



ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TITLE OF REPORT : Magnetometer and Seismic Reflection and Refraction Survey on the Fraser Canyon Property

TOTAL COST: \$5,200.00

AUTHOR(S) <u>Andrew Pare, Russell Hillman, Fran Macpherson, Robert E. "Ned" Reid</u> SIGNATURE(S) <u>"Signed and Sealed"</u> NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): <u>P-11-583: Approval number 09-1100192-0522 to 31/12/2010</u> STATEMENT OF WORK EVENT NUMBER(S)/DATE(S): <u>4538071, 2010/Mar/26</u>

YEAR OF WORK: <u>2009</u> PROPERTY NAME: <u>Fraser Canyon</u> CLAIM NAME(S) (on which work was done): <u>FRT 524017</u>

COMMODITIES SOUGHT: Au

 MINERAL INVENTORY MINFILE NUMBER(S),IF KNOWN: 093G 041

 MINING DIVISION : Cariboo

 NTS / BCGS: 093G.017

 LATITUDE ______53_o ____07____' ___47____"

 LONGITUDE ______122___o ___39____' ___48____" (at centre of work)

 UTM Zone: 10N
 EASTING: 522720

OWNER(S): CVG Mining Ltd. MAILING ADDRESS: 384 Winder Street, Quesnel, B.C. V2J 1C6

OPERATOR(S) [who paid for the work] CVG Mining Ltd. MAILING ADDRESS: 384 Winder Street, Quesnel, B.C. V2J 1V6

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MAGNETOMETER and SEISMIC REFLECTION and REFRACTION SURVEY on the FRASER CANYON PROPERTY by Andrew Pare, B.Sc. and Russell Hillman P.Eng. of Frontier Geoscience Inc.

> on Mineral Tenure 524017

Lat: 53° 07' 47" Long: 122° 39' 48"

Cariboo Mining District

on The Fraser Canyon Property

of **CVG Mining Ltd.** Holder of Tenures and Operator

Prepared by

Robert E. "Ned" Reid P.Geo. #16 – 231 Hartley St., Quesnel, B.C.

and

Fran Macpherson, M.A. Accurate Mining Services Ltd. 282 March Road, Quesnel B.C.

November 23, 2010

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Appendix A: Relevant Data, Regarding the Fraser Canyon Property, from the Frontier Geosciences Report on Wingdam and Fraser Canyon Projects, Quesnel Area, B.C. by Andrew Pares and Russell Hillman dated December 2009 Appendix B: Statement of Costs

SUMMARY

The purpose of this report is to present the 355 metres of seismic reflection and refraction line, together with the 1455 metres of magnetometer surveying that was completed on the Fraser Canyon property and conducted by Frontier Geoscience Inc for CVG Mining Ltd. in a format acceptable for assessment credit. The Frontier Geoscience report, with applicable plans is appended.

CVG Mining Ltd's primary objective at the Fraser Canyon Property (formerly Canyon Property and Tertiary Mine property, which is located across the river) is to put the "historic" buried Tertiary placer deposits into production. CVG Mining Ltd. commissioned Frontier Geosciences Inc. to conduct test surveys on the Wingdam and Fraser Canyon properties. The data relevant to the Fraser Canyon property is the subject of this report.

The majority of the Fraser Canyon Property area mineral and placer tenures held by CVG Mining Ltd. were acquired under an option agreement with John Bot of Quesnel B.C. The mineral tenures are contiguous and cover several placer tenures in the area (Figure 2 and Table 2).

The principle reason for the mineral tenures held by CVG is that the alluvial gold present at the Fraser Canyon Properties occurs both in fractures in the bedrock, as well as the overlying sediments, hence to prevent arguments as to whether it is placer or mineral ground, it is simpler to hold both types of tenure.

INTRODUCTION

Len Sinclair, President of CVG Mining Ltd. requested that that Fran Macpherson of Accurate Mining Services, (who undertakes land management for CVG) and Robert E. "Ned" Reid as a Qualified Person, who had recently completed, along with Don Benard, an Assessment Report entitled: Geochemical and Physical Report on the Fraser Canyon Project, for assessment credit on the Placer Tenures, submit the Frontier Geoscience Ltd geophysical report for assessment credit on the mineral tenures held in the Fraser Canyon Project.

Location and Access

The Fraser Canyon (formerly Canyon) mine area lies approximately 25km northwest of Quesnel and is readily accessible from West Quesnel via 6.7km on North Fraser Drive/Nazko Highway, then 16.5km on Paradise Road. Access to this area is available throughout the major portion of the year as Paradise Road is gazetted and maintained to the site turn off.

Figure 1 shows the region of interest south and west of the Fraser River in central British Columbia. Figure 2 shows the mineral tenure block. The claims are centered approximately at 53.123083N latitude and -122.662722W longitude some 27 kilometers northwest of Quesnel within NTS map area 093G/2E and BCGS map areas 093G.017, 093G.007 and 093G.008.

The north Tertiary area (directly north and across the river from the Fraser Canyon mine) is readily accessible from Highway 97, the old Prince George Highway and by numerous

logging roads in the north. The most direct route is by taking Olson Road north and west of the Ahbau Creek bridge on Highway 97, 7 km southwest to the Cottonwood River then 3 km north to the B C Hydro lines where the 200 Road branches south About 5 km west on the 200 Road the 200A Road to the south is taken for about 11 km where an access road to the Tertiary Mine branches south. It is about 2 ½ km along this road to the site of the old Tertiary Mine. There are other logging roads which extend through the property to the Fraser River. Access to the Tertiary is generally available annually from May through late October.

Climate

A sample 27 year period for average weather obtained from the Meteorological Branch of the Department of Transport in Quesnel indicates that the Canyon Mine Property area has a moderate climate. July and August are the hottest months averaging 25° C, with an overall mean maximum temperature of 23° C. December and January are the coldest months averaging 0° C, with an overall mean minimum temperature of -13° C. Therefore, year round operation of a wash plant is quite feasible with proper winterizing of the plant facilities, and possibly short shut downs on the coldest days. A small placer operation washed material on an auriferous gravel bar, just below the CVG property through January, February and March in previous years with minimal problems.

Topography

The CVG claim area which is approximately 1.5 kilometers (1 mile) wide and 8 kilometers (5 miles) long is a series of 2 or 3 large, flat river-glacial benches. The adit is at approximately 502.9 m (1650 feet) ASL which is 6.25 m (20.5 feet) above the November Fraser River level. The first large gravel bench contains the wash plant and associated infrastructure and is at an elevation of 539.5 m (1770 feet) ASL. The second large gravel bench begins at the top of the hill above the infrastructure set up is at an elevation of approximately 565.7 m (1856 feet) ASL. These gravel benches are thickly wooded with mature Birch, Poplar, and immature Fir, Pine and Alders.

Ownership and Status of Placer and Mineral Tenures

Placer Tenures

Figure 2 shows the 8 mineral tenures comprising the Fraser River Project that are 100% owned by CVG Mining Ltd. Table 2 summarizes CVG Mining Ltd's mineral tenure holdings. The placer tenure list in Table 1 is included for interest only. No figure is included as the report is restricted to exploration and development on the mineral tenures. Placer tenure details are included for information only.



