interpretation Report for the High Resolution Helicopter Magnetic Airborne Geophysical Survey flown over the Hawk Block.
Appendix II	Interpretation of a High Resolution Helicopter Magnetic Survey on the Hawk Property
Appendix III	Magnetic data database in Geosoft gdb format

Logistics and Interpretation Report

For the

High Resolution Helicopter Magnetic Airborne Geophysical Survey

Flown over

Hawk Block, BC, Canada

From

Repko Lodge, BC, Canada

Carried out on behalf of

ALTON RESOURCE CORP.

By

New-Sense Geophysics Limited



Toronto, Canada October 17th, 2011 (HM110914-report)

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AMENDMENT RECORD

Rev	Date	Description	Report Section	Prepared by

DOCUMENT RECORD

Document Identification	HM110914-report
Document Custodian	Field Operations Manager
Relates To	Final Deliverables
Original Date Issued	October 17 th , 2011

1. INTRODUCTION

A high sensitivity helicopter airborne survey was carried out for Alton Resource Corp. (Client) over the project area known as Hawk block, located approximately 200 km NW of Fort St. James, BC, Canada. The survey was flown from Repko Lodge, which is located approximately 40 km SE of the project area.

New-Sense Geophysics (NSG) flew the survey under the terms of an agreement with Client dated September 14th, 2011 (Appendix E).

The survey was flown between September 14th and 19th, 2011. A total of 397 line kilometers (main block lines: 359 km; infill area lines: 38 km) of field magnetic data was flown, collected, processed and plotted.

The geophysical equipment was comprised of 1 high-sensitivity Cesium-3 magnetometer mounted in a fixed stinger assemble. Airborne ancillary equipment included; digital recorders, fluxgate magnetometer, radar altimeter, and global positioning system (GPS) receiver. The GPS receiver provided accurate real-time navigation and subsequent flight path recovery. Surface equipment included a magnetic base station with GPS time synchronization, and a PC-based field workstation which was used to check the data quality and completeness on a daily basis.

The technical objective of the survey was to provide high-resolution total field magnetic maps suitable for anomaly delineation, detailed structural evaluation, and identification of lithologic trends. Fully corrected magnetic maps were prepared by New-Sense Geophysics Limited, in their Toronto office, after the completion of survey activities.

This report describes the acquisition, processing, and presentation of data for the Alton Resource Corp. airborne survey over Hawk block flown from Repko Lodge, BC, Canada (Tables 2.1-2.2 and Figure 2.1).

2. SURVEY LOCATION

Datum: NAD83

Projection: Universal Transverse Mercator Zone 10N Local Datum Transform: North America – Canada and USA

UTM Zone 10N				
NAD83_X	NAD83_Y	WGS84_X	WGS84_Y	
329557	6217330	329557	6217330	
336501	6217294	336501	6217294	
336536	6214737	336536	6214737	
338295	6214755	338295	6214755	
338277	6217259	338277	6217259	
340710	6217259	340710	6217259	
340692	6214080	340692	6214080	
340319	6214062	340319	6214062	
340319	6212304	340319	6212304	
337975	6212304	337975	6212304	
337957	6211007	337957	6211007	
332416	6211078	332416	6211078	
332434	6210226	332434	6210226	
330427	6210262	330427	6210262	
330427	6209853	330427	6209853	
329539	6209889	329539	6209889	
329521	6217330	329521	6217330	

Table 2.1: Main Block Coordinates

Table 2.2: Infill Block Coordinates

UTM Zone 10N				
NAD83_X	NAD83_Y	WGS84_X	WGS84_Y	
332401	6214100	332401	6214100	
334599	6214100	334599	6214100	
334599	6211000	334599	6211000	
332401	6211000	332401	6211000	



Figure 2.1 Map depicting outlines of the Hawk Block (red) and the infill area (yellow). Coordinate system, NAD83, North America, UTM Zone 10N. UTM grid cell size 5km. Map is displayed over 90m SRTM World Elevation grid.

3. PERSONNEL

3.1 FIELD OPERATIONS

New-Sense Geophysics Ltd., Geophysical Technician:	Pawel Starmach
Northern Air Support Ltd., Pilot:	Jim Stibbart

3.2 OFFICE DATA PROCESSING AND OFFSITE QA/QC

QA/QC (NSG):	Andrei Yakovenko
Data Processing and Grids (NSG) [.]	Andrei Yakovenko
Dutu 1 1000551115 und O1105 (1100).	

Maps (NSG):

Logistics Report (NSG):

Andrei Yakovenko

Pawel Starmach

Andrei Yakovenko

3.3 PROJECT MANAGEMENT

New-Sense Geophysics Ltd.:

Alton Resource Corp.

Andrei Yakovenko

(RM) Rudi Durfeld, P.Geo

4. SURVEY PARAMETERS

Traverse Line spacing:	200 m (main block); 100 m (infill lines)
Control Line spacing:	2000 m (main block); 1000 m (infill lines)
Average Terrain clearance:	70 m
Navigation:	GPS
Traverse Line direction:	$0^0, 180^0$
Control Line direction:	$90^0, 270^0$
Measurement interval:	0.02/0.1 sec for magnetic; 0.1 sec for GPS
Groundspeed (average):	140 km/hr
Measurement spacing (average):	3.9 m/0.1 sec for magnetic & GPS
Airborne Digital Record:	Line Number
	Flight Number
	Radar Altimeter
	Total Field Magnetics
	Time (System and GPS)
	Raw Global Positioning System (GPS) data
	Magnetic compensation parameters (fluxgate mag.)
Base Station Record:	Ambient Total Field Magnetics Raw Global Positioning System (GPS) data
	Time (System and GPS)

5. AIRCRAFT AND EQUIPMENT

5.1 AIRCRAFT

The aircraft used was a Bell 206 Jetranger B3 helicopter (C-GMPS) equipped with a Cesium magnetometer mounted in a fixed stinger assembly. The aviation company providing the aircraft service was Northern Air Support based in Kelowna, BC, Canada.

5.2 AIRBORNE GEOPHYSICAL SYSTEM

5.2.1 MAGNETOMETER

One Scintrex CS-3 optically pumped Cesium split beam sensor was mounted in a fixed stinger assembly. The magnetometer's Larmor frequency output was processed by a KMAG-4 magnetometer counter, which provides a resolution of 0.15 ppm (in a magnetic field of 50,000 nT, resolution equivalent to 0.0075 nT). The raw magnetic data was recorded at 50 Hz, anti-aliased with 51 point COSINE filter and resampled at 10 Hz.

5.2.2 MAGNETIC COMPENSATION

The proximity of the aircraft to the magnetic sensor creates a measurable anomalous response as a result of the aircrafts movement. The orientation of the aircraft with respect to the sensor and the motion of the aircraft through the earth's magnetic field are contributing factors to the strength of this response. A special calibration flight, Figure of Merit (i.e., FOM), was flown to record the information necessary to compensate for these effects.

The FOM maneuvers consist of a series of calibration lines flown at high altitude to gain information in each of the required line directions. During this procedure, pitch, roll and yaw maneuvers are performed on the aircraft (typical angle ranges are 10° pitch, 10° roll, and 10° yaw). Each variation is conducted three times in succession (first pitch, then roll, then yaw), providing a complete picture of the aircraft's effects at designated headings in all orientations.

A three-axis Bartington fluxgate magnetometer (recorded at 50 Hz) was used to measure the orientation and rates of change of the magnetic field of the aircraft, away from localized terrestrial magnetic anomalies. The QC Tools digital compensation algorithm was then applied to generate a correction factor to compensate for permanent, induced, and eddy current magnetic responses generated by the aircrafts movements.

5.2.3 GPS NAVIGATION

A NovAtel state of the art OEM628 GPS board was used for navigation and flight path recovery. The OEM628 is designed with NovAtel"s new 120 channel ASIC, which tracks all current and upcoming GNSS constellations and satellite signals including GPS, GLONASS, Galileo and Compass.

The channels were configured for GPS: L1, L2.

5.2.4 ALTIMETER

A TRA 3500 radar altimeter was mounted inside the stinger. This instrument operates with a linear performance over the range of 0 to 2,500 feet and records the terrain clearance of the sensors. The raw radar altimeter data was recorded at 50 Hz, anti-aliased with a 21 point COSINE filter and re-sampled at 10 Hz.

5.2.5 GEOPHYSICAL FLIGHT CONTROL SYSTEM

New-Sense"s iNAV V4 geophysical flight control system monitored and recorded magnetometer, altimeter, and GPS equipment performance. Input from the various sensors was monitored every 0.005 seconds for the precise coordination of geophysical and positional measurements. The input was recorded fifty times per second (ten times per second in the case of GPS data).

GPS positional coordinates and terrain clearance were presented to the pilot by means of a panel mounted LCD indicator display. The magnetometer response, fluxgate profiles, and altimeter profiles were also available via a netbook computer via Ethernet cable, for real-time monitoring of equipment performance.

5.2.6 IDAS DIGITAL RECORDING

The output of the CS-3 magnetometer, fluxgate magnetometer, altimeter, GPS coordinates, and time (system and GPS), were recorded digitally on a solid state drive (SSD) at a sample rate of fifty times per second (ten times per second for GPS) by the NSG iNAV system.



