

Latitude: 50° 38' 02'' North Longitude: 125° 31' 29'' West

## VANCOUVER MINING DIVISION

for

INTERACTIVE EXPLORATON INC. 1150 – 355 Burrard Street, Vancouver, B.C. Canada, V6C 2G8

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#### 1.0 Summary

The Shamrock property covers some poorly located old workings and a previously identified soil geochemical anomaly near Poison Creek, on the east side of Loughborough Inlet. The property is under option to Interactive Exploration Inc. In May and June of 2004, the company constructed a grid and prospected and ran ground geophysical surveys. The results of the latter are described in an attachment to this report. Work to date shows that the area is underlain by an aplite-related pyroxene-rich skarn system that includes lenses of semi-massive and possibly massive sulphide. Preliminary geochemical data show that the hydrothermal system contains molybdenum, copper, cobalt, silver, tungsten and possibly also gold and zinc, although the latter have only been identified in soils.

#### 2.0 Introduction

#### 2.1 General Statement

The Shamrock (L.416) [MINFILE 092K 112] prospect is one of many mineral showings in the Coast Plutonic Complex that are either in, or adjacent to a volcanic or sedimentary rock pendant. The Shamrock occurrence was located in the late 1890s, while exploration was ongoing around the Doratha Morton [092K 023] and Alexandria [092K 028] mines, a few kilometres to the southeast. At that time, Cuba Silver Mining Company drove three short adits (Inlet, Shamrock and Shamrock Extension) and developed a lens of pyrite and pyrrhotite in metamorphosed argillite that contained low-grades of silver, gold, copper and zinc. Stina Resources Limited later acquired the property and located three, polymetallic soil geochemical anomalies with higher metal values than expected from the known sources of mineralization. There is no indication that Stina Resources followed up the anomalies.

The Shamrock property is held under option by Interactive Exploration Incorporated and the current report describes the results of its exploration in the spring of 2004. The company constructed a grid over the inferred location of the old adits and the soil geochemical anomalies, prospected and broadly mapped the area, and conducted VLF and magnetometer geophysical surveys. The Shamrock Extension adit was located, and the site of the Inlet adit was inferred. However, the Shamrock adit was not found.

#### **2.2 Location and Access**

The Shamrock property (Figure 1) is at latitude 50° 38' 02'' North, longitude 121° 31' 29'' West (NTS 092K 12E) on the east side of Loughborough Inlet, north of Poison Creek (Figure 1). It is approximately 40 km northeast of Sayward and 70 km north-northwest of Campbell River. The area is accessible by boat, seaplane and/or helicopter from Campbell River. It has a functional dock, a barge load-out facility and a road system maintained by a major logging company, International Forest Company Limited (Interfor). At the time of writing (July, 2004) the latter had established a camp by the



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Figure 1: Regional Location Map, Shamrock Property, Coastal Region, British Columbia.



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Figure 2: Shamrock Property, tenures and topography.

shore near the old Shamrock adit (Figure 2) and had a crew extending the road system. Its current program includes developments that will significantly improve access to Interactive's primary area of interest.

### 2.3 Topography and Climate

The Shamrock property is in mountainous terrain in the Coast Mountains of British Columbia. It covers a small section of the east shoreline of Loughborough Inlet, a fiord formed in a typical "U"shaped valley (Figure 2). The tenures straddle the mouth of Poison Creek, a major, locally incised drainage that enters the inlet from the east. The terrain is generally extremely steep and rugged, particularly near shoreline. The soil cover is thin, except in well defined gullies and on the side slopes higher up Poison Creek. The northeastern part of the grid was logged in the 1990s and is extremely difficult to traverse. Elsewhere, the undisturbed slopes are heavily wooded.

The climate is temperate. There are short periods of heavy snow-fall in the winter months and significant build up of snow at higher elevations. However, most of the precipitation at lower elevations occurs as rain, which is particularly abundant in the fall and winter.

### 2.4 Claim Disposition

The Shamrock 1-8 Claims (16 units) cover an area of approximately 400 hectares near the mouth of Poison Creek (Figure 2). They were staked to cover several old (1890s) adits and a more recently (1980s) discovered soil geochemical anomaly. The adits were originally covered by a single Crown Granted tenure, (L.416); however, the claim has now reverted. The current Shamrock claims are listed in Table 1. They were staked and are owned by Mr. Fayz Yacoub; they are under option to Interactive Exploration Inc (Yacoub, 2003). The posts have not been field checked.