Map Center: 54.4781N 124.7082W



Ν



Tenure Number	Claim Name	Tenure Type	Tenure Sub Type	Map Number	Issue Date	Good To Date	Area (ha)
325922	CANON 1	Placer	Claim	093G017	1994/may/25	2011/jun/30	50.00
360441	FR 1	Placer	Claim	093G017	1997/oct/26	2011/jun/30	50.00
360442	FR 2	Placer	Claim	093G017	1997/oct/26	2011/jun/30	50.00
361417	FR3	Placer	Claim	093G017	1998/feb/07	2011/jun/30	50.00
394976	T 1	Placer	Claim	093G017	2002/jun/29	2011/jun/30	50.00
416598	CANYON 4	Placer	Claim	093G017	2004/nov/28	2011/jun/30	50.00
534393	CANYON	Placer	Claim	093G	2006/may/26	2011/jun/30	58.21
534446	CANYON 2	Placer	Claim	093G	2006/may/26	2011/jun/30	19.40
545962	FR	Placer	Claim	093G	2006/nov/27	2011/jun/30	77.55
545982	FR T	Placer	Claim	093G	2006/nov/28	2011/jun/30	19.38
546003		Placer	Claim	093G	2006/nov/28	2011/jun/30	19.40
546333	FRT	Placer	Claim	093G	2006/dec/02	2011/jun/30	19.39
584207	FARMLAND	Placer	Claim	093G	2008/may/14	2011/jun/30	174.68
584209	RIVER RUN	Placer	Claim	093G	2008/may/14	2011/jun/30	135.89
584211	CROSS COUNTRY	Placer	Claim	093G	2008/may/14	2011/jun/30	174.43
584212	TRAIL	Placer	Claim	093G	2008/may/14	2011/jun/30	155.02
584214	MCHARDLE	Placer	Claim	093G	2008/may/14	2011/jun/30	19.39
584216	T HARDLE	Placer	Claim	093G	2008/may/14	2011/jun/30	19.39
584228	T ROAD	Placer	Claim	093G	2008/may/14	2011/jun/30	38.81
584403	KILLAM	Placer	Claim	093G	2008/may/16	2011/jun/30	19.40
597361		Placer	Claim	093G	2009/jan/12	2011/jun/30	19.40
597363		Placer	Claim	093G	2009/jan/12	2011/jun/30	19.39
597364		Placer	Claim	093G	2009/jan/12	2011/jun/30	19.39
599720		Placer	Claim	093G	2009/feb/20	2011/jun/30	19.40
599931	PASTURE	Placer	Claim	093G	2009/feb/24	2011/jun/30	388.41
599932	RIVER JUNCTION	Placer	Claim	093G	2009/feb/24	2011/jun/30	271.69
604522	FSRD	Placer	Claim	093G	2009/may/14	2011/jun/30	38.80
604524	CC	Placer	Claim	093G	2009/may/14	2011/jun/30	19.40
604525	FRASE	Placer	Claim	093G	2009/may/14	2011/jun/30	155.17
361198	BIG RIVER	Placer	Claim	093G017	1998/jan/18	2011/jun/30	50.00

Table 1: Placer Tenure Holdings

Mineral Tenures

Table 2 summarizes mineral tenure particulars. Figure 2 illustrates the mineral tenure block.

Tenure Number	Claim Name	Tenure Type	Tenure Sub Type	Map Number	Issue Date	Good To Date	Area (ha)
524017	FRT	Mineral	Claim	093G	2005/dec/18	2011/jun/30	58.21
548842	CANYON	Mineral	Claim	093G	2007/jan/07	2011/jun/30	38.81
549079	CANYON 3	Mineral	Claim	093G	2007/jan/10	2011/jun/30	58.20
573560	CANYON CREEK	Mineral	Claim	093G	2008/jan/11	2011/jun/30	19.40
598756	FC	Mineral	Claim	093G	2009/feb/05	2011/jun/30	19.40
598757	FRC	Mineral	Claim	093G	2009/feb/05	2011/jun/30	155.26
646549	TERTIARY 1	Mineral	Claim	093G	2009/oct/03	2011/jun/30	387.92
646552	TERTIARY 2	Mineral	Claim	093G	2009/oct/03	2011/jun/30	484.54

Table 2: Mineral Tenure Holdings

PLACER MINING HISTORY

The known history of the Canyon mine is described below. Most of what little information is available dates back to 1945 and prior.

The Canyon mine was prospected following the 1860s gold rush. Between 1919 and 1920 a sizeable hydraulic operation was active and washed a large pit, the rejects from which now forms the base for the CVG tailings ponds and infrastructure. In 1935 several adits and shafts to bedrock were dug by hand near the portal/decline established by All Star Resources Ltd in 1986.

A buried Tertiary channel with a basal gold-bearing cobble conglomerate crosses the Fraser River at the downstream end of Cottonwood Canyon. On the north side of the river the workings are known as the 'Tertiary Mine' and on the south side of the river the workings are known as the 'Canyon Mine'. Both properties were acquired from former owner John Bot in 2009 and have since been expanded in size.

The first reference to the Canyon Mine was in 1932 (B.C.M.M. Annual Report, 1932) when S.R. Craft had prospected the Tertiary gravel exposure on the south bank of the Fraser River opposite the Tertiary Mine. By 1933 the property was owned by J.A. Wade and A.E. McGregor.

In 1938 a small unnamed mining company developed and produced from a zone adjacent to the portal/decline area. The old workings consist of an 26 meter deep 1.8 x 1.8 meter winze, a main haulage drift 109 meters long and a series of irregular stopes. The operation continued with varying degrees of success until the start of World War II.

Various individuals leased the property until 1977 and attempted small scale mining. In 1977 the leases were obtained by Canyon Resources who pumped out the underground workings and took 446 underground samples and +/- 60 loose cubic meters of bulk samples. Engineer M.K. Lorimer wrote several reports at that time indicating the erratic gold values evidenced by the sampling, concluding that a pilot mining operation was necessary to determine the feasibility of the project.

In a 1983 report for Canyon Resources Ltd A.D. Tidsbury stated that about 110 meters (360 feet) of historical drifting was completed to follow the contact between the gravel and bedrock. An irregularly stoped area has been mined on the northeast side of the main drift, 2.1 meters (7 feet) high and 2.4 meters (8 feet) wide. Canyon Resources dewatered the workings and advanced five old working faces an average of 0.6 meters (2 feet), resulting in approximately 60 cubic meters (80 cubic yards) of gravel at its interface with the bedrock. When washed underground the average recovery was 0.125 oz/cubic yard.

A.D. Tidsbury also ran a four yard composite sample from four faces that yielded an average of approximately 0.129 oz/cubic yard. Tidsbury also pan sampled the lowest 15-20 cm (6-8") of gravel and the uppermost 25-30 cm (10-12") of bedrock from five faces. The average gold yield of the five samples was 0.442 oz/yd³ with a range of 0.7 to 0.63 oz/yd³.

The Canyon Mine was then acquired by All Star Resources Ltd (All Star) between 1984 and 1985. All Star dewatered the channel workings which lay below the level of the Fraser River in order to conduct a small test program. Four samples were taken from the gravel-bedrock interface with a volume of $0.45/\text{ft}^3$ after removal of 25 to 33% boulders. One sample of 0.20 ft³ was collected 1.8 m above bedrock and one sample of 0.45m^3 was taken beside the portal and 6m above the bedrock. Gold content ranged from 0.043 to 0.283 oz/yd

L.J. Manning reviewed the historical literature and data and prepared recommendations and a budget for an All Star underground exploration program. The exploration program was implemented in 1986 and resulted in the installation of a portal, 235 linear meter (771.5 foot) decline and 13 cross cuts using conventional mining methods. The cumulative advance was 493.5 meters (1619.4 feet), accomplished in 100 days of mining.