5.3 GROUND MONITORING SYSTEM

5.3.1 BASE STATION MAGNETOMETER

A Scintrex CS-3 optically pumped cesium split beam sensor was used at the base of operations within the airport boundaries, in an area of low magnetic gradient and low/free from cultural electric & magnetic noise sources. The sensitivity and absolute accuracy of the ground magnetometer is +/- 0.01 nT. The magnetic data was recorded continuously at 50Hz (re-sampled to 1 Hz using; 1 sec equivalent 51 point low pass filter) throughout all survey operations in digital form on an iDAS V3 data acquisition system. Both the ground and airborne magnetic readings were synchronized using GPS clocks.

5.3.2 RECORDING

The output of the magnetic and GPS monitors was recorded digitally on an iDAS V3 data acquisition system. A visual record of the last three hours was graphically maintained on the computer screen to provide an up to date appraisal of magnetic activity. At the conclusion of each production flight, the raw GPS and magnetic data were transferred to the main field compilation computer via Compact Flash disk drive.

5.4 FIELD COMPILATION SYSTEM

A field laptop computer was used for field data processing and presentation. The raw data was imported to Geosoft Oasis montaj for QA/QC and processing purposes. After the data was checked for quality control, the database with uncompensated magnetic readings was exported to QC Tools software package for magnetic compensation and base station data merging purposes. The compensated database was then imported back to Oasis for the subsequent and final processing.

6. OPERATIONS AND PROCEDURES

6.1 FLIGHT PLANNING AND FLIGHT PATH

The block outline coordinates (section 2.0) were used to generate pre-calculated navigation files. The navigation files were used to plan flights at the designated traverse line spacing of 200 meters and control lines of 2000.

Preliminary flight path maps and magnetic maps were plotted and updated, to monitor coverage of the survey area.

6.2 BASE STATION

The magnetic base station was established in magnetically quiet area at the camp site at latitude: 55.811498; Longitude: -125.083753.

The base station readings were monitored to ensure that the diurnal variation were within the peakto-peak envelope of 20 nT from a long chord distance equivalent to a period of two minutes.

6.3 AIRBORNE MAGNETOMETERS

The FOM test of the performance of the CS-3 and fluxgate magnetometers was performed on September 14th, 2011 in order to monitor the ability of the system to remove the effects of aircraft motion on the magnetic measurement.

The FOM maneuvers consisted of a series of calibration lines flown at high altitude (10,000+ ft above sea level) to gain information in each of the required line directions. During this procedure, pitch, roll, and yaw maneuvers were performed on the aircraft.

The following ranges were used:

Pitch: 10-15° Roll: 10-15° Yaw: 10-15°

The total FOM noise was 1.2nT with an envelope of 0.13nT (Appendix A).

6.4 DATA COMPILATION

Data recorded by the airborne and base station systems was transferred to the field compilation system. As each flight was completed, the following compilation operations were carried out:

6.4.1 FLIGHT PATH CORRECTIONS

The navigational correction process yields a flight path expressed in WGS84, World and transformed to correspond to NAD83, North America – Canada and USA, UTM Zone 10N.

X,Y channels:	NAD83_X,NAD83_Y	
Coordinate system:	Projected (x,y) Geo	graphic (long, lat)
	O Unknown	Copy from
Length units:	metre	
Transformation:	none	
Orientation:	none	
Datum:	NAD83	•
	Ellipsoid:	GRS 1980
	Major axis radius:	6378137
	Inverse Flattening:	298.25722
	Prime Meridian:	0
Local datum	[NAD83] (4m) North America - Canada	and USA (conus, AK m 🔻 🔀
	None applied	
Projection method:	UTM zone 10N	•
Projection method:		
Projection method:	Type:	Transverse Mercator
Projection method:	Type: Latitude of natural origin:	Transverse Mercator
Projection method:	Type: Latitude of natural origin: Longitude of natural origin:	Transverse Mercator 0 -123
Projection method:	Type: Latitude of natural origin: Longitude of natural origin: Scale factor at natural origin:	Transverse Mercator 0 -123 0.9996
Projection method:	Type: Latitude of natural origin: Longitude of natural origin: Scale factor at natural origin: False easting:	Transverse Mercator 0 -123 0.9996 500000
New	Type: Latitude of natural origin: Longitude of natural origin: Scale factor at natural origin: False easting: False northing:	Transverse Mercator 0 -123 0.9996 500000 0
New	Type: Latitude of natural origin: Longitude of natural origin: Scale factor at natural origin: False easting: False northing:	Transverse Mercator 0 -123 0.9996 500000 0

6.4.2 MAGNETIC CORRECTIONS

6.4.2.1 FILTERING AND COMPENSATION

The raw 50Hz magnetic data were filtered, along with the fluxgate magnetometer data, with a 51 cosine anti-aliasing algorithm and re-sampled at 10 Hz.

The filtered and re-sampled data were stored in the MAG_FILT channel.

Then the MAG_FILT data were compensated for permanent, induced, and eddy current magnetic noise generated by the aircraft using data from the fluxgate magnetometer error (see Appendix A).

The compensated magnetic data were then stored in the MAG_COMP channel.

6.4.2.2 DIURNAL CORRECTIONS

The compensated magnetic data were adjusted to account for diurnal variations. When the magnetic variations recorded at the base station recognized to be caused by manmade sources, (such as equipment, vehicles passing by the sensor), they were removed and gaps interpolated.

The diurnal data were recorded at 50Hz and filtered with a (31-point equivalent 1Hz) low pass filter. The filtered data were then subtracted directly from the aeromagnetic measurements to provide a first order diurnal correction.

After base station removal, the total magnetic field values become very small. To bring the total magnetic measurements back to "normal" values, project averages (i.e., 56,700.90 nT) from the base station readings were added back to the magnetic data.

The resulting base station corrected data were stored in the MAG_DIURNAL_CORR channel.

6.4.2.3 HEADING CORRECTIONS

Optically pumped magnetic sensors have an inherent heading error, typically 1 to 2 nT peak-to-peak, as the sensor is rotated through 360 degrees. On flight line directions of the opposite heading, the affect is reasonably predictable.

A heading test flight was flown at magnetically quite area (same area as the FOM lines) at 10,000+ ft above sea level altitude. Test was performed on September 14^{th} , 2011 with the following results:

/ Geosoft Heading Correction Table

- /= Direction:real:i
- /= Correction:real
- / Direction Correction
 - 0 1.45
 - 90 6.08
 - 180 -1.45
 - 270 -6.08
 - 360 1.45

The heading corrected data were stored in the MAG_HEADING_CORR channel.

6.4.2.4 LAG CORRECTIONS

There are two potential types of Lag offsets when collecting airborne data: time lag and distance lag.

NSG insures that there is no time lag in the data acquisition system by recording unique markers every 1-second based on the GPS time stamp (associated with the EXACT change in GPS positioning). This information is used to realign (if necessary) the individual data records.

The distance lag is determined by dividing the distance from the GPS antenna to the sensor head by the averaged sample rate distance.

5.3 / 3.9 = 1.4 records

A lag correction of -1 records was applied to the MAG_HEADING_CORR channel and stored in the MAG_LAG_CORR channel.

6.4.2.5 IGRF CORRECTIONS

The total field strength of the International Geomagnetic Reference Field (IGRF, 2010 model) was calculated for every data point, based on the spot values of Latitude, Longitude and altitude. This IGRF was removed from the measured survey data on a point-by-point basis from the lag corrected channel.

After IGRF correction the total magnetic field values become negative. To bring the total magnetic measurements back to ,,normal" values an average (i.e., 57,000.6 nT) of IGRF values based on the whole project were added back to the magnetic data.

The IGRF corrections were applied to the MAG_LAG_CORR channel and stored in the MAG_IGRF_CORR channel.

6.4.2.6 LEVELING CORRECTIONS

After the data were corrected for IGRF, a survey traverse/control line intercepts array/matrix (i.e., Simple Leveling) was created for determining differences in magnetic field at the intersection points. The somewhat rugged terrain of the survey blocks, resulted in some line-to-line difference in altitude, and relatively strong magnetic anomalies made magnetic signal at some Traverse/Control line intersection points quite different. As a result, some of those intersection points needed to be manually adjusted in order to reduce line-to-line magnetic differences.

The resulting simple leveled magnetic data were stored in MAG_SMPL_LVL channel.

Further it was decided to apply microlevelling techniques to the conventionally leveled magnetic data (see Appendix D for full description of the procedure).

The following key parameters were used:

Block Name	Line Spacing (m)	Line Direction (deg.)	Grid Cell Size (m)	Decorrugation Cutoff (m)	Amplitude Limit (nT)	Amplitude Limit Mode	Naudy Filter Limit
Hawk Block	200	0	20	400	NA	clip	NA

Table 6.2 Magnetic data microlevelling parameters

The resulting microleveled magnetic data were stored in TMI_FINAL channel.