### **3.0 Exploration History**

There was considerable exploration in the Loughborough Inlet area in the late 1890s and the Ministry of Energy and Mines MINFILE database contains descriptions of numerous adits and old workings scattered around the minor past producing gold mines at Alexandria and Doratha Morton (Figure 3). Most of these prospects cover northwest trending, gold-bearing, mesothermal quartz veins, such as are found at those two localities; however, some, such as the Ace (092K 093) are described as being porphyry-related and others, such as Shoo Fly (092K 020) and Tidewater (092K 030) are skarn-related. The former is approximately 10 km and the latter two are approximately 14 km southeast of Shamrock, along the same belt of pendant (Figure 3).

The Shamrock (L.416) reverted crown grant covered three sets of workings (Inlet, Shamrock and Shamrock Extension) driven into calcareous and argillaceous metasedimentary pendants in the Coast Plutonic Complex by the Cuba Silver Mining Company in the late 1890s.

## TABLE 1

## LIST OF MINERAL TENURES

CLAIM NAME

E TEN

TENURE# UNITS

UNITS ANNIVERSARY\*

Shamrock 1	393757	9	June 7th, 2004
Shamrock 2	393758	1	June 7th, 2004
Shamrock 3	393759	1	June 7th, 2004
Shamrock 4	407950	1	February 1st, 2005
Shamrock 5	407951	1	February 1st, 2005
Shamrock 6	407952	1	February 1st, 2005
Shamrock 7	407953	1	February 1st, 2005
Shamrock 8	407954	1	February 1st, 2005

\* Date prior to report



Figure 3: Regional Geology of the Shamrock and Doratha Morton areas; Coast Mountains, British Columbia. After The MapPlace Website.

Cuba's work is poorly documented; however, Bancroft (1913) notes that a total of 85.3 metres (280 feet) of tunnel were driven near sea-level at what is (presumably) now known as the Inlet showing. The company drove two adits. The upper adit was driven for 27.4 metres (90 feet) along the strike of a mineralized zone slightly above sea level. Its portal is most likely the one photographed by Bancroft (1913) who states that "a tunnel follows the contact (between limestone and augite syenite) for 75 feet (22.9 metres) and has exposed a body of pyrite which is apparently of an irregular lenticular shape with a length of about 20 feet (6.1 metres) and a maximum width of 3 feet (0.91 metres)." Bancroft goes on to note that "the pyrite has a peculiar, uniform silvery-white appearance, is massive, and it is reported that some assays made from samples collected near the surface ran \$17 of gold per ton". Cuba Silver evidently sunk a winze on the pyrite lens and found that it "almost entirely pinches out at depth".

The company also drove a lower adit for 165 feet (50.3 metres) as a cross-cut on an azimuth of north 55 degrees east, some distance below; nearer sea-level. Presumably it hoped to intersect the mineralized rocks at greater depth. In fact, the argillites were found to be "very irregularly impregnated with pyrite, and a very little chalcopyrite for a width of 6 feet (1.8 metres) depth".

Bancroft (1913) describes the Shamrock occurrence as being "a few hundred yards northward, beyond a projecting point". At that time, the workings evidently comprised two short tunnels, one of which was visible from shoreline. The tunnels were driven into pendant rocks where there were scattered grains of pyrite. One thin layer of limestone exposed at the mouth of (one of) the tunnel(s) was described as being almost completely altered to garnet, tremolite and pyroxene. Bancroft (1913) does not specifically describe the Shamrock Extension adit, which is further inland.

The later history of the property is unknown up to 1986, when Stina Resources Limited acquired 100% interest in 31 two-post claims and one Reverted Crown Grant in the Poison Creek area. The company mapped and prospected the area and conducted extensive soil and stream sediment geochemical surveys between 15<sup>th</sup> December, 1986 and 20<sup>th</sup> January, 1987 (Magrum and von Einsiedel, 1987).