Material processed was 9,932 yd³ (from 6,545 yd³ in place or "bank" yards) out of the 10,804.1 yd3 mined. The underground sample resulted in the recovery of 442 Troy ounces of gold averaging 0.1746 Troy ounces per square yard, with recoverable gold of 1.886 Troy ounces per foot of channel advance* (see Fact Sheet page 9).

Based on the results of the bulk sample All Star produced a new reserve summary published in ARIS Report 15,768 (Baldry Mining Consultants Inc., 1997).

	Sq Yds Plan	Recoverable Oz/Sq Yd	Recoverable Total Ounces
Blocked out reserves	6,124	0.1746	1,069
Recovered & refined + rejects	<u>2,404</u>	<u>0.1839</u>	442
Total channel explored	8,528	0.1772	1,511

CVG Mining Ltd optioned the claims from John Bot of Quesnel in January 2009 and received a dewatering permit in April 2009. Site infrastructure construction and rehabilitation began at that time to facilitate the dewatering and sampling programs.

ALL STAR RESOURCES LTD.

1986 CANYON PROJECT

FACT SHEET

GOLD ORE RESERVES-14,289.4 bank yards @ 0.105 oz/yd³ -19,290.7 loose yards @ 0.078 oz/yd³ _total gold in reserve=1,496.56 troy oz. -total value \$823,108.00 (gold \$550.00 Can)

GOLD FROM 1986 PROGRAM-9,932 loose yards @ 0.042 oz/yd³ -total gold recovered All Star weight 511.619 Tr. Oz., Engelhard -total gold weight after the melt 482.151 Tr. Oz. weight 517.902 ' -gold purity 89.232 %-total gold 421.634 Tr. Oz., Silver 40.342 TR OZ 1986-Crosscut advance 847.9 feet-13 crosscuts -Main Drift advance-771.5 feet -Total advance-1,619.4 feet

1986-Total broken ore mined=10,804.1 loose yards
 -Total broken ore washed=9,932.0 loose yards
 -Stockpiled ore for 1987=872.1 loose yards
 -Value of stockpile ore=\$37,500.00 (gold \$550.00 Can)

1986-½" minus reject pile (sluice tailings)=4131.9 loose yards @ grade of 0.006 oz/yd³=24.79 troy ounces of gold -Value of reject pile=\$13,635.00 (gold \$550.00 Can)

1986-Gold sizes=5.89%, +14 Mesh; 40.10%, 14-30 Mesh; 54.01%, -30 Mesh

Swell factor to convert bank yards to loose yards was found to be 35%

Total length of river channel encompassing the 15 Ore Reserve Blocks is 886.2 feet

Average river channel width is 100 feet (90' to 110')

Total river channel area is 84,894 square feet (planimeter)

-Ore block area is 55,116 square feet -Crosscut area is 12,180 square feet -Main Drift area is 11,358 square feet -1985 development & Old Workings within area of ore blocks is 6,240 square feet

Total river channel volume 7.0 feet high is 22,009.5 bank yards or 29,712.8 loose yards

Average Assayed Ore Grade is 0.105 oz/yd³ bank or 0.078 oz/yd³ loose Average gold amount per linear foot of channel is 2.61 troy ounces Average gold amount per square foot of channel is 0.027 troy ounces Total length of All Star underground from the 1985 portal to the far end of the 1986 Main Drift is 1286 feet.

Excerpted from *Geological Report for All Star Resources Ltd. on the Quesnel, B.C., Canyon Mine Project*, Garrow, T.D., 1986

REGIONAL GEOLOGY

Figure 3 shows the regional geology of the area as mapped by Tipper (1959, 1960). Two tectonic belts are represented on the map: the Omineca Crystalline Belt east of what is informally referred to as the Omineca Boundary Fault and the Intermontane Belt to the west.

Two subdivisions of the Intermontane Belt are the Quesnel Trough east of the Pinchi Fault and the Pinchi Geanticline to the west. The term Quesnel Trough applies to a long narrow strip of Triassic and Jurassic eugeosyclinal rocks, otherwise known as the Quesnel River Group. The Pinchi Geanticline is composed primarily of Pennsylvanian to Permian Cache Creek Group: limestone, chert, argillite, greenstone and ultramafic rocks. These rock groups have been intruded by stocks and plugs of Mesozoic intrusives.

Early Tertiary (Paleocene to Oligocene) volcanic rocks cover large areas west of the Fraser River. The sedimentary rocks of this age are not large and probably were deposited in small basins. Younger Oligocene (?) to Miocene sediments were deposited by the ancestral Fraser River and its tributaries. It is these sediments that are the focal point of placer exploration and this report. Undeformed Miocene plateau lavas and related rocks cap the region.

The dominating structure of the region is the broad depression that trends north-south between Prince George and Williams Lake. This valley is filled with about 300m of Tertiary and Quarternary sediments and along much of its length is occupied by the present Fraser River. It appears to be a horst block, with no apparent lateral offset of major transverse faults, although the trend of these faults across the valley is mostly conjecture as there is little visible outcrop.

Numerous steeply dipping nor-northwest striking faults cross the region. The Pinchi and Omineca faults mark major crustal breaks separating tectonic belts (terranes). There are many more faults and fractures subparallel to the two major fault zones than are shown on Figure 3. These smaller faults have guided intrusive rocks and brought up slices of older rocks. These fracture (shear) zones have also determined the course of river erosion as evidenced along the Fraser north of Cottonwood Canyon and along the Cottonwood River northeast of the Canyon. Block faulting, possibly associated with late Eocene-early Oligocene uplift of the Rocky Mountains, has affected rocks older than early Oligocene.

Surficial Geology

Physiographically the area lies in the Fraser Basin of the Interior Plateau and is characterized by a flat or gently rolling surface which mostly lies below 915m ASL. The Fraser, Blackwater, Quesnel and Cottonwood Rivers along with many of their tributaries have eroded deep channels well below the plateau surface.

The area was occupied by the Fraser ice sheet whose northward movement created the drumlinoid till plain that covers the higher ground. As the ice wasted, meltwater channels were incised and outwash deposits laid down. Additionally, pre-glacial drainages were blocked with drift and wasting ice and ice-dammed lakes formed. The lake became the site of the glaciolacustrine clay and silt deposits. Large areas of the Fraser basin – both north of Strathnaver and south of Cottonwood Canyon – are covered with these deposits below 790m ASL.

Numerous post-glacial landslides and earth slumps are present along the steep channels of the major rivers and along many of the smaller tributaries streams. These slides and flows involve both Tertiary and Quarternary deposits.



Figure 3: Regional Geology

Credit: Campbell, K.V.



Credit: Campbell, K.V., 1987

Fraser Canyon Project Geology

The 245 to 350 m (800-1,000 feet) wide Tertiary channel of semi-consolidated conglomerates can readily be seen between bedrock rims crossing the current Fraser River channel obliquely, with the portal of the old Tertiary Mine and the centre of the CVG Fraser Canyon portal close to the east rim of this large channel.

The stratigraphic column measured vertically from the centre of the buried channel at the CVG Adit is illustrated in Table 4.