6.4.3 VERTICAL DERIVATIVE (VDV)

A 1-st Order Vertical Derivative (VDV) dataset was calculated using 2D FFT2 algorithm based on final TMI grid. The resulting VDV grid was slightly filtered with a 3x3 Hanning with one pass filter and sampled back to the database.

The VDV data were stored in the VDV channel.

6.4.5 GRIDDING

The final TMI and VDV grids were produced from the TMI_FINAL, and VDV channels respectively.

The data were gridded using a bi-directional line gridding method with a grid cell size of 20 meters, Akima interpolation method for across and down line spline and trend angles perpendicular to those of traverse line directions (i.e., 0^0).

7. MAP PRODUCTS AND DIGITAL DATA DELIVERABLES

The following is the list of items delivered to Alton Resource Corp.

- 1) Hard Copy Maps for Hawk Block @ 1:20,000 scale (x2):
 - Map of Total Magnetic Intensity
 - Map of 1st order Vertical Derivative
- 2) Hard Copy Logistics Report (x2):
- 3) Digital Copy (DVD) Maps for Hawk Block @ 1:20,000 scale (x2):
 - Map of Total Magnetic Intensity
 - Map of 1st order Vertical Derivative

4) Digital Copy Grids (DVD) for Hawk Block (x2):

- Grid of Total Magnetic Intensity (nT)
- Grid of 1st order Vertical Derivative (nT/m)

5) Digital Copy (DVD) Database for Hawk Block (x2):

- Databases: Hawk_Airborne_2011.gdb (see Appendix C for details)
- 6) Digital Copy (DVD) Logistics Report (x2)
- 7) Digital Copy (DVD) Weekly and Line Report (x2)

8. LOGISTICS REPORT SUMMARY

This report describes the logistics of the survey, equipment used, field procedures, data acquisition, and presentation of results.

The various maps included with this report display the magnetic properties of the survey area. It is recommended that the survey results be further reviewed in detail, in conjunction with all available geophysical, geological and geochemical information.

Further processing of the data may enhance subtle features that can be of importance for exploration purposes.

Respectfully submitted,

Andrei Yakovenko New-Sense Geophysics Ltd. Date: October 17th, 2011

	FOM September 14, 2011				
line	direction	pitch	roll	yaw	total
10	270	0.07	0.09	0.07	0.23
20	0	0.13	0.13	0.10	0.36
30	180	0.09	0.06	0.04	0.19
40	90	0.08	0.13	0.08	0.28
	total	0.37	0.41	0.28	1.06

APPENDIX A: FOM RESULTS





11/03/15





APPENDIX B: DATABASE DESCRIPTIONS

Database for Hawk Block

Database Names: Hawk_Airborne_2011.gdb Format: Geosoft .gdb Number of Channels: 26

Note: If the database is opened in Oasis montaj, please load included "*Geosoft Channel Display.dbview*" file to insure that ALL the channels are displayed in the same order as listed below (Database menu -> Get Saved View).

Channel Name	Units	Description
LINE	number	Line number
DATE	date	Date flown (YYMMDD)
FLIGHT	number	Flight number
FIDUCIAL	number	Fiducial count (flight specific)
SYSTEM_CLOCK	milsec	KANA8 (A/D converter) counter
NAD83_X	meters	NAD83 Easting, North America, UTM Zone 10N
NAD83_Y	meters	NAD83 Northing, North America, UTM Zone 10N
LATITUDE_WGS84	degrees	GPS latitude, WGS 84, World
LONGITUDE_WGS84	degrees	GPS longitude, WGS 84, World
GPS_HEIGHT_WGS84	meters	GPS height (orthometric) above MSL, WGS 84, World
UTC_DAYSEC	seconds	UTC daily second counter
FLUX_X	volts	Fluxgate x-axis
FLUX_Y	volts	Fluxgate y-axis
FLUX_Z	volts	Fluxgate z-axis
RAD_ALT_feet	feet	Radar altimeter, height above ground
MAG_RAW	nT	Raw magnetometer data
MAG_FILT	nT	Filtered raw magnetometer data
MAG_COMP	nT	Compensated magnetometer data
DIURNAL	nT	Base station magnetometer data
MAG_DIURNAL_CORR	nT	Base station (diurnal) corrected magnetometer data
MAG_HEADING_CORR	nT	Heading corrected magnetometer data
MAG_LAG_CORR	nT	Lag corrected magnetometer data
IGRF	nT	Calculated IGRF, using 2010 model
MAG_IGRF_CORR	nT	IGRF corrected magnetometer data
TMI_FINAL	nT	Conventionally (simple) leveled magnetometer data
VDV	nT/m	1 st order Vertical Derivative (VDV)

APPENDIX C: IMAGES OF FINAL MAPS



Image of TMI FINAL Map

Image of VDV Map


APPENDIX D: MICROLEVELLING DESCRIPTION

As per PGW Microlevelling GX help file available through Geosoft Oasis montaj 7.2

DECORR . GX	Version 3.0 Paterson, Grant & Watson March 2003	Limited
PARAMETERS: (micle passe	ev group parameters are used, so ed to MICLEV.GX)	that values set will be
<pre>miclev.Xchan = .Ychan = .Ochan = .Nchan = Space =</pre>	<pre>x channel (default "x") y channel (default "y") original data channel (no defau decorrugation noise channel (de flight line spacing</pre>	lt) fault "dcor_noise")
.Dir =	flight line direction in degree from North)	s azimuth (clockwise
.Cell = .Wlen =	cell size to use for gridding (decorrugation high-pass wavelen spacing)	default = line spacing/5) gth (default = 4 * line
.Ogrid = .Nnoise=	original output grid, new or ex decorrugation noise grid	isting
.XY =	Xmin, Ymin, Xmax, Ymax	(optional)
.LOGOPT=	Log option	(optional)
.LOGMIN=	Log minimum	(optional)
.DSF =	Low-pass desampling factor	(optional)
.BKD =	Blanking distance	(optional)
.TOL =	Tolerance	(optional)
.PASTOL=	<pre>% pass tolerance</pre>	(optional)
.ITRMAX=	Max. iterations	(optional)
.ICGR =	Starting coarse grid	(optional)
.SRD =	Starting search radius	(optional)
.TENS =	Internal tension (0-1)	(optional)
.EDGCLP=	Cells to extend beyond data	(optional)

DESCRIPTION:

decorr.gx and miclev.gx implement a procedure called microlevelling which removes any low-amplitude component of flight line noise still remaining in airborne survey data after tie line levelling. Microlevelling calculates a correction channel and adds it to the profile database. This correction is subtracted from the original data to give a set of levelled profiles, from which a final levelled grid may then be generated. Microlevelling has the advantage over standard methods of decorrugation that it better distinguishes flight line noise from geological signal, and thus can remove the noise without causing a loss in resolution of the data.

To microlevel data, first run decorr.gx, then miclev.gx. decorr.gx offers two options for the grid of the channel to be microlevelled. If a grid prepared from this channel already exists, it may be specified, and when prompted to overwrite, the user should answer no. If the user wishes to prepare a new grid of the channel to be microlevelled, the minimum curvature gridding algorithm (rangrid.gx) is applied. The advanced button provides access to the standard minimum curvature gridding parameters. Once the gridding is completed, decorr.gx applies a directional high-pass filter (see end note) perpendicular to the flight line direction, in order to produce a decorrugation noise grid. (The default grid cell size is 1/5 of the line spacing. The user may specify a different cell size if desired. A smaller cell size will give a more accurate result, but a larger cell size will make the gx run faster and use less disk space.) The noise grid is then extracted as a new channel in the database (default name is "dcor_noise"). This channel contains the line level drift component of the data, but it also contains some residual high-frequency components of the geological signal. miclev.gx applies amplitude limiting and low-pass filtering to the noise channel in order to remove this residual geological signal and leave only the component of line level drift, which is then subtracted from the original data to produce a levelled output channel named "miclev".

decorr.gx calculates default amplitude limit and filter length values for use in miclev.gx, but the skilled user may be able to set better values for these parameters based on an inspection of the noise grid. (The micro-levelling process is broken up into two separate GXes in order to allow the user to do this.) Flight line noise should appear in the decorrugation noise grid as long stripes in the flightline direction, wheras geological anomalies should appear as small spots and cross-cutting lineaments, generally with a higher amplitude than the flight line noise, but with a shorter wavelength in the flightline direction. The user can estimate the maximum amplitude of the flight line noise, and set the noise amplitude limit value accordingly. Similarly the user can estimate the minimum wavelength of the level drift along the flight lines, and set the low-pass Naudy filter width to half this wavelength. The defaults are to set the amplitude limit equal to the standard deviation of the noise grid, and to set the filter width equal to five times the flight line spacing.

There is an option of using either of two kinds of amplitude limiting. In "clip" mode any value outside the limit is set equal to the limit value. In "zero" mode any value outside the limit is set equal to zero. The clip mode makes more sense intuitively, but it has been found in practise that the zero mode may reject geologic signal better, depending on the particular data set. As a rule the zero mode works better on datasets in which the noise grid contains a lot of highamplitude geological signals (e.g. shallow basement areas). For datasets in which the noise grid contains mainly flight line noise (e.g. sedimentary basins), the clip mode works better.