Stina Resource prospected and mapped the area and located two narrow (50 metres wide), parallel, pendants of contact metamorphic altered argillite, limestone and chlorite schist embedded in "diorite" and traced them from the coast (near the Inlet and Shamrock showings respectively) in a southeast direction towards Poison Creek (Figure 4 & 5), where they appeared to be offset for a short distance by an east-west trending fault. The pendants were separated by 150 metres of "transition (gneissic) diorite". Stina located the Inlet, Shamrock and Shamrock Extension dumps; however, the underground workings were then in poor condition and inaccessible. They examined and sampled the dumps and, in each case, found pyrite, pyrrhotite and chalcopyrite developed as narrow seams and lenses or as disseminations within fractured, chloritized argillites. Of the 32 rock samples collected by Stina, 9 are reported to have returned copper grades of between 0.30 percent and 3.0 percent copper combined with 17.14 grams per tonne (0.5 ounces per ton)



Figure 4: Shamrock Property Grid Map showing the location of the adits, rock sample sites and the inferred location of geochemical anomalies I, II and III, from Stina Resources Limited.



FIGURE 5: SHAMROCK PROPERTY GEOLOGY MAP showing the Shamrock and Inlet pendants.

to 51.43 grams per tonne (1.5 ounces per ton) silver. Gold values were reported to be below detection limit for the (ICP) assay method used (Magrum and von Einsiedel, 1987)

Stina Resources constructed a grid over the western part of the property, near the coast, and collected 843 soil and stream sediment samples. In the western part of the property, it collected "B-horizon" soil samples at intervals of 12.5 to 25 metres along 25 to 100 metres spaced, northeast-southwest (north 20 degrees east) oriented grid lines. In the eastern part of the property, soils were collected at 50 metres intervals along contour lines. The samples were analyzed by ICP techniques for a suite of 28 elements and some were found to be enriched in one or more of gold, silver, copper and/or zinc. Stina Resources identified three polymetallic soil geochemical anomalies (shown together as I, II and III on Figure 4) in a relatively restricted area near the shoreline north of Poison Creek.

Anomaly I was approximately 200 metres x 50 metres wide and straddled the southwest contact of the Inlet pendant. It followed the trend of the pendant contact southeast from the Inlet showing. It contains spotty gold values locally in excess of 30 ppb gold. Anomaly II exhibited the strongest geochemical response. It started near the Shamrock Extension adit on the southwest side of the Shamrock pendant and extended downhill, to the southwest, towards Anomaly I. It contained copper values in excess of 500 ppm copper and gold values locally in excess of 30 ppb gold. Anomaly III was a weaker anomaly that was traced for 200 metres in a southeasterly direction along the southwest contact of the Shamrock pendant near the Shamrock Extension adit. It is principally a zinc anomaly, containing values in excess of 500 ppm zinc. There is no indication that Stina Resources ever followed up on these anomalies, and their claims lapsed in the early 1990s. Stina's map shows no sign of the current logging road and its work appears to have been conducted before the area was first opened-up. Interactive Exploration Inc. has not yet soil-sampled and the area and the precise locations of these anomalies are inferred.

In June, 2002, Fayz Yacoub, staked the Shamrock 1-3 Claims (11 units) over the old workings and the soil geochemical anomalies, and he later optioned the property to Interactive Exploration Limited. The company subsequently added five additional, single unit, claims (Shamrock 4-8) to the southeast.

In May, 2004, Interactive cut a grid over the apparent location of the three sets of old workings and soil geochemical anomalies, prospected the main area of interest and ran very low frequency (VLF) and magnetometer geophysical surveys. The grid consists of 450 metres of baseline run in a southeasterly direction on 140 degree azimuth and eight parallel cross-lines run to the southwest and northeast at 50 metres intervals for a total length of 4225 metres. The terrain was extremely rugged and some lines were limited in length by the presence of cliffs and inaccessible slopes. The technical part of the program was conducted between 7<sup>th</sup> and 10<sup>th</sup> May and on 11<sup>th</sup> June, before and just after Interfor started its road-building program. The geophysical data was collected and processed by Geotronics Surveys Limited. It is reported on in a separate attachment.