Pleistocene	
50.3m (165')	Unconsolidated medium gravels with minor sand lenses.
6.7m (22')	Weakly consolidated medium coarse gravel.
19.2m (63')	Very fine grained and locally heavily iron stained clay lacustrine beds that are very thinly laminated and moderately well lithified.
Tertiary	
18.3m (60')	Semi-consolidated coarse to medium conglomerate with sporadic 15 to 30cm (6 to 12") layers of well stratified sand and clay and locally abundant 0.3 to 0.9m (1 to 3') pieces of carbonized but very well preserved tree trunks.
0.3-0.9m (1-3')	Well stratified pyritic sandy clay beds with abundant 2.5 to 10cm (1 to 4") pieces of carbonized wood, also locally abundant fibrous carbonized tree root systems.
0.9-1.5m (3-5')	Consolidated medium conglomerate with minor carbonized wood, and generally poorly stratified and appearing to have rapid chaotic deposition. Gold is associated with the higher energy coarser portions of this unit.
0.6-1.2m (2-4')	Consolidated coarse conglomerate with boulders from 10cm to 1.3m (4" to 4') in diameter, locally abundant fine crystalline pyrite, generally poorly stratified, boulder supported with 30 to 50% smaller rocks, sand, and silt. This layer of sediment contains most of the commercial gold values of this paleoplacer.

Table 4: Stratigraphy

It is difficult to separate Pleistocene glacial river gravels from the much older Tertiary gravels. Neither of these sediment groups are deformed, therefore, a true thickness of stratigraphic segments was easily measured. The only major change in sedimentary deposition from top to bottom occurs with the 19.2m (63') thick iron-stained clay lacustrine unit which outcrops halfway down the access road to the portal. This unit denotes sedimentation of very fine silts, over a long period of time in a glacial lake. The 76.2m (250') of sediments above these lacustrine silts are totally unconsolidated but well stratified, these gravels were laid down over a long period of time by large southerly flowing glacial rivers.

The 19.8m (65') of sediments below the 19.2m (63') lacustrine silt bed are somewhat different in that they are moderately well consolidated by iron and very fine silica clay matrix, but without carbonate cementing agents. The degree of consolidation increases with depth, becoming a true conglomerate in the last few meters above the bedrock. Several samples of these conglomerates have been studied by binocular microscopy and the

cementing agent was found to be pyrite and silica clay particles. The lower conglomerates are weakly oxidized, therefore, the amount of iron cementing them together must be small, but sufficient in conjunction with the silica clay to form competent rock units.

There are numerous large horizontal carbonized wood chunks up to 1.5m (5') long particularly in the bottom 9.1m (30') of the 19.8m (65') of lower conglomerates, as well as, a number of vertical preserved carbonized fibrous root systems particularly in the basal sandy clay layers.

Another striking feature is that there is no carbonized wood in the lowest 1.2 to 1.5m (4 to 5') of conglomerate above bedrock. This indicates an erosional unconformity with the bottom few meters of coarse conglomerates presenting as much older. The wood in the upper hanging wall may be too well preserved to be of Tertiary age. Samples of wood will be age dated in the near future. There is abundant evidence of erosion features such as scouring of stratified sand and pebble layers, and truncation of sand lenses in the auriferous conglomerates. The elongated conglomerate cobbles and boulders of the lower unit above bedrock shows some excellent truncated structure indicating that this river flowed towards the north. There is minor evidence of this same northerly flow, as shown by weak imbrication in small course conglomerate layers in the hanging wall of the 1985 decline. The angle of the bedrock in the centre of the channel compared to the fine laminations of sand layers in the hanging wall also substantiates the northerly flowing river in the sedimentary units immediately above the bedrock.

Portions of the property geology have been excerpted from a private report titled *Geological Report for All Star Resources Ltd. on the Quesnel, B.C., Canyon Mine Project*, Garrow, T.D. (1986).

Underground Geology

The characteristics of the buried paleoplacer channel were discovered by surveying bedrock elevations approximately every 4.6m (15') along both sides of the Main Drift and all cross cuts.

In the 235.2m (771.5 feet) of river channel, that was explored by All Star's 1986 underground program, the bedrock elevation has changed from 254.2m (834 feet) at the beginning to 248.1m (814 feet) at the end: a total difference of 6.3m (23 feet) or an average change of 0.908m per 30.48m (2.98' per 100 feet) of river channel. These figures may be only relative due to post glacial isostatic uplift changing the gradient of the ancient river channel.

Each of the crosscuts was extended until a steep channel rim of bedrock was reached and there was clear evidence of the auriferous coarse or medium conglomerates pinching out: therefore the width of this large buried channel can be calculated from the length of crosscuts and the bedrock contours.

Ore Reserves Blocks

Ore reserve blocks were established between each pair of crosscuts along the Main Drift, the full length of the underground channel that has been explored. These blocks can be considered proven ore, because they have been assayed on three sides, and these assays

averaged to give the block grade. The grade generally dropped very quickly towards the end of each crosscut, as the coarse conglomerate pinched out against the rising channel rim. The cut off grade at the rim in several cases descended as low as 0.015 troy ounces per cubic yard; but only if higher assays were in the immediate vicinity to make that ore profitable to mine.

Because of the fineness of the gold (54.01% less than 30 mesh; with 94.11% less than 14 mesh), and the consistency of assay numbers, no factors were introduced into the block grade calculations for "nugget effect", and no assay cutting was done to high assays. A boulder factor of 10% is realistic in the final grade calculation. When samples were taken, rocks up to 10cm (4") in diameter were included in the sample. The 10cm (4") rocks were the most common size encountered in all sampling and in 90% of all samples there was a tight packing of larger rocks to cause problems with obtaining that sample.

To ascertain the grade of an "Ore Block" all sample lengths were calculated to a standard length of, 0.61m (2.0') for the foot-wall, 0.91m (3.0') for the main auriferous conglomerate and 0.61m (2.0') for the hanging wall, bringing the total grade to an over all length of 7.0'. Once the location of the cutoff grade at the channel rim was located, that ore block was planimetered to find the area and multiplied by the mining height to 2.1m (7.0') to find the ore block volume.

Ore Reserve Summary

A total of 15 proven Ore Reserve Blocks were outlined by all the assays during the 1986 exploration program. The Ore Reserve Blocks contain 10,417m³ (14,289.4 bank yards) at a grade of 0.144 troy ounces per m³ (0.105 troy ounces per cubic yard), and a total gold content of 1496.56 troy ounces.

The total length of the channel that encompasses the ore blocks is 270.1m (886.2'). The average channel width out to be the cut off grade, at or near each rim, 30.48m (100'). The total are of the channel, including ore block, 1986 crosscuts and main drift and part of the 1985 development and old workings, in 7886.9m² (84,894 ft²). Note that the 1986 crosscuts and main drift account for 29.9% of the total area of ore blocks plus 1986 development.

Ore block area	= 5,120.4m ² (55,116 ft ²)
1986 crosscuts area	$= 1,131.6m^2$ (12,180 ft ²)
1986 main drift area	$= 1,055.2m^2$ (11,358 ft ²)
1986 development area	= 579.7m ² (6,240 ft ²)

The total channel volume taken at a mining height of 2.13m (7') is 16,044.9m³ (22,009.5 bank yards). The average gold grade for the 270.1m (886.2') of channel is 0.144 troy ounces per m³ (0.105 troy ounces per bank yard). The average amount of gold per lineal meter of channel is 8.59 troy ounces (2.61 troy ounces per lineal foot). The average amount of gold per square meter of channel is 0.953 troy ounces (0.027 troy ounces per square foot).





Credit: Lay, 1940

Work Program

The program consisted of one line of seismic reflection survey line totaling 345 meters, and 2 lines of magnetometer survey totaling 1455 meters. All work was located on Mineral Tenure 524017.

Recommendations

No further geophysical surveys are recommended at this time.