Microlevelling applies a level correction to the traverse lines only. If it is desired to grid the tie lines together with the microlevelled traverse lines, then it may be necessary to also apply a level correction to the tie lines so that their values agree with the microlevelled traverse lines at the intersections. This may be done as follows:

- 1) Copy the tie line values to the microlevelled channel.
- 2) Use intersct.gx to find cross-difference values for the microlevelled data.
- 3) Use xlevel.gx to load these cross-difference values to the tie lines.
- Apply fulllev.gx to the tie lines. The output will be a set of tie lines that matches the microlevelled traverse lines at all intersections.

5) Copy the microlevelled traverse line values into the same channel as the corrected tie line values.

Decorrugation Filter:

The decorrugation noise filter is a sixth-order high-pass Butterworth filter with a default cutoff wavelength of four times the flight line spacing, combined with a directional filter. The directional filter coefficient as a function of angle is $F=(sin(a))^2$, where a is the angle between the direction of propagation of a wave and the flight line direction, i.e. F=0 for a wave travelling along the flight lines, and F=1 for a wave travelling perpendicular to them. (Note this is the exact opposite of what is usually called a decorrugation filter, since the intention here is to pass the noise only, rather than reject it.)

The default cutoff wavelength (4 * line spacing) gives good results if the data is already fairly well levelled to start with. In cases where many lines are badly mis-levelled, it may be necessary to set a longer cutoff wavelength, at the risk of removing more geological signal.

APPENDIX E: COPY OF THE CONTRACT



CONTRACT FOR A HELICOPTERBORNE AEROMAGNETIC SURVEY FOR ALTON RESOURCE CORP. OVER HAWK BLOCK, BC, CANADA.

NEW-SENSE GEOPHYSICS LTD. ("NSG"), with its corporate offices at

195 Clayton Drive, Unit 11 Markham, ON, Canada L3R 7P3

Telephone: (905) 480-1107/ (905) 480-9989 Fax: (905) 480-1207

Offers to carry out airborne geophysical services on behalf of

ALTON RESOURCE CORP. ("Client"), with its offices at:

910 – 475 Howe Street Vancouver, BC, Canada V6C 2B3

Telephone: (604) 630-1585 Fax:

Contact: Rick Mazur, Director

in accordance with the following description, terms and conditions.

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1. COMPANY DESCRIPTION

New-Sense Geophysics (NSG) traces its history through its current founder and president Dr. W.E.S. (Ted) Urquhart. First as Urquhart-Dvorak, which specialized in processing airborne geophysical data, to High-Sense Geophysics, which became one of the largest airborne survey companies in the world, until it was purchased by Fugro of Holland in 2000, and then to Geoexplo Limitada., which specialized in airborne geophysical consulting and quality control. This sequence spans over 30 years and leads us to NSG, continuing on in the tradition of airborne survey innovation and quality airborne data acquisition.

NSG has established its HQ office in Markham, Ontario where it operates out of a new purposedesigned and constructed 3000 square foot facility. Here it designs and manufactures its own operator-less systems made "field-bullet-proof" by engineer Glenn Slover.

The facility itself is more advanced than what may be found in leading high tech companies anywhere. It is completely wired for production with any processing station able to share information on the internal network and processors and field people in direct voice and data communication anywhere in the world. Highly secure firewall features prevent unauthorized access and fail-safe systems prevent any potential data loss through accident, intent or act of God. Clients with authorization can view the progress of their survey on a 24/7 basis.

The company has five data processing workstations with capacity to expand to twice that. A large inventory of systems and components provides for rapid remediation of field problems with the hardware should any occur. All this equipment is rigorously tested, using the built-in network and permanently installed sensors including GPS antenna signals available to each workbench.

The company works world-wide and presently has a second office of operation in Santiago Chile where equipment is maintained and processing takes place.

The company and its personnel through its many years in airborne surveying, airborne software and hardware development, and airborne survey data processing, has dealt with literally millions of kilometres of airborne data acquired in perhaps 80 countries. NSG itself has flown, processed and interpreted more than three quarters of a million line kilometres since 2005. These have been for multi-national companies (like Rio Tinto, Barrick, Teck, and BHP), to junior mining exploration companies, to governments. All have received their data on time and to their satisfaction. And in all of its history dating back 30 years, the companies owned and run by Dr. Urquhart, who developed the concept and practice of operatorless surveying, have not had a single accident ...a perfect safety record.

2. SURVEY AREA

A helicopterborne magnetic survey is to be carried out on the Client"s project area referred as Hawk block, located approximately 60 Km north-west of Germansen Landing, BC, Canada (see Table 2.1 and Figure 2.1 for the block"s coordinates and its location).

1			
UTM Zone 10N			
NAD83_X	NAD83_Y	WGS84_X	WGS84_Y
329557	6217330	329557	6217330
336501	6217294	336501	6217294
336536	6214737	336536	6214737
338295	6214755	338295	6214755
338277	6217259	338277	6217259
340710	6217259	340710	6217259
340692	6214080	340692	6214080
340319	6214062	340319	6214062
340319	6212304	340319	6212304
337975	6212304	337975	6212304
337957	6211007	337957	6211007
332416	6211078	332416	6211078
332434	6210226	332434	6210226
330427	6210262	330427	6210262
330427	6209853	330427	6209853
329539	6209889	329539	6209889
329521	6217330	329521	6217330

Table 2.1: Hawk Block Coordinates



Figure 2.1 Map depicting the Hawk survey area (red). Courtesy of Google Earth. Coordinate System: WGS84, World.

3. TECHNICAL SPECIFICATIONS FOR AIRBORNE SURVEY

3.1 Traverse and Control Lines Statistics

Traverse Line Direction:	$0^0/180^0$ from true North
Traverse Line Interval:	200m
Control Line Direction:	$90^{0}/270^{0}$ from true North
Control Line Interval:	2000m
Estimated Traverse Line KM*:	330 L/Km
Estimated Control Line KM*:	35 L/Km
Estimated Total Line KM*:	365 L/Km
Mean Terrain Clearance**:	30m nominal
Sampling Interval:	Magnetics 50 Hz/10Hz
Minimum Line Length:	3 Km

*Note: The estimated Line Km distances mentioned above are estimates based on preliminary specifications provided by the client. The actual number of Line Km may vary and will be presented to the client for an approval.

******Note: The 30 meter flight height will be subject to an on-sight safety audit. In any event, the flight height will be subject to pilot safety concerns.

3.2 Tolerances

3.2.1 Traverse line separation

The pilot will fly to the best of his ability to stay within no more the 50% on either side of the theoretical flight path for a distance of 1000 meters unless obstructions or topography require greater deviations for reasons of safety. If flight-line path deviations are the result of safety concerns, local aviation authority regulations, or military requirements, NSG will not be required to fly fill-in lines.

3.2.2 Control line spacing

Control lines will be surveyed at an average interval as specified, but may be located to avoid, where possible, areas of strong magnetic gradient.

3.2.3 Flight Height

The terrain clearance will be maintained at the planned altitude of 30 meters, subject to the safety requirements, local aviation authority regulations, and/or military requirements.

3.2.4 Missing or Substandard Data

Data will be recorded digitally in the aircraft and at the ground station. Isolated errors, spikes, and short non-sequential gaps consisting of a few points, will be corrected by interpolation.

3.2.5 GPS

GPS will be used for navigation.

3.2.6 Diurnal

Magnetic diurnal activity will be monitored at the base station. If the magnetic activity exceeds 20 nT per 2 minute period, a flight will not depart until the activity has returned to levels below this rate. Once a flight has started it will not be aborted due to diurnal activity.

3.2.7 Speed

The aircraft will maintain a constant airspeed during the survey, with the exceptions where wind direction and/or intensity, or topography will make it impossible to do, while keeping the aircraft safely on line.

3.2.8 Re-flights

Any flight lines or parts of flight lines with data outside the above tolerances will be considered for re-flights. All re-flown lines or portions of lines will be tied to the closest control lines at both ends.

4. PAST PERFORMANCE OR EXPERIENCE AND QUALIFICATIONS

4.1 Organizational experience

NSG provides high quality airborne magnetic/gradiometer and spectrometer surveys using fixed-wing and helicopter platforms. The company is owned and operated by W. E. S (Ted) Urquhart Ph.D. who was the founder and President of High-Sense Geophysics Limited that was sold to Fugro in 2000. After a five-year non-compete period, NSG was inaugurated to re-enter the airborne survey industry to carry on the tradition of providing innovative technologies focusing on collecting the highest quality airborne geophysical data in the safest possible manner.

NSG operates from two offices, one in Markham, Canada where its equipment is manufactured, tested and dispatched throughout the world; the other is in Santiago, Chile where NSG offers airborne geophysical services in Spanish to its South American clients.

NSG has performed airborne geophysical surveys in Africa, North America, Europe, the Middle East and South America. NSG has flown in excess of 700,000 line km in the last 3 years for clients such as major companies like: USGS, BHP Billiton, PG&E, Kennecott, Teck Cominco, Barrick Gold, Kinross, Gold Field, etc.