### 4.0 Regional Geology

The Geology of the Loughborough Inlet area, shown in Figure 3, is from the MapPlace Website (<u>www.MapPlace.ca</u>). It is based on a digital compilation by Bellafontaine and Alldrick (1994) and includes the work of Roddick and Woodsworth (1976), and others. It shows the northwesterly grain of the Coast Plutonic Complex and the generally narrow, linear nature of the pendants which are restricted to one of the major plutons. The figure shows that the area is underlain by late Jurassic to Cretaceous diorite (LJKdr), granodiorite (LJKgd) and quartz diorite (LJKqd) intrusions and that the pendants are associated with a large granodiorite batholith that extends from Phillips Arm in the south to Loughborough Inlet (and beyond) in the north. The pendants are composed metavolcanic and metasedimentary (including limestone) and they have been correlated with the Vancouver, Karmutsen and/or Quatsino Group (TrVKQ) strata further west. As noted above, the pendants and/or pendant contacts in the Loughborough Inlet area are mineralized in several localities (Figure 3).

In the immediate vicinity of the Shamrock occurrence, the figure shows two small, southeasterly trending pendants embedded in granodiorite a short distance to the southwest of a major fault that cuts through the granodiorite batholith. There may be some discontinuity across Loughborough Inlet as the two slivers found on the south side are shown as a single, larger body on the north side.

## **5.0 Property Geology**

The geology of the Shamrock property is shown in Figure 5. There are two pendants on the south side of Loughborough Inlet; however, they are appreciably smaller than indicated on the regional map. They are steeply dipping, subparallel, northwest to southeast trending lenses, approximately 50 metres in width, separated and enveloped by plutonic rock. They are not yet fully defined. Magrum and von Einseidel (1987) subdivided the rocks into three principal intercalated metamorphosed lithologies, "argillites"; "banded-series" (mixed sediment) and "limestone"; and indicate that the surrounding rock is predominantly (locally gneissic) diorite. Preliminary work during the current program shows that these lithologies are essentially correct; however, the pendant rocks are locally intensely altered to pyroxene and/or pyroxene-garnet skarn and the diorite (granodiorite) is locally intruded by young, aplitic, granite.

#### **5.1: Shamrock Pendant**

The Shamrock (northeastern) lens contains the Shamrock and Shamrock Extension adits. The former was visible from shoreline in the early 1900s (Bancroft, 1913) and should have been found approximately 100 metres inland from the bay caused by "Shamrock Point" (Magrum and von Einsiedel, 1987). It was not found during the current programme; however, a weakly mineralized, slicified shear [Sample RP04-14] was encountered in plutonic rock [Sample RP04-13] at approximately the right locality and it may contain slivers of pendant rock. The adit may have been destroyed during road and barge-load out construction since Stina's exploration of the area.

The road climbs from the campsite to a switchback just to the south of the bay and then continues on up the hill to the north. It crosses the Inlet pendant at the switchback and provides a near-continuous section of plutonic rock both above and below. The plutonic rock is predominantly fractured, diorite and/or granodiorite [Samples RP04-5 &10] with locally abundant xenoliths of recrystallized pendant rock. The Shamrock pendant must be extremely narrow near the water, or it may not exist as a separate entity.

The Shamrock Extension adit was mapped by Magrum and von Einsiedel (1987) as being in the Shamrock pendant several hundred metres inland from the coast. It is west of the main access road, which follows a pronounced, possibly fault controlled, northerly directed, gulley across the face of the hill-side. The east side of the gulley is underlain by fractured, locally inclusion-rich, diorite and granodiorite. The west side is underlain by more highly deformed plutonic rock inter-mixed with lenses of limestone, and locally skarn altered metasediment. The pendant rocks strike due north and display a nearvertical dip. The Shamrock Extension adit was driven in a southerly direction into a mixed assemblage of what appear to be strongly recrystallized, skarn-altered metasedimentary and/or meta-volcanic rocks [Samples RP04-06, 07, 08, 09, 25 & 26] a short distance to the west of the pendant contact.

The adit was driven on a belt of massive, fine-grained, skarn-altered largely metavolcanic (?) rocks 25 metres wide rock that consists of variable proportions of fresh feldspar, recrystallized clinopyroxene and sulphide. This may be the "augite syenite" unit described by Bancroft (1913). The more pyroxene-rich rocks locally contain disseminated interstitial, semi-massive and/or massive sulphide lenses composed of pyrite, pyrrhotite and minor traces of chalcopyrite.