Bibliography

Annual Reports, B.C. Minister of Mines		For the years 1918, p. 131-132, 138-139; 1919, p. 129; 1924, p. 124-125; 1925, p. 148; 1926, p. 171-173; 1932, p. 106; 1933, p. 126-127; 1934, p. 27-28; 1936, p. 40
Lay, D.	(1940)	Fraser River Tertiary Drainage History, Placer Gold Deposits, Part II, B.C. Department of Mines, Bulletin 11
Holland, S.S.	(1950)	Placer Gold Production of British Columbia, B.C. Department of Mines, Bulletin 28
Rouse, G.E. & Mathews, W.H.	(1979)	Tertiary Geology and Palynology of the Quesnel Area, B.C., Journal of the Canadian Society of Petroleum Geologists, p. 418-445
Garrow, T	(1986)	Geological Report on the All Star Resources Ltd.,
Hillman, R. A.	(1986)	Report on Seismic Refraction Investigation Canyon Project, ARIS 16154
Manning. L.	(1986)	The Old Canyon Property, Canyon Resources Ltd.
Baldy, J.	(1987)	Technical Report: Provincial Exploration Reference 10962E-223 (Fame Grant), All Star Resources Ltd.
Campbell, K.V.	(1987)	First Fraser Minerals Limited Partnership Tertiary Placer Project, ARIS 39126
Baldry, J., Manning, L.	(1987)	Proposal for Underground Exploration, All Star Resources Ltd., Canyon Mine Project
Campbell, K.V.	(1988)	Report on the Tertiary Fraser River Placer Project Geology, Geophysics, Geochemistry and Drilling, ARIS 17524
Garrow, T	(1988)	Underground Exploration and Bulk Testing, Pierce Mountain Resources, First Fraser Placer Property
Candy, C., Hillman, R.	(1989)	Seismic Refraction Survey, First Fraser Project
Garrow, T, Hillman, R. Manning, L.	(1989)	Preliminary Exploration Report, QPX Minerals Inc., Tertiary Placer Project
Hillman, R.	(1990)	Seismic Refraction Investigations, All Star Resources Ltd., Canyon Project

Certificates

Robert E. "Ned" Reid P.Geo. #16 - 231 Hartley Street Quesnel, BC V2J 1V8 Ph/Fax 250 992 3782

Certificate of Qualifications

I, Robert E. "Ned" Reid currently residing at apt #16 - 231 Hartley Street, Quesnel, British Columbia, do hereby certify that:

- 1. I am a graduate of the University of British Columbia, B.Sc. 1971, geology major.
- 2. I have been practicing my profession as an exploration and mine geologist / mine supervisor continuously since 1971.
- 3. I am a Professional Geoscientist registered with the Association of Professional Engineers and Geoscientists of British Columbia.(License # 20910) with sufficient relevant experience to be a "Qualified Person" as per National Instrument 43
- 4. I have prepared, along with Fran Macpherson, this report entitled "Magnetometer and Seismic Reflection and Refraction Survey on the Fraser Canyon Property" for assessment credit. I have reviewed the data contained in the report titled "Seismic Refraction and Reflection, Resistivity, Induced Polarization and Magnetometer Surveying, Wingdam and Fraser Canyon Projects, Quesnel Area B.C. by Frontier Geoscience Inc." and believe that this report accurately depicts the material obtained to date.
- 5. I have not been on the property, but have past experience in the area.

Dated at Quesnel B.C. this 23rd day of November, 2010

"Signed and Sealed"

Robert E. "Ned" Reid, P.Geo

Frances J. 'Fran' Macpherson 1282 Marsh Road Quesnel, BC, Canada, V2J 6H3

Phone: (250) 992-2801 Fax: 888-515-9204 Email: <u>fmacpherson@accuratemining.com</u>

Statement of Qualifications

I, Frances J. (Fran) Macpherson currently residing at 1282 Marsh Road, Quesnel, British Columbia, V2J 6H3, Canada, do hereby certify that:

- 1. I graduated with a B.A. (Psychology) from McGill University, P.Q. in 1972
- 2. I graduated with an M.A. (Clinical Psychology) from the University of New Brunswick, Fredericton in 1975
- 3. I have been employed in the mining industry since 1993
- 4. I was employed as mine manager on a large mineral exploration and bulk sample project in Wells, B.C. from 2000 to 2005 during which period I was involved in the drafting and compilation of numerous technical reports
- 5. I have owned and operated an independent consulting firm "Accurate Mining Services Ltd." since 2005
- 6. I have made several visits to the CVG Fraser Canyon property
- 7. I have acted as a consultant for property management and permit application services for CVG Mining Ltd. since March of 2009.
- 8. I am not a partner or shareholder in CVG Mining Ltd.

Dated at Quesnel B.C. this 23rd day of November 2010

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Fran Macpherson.

Appendix A

Relevant Data, Regarding the Fraser Canyon Property, from the Frontier Geosciences Report on Wingdam and Fraser Canyon Projects, Quesnel Area, B.C. by Andrew Pares and Russell Hillman dated December 2009

CVG MINING LTD. REPORT ON SEISMIC REFRACTION AND REFLECTION, RESISTIVITY, INDUCED POLARIZATION AND MAGNETOMETER SURVEYING WINGDAM AND FRASER CANYON PROJECTS QUESNEL AREA, B.C.

by

Andrew Paré, B.Sc.

Russell Hillman, P.Eng.

December, 2009

PROJECT FGI-1107

Frontier Geosciences Inc. 237 St. Georges Avenue, North Vancouver, B.C., Canada V7L 4T4 Tel: 604.987.3037 Fax: 604.984.3074

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1. INTRODUCTION

In the period November 24 to December 4, 2009, Frontier Geosciences Inc. carried out a program of geophysical investigations at the Wingdam and Fraser Canyon placer prospects near Quesnel, B.C. A Survey Location Plan of the site area is shown at a scale of 1:400,000 in Figure 1.

The geophysical surveying at Wingdam included 1035 metres of Resistivity Imaging and Induced Polarization together with 640 metres of seismic reflection surveying. The work was completed along three parallel lines, spaced approximately at intervals of 150 metres. The first line is coincident with Clifton Associates¹ line C-C', with the remaining lines downstream. Line C-C' allowed for a direct comparison of geophysical survey results with known conditions from historical drillholes. The survey area has been extensively explored through geological mapping, drillhole logging and seismic refraction surveys completed by Frontier Geosciences in 1986 and 1990. A detailed site plan of the area of investigation is illustrated at 1:2,500 scale in Figure 2, in the Appendix.

The Fraser Canyon project is located adjacent to the Fraser River. In total, 355 metres of seismic reflection and refraction together with 1455 metres of magnetometer surveying was completed at the site. The seismic surveying was completed along the access road leading to the portal entrance and continuing past the portal, along the edge of the river. Magnetometer traverse ML-0+00S is coincident with the seismic coverage and continues 200m off either end. The second traverse is uphill, south of and parallel to line ML-0+00S. A detailed site plan of the area of investigation is illustrated at 1:5000 scale in Figure 3, in the Appendix.

The Fraser Canyon property is primarily focused on the historical Tertiary Fraser River system and its geologic surroundings. The bedrock underlying the Tertiary Fraser River is composed of metasediments such as siltite, argillite, quartzite and phyllite of the Triassic Takla group. Within the paleochannel, a Tertiary conglomerate overlies the bedrock. The highest concentrations of gold are located at the bedrock/conglomerate interface, within cemented gravels. This site may also host an elevated concentration of heavy metals such as magnetite, ilmenite, and hematite.

¹Wingdam Geologic and Hydrogeologic Investigation, Wingdam, British Columbia, Clifton Associates Ltd. File R4355.1, 30 November, 2009.