4.2 **References of previous surveys**

Dr. V. J. S. (Tien) Grauch, Scientist in charge, U.S. Geological Survey Phone: +1 (303) 236-1393 Email: tien@usgs.gov

Donald Hinks, Project Geophysicist, *Kennecott Exploration Company* Tel +1 (801) 204 3404 Cell +1 (801) 638 8528 Email: donald.hinks@riotinto.com

Peter Mills, BHP Billiton Ltd. Tel: + (976) 11 323033 x103 Email: peter.j.mills@bhpbilliton.com

4.3 Qualifications of the personnel and pilots

4.3.1 NSG representative

NSG conducts surveys with an operatorless system and as a result typically sends only one field geophysicist on the job site who possesses good knowledge in not only QC/QA, data processing but in the equipment maintenance as well. At this stage it is planed that NSG representative on the job site would be Mr. Sean Plener with Mr. Andrei Yakovenko being the general project manager under the oversight of Dr. William E. S. (Ted) Urquhart

Field:

Mr. Chris Evans is detail oriented specialist with international and domestic survey and mapping experience and a background in Electrical Engineering. Chris has been working with New-Sense since 2008 on both airborne FW and Helicopter total field magnetic and radiometric surveys in different parts of North America and South America.

Geophysicist:

Mr. Yakovenko, Andrei, has been responsible for fixed wing and helicopter airborne operations including permanent, contract, and air crew supervision, logistics, data QA/QC, data processing, and reporting.

He is a tri-lingual, solutions oriented specialist with international and domestic survey and mapping experience, with a background in geology, underwater, landbased archaeology, and geophysics. Currently a Masters candidate in geophysics at McMaster University, Andrei obtained his B.Sc. (Honors) from the University of Toronto. He is skilled in geophysical data processing using Oasis Montaj and coordinating multiple airborne projects. Andrei has authored multiple scientific publications.

Office supervision:

Dr. Urquhart has over 40 years of experience in geophysics, during which time he has been involved in field surveys, operations, management, data quality, safety, data enhancement, compilation and interpretation for various projects throughout the world. Ted was an owner and president of High-Sense Geophysics Ltd. (the third largest geophysical airborne survey company in the world). He has participated in projects as diverse as oil basin studies, mineral and diamond exploration and radioactive satellite fragment recovery. Academically, Ted has conducted research (M.Sc., Ph.D., and professionally) into the correlation of magnetic anomalies with geological factors on both a large and small scale.

5. NSG'S QUALITY CONTROL

During data acquisition, the system will be monitored by the field QA/QC personnel to ensure that the equipment is secure and unchanged. If equipment has been noted to shift or a mechanical part of the aircraft has changed, another FOM will be flown.

Base station and survey flight data is collected immediately after each flight and duplicate copies made. Field staff verify completeness of flown lines, note and log any deviations from the flight path, identify (manual & 4th difference algorithm) and remove noise spikes (note: raw data is maintained), magnetic compensated channels created, daily progress report updated and posted for client, complete data set sent to NSG.

The iNAV V3 system, used for both flight and base station systems, store real time data on two independent storage media (hard disk, and a flash memory device). In the event that one of the devices fails or data were corrupted, a backup remains intact.

Post field production is done on a day-by-day basis. After the field data QA/QC process described in sections 7.4.1 and section 7.4.2, the data is sent to NSG's secure FTP. The post field QA/QC and leveling will be done by either Andrei Yakovenko or Dr. Ted Urquhart. The field staff is in contact with the in-house processor every evening to ensure data was received and to discuss previous flights. If there is an issue, the field staff can be reached by cell or satellite phone to make the necessary corrections before production continues. This immediate processing of the data to pre-final stages, benefits the client in three very important ways: First, there are multiple levels of personnel monitoring the survey data in a short period. If something is missed by the field staff, it will be caught by our in-house personnel before the survey progresses much further; second, we can update the client with current pre-final maps so areas of interest can be discussed and in-fills or re-flights can be planned before the survey lines are completed, thereby minimizing standby days; finally, the pre-final maps are ready the day after flying is completed and can be submitted for the clients approval.

The final products will be prepared as to the contract's obligations, section 8, and with Client's consent on all the data processing steps and procedures. A first version of the final products will be delivered to Client or other client representative for a review and approval.

For additional Data Processing and QA/QC information refer to the following sections regarding:

- Procedures including measures for aircraft's aeromagnetic system calibration (refer to sections 7.2.)
- Inflight data acquisition (sections 7.1 (except 7.1.4, 7.1.9, 7.1.10), 7.2, and 7.3)
- Flight path location (section 7.1.7)

- Ground magnetometer data acquisition (section 7.1.4)
- Data processing and map preparation (sections 7.4 and 8)

6. EQUIPMENT SUITABILITY AND CONTINGENCY PLAN

6.1 Availability and quality of proposed data acquisition and processing equipment

Aircraft:

A Bell 206B or similar helicopter provided by Northern Air Support based in Kelowna, BC, Canada will be used*.

*Note: the helicopter operator may be changed depending on helicopter availability, costs and other considerations.



The aircraft with its field crew will operate from Fort Saint James, BC (see section 2) and be using a certified fuel truck or fuel drums for refueling.

The aircraft will be limited to VFR flying conditions. All other conditions will be left to the discretion of the pilot in command.

Data Acquisition:

NSG builds and maintains its own proprietary data acquisition systems known as iDAS. The iDAS system features the KroumVS Instraments KMAG4 magnetometer counter and the KANA8 analog to digital converter. The systems are built with a wide range voltage input (9V to 36V) to accommodate a variety of aircraft power supplies.

The iDAS system uses sophisticated software to provide an autonomous "Operatorless" system resulting in a SAFER survey environments by removing the need for an operator on board the aircraft.



The systems will be available within two weeks of the signing of the contract.

For the data processing NSG is using Geosoft Oasis montaj with a number of build in GX scripts.

6.2 Electronic navigation

Pilot Friendly Navigation display (PI) delivers all the navigation and control features necessary for the pilot to safely maintain the highest quality flight line specifications without additional safety risk of having an operator on board the aircraft (see also section 7.1.7).

6.3 Safety Plan

Safety is the number one priority at NSG. NSG is an active member of the International Airborne Geophysics Safety Association (IAGSA)

Prior to mobilizing to the job site, IAGSA Risk Analysis and NSG Job Safety Plan will be prepared in the Markham office. There are areas of the report that require a physical presence on the job site (i.e. reconnaissance flight, identifying local hazards, etc.). At the job site, before each departure, the pilot will contact the local air traffic controller.

Prior to flying the first production line, a safety meeting is held by a NSG representative where each of the reports is explained to all members of the survey crew. A reconnaissance flight will then take place and the IAGSA Risk Analysis and NSG Job Safety Plan will be completed.

Every Sunday, a weekly safety meeting takes place where any and all the safety concerns and issues during the past week are brought to attention and logged to a weekly safety report.

Pilot safety is enhanced by the use of a flight following system that provides updates at 2minute intervals on the GPS location of the aircraft. This information is monitored in real time on the internet by authorized personnel. In case of an emergency the pilot could press a "Panic Button" connected to the Flight Following and the signal will be transmitted at around 10 sec. intervals or less, which would drastically reduce the search area in a case of emergency landing.

The client will be provided with a login for real time monitoring of aircraft activities through this Flight Following System.

In addition, the Flight Following has an integrated satellite phone that is connected directly to the pilot"s headset. This minimizes any distraction to the pilot when sending or answering a call.

Prior to the flight"s departure, a NSG representative records all the information regarding the aircraft status, such as time of departure, endurance, fuel level, etc.

Once in the air, NSG representative monitors the aircraft at least once every half hour. In case of internet problems, a call will be given right away to the satellite phone integrated to the pilot's headset and once every hour.

If the flight following signal is lost and the pilot cannot be reached by satellite phone, then NSG's emergency response procedure is initiated (detailed in the NSG Job Safety Plan).

The aviation company will adhere to all the standards and requirements for local approved air operators.

In summary:

- NSG is active members of International Airborne Geophysics Safety association (IAGSA)
- On each job NSG completes both IAGSA Risk Analysis and NSGs Job Safety Plan forms.
- NSG conducts daily safety meetings with the crew before any flying takes place.

- A Flight Following system will accompany NSG iDAS system that provides updates on every 2 minute intervals, which could be monitored through internet access.
- In addition, the Flight Following has an integrated satellite phone that is connected directly to pilot"s headset. Thus minimizing any distraction if pilot decides to send or receive a call.
- The client will be provided with a login for real time monitoring of the helicopter activities through the flight following system.

6.4 Safety Record

No accidents or near accidents have ever occurred at NSG. Since its inception, the company has flown over 45 magnetic and/or radiometric surveys totaling well over half a million line kilometers without an accident.

In addition, High-Sense Geophysics formed in 1993, owned by NSG president Dr. Ted Urquhart, also had an accident-free history. High-Sense rose to become one of the world"s largest airborne survey contractors and had met and exceeded the rigorous safety standards of BHP, Shell, and Phillips, among others. It had performed surveys without incident or accident in difficult areas including Vietnam, China, Mongolia, Mauritania, Democratic Republic of the Congo, Brazil, and Sudan.