Uphill from the Shamrock Extension adit, where the logging road turns to the east into the Poison Creek valley (at the south end of the grid, Figures 4 & 5) the pendant rocks are exposed on the uphill side of the road and are in contact with the plutonic rocks for several tens of metres. At this locality, they are composed of massive to tightly folded grey, granular, recrystallized limestone [Sample RP04-04]. The rock is weakly foliated and strikes at 140 degrees and dips at 70 degrees to the northeast. It is cut by similarly weakly foliated diorite and/or granodiorite along a contact that strikes at 140 degrees and dips at 50 degrees to the northeast. The plutonic rock [Sample RP04-02, 03] is also weakly altered but shows no sign of skarn development or sulphide enrichment. Both the limestone and the plutonic rock are cut by numerous late aplite [Sample RP04-01, 24(?)] dykes, and all three rock types (limestone, diorite/granodiorite and aplite) are cut by northerly trending, andesite dyke that dips at 65 degrees to the west.

#### 5.2: Inlet Pendant

The Inlet (southwestern) lens contains the Inlet showing, which was the most developed of the sites explored in the 1890s. According to Bancroft (1913), there was an

upper adit along a limestone contact and a lower one (nearer sea level) that cross-cut through the limestone into pyritic meta-sediment. Neither were definitively located; however, based on the nature of the surface debris exposed at the switchback (Figure 5) the logging road may have cut through the upper adit dump. There are old machine parts in the woods behind the switchback. The lower adit is no longer accessible. However, it is probably at the base of a steep, smooth exposure of limestone and gossanous argillite that probably marks a landslip scar.

The Inlet lens is composite in nature, composed of two or more lenses of recrystallized limestone and metamorphosed argillite cut by dyke-like bodies of granodiorite (Figure 5). Along the shore, south of "Shamrock Point", the limestone is medium-grained, grey and banded [Sample RP04-15]. It strikes at 180 degrees and dips at 30 to 80 degrees to the east, and appears to be markedly discordant to the local silicified diorite/granodiorite [Sample RP04-12] contact which, strikes to the northeast. The pendant rocks are exposed at several localities above and below the switchback. There appear to be several strands of limestone and intercalated siliceous meta-sediment that strike at 150 degrees and dip vertically separated by dykes or tongues of diorite with essentially the same orientation. The contacts between the two appear to be relatively fresh and unaltered and there is no evidence of skarn development. The pendant rocks project towards the south and southeast along the trend of Stina's "Anomaly I" soil geochemical anomaly (Figures 4 & 5). The full extent of the pendant has yet to be determined; however, geophysical data (see attachment) suggests that it is present at the bottom of lines 46+50 and 47+00 (near shoreline) and that it continues at least as far south as Poison Creek.

In the vicinity of the switchback, there are numerous locally derived blocks of plutonic and pendant rock that provide insight into the geology of the area. They include blocks of (1) metamorphosed but largely undeformed fine-grained argillites, tuffs and coarser-grained greywackes with rare, 2-5 cm, rounded volcanic rock pebbles; (2) metamorphosed limestone and limey-mudstone that contain large (1.0 metre) and small (0.10 metre) blocks of andesite (?) and gossanous, disseminated pyrite and pyrrhotite bearing, chert and (3) indeterminate skarn-altered limestone, mudstone, tuff and plutonic rock [Samples RP04-16, 17, 18, 22, 23]. The latter include several samples of well-developed, coarse-grained, pyroxene [Sample RP04-19] and garnet-pyroxene-tremolite [Sample RP04-20] bearing skarn. In one block, a small aplite dyke [RP04-021] has cut across foliated meta-greywacke with marked discordance and created a pronounced envelope of pyroxene skarn approximately 0.1 metres wide.

### **5.3: Plutonic Rocks**

The plutonic rocks that envelope the pendants have been traced from just above the current dock on the coast to a point just short of the first switchback (see below) and from just above that switchback up the hill beyond the Shamrock Extension adit. With the exception of the small amount of limestone noted above, they underlie the entire grid above the main forest access road. The rocks are composed of "Coast Plutonic Complex" medium-grained granodiorite and/or diorite. The rock locally contains irregular, rounded, partially digested inclusions of mafic volcanic and/or sedimentary strata. They are locally

foliated and cut by fractures that strike at between 120 and 150 degrees and dip at between 40 and 80 degrees to the northeast. Some of the fractures are filled by mafic dykes with chilled contacts. Less frequently, the rocks are also cut by fractures that strike at between 50 and 70 degrees and are approximately vertical.