2. THE SEISMIC REFLECTION SURVEY METHOD

2.1 Equipment and Field Procedure

The 2D seismic reflection method entails propagation of acoustic waves through the earth from surface pattern of source and receiver points. The seismic reflection investigation was carried out with three, Geometrics, Geode, 24 channel signal enhancement seismographs, and Oyo Geo Space. 14 Hz geophones. Geophone intervals along the multicored seismic cables were maintained at 3 metres in order to penetrate to the deep bedrock surface and produce high resolution data on subsurface layering. Energy was provided by small explosive charges buried in hand-excavated shotholes. The zero delay or instantaneous blasting caps in the small explosive charges were detonated with an IDEAL solid-state electronic blasting unit.

In this survey, a 'split-spread' configuration was used with the energy source located in the middle of an array of 48 geophone receivers, spaced at 3m intervals. Survey procedure entailed collection of a 48 geophone record, then advancing the energy source 3 metres down the survey line and repeating the process to produce another 48 channel record. This method, known as the common depth point (CDP) technique, provides a very high degree of redundancy of sampling of the energy received from a given reflector at depth. The redundancy, in this case 24 fold (48 geophones and move up rate equal to geophone spacing), is used during the data processing procedure to develop a high fidelity image of subsurface reflectors.

2.2 Data Processing

The data were recorded as a set of 2000 millisecond, SEG2 seismograms. The data was processed using WinSeis and Seismic Unix software to provide a final profile. The data were initially reformatted from the SEG2 format used by the Geode system into the floating point SU format. The raw data, known as the 'field gather' was then edited to remove noisy traces from the records. The data was then sorted using source and receiver positions to gather together each of the source and receiver pairs that were centred on a common spatial point. This 'common mid-point', or CMP gather, brings together each of the reflection ray paths that redundantly sample a given point on a subsurface reflector. These data contain small offsets that result from variations in the velocity of the lower velocity layer near the surface. This appears as a 'static' shift that is seen as a variation in the onset of the first break refractor energy. Using these offsets in the shallow refracted arrivals allows removal of thickness variations in the shallow, surficial layer. Similarly, variations in topography are removed by a shift in source and geophone statics relative to a seismic datum.

3. THE SEISMIC REFRACTION SURVEY METHOD

3.1 Equipment

The seismic refraction investigation was carried out using a Geometrics, Geode, 24 channel, signal enhancement seismograph and Oyo Geo Space, 14 Hz geophones. Geophones along the multicored seismic cables were spaced at 5m intervals in order to penetrate to the deep bedrock surface and produce high resolution data on subsurface layering. The zero delay or instantaneous blasting caps in the small explosive charges used for energy input, were detonated electrically with an IDEAL, High Voltage, capacitor-type electronic blasting unit.

3.2 Survey Procedure

For each spread, the seismic cable was stretched out in a straight line and the geophones implanted. Six separate 'shots' were then initiated: one at either end of the geophone array, two at intermediate locations along the seismic cable, and one off each end of the line to ensure adequate coverage of the basal layer. The shots were detonated individually and arrival times for each geophone were recorded digitally in the seismograph.

Throughout the survey, notes were recorded regarding seismic line positions in relation to topographic and geological features, and survey stations in the area. Relative elevations on the seismic lines were recorded by chain and inclinometer. Positioning information for each geophone was gathered during surveying using a Garmin 60Cx handheld unit.

3.3 Interpretive Method

The final interpretation of the seismic data was arrived at using the method of differences technique. This method utilises the time taken to travel to a geophone from shotpoints located to either side of the geophone. Using the total time, a small vertical time is computed which represents the time taken to travel from the refractor up to the ground surface. This time is then multiplied by the velocity of each overburden layer to obtain the thickness of each layer at that point.

4. THE MULTI-ELECTRODE RESISTIVITY / I.P. SURVEY

4.1 Equipment

The surface multi-electrode resistivity imaging/IP survey was carried out using a Super Sting R8, automatic Resistivity and Induced Polarization system from Advanced Geosciences Inc. of Austin, Texas. This instrument has eight receiver channels, allowing measurements on multiple electrodes to proceed simultaneously, which significantly speeds up the data collection process allowing dense and detailed resistivity and IP profiles to be obtained.

During multi-electrode surveying, a central switching system is used to address the array of electrodes. This switching is accomplished using a multiplexer that directs the signals from any of the field electrodes to the eight input channels of the receiver. Similarly, a system of high voltage relays in the central switching system allows the transmitter to utilise any pair of electrodes for current injection. By means of a command file programmed in the receiver, electrode arrays including Schlumberger, Wenner, dipole-dipole, pole-dipole and pole-pole, or multiple combinations of arrays, may be chosen for execution by the system.

The purpose of electrical surveying is to determine the subsurface resistivity distribution by making detailed measurements along survey lines laid out on the ground surface. From these measurements, the true resistivity of the subsurface can be estimated. Ground resistivity is related to various geological parameters such as the sulphide, clay mineral and fluid content, porosity and degree of saturation.

In addition to resistivity measurements, Induced Polarization readings were collected simultaneously on each line. This measurement records the degree to which the earth materials tend to retain an apparent voltage after removal of the transmitted voltage. The effect is termed Induced Polarization (IP) and has its origins in the electrolytic nature of groundwater and the conductive nature of certain minerals. The Super Sting R8 measures the IP effect in the time domain by determining the residual decay voltage after the current is switched off. The time domain unit of measurement of chargeability is milliseconds. The IP effect is caused by two different mechanisms; 'membrane' and the 'electrode' polarization effects. The membrane polarization effect is largely caused by conductive minerals such as sulphides in the rock and (usually) to a lesser extent by graphite. This effect is the basis for application of the IP method in surveys for the detection of metallic minerals, such as disseminated sulphides.

4.2 Survey Procedure

The field procedure consisted of driving 70 metal electrodes into the shallow subsurface at intervals of 5 metres along the survey traverse connected to the cable system. The cable system was grouped into five individual cables of 14 electrode take-outs each connected to the multiplexing controller. The controller allows the electrodes to be in either standby, current or measuring potential modes. The SuperSting system is able to make simultaneous measurements on eight electrode pairs, while a given pair are current electrodes.

The electrodes were sequenced to measure the dipole-dipole electrode configuration as well as the inverted Schlumberger configuration, where voltage electrodes are located outside the current electrode pair. The dipole-dipole configuration has the property of good sensitivity to lateral variation, and the inverted Schlumberger configuration provides improved signal to noise ratio with depth

4.3 Data Processing

The data were downloaded from the instrument and converted into the input file format for the GeoTomo 2-D Resistivity and IP inversion package. This software utilises a finite difference modelling approach to calculate the resistivity values that best fit the observed data. All inversion methods essentially try to determine a model for the subsurface whose response agrees with the measured data subject to certain restrictions. In the cell based method developed by M. H. Loke and referred to as the RES2DINV program, the model parameters are the resistivity values of the model cell, while the data is the measured apparent resistivity and apparent Induced Polarization values. The mathematical link between the model parameters and the model response is provided by the finite-difference or finite-element methods. In all optimization methods, an initial model is modified in an iterative manner so that the difference between the model response and the data values is reduced. To increase the accuracy of the modelling process, the elevation of each electrode is incorporated in the input data file.