7. TECHNICAL APPROACH

7.1 AIRBORNE AND GROUND INSTRUMENTATION

7.1.1 Aircraft Type

The aircraft/s allocated to conduct this survey is a Jet Ranger Bell 206B helicopter (or different see Section 6.1) with a fix mount stinger assembly with a Cesium magnetometer mounted in it.

7.1.2 Geophysical Flight Control System

A geophysical flight control system, designed and built by NSG will be provided. This system will control, monitor and record the operation of all the geophysical and ancillary sensors.

7.1.3 Airborne Magnetometer



The magnetometers will be cesium sensors, operated in strap down stinger mount. The orientation of the sensor is adjustable, to provide optimum coupling with the earth's field on reciprocal headings. The magnetometer has a sensitivity of better than 0.01 nT at a sampling interval of 0.1 s. The magnetometer has the capability to measure ambient magnetic fields in the range of about 100 to more than 100,000 nT.

The airborne magnetometer is supplemented with an 18-term digital compensation system that uses the input from a 3-axis fluxgate to determine the aircraft's attitude and rate of change with respect to the earth's magnetic field. The compensation system identifies the permanent, induced and eddy current magnetic contributions of the aircraft and provides a correction to be applied to the raw magnetic data to remove the maneuver noise.

A FOM will be calculated by summing the absolute errors of each of the 12 maneuvers and will be less than 3 nT.

7.1.4 Ground Magnetometer



Scintrex Cesium CS3 or GSM19 Overhauser magnetometers will be operated at the base of operations within or near the survey area in an area of low magnetic gradient and free from cultural noise. The sensitivity of the ground magnetometer will be equal to better than 0.1 nT. Data will be recorded continuously every 1 second (or a rate defined by the client) throughout the survey operations in digital form. Both the ground and airborne magnetic readings are automatically time stamped with GPS time to within 0.005 seconds ensuring a very high degree of correlation based on broadcast GPS satellite time.

7.1.5 Radar Altimeter



A Terra 3500 radar altimeter will be operated in the aircraft throughout the survey to provide ground clearance information. The altitude will be recorded every 0.1 second or better. This instrument has a linear performance over the range of 0 to 2500 feet.

7.1.6 Fluxgate Magnetometer



To achieve quality compensation NSG uses a Bartington Mag-03 Three Axis Magnetic Field Sensors. These compact, high performance fluxgate magnetometers with integral electronics provide reliable precision measurements of static and non-static magnetic fields in three orthogonal axes. The magnetometer is mounted inside the stinger assembly.

7.1.7 GPS Navigation

A 16-channel GPS navigation system will be used for navigation and flight path recovery. The Ublox RCB-LJ GPS receiver board is powered by the ANTARIS® positioning engine.

The leading ANTARIS® GPS Engine provides excellent navigation performance under dynamic conditions in areas with limited sky view like urban canyons, high sensitivity for weak signal operation without compromising accuracy, and support of DGPS and multiple SBAS systems like WAAS and EGNOS. The 16 parallel channels and 8192 search bins provide fast start-up times. The aiding functionality accelerates start-up times even further. The low power consumption and FixNow[™] power saving mode make this product suitable for handheld and battery-operated devices.

7.1.8 Field Data Verification System

NSG will provide a complete PC based magnetic map compilation facility, to serve as a field verification system The PC computer based system is equipped with all the software necessary to produce preliminary data images in the field. Data will be provided to the client in a Geosoft format.

The digital data records will be verified at the project site to confirm that data recording has taken place within specifications. All raw digital data recorded in flight and on the ground station magnetometer will be duplicated on site to prevent loss, and stored in separate locations.

In the base where there is e-mail connection, data will be sent on a daily basis for further examination in the head office where areas of infill will be chosen.

7.1.9 Flight Following System

NSG places the highest priority on safety and uses satellite tracking and communication technology to monitor all its survey flights. The aircraft will be equipped with Latitude Technologies Skynode S200, a system that includes satellite phone, flight tracking, and messaging transceiver. This system uses the Iridium satellite network, which provides both voice and data communications between the aircraft and ground stations.

The S200 system can be set up for different time frames; it now automatically updates its position at least once every 2 minutes allowing NSG's field or office staff to monitor the progress of the survey flights. All flight staff are trained in the use and the operation of the S200 system.

During the survey, if the pilot experiences any problems with operation of the survey equipment or encounters any other difficulties, he/she can call the field or office staff for support through the satellite phone, which is integrated into the pilots head set. In the event of flight operations problems, field staff can often troubleshoot and correct difficulties allowing survey flights to continue uninterrupted.

In the event of an emergency the pilot may press the "Panic Button" which will cause the system to immediately transmit the location and heading of the aircraft and will continue to transmit the current position of the aircraft continuously at around 10 sec. intervals until the emergency system is turned off.



Figure 7.1 Screenshot of Flight Following Through Internet Web Browser

7.2 INSTRUMENT CHECKS AND CALIBRATIONS

Failure to meet the specifications in any check or calibration test will be cause for corrective action by NSG or approval of the Client before survey operations can be undertaken.

7.2.1 Magnetometer

Figure of Merit (FOM)

A test will be flown on-site prior to the survey to determine the FOM of the installed magnetometer. The system will be flown on the four cardinal headings doing a pitch, roll, and yaw, maneuver on each. The FOM will be calculated by summing the absolute errors of each of the 12 maneuvers and will be less than 3 nT.

7.2.2 Altimeter

Checks of the radar altimeter calibration will be undertaken above the base airstrip or some other suitable location with known elevation and flat terrain.

7.3 DATA RECORDS

7.3.1 Digital Records

The airborne data acquisition system will record the following information digitally in a format that enables the recording of each variable over its full dynamic range:

Fiducial count GPS UTC time GPS latitude, longitude, UTM easting, northing and elevation above ellipsoid Raw magnetic total field Calibrated radar altimeter output Three Fluxgate channels

The base station will record the following information digitally in a format that enables the recording of each variable over its full dynamic range.

GPS time (used as fiducial number) GPS raw satellite range information Raw magnetic total field

All survey parameters including raw magnetic total field, electronic positioning, radar altimeter, and time and fiducial markers will be recorded digitally during data acquisition in flight. The magnetic base station will record total magnetic field and GPS time.

The data acquisition system organizes the data in a form directly suited to building the processing database. This digital file structure has for each traverse and control line a unique line number and segment number. The base station magnetic profile and GPS coordinates are added to the database using GPS time for alignment.

7.4 DATA COMPILATION AND MAP PRESENTATIONS

The NSG Field-Mapper PC based computer compilation system will be used to process the collected geophysical data on-site as the survey progresses. The 'on-site' processing will enable the Client to review the magnetic data to evaluate targets to make a qualified decision regarding any changes to the survey quantity and size. This will allow the selection of "in-fill" or area extensions. The preliminary data will be sent via FTP site (assuming reasonable speed internet connection is available) for the client's review at least once a week (more often should the client require).

7.4.1 Magnetic

7.4.1.1 Field Data Processing

After collecting flight and base station data, flight data will be imported to Oasis montaj using a NSG template that includes all project data channels. Next flight data will be windowed to only include flight path data within the survey block using custom NSG script that will be developed for the survey area.

Magnetic flight data be duplicated to ensure original raw data is not modified in any way. Profiles for the duplicated channels are then checked for visible noise spikes. Any noise spikes are then cleaned manually and interpolated. From there, field staff will run an automated script that will look for any missed noise spikes. This automated script employs a 4th difference algorithm to identify noise spikes in magnetic data. After other channels (radio altimeter, flux gate profiles etc.) are inspected for normal behavior that database is prepared for magnetic compensation. Using QC Tools, compensation coefficients are applied to the cleaned magnetometer channel and the database is saved.

From here, NSG staff will import base station data into Oasis montaj using a NSG template. Base station data is duplicated to maintain a raw channel and then checked for visible noise spikes. After noise spikes have been removed and interpolated, a 101 (or other job specific) low pass filter is applied to base station magnetic channel and the database is saved.

Next, the flight and base station databases are merged, synchronized (using the GPS clock channel recorded by both systems), compressed, encrypted and sent to NSG's secure server in Toronto, for in-office QA/QC and processing procedure.

NSG field staff from there will updated and complete all daily logs (weekly progress report, daily procedures checklist, weekly summary meeting etc.).

7.4.1.2 Post-Field

As the data being received from the field on day-to-day basis it is reviewed for QA/QC once again to insure that nothing got missed in the field. The data is checked for quality of magnetic signal from all sensors, including the base station magnetometer, fluxgate magnetometer, radar altimeter, line deviations etc. The profiles of the above data are plotted and checked on line-by-line basis. Algorithms like 4th-difference are used to check the CS3 signal.