The diorite/granodiorite intrusions cut pendant rock and both are, in turn, cut by younger aplite dykes. These are well developed alongside the main forest access road at the southeast end of the grid (east of the limestone contact). At this locality, the plutonic rock was brittle fractured prior to the intrusion of an irregular body of aplite that developed into a network of rusty, felsic dykelets. There are other examples of felsic (aplitic) dykes on the property. A fresh, unaltered, felsic dyke, oriented north 100 east degrees and dipping 80 degrees north, was observed to cut diorite/granodiorite above the lower switchback, near the inferred location of the Shamrock lens.

There may be a similar felsic intrusion approximately 50 metres to the southwest of Anomaly I (Figure 4). According to Magrum and von Einseidel (1987), there is a small outcrop of "Augite" (sic) there. This may be miss-transcription for Aplite.

### **6.0 Mineralization**

A total of 25 rock character and/or chip samples (no sample RP04-11) were collected for analysis (Table 2, Figure 4). There are none over measured intervals. Of these, twelve were sent to Acme Analytical Laboratory for geochemical analysis and four were submitted to TeckCominco Research Laboratory for whole-rock lithogeochemical analysis. The results of the geochemical analysis are shown in Appendix C and for the lithogeochemical work are shown in Tables 3 and 4 and Appendix C..

### 6.1 Geochemistry

The Shamrock adit was not located during the program; however, a silicified shear was found cutting gossanous fractured diorite close to its inferred location (Figures 2 & 4). Two samples were collected at that locality (Samples RP04-12 and 14) and found to contain geochemically significant amounts of molybdenum (17.02 - 23.44 ppm Mo) and silver (82 - 261 ppb Ag).

There is no sign of high-grade mineralization at the Shamrock Extension adit (Figures 2 & 4); however, there is an abundance of gossanous outcrop and locally derived float. The geochemical data show that the pyroxene-rich, sulphide-bearing rocks collected near the Shamrock Extension adit (Samples RP04-06, 07 and 26) are geochemically enriched in molybdenum (1.63 - 5.3 ppm Mo), copper (550 - 2078 ppm Cu), cobalt (9.1 - 117 ppm Co) silver (525 - 1179 ppb Ag) and tungsten (0.7 - 20.8 ppm W). The gold content is low (1.1 - 2.6 ppb Au). The altered plutonic rock sampled 100 metres to the south of the adit (Sample RP04-24) was similarly found to be geochemically enriched in molybdenum (6.3 ppm Mo), copper (134 ppm Cu) and silver (548 ppb Ag).