5. THE TOTAL FIELD MAGNETOMETER SURVEY

5.1 Equipment and Field Procedure

The magnetometer survey was carried out using a GEM Systems, GSM-19, portable, high sensitivity, Overhauser-effect magnetometer. The unit is a standard for measurement of the earth's magnetic field, having 0.01 nT (nanoTesla) resolution and 0.2 nT absolute accuracy over its full temperature range. In operation, a strong RF current is passed through the sensor head mounted on an aluminum staff. This creates a polarization of the proton-rich fluid in the sensor followed by a process of "deflection" whereby a short pulse deflects the proton magnetization (secondary magnetic field) into the plane of precession (earth's magnetic field). A slight pause in the process allows the electrical transients to die off, leaving a slowly decaying proton precession signal above the noise level. The proton precession frequency is then measured and converted into magnetic field units. Essentially, the data collected is a measurement of the earth's magnetic field plus any effect on the secondary magnetic field by ferrous objects and/or high concentrations of ferromagnetic minerals. To allow for correction of temporal variations in the magnetic field and was repeatedly sampled throughout the survey traverses.

5.2 Data Processing

Magnetic data was first transferred via an RS232C interface to a laptop in raw form with no corrections performed on any of the units. The base station measurements were then analyzed and a correction factor was built to account for the time varying nature of the magnetic field. This factor was then applied to the raw data to produce a corrected total magnetic field measurement. The corrected measurements were then plotted in profile and referenced to ground conditions.

6. GEOPHYSICAL RESULTS

6.1 General

The results of the six Resistivity and Induced Polarization sections at Wingdam are shown at a scale of 1:750 in Figures 4 through 9 in the Appendix. Seismic reflection section SL-1 at the Canyon prospect is illustrated at 1:1,250 scale in Figure 10. The coincident seismic refraction line SL-1, is illustrated at 1:500 scale in Figure 11. Total field magnetometer traverses are illustrated at 1:2,500 scale in Figures 12 and 13. Survey topography along the traverses was recorded with inclinometer measurements and is approximate.

The sectional information at both the Wingdam and Canyon sites is shown in the downstream direction. For the Wingdam sections, Lightning Creek flows generally south-west through the survey site. At the Canyon property, the general flow of the Fraser River is to the south.

6.2 Discussion

6.2.1 Wingdam Survey Area

The seismic reflection data acquired during this survey was of medium to low quality due to nearby highway construction vibrations and noise in the survey area. Due to the interference between first break events, actual reflections, and coherent and non-coherent noise in the recorded dataset, no subsurface reflectors could be delineated in the interpretation. Seismic reflection lines SL-1, SL-2 and SL-3 therefore, don't provide any information on the presence of reflectors or buried sedimentary structures in the site area.

Resistivity line RL-1 is best suited for an in depth analysis as it has the most information available from previous drilling and from seismic refraction carried out in 1990. The principle geologic boundaries of C-C' (Clifton Associates Ltd.) are overlain in black in Figures 4 and 5. The resistivity section for RL-1 clearly shows three distinct geoelectric layers. The first is a shallow, conductive layer that extends to a depth of up to 20m. The IP section for RL-1 shows a similar shallow layer with low chargeability, but only extends to a depth of 15m. This boundary between low chargeability and high chargeability is interpreted to be the boundary between the Quaternary till deposits and the yellow clay layer. This chargeability boundary shallows and pinches to the SE and the NW with increasing distance from the Tertiary river channel. The discrepancy between the resistivity and chargeability boundaries is explained by a clay layer that is uniformly chargeable but has variable

resistivity. The shallow clay likely has sufficiently high porosity to be conductive whereas with depth, a decrease in porosity will produce higher resistivity values. This interpretation agrees with hydrogeological studies showing the clay to inhibit groundwater flow (Piteau Associates).

The second layer is a highly resistive and highly chargeable body that extends to a maximum depth of 50m. This body is a combination of the clay layer and the Tertiary conglomerate which have sufficiently similar chargeability to have an indistinguishable geoelectric boundary between them. The IP section most clearly shows the pinching behaviour of these units as the valley gives way to the surrounding hillsides.

The third and deepest layer is the Precambrian metasedimentary bedrock that surrounds the more recent sedimentary deposits. It is characterised by highly resistive and low chargeability values. An exception is the shear zone located beneath the thalwag of the river channel and identified in previous seismic refraction studies. This shear zone is bounded to each side by more competent bedrock and due to groundwater, is resolved by a zone of low resistivity and moderate to high chargeability values.

There is also a zone between 180m and 220m with low resistivity and variable chargeability which span the till, clay, conglomerate, and bedrock layers. This is probably due to a thin, pinching, resistive layer of clay and conglomerate that is bounded above by conductive till and bounded below by conductive, sheared and fractured bedrock. In this case, the conductive layers overwhelms the effect of a thin resistive layer. This also indicates that the fractured shear zone, dips down to the northwest at a shallow angle from 150m to 200m producing the vertical boundary at 225m. Fortunately, the IP section more clearly shows the highly chargeable clay and conglomerate extending and pinching to the NW in agreement with this interpretation.

The resistivity and IP sections for RL-2 have strong similarities to line RL-1. A shallow, conductive, and low chargeability layer exists with a maximum depth of 20m at the centre of the Tertiary river channel and tapers to a maximum depth of 10m at the valley edges. This layer represents the alluvium and till deposits. A more resistive and highly chargeable body is centred at 140m and is composed of the clay and conglomerate layers. This body with a minimum depth of 10m at the SE and NW ends of the line, dips sharply towards the centre of the paleochannel to a maximum depth of 55m. The bedrock is shown by the highly resistive, low chargeability areas from 0 to 90m and from 230 to 320m with a minimum depth of 15m at the edges and a minimum depth of 55m at the thalweg. There is an unusual zone located

below and west of the main chargeable body from 170m to 220m NW. This zone is interpreted as bedrock with increased permeability or fracturing, explaining the unusually low resistivity.

The till to clay interface of line RL-3 is once again best delineated by the shallow boundary between low chargeability and high chargeability in the IP section. It is located at approximately 10m depth on the hillsides but dips to a maximum depth of 26m at 150m NW. The clay and conglomerate units are described by an upper conductive layer that transitions to a deeper resistive body with consistently high chargeability. The boundary between conglomerate and bedrock is characterised by a transition to higher resistivity and deep low chargeability rock. To the eastern side of the valley, the boundary is located at a depth of 20m but dips to a maximum depth of 56m at 125m NW. There is a subtle boundary between moderate resistivity values and low resistivity that indicates, as in RL-2, another fractured and permeable zone of bedrock between 200mW and 240mW. Further west, the bedrock displays the more conventional high resistivity, low chargeability behaviour with the contact located at depths between 20m and 25m.

6.2.2 Fraser Canyon Area

The seismic reflection data at the Fraser Canyon site shows a clearly defined reflector at depth. Unfortunately, the line location was along the portal access road at mine entry level or the base of the portal. The line orientation is sub-parallel to the buried channel direction. The recorded dataset shows no shallow information on the buried conglomerate/bedrock channel bottom and only shows deeper information. Figure 10 presents a single channel processed and interpreted seismic section for line SL-1 at a scale of 1:2,500. The time-depth conversion was carried out using an overburden velocity of 900 m/s.

One well-defined and continuous reflector indicated in red, appears along the line. No additional events on the seismic section were identified in the data. Despite the wide range of filtering tools utilized to improve the final section, low vertical resolution and noisy background conditions limited further clarity of the data. The main reflector was delineated over the extent of the line beginning at approximately 52 metres and dipping to the east at about 4 degrees. This reflector cannot be associated with the Tertiary and Quaternary sedimentary events and seems to be strongly linked to topography. This reflector is interpreted as an interface within the paleozoic basement stratigraphy.

The seismic refraction interpretation for line SL-1 is shown at 1:500 scale in Figure 11. This line was surveyed separately from the reflection surveying and consists of a single, 72 channel, high resolution traverse with geophone spacings of 5 metres.