After the data has been QA/QC checked it is merged with an ongoing master database. Where the following data processing steps take place:

- 1) Diurnal correction subtracted directly from the aeromagnetic measurements to provide a first order diurnal correction. The mean of base station readings is added back to the data.
- 2) Heading error correction using pre-constructed heading table.
- 3) Lag correction to correct for sensor-to-GPS offset.
- 4) Simple Leveling a survey line/control line network will be created in order to determine differences in magnetic field at the line intercepts. The differences will be calculated and tabulated, then used to guide subsequent manual leveling on any lines or line segments which required adjustments. See image below for an example of contour Total Magnetic Intensity (TMI) map produced after Simple Leveling was applied.
- 5) Microleveling depending on the Simple Leveling results a Microleveling might be needed in order to further correct the data for linear line-to-line noise. The technique used will be the one developed by Paterson, Grant & Watson Limited and available through Geosoft Oasis montaj with the mutually accepted parameters.
- 6) IGRF correction The total field strength of the International Geomagnetic Reference Field (IGRF) 2010 model will be calculated for every data point, based on the spot values of latitude, longitude and GPS altitude, using the 2010 model. This IGRF will be removed from the measured survey data on a point-by-point basis. The mean of IGRF readings is added back to the data.

7.4.1.3 Magnetic data filtering and gridding

An appropriate cosine filter (e.g., 21-51 points) will be applied to 50Hz raw data in order to anti-alias relatively constant frequency magnetic signal introduced by the helicopter (e.g., rotor blades). Such data will then be samples at 10Hz.

The TMI grid will be produced using bi-directional gridding technique, with 20 m cell size (or other suitable size depending on liner spacing) and Akima spline across and down lines.

7.4.1.4 Office Data Processing

All of the above calibration procedures, tests and corrections applied in the field will be reviewed for QA/QC by assigned office QA/QC and data processing person.

8. FINAL PRODUCTS

The following is the list of items that will be delivered to the Client for each block flown:

Hard copies (2 copies):

- Map of Total Magnetic Intensity (1:50,000 scale)
- Final Logistics Report

Soft copies (2 copies):

- Grid and map of Total Magnetic Intensity at 1:50,000 scale
- Final Logistics Report
- Magnetics data database in Geosoft gdb format including raw data, base station, compensated, base station corrected, IGRF corrected, heading corrected, lag corrected, simple leveled, and microleveled (optional) total field.
- Weekly and Line Progress report

9. TIME SCHEDULE

The project is scheduled to start by the mid-end September 2011.

10. TERMINATION

In the event that the geophysical platform or equipment becomes inoperable, NSG will proceed with diligence to rectify the problem within a reasonable period of time. If within the aforementioned period of time NSG fails to rectify the problem, the Client may, at their discretion, terminate the work under this Proposal in full or in part. In the event of such termination, the Client shall be obliged to pay NSG for services rendered only up to the date of receipt of a written notice of such termination and for documented expenses incurred by NSG prior to the date of receipt of termination notice, and for reasonable cancellation and demobilization costs.

11. LOCAL LICENSES, PERMITS AND CUSTOMS

Client will take the responsibility for obtaining all local licenses and permits required to perform the services on Client's name. Out of pocket costs for permitting will be reimbursed by the client.

12. GENERAL CONDITIONS

NSG will carry out the agreed services in a proper and workmanlike manner with a high standard of safety and in accordance with the laws, rules and regulations applicable to the project location.

At all times during the term of this Proposal, the NSG or its subcontractors shall carry and maintain at its own expense, work insurance protection of the kinds and in the minimum amounts set forth below:

12.1 NSG Liability Insurance

- Employer's Liability and Workmen's Compensation insurance to cover employees furnished by NSG including:
 - (a) Statutory Workmen's Compensation benefits in compliance with the laws of the state, province or country in which the aircraft operations under this Proposal will be performed;
 - (b) Employer's Liability to have limits of not less than \$5,000,000 per person, and \$5,000,000 per accident;
 - (c) Employer's Liability applicable to all provisions outlined above with limits not less than \$5,000,000 each person, \$5,000,000 each occurrence.
- Comprehensive General Liability Insurance. Such insurance shall cover all operations in all provinces, states and countries in which the aircraft operation or services may be performed by NSG hereunder and shall include the following:
 - (a) Limits of liability: not less than \$5,000,000 for death or injury of any one person, \$5,000,000 in the aggregate for all persons injured or killed as the result of any one accident, and \$5,000,000 for loss of or damage to property resulting from any one accident.
 - (b) Contractual liability coverage for NSG's obligations hereunder;

13. CHARGES AND PAYMENT TERMS

Total estimated cost for Survey and Map Production

Block Name/s	Line Spacing (Traverse/Control)	Estimated Total Line Km*	Price per Line Km (\$CAD)	Mob/Demob (\$CAD)	Estimated Total **/***
Hawk Block	200m/2000m	365	\$139.33	\$ 9,500.00	\$ 60,355.45

Stand-by: A \$1,650 CAD/day will be charged if flying is not possible due to inclement weather, atmospheric conditions, labor unrest, government intervention or other stoppages beyond the control of the contractor.

*Note: The actual total Line Km distances may be slightly less or more than estimated.

**Note: These prices are net of all local taxes.

***Note: The above quote is valid for 30 days.

Payment Schedule

An initial payment, due on signing:	50% of selected survey Plan price
A second payment, due on completion of flying:	40% of selected survey Plan price
Final payment, due on delivery of final products:	balance

All invoices are due and payable upon submission at the Client's address indicated in Section 1 of this Survey Agreement. A service charge of 0.4 % per week on unpaid balance is payable on all overdue accounts.
The payment schedule is subject to negotiation should the proposed schedule not conform to the client's norms and regulations.

Funds will be paid by wire transfer to:

In CAD Funds

Beneficiary:	New-Sense Geophysics Limited
Bank:	The Bank of Nova Scotia
Account #:	02011
Transit #:	11452
Institution Code:	002
Swift:	NOSCCATT
ABA Routing:	026002532
Address:	880 Eglinton Avenue E. at Laird Drive
	Toronto, Ontario, M4G 2L2, Canada

NEW-SENSE GEOPHYSICS LTD.	
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Name (print): Andrei Yakovenko

Title: V.P. Operations

Date:

Signature:

Sept 14 204

Name (print):

ALTON RESOURCE CORP

an'. I

Title:

Date:

Signature:

Helicopterborne Aeromagnetic Survey Contract New-Sense Geophysics Ltd.

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New-Sense Geophysics Ltd.





Interpretation of a High Resolution Helicopter Magnetic Survey on the Hawk Property, British Columbia

Lou O'Connor, M.Sc. Consulting Mining Geophysicist November, 2011

Figures

- 1 Flight Lines on Calculated DEM
- 2 Flight Lines on Radar Altimeter
- 3 Total Magnetic Field
- 4 Reduced to Pole (RTP) Total Magnetic Field
- 5 Reduced to Pole Total Magnetic Field Upward Continued 1 Kilometer
- 6 Residual Reduced to Pole Field (RTP-1 Kilometer Upward Continuation)
- 7 Phase (Potential Field Tilt) of RTP
- 8 Geophysical Linears Overlain on Residual Magnetics
- 9 Geology Overlain on Residual Magnetics

Introduction.

In mid-September 2011 High-Sense Geophysical limited completed an 397 line-kilometer stinger based helicopter aeromagnetic survey of the Hawk property for Alton Resource Corporation. This exploration property is located in central BC about 200 kilometers NW of Fort St. James, BC. The property covers part of the Hogem Batholith within the the Quesnel Terrane. On the property are alkalic and calc-alkaline intrusive bodies that have been the focus of exploration since the early 1970's. Exploration targets have been porphyry copper -gold in alkalic intrusives and gold-silver veins in both alkalic and calc-alkaline rocks. Companies that have previously worked on this property include Amoco, Cyprus, Castleford Resources and Redcorp Venture Ltd.

The aeromagentic survey lines were flown N-S at a 200 meter line spacing at an average ground clearance of 70 meters. The survey also included a 6 square kilometer area of 100 meter in-fill lines in an area of interest in the SW quadrant of the block and 4 E-W tie lines at a 2 kilometer spacing. High-Sense Limited delivered a data and logistics report, final processed grids of Total Magnetic Intensity and Calculated Vertical Derivative and a Geosoft database of profile data on October 17, 2011. The contractor's report documents in detail the steps taken to process the survey data. These data processing steps included compensation for sensor position with respect to the helicopter, diurnal correction, tie line leveling, and micro-leveling of the gridded data. I have reviewed the data processing and final grids and I consider the data to be of good quality. For this interpretation report to create new maps and images of the survey coverage and magnetic results. The coordinates used in this report are NAD 1983 UTM Zone 10N meters.

Summary and Recommendations.