There are four distinct velocity layers underlying SL-1. There is a thin surficial layer with a velocity of 550m/s. This layer which has a maximum interpreted thickness of 5m, is consistent with surface exposures of loose, unsaturated silts, sands, gravels and cobbles.

Underlying the surficial layer is a thicker intermediate layer with a velocity range of 740m/s to 900m/s. Varying up to 12m in thickness, this layer is interpreted as unsaturated sands, gravels and some cobbles.

A discontinuous, deeper intermediate layer of 1800m/s is evident underlying the later, uphill segment of the line. This layer is believed to be either saturated sands, gravels and cobbles or partially cemented fine to coarse alluvial materials.

The basal layer with velocities of 2690m/s to 4000m/s is the interpreted bedrock surface. Velocities of 3080m/s to 4000m/s are interpreted as argillite, phyllite, quartzite or siltite, that are predominant in the survey area.

The low velocity 2690 m/s bedrock zone may be indicative of lower velocity conglomerate and may indicate the presence of a second channel in the area. Velocities of 2400m/s to 2800m/s were predominant in the interpreted channel areas, at the Tertiary property to the north.

Magnetometer traverse ML-0+00S was recorded along seismic line SL-1. The data illustrated at 1:2,500 scale in Figure 12, shows a direct correlation between proximity to mining operations and the anomalous magnetic field data. In proximity to surface or buried ferrous materials, the magnetic readings indicate a dipole effect, where a high magnetic reading is accompanied by a magnetic low reading. The data collected on the road and beside the pond display this high/low behaviour, with pipes visible within 5m of the traverse stations. The sections labelled 'forrest' and 'beach' behave in a more regular manner and display only a single anomaly near station -225mW. This anomaly is probably due to a small creek that drains into the Fraser River and had oxidized sulphides visible in the creek bed.

The magnetometer data for line ML-0+00S show little indication of the gold-bearing conglomerate channel in the data. This may be attributed to the placement of the line at the base of the channel and the effects of a large amount of metal in the vicinity of the portal entrance.

Magnetometer traverse ML-1+00S in Figure 13, was surveyed uphill and along the plateau south of the portal access road. This traverse had little or no interference from mine infrastructure and metals, as it was surveyed through mostly undisturbed forest.

Traverse ML-1+00S doesn't indicate any apparent high magnetic anomaly suggestive of a buried river channel. This is likely due to the depth of the channel below the traverse and the strength of the channel anomaly.

The magnitude of an anomaly due to magnetite concentrations in alluvial placer deposits can be approximated by a relatively weakly magnetized body at depth. Forward modelling of a channel-shaped structure at a depth of 55m below line ML-1+00S results in a peak anomaly of 15nT (nanoTeslas). An anomaly of 15nT is considered too small to detect in a background of relatively high susceptibility bedrock where basal anomalies can readily exceed 50nT.

7. LIMITATIONS

The depths to subsurface boundaries derived from seismic refraction and reflection surveys are generally accepted as accurate to within fifteen percent of the true depths to the boundaries. In some cases, unusual geological conditions may produce false or misleading data points with the result that computed depths to subsurface boundaries may be less accurate. In seismic refraction surveying difficulties with a 'hidden layer' or a velocity inversion may produce erroneous depths. The first condition is caused by the inability to detect the existence of a layer because of insufficient velocity contrasts or layer thicknesses. A velocity inversion exists when an underlying layer has a lower velocity than the layer directly above it. The interpreted depths shown on drawings are to the closest interface location, which may not be vertically below the measurement point if the refractor dip direction departs significantly from the survey line location.

In seismic reflection, a range of errors from digitising, velocity modelling and data gridding are expected. The lack of sonic logs or vertical compressional wave velocities places a high reliance on geological information to build a reliable velocity model. Reflections can occur from surfaces not in the plane of the seismic reflection profile. As well, some uncertainty is present in correlating reflectors between profiles where there is a lack of cross points.

The results are interpretive in nature and are considered to be reasonably accurate representation of existing subsurface conditions within the limitations of the seismic refraction and seismic reflection methods.

The multi-electrode resistivity/I.P. method results in repeatable measurements of the geoelectric section. The methods are successful providing adequate contrasts exist in the subsurface in electrical resistivity and chargeability between distinct geological materials. Conductors identified in resistivity surveying are diverse and depending on geological settings, may include mineralisation, graphite, argillite, shear or fault zones, clay beds, marl, saturated materials, clay shale, clay till, mineralised leachate and zones of salt water intrusion. Electrically resistive materials include but are not limited to, sand and gravel, dry soils, glacial moraine, coarse glacial till, permafrost, underground voids and competent bedrock. Also affecting resistivity are the degree of saturation of materials and the porosity, the concentration of dissolved electrolytes, the temperature and the amount and composition of colloids. With few exceptions, no unique resistivity value defines a specific geological material.

Sources of I.P. response include almost all the sulphides, oxides such as magnetite, graphite and clay materials. Penetration depths may be affected by the presence of highly conductive surficial materials that may partially mask deeper geological layering. In addition, the resolution of the resistivity and I.P. methods decreases exponentially with depth. Given the diffuse nature of the methods, resolution is inherently poorer at depth. The survey results can also be influenced by electrode coupling, presence of noise such as SP, capacitive coupling, electromagnetic coupling and the presence of power lines.

In the modelling process, a number of limitations constrain modelling of subsurface resistivity and chargeability. For instance, due to non-uniqueness, more than one model can produce the same response that agrees with the observed data. The resulting model thus depends to a significant extent on the constraints used and will closely approximate the true subsurface conditions only if the constraints closely correspond to actual subsurface conditions.

Individual magnetic readings may in some instances, be erroneous due to noise occurring simultaneously with the measurement. These errors together with erratic variations in the magnetic field and changes in the instrument due to temperature and drift are largely corrected by frequent readings at a previously occupied base station.

Magnetometer surveying is limited to the detection of only ferrimagnetic materials and minerals such as magnetite, pyrrhotite and ilmenite. These minerals are widespread in variable concentrations but are largely found in basic igneous rocks. Diamagnetic materials such as rock salt and anhydrite have negative magnetic susceptibilities.

Differentiation of shallow versus deeper anomalies is often difficult in interpretation. The influence of topography can be very significant. An anomaly may indicate either relief in a subsurface horizon or a lateral change in susceptibility. Separation of remnant magnetization from induced magnetization is impossible in the field. This may be mitigated by careful laboratory measurements of oriented rock outcroppings and drillcore.

Magnetic anomaly detectability is strongly influenced by the depth to the causative body. Most anomalies vary inversely with the cube of the distance to the source. Magnetometer readings in close proximity to metallic objects can be adversely affected due to the poor lateral rejection characteristics of the magnetometer.

For: Frontier Geosciences Inc.

Andrew Paré, B.Sc.

Russell Hillman, P.Eng.











Appendix B

Statement of Costs

2010 Statement of Costs Fraser Canyon Project

Frontier Geoscience Inc.		
Magnetometer and Seismic Reflection & Refraction Survey, includes report costs (4.75 field days)	\$5	,200.00
R.E. (Ned) Reid, P.Geo.		
Report Drafting – 1.5 day @ \$550/day	\$	825.00
Accurate Mining Services Ltd. Fran Macpherson		
Drafting – 3.5 hours @ \$65/hr Report Drafting & Compilation	\$	227.50
– 6.8 hours @ \$90/hr	\$	612.00
Total 2010 Expanditures	¢∠	964 EO
	φC	004.30