After review and quality checking, the total magnetic intensity grid created by the contractor was reduced to the pole, upward continued, residualized and used to calculate derivatives of the field. The one kilometer upward continued magnetics map, which emphasizes basement features, shows a broad, generally NW oriented magnetic low covering about 20 square kilometers in the NW quadrant of the survey and a small discrete magnetic low in the east central area of the survey. The large low of about a relative -400 nT is centered about 331000E, 6216000N and the smaller local anomaly is centered about 338500E, 6214500N. Mapping indicates these magnetic lows are probably associated with the Osilinka Granodiorite. Three discrete magnetic highs occur in the south and east areas of the survey block. The strongest magnetic high is a near circular feature, approximately 3 kilometer diameter, located in the SW quadrant of the survey within an area mapped as a syenite granodiorite. This positive anomaly has a relative amplitude of about +500 nT. Ten of the thirteen selected geologic and/or geochemical targets plot in close proximity to this magnetic high. The other distinct lower level positives occur in the SE centered about 337250E, 6211750N and in the NE centered at about 340000E, 6216250N. They both are oval shaped anomalies aligned E-W to NW-SE with footprints of about 4 square kilometers. They are located outside the area of geologic mapping, but map trends suggest that they could be related to mesocratic granite and/or biotite migmatite gneiss. A better understanding of both the positive and negative basement anomalies and their relationship to mineralization would help advance the exploration for porphyry Cu-Au mineralization. Reconnaissance lines of deep IP/Resistivity over these individual anomalies could be warranted if there is geochemical or geologic evidence to support a porphyry target.

The residual and phase (potential field tilt) maps which emphasize shallow and shorter wavelength features are best for comparison with surface geology and the interpretation of shallow contacts and structures. These maps show a number of narrow (< 1 kilometer wide) positive linear magnetic features with generally N to NW trends. These magnetic highs show a strong but not perfect correlation to ridges and topographic highs while magnetic lows are commonly associated with valleys and topographic lows. This correlation could be the result of ridges being cored or capped by more magnetic rocks. At the SW Zone, the Radio Veins and the Zulu Vein the contacts defined by the magnetic residual and phase maps parallel the veins and could be reflecting a control on vein locations. Detailed mapping and sampling in these areas using the magnetic data as a base could improve the interpretation of these veins.

A number of geophysical linears have been interpreted on the residual magnetic map. These interpreted linear features are very subjective and need ground checking to determine their significance. They show NW, N and NE trends that in general cross-cut topographic trends. Areas of known mineralization generally plot in areas where a number of interpreted linears intersect, suggesting some structural control on the mineralization.

Discussion.

Figures 1 and 2 show a calculated Digital Elevation Model (DEM) and a ground clearance map for the survey block. These maps were made from the GPS elevation and radar altimeter channels in the Geosoft data base. The DEM map shows that the survey block is in an area of steep terrain with elevations ranging between about 1000 and 2200 meters. Narrow northward oriented ridges and canyons cover the vast majority of the area flown. Lowest elevations are in a narrow E-W strip in the northern boundary of the block. The highest elevations occur in the SW and SE corners of the block.

These areas are also the most likely to have areas of high flight clearances. Data quality does not appear to have suffered due to the greater sensor heights in these areas.

Figures 3 through 9 give different perspectives on the measured Total Magnetic Field. These different images have been generated by applying several processing steps or filters to the contractor grid shown in Figure 3. These steps include reduction to the pole, upward continuation, residualization and the calculation of vertical and horizontal derivatives of the total field. The reduction to the pole image is shown in Figure 4. Reduction to the pole (RTP) recalculates the field (assuming no remanent magnetization) with the field inclination at 90 degrees, centering magnetic anomalies over their sources. At the Hawk property, the induced field has a declination of about 20 degrees east and an inclination of about 75 degrees. Comparing Figures 3 and 4 shows that the already steep inclination of the earth's field in the Hawk area results in only a subtle shift of anomaly patterns.

Figure 5 is the an image of the field in Figure 4 after a one kilometer upward continuation. Upward continuation computes the magnetic field that would be measured at a higher sensor height. In this case the grid simulates the field that would be measured if the sensor were flown one kilometer higher. The 1 kilometer upward continuation emphasizes broader and deeper basement features by attenuating near surface anomalies coming from within approximately 500 meters of the surface. On this map a relative magnetic low dominates an approximately 20 kilometer square area in the NW quadrant of the survey. Here the contour patterns are generally oriented to the NW. A relative -400 nT is centered about 331000E, 6216000N and a smaller local anomaly is centered about 338500E, 6214500N. The broad area of realtively lower magnetic response has been mapped as the Osilinka Granodiorite.

Three discrete magnetic highs are visible along the southern and eastern margins of the block. The strongest response is in the SW corner of the map in an area proximal to much of the previous exploration activity. This magnetic high is a near circular feature, approximately 3 kilometer in diameter within an area mapped as a syenite granodiorite. This positive anomaly has a relative amplitude of about +500 nT. Ten of thirteen selected geologic and/or geochemical targets plot in close proximity to this magnetic high. The two other distinct, lower level positives occur in the SE centered about 337250E, 6211750N and in the NE centered at about 340000E, 6216250N. They both are oval shaped anomalies aligned E-W to NW-SE with footprints of about 4 square kilometers. They are located outside the area of geologic mapping, but map trends suggest that they could be related to mesocratic granite and/or biotite migmatite gneiss. One target plots proximal to the NE magnetic high. These basement magnetic features could potentially represent mineralized intrusives. If warranted, reconnaissance lines of deep IP/ Resistivity could be used to test for anomalous IP response associated with these magnetic anomalies.

Figure 6 shows a residual magnetic map. This map has been calculated by subtracting the results in Figure 5 from Figure 4, essentially sharpening local anomalies by removing the longer wavelength background anomalies. This map emphasizes shallow magnetic responses coming from within approximately 500 meters of the surface. The map has a number of narrow (< 1 kilometer wide) positive linear magnetic features with generally N to NW trends. These magnetic highs show a strong but not perfect correlation to ridges and topographic highs while short wavelength magnetic lows are commonly associated with valleys and topographic lows. This correlation of magnetic response with topography could be the result of ridges being cored or capped by more magnetic rocks. At the SW Zone, the Radio Veins and the Zulu Vein in the SW quadrant of the survey the E-W to ~NW-SE oriented veins parallel magnetic contours and magnetic contacts. These veins could be controlled by the geologic contacts mapped by the magnetic survey. Detailed mapping and sampling around the veins using the magnetic map as a base could improve the interpretation of these veins. A detailed

review of airborne magnetic profiles in the area of vein mineralization might also be of use.

Figure 7 is the phase or as it is also known the potential field tilt. This is calculated as the arc tangent of the ratio of the vertical derivative divided by the horizontal gradient. The map represents a normalized and mid-ranged stretched vertical derivative. Grid values are in radians and range from +/-Pi/2. The arc tangent function saturates at high and low values. Amplitude information is lost, but subtle magnetic contacts and trends are enhanced. Like the vertical derivative this map enhances shallow, short wavelength features of the magnetic field. Positive anomalies represent magnetic sources and the zero contour represents their approximate edge. This map has a similar pattern as the residual map, but fine detail is sharper and the edges and continuity of zones are clearer. Like the residual map there is a strong correlation of topographic ridges with positive magnetic anomalies. The strongest anomaly trends tend to be N-S to NW-SE, but there is also an underlying E-W to NE-SW trend of narrower and short strike length features across the map. E-W oriented zones are particularly strong in the SW quadrant of the map. They are particularly noticeable in the area of previous work and in an area about 1 kilometer to the SW of the SW Zone.

Figure 8 shows interpreted linear geophysical features and Figure 9 shows an overlay of geology and selected targets plotted on the residual magnetic image. The interpreted linear features on Figure 8 are very subjective and need ground checking to determine their significance. They are located largely along discontinuities in the contour patterns of the residual field. They could be related to structures, faults, contacts or even changes in topography or overburden thickness. They show NW, N and NE trends that in general cross-cut topographic trends. Areas of known mineralization generally plot in areas where a number of interpreted linears intersect, suggesting some structural control on shallow mineralization.

Target areas of interest for future exploration on the property are listed in Table 1. They have been selected based largely on geology and geochemistry. It is worth noting that 11 of the 13 targets plots in the area of the strong basement magnetic high in the SW quadrant of the survey block and that one plots to the SW of the basement high in the NE quadrant of the survey. Of these targets, anomalies 1, 2, 3, 5, 8, 9, 10 and 13 plot either at or just outside of positive magnetic anomalies as represented by the residual magnetic map or the phase map while anomalies 4, 6, 7, and 12 plot within the boundaries of positive magnetic features. The targets falling outside or along the contacts of magnetic zones have the most similarity to the known vein targets. Targets 3, 5, 8, 9, 10, and 11 show the strongest similarity to the SW Zone and the Radio Vein magnetic setting. Targets 4, 6, 7, and 12 have a direct correlation with narrow linear magnetic anomalies and could to be related to a different style of mineralization.



Helicopter Magnetic Survey of the Hawk Property, British Columbia



Helicopter Magnetic Survey of the Hawk Property, British Columbia

58800 58700 58400 58100 57900 56800 56600 56500 -56400 -56300 CI=500 nTesla 57500 -Meters **Total Magnetic Field** Scale 1/50000 UTM North Data from High-Sense Geophysics Limited Coordinates: NAD 1983 UTM Zone 10N Meters

Figure 3

LJO 11/2/2011

Helicopter Magnetic Survey of the Hawk Property, British Columbia



Helicopter Magnetic Survey of the Hawk Property, British Columbia









Figure 7 LJO 10/28/2011

Helicopter Magnetic Survey of the Hawk Property, British Columbia