## TABLE 2 LIST OF ROCK SAMPLES

### Number: UTM Co-ordinates: Description:

RP04-01 0321555:5611490: Rusty, fractured aplite granite outcrop with small quartz veins. TS, WR, TR RP04-02 0321555:5611490: Weakly foliated, fresh hornblende-granodiorite outcrop. TS, WR RP04-03 0321555:5611490: Unfoliated, fresh, rusty, hornblende-granodiorite outcrop (x2). RP04-04 0321482:5611530: Recrystallized limestone outcrop. RP04-05 0321460:5611670: Gneissic quartz diorite outcrop cut by aplite granite dykes. RP04-06 0321420: 5611775: Chips of gossanous pyroxene-rich metasediment skarn float, TS, TR RP04-07 0321420: 5611775: Chips of gossanous pyroxene-rich metasediment skarn float, TS, TR RP04-08 0321420: 5611775: Sheared hornblende-granodiorite outcrop. RP04-09 0321420: 5611775: Block of pyroxene-rich metasediment skarn outcrop RP04-10 0321533:5612310: Massive hornblende-granodiorite outcrop: TS, WR RP04-12 0321197:5612139: Chips of gossanous silicified diorite outcrop: TS, TR RP04-13 0321197:5612139; Block of gossanous silicified diorite outcrop. RP04-14 0321197:5612139: Block of gossanous mylonitic diorite or pendant rock outcrop: TS, TR RP04-15 0321158:5611913: Foliated recrystallized limestone outcrop. RP04-16 0321178:5611945: Massive, gossanous, pyroxene-rich metasediment skarn float (X2): TS, TR RP04-17 0321178:5611945: Massive, gossanous, pyroxene-rich metasediment skarn float (X2) RP04-18 0321178:5611945: Massive, gossanous, pyroxene-rich metasediment skarn float (X2) TS, TR RP04-19 0321178:5611945: Sample of pyroxene-rich skarn float: TS, TR RP04-20 0321178:5611945: Sample of garnet-pyroxene skarn float: TS, TR RP04-21 0321178:5611945: Aplite from a dyke cutting pyroxene-rich skarn-altered float. TS, WR, TR RP04-22 0321178:5611945: Block of silicified meta-greywacke float: TS RP04-23 0321178:5611945: Block of silicified mudstone float. RP04-24 0321341:5611683: Chips of silicified granodiorite and/or aplite outcrop: TS, TR RP04-25 0321420:5611775: Block of pyroxene-rich metasediment skarn outcrop. RP04-26 0321430:5611875: Chips of pyroxene-rich metasediment skarn outcrop: TS, TR TS (Thin Sections): 1,2,6,7,10,12,14,16,18,19,20,21,22,24,26.

WR (Whole rock): 1,2,10,21.

TR (Trace Elements): 1,6,7,12,14,16,18,19,20,21,24,26

The location of the Inlet showing has been inferred from the presence of an abundance of angular float blocks in the vicinity of a switchback in the main access road (Figures 2 & 4). Several of the pyroxene-rich skarn-altered blocks were sampled and the data show that the more sulphide-rich samples (Samples RP04-16, 18 and 19) are also slightly enriched in molybdenum (0.74 - 3.16 ppm Mo), copper (40 - 193 ppm Cu), silver (96 - 530 ppb Ag) and cobalt (10 - 86 ppm Co).

## 6.2 Whole Rock Lithochemistry

There are two plutonic rock types in the Shamrock area. The most abundant is a typical, weakly to moderately deformed, Late Jurassic to Early Cretaceous, granodiorite (LJKgd) of the Coast Plutonic Complex. There are lesser amounts of late, probably Cretaceous, granite (K(?)g) that occur in irregular bodies and dykes. The mineralized skarn appears to be spatially, and probably also genetically, associated with fine-grained granite.

Two samples of granodiorite (RP04-02, 10) and two samples of aplite (RP04-01, 21) were submitted for whole-rock lithogeochemical analysis for comparison with data on rocks from the Gillies Bay and Little Billie plutons published by Ray and Webster (1997). The former is a Jurassic (178 ma) intrusion that produced the iron-skarn mined at the Texada Iron Mine (Paxton [092F107] etc.) in the mid 1900s and the latter is a Cretaceous (120 ma) body that formed the copper-gold skarn mined at the Little Billie [092F112] on Texada Island in the early 1900s. The results are shown in Tables 3 and 4 and in Figures 6, 7 & 8.

Although the Shamrock samples do not form a statistically valid population, they provide some insight into the chemistry of the rocks. The Shamrock granodiorite approximates andesite in composition; however, it is relatively enriched in FeOt, MgO and CaO and depleted in Na2O and K2O compared to the Gillies Bay stock. Conversely, the Shamrock granite or aplite is rhyodacitic in composition. It is relatively SiO2, Na2O and K2O enriched, and FeO, MgO and CaO depleted when compared to the Little Billie Stock

#### 7.0 Discussion

Loughborough Inlet area has not been studied in detail; however, work by Monger (1991) in the Jervis Inlet area shows that the southern Coast Plutonic Complex can be subdivided into a series of "tracts" bounded by northwesterly trending faults. Each "tract" has a distinctive tectonic history and characteristic age of plutonism. The Shamrock property is the southwestern-most or "Sechelt" tract which is underlain by Late Jurassic (187 - 145 ma) and Early Cretaceous (145 - 112 ma) plutons and includes numerous northwesterly-trending, narrow, elongate pendants of Karmutsen, Quatsino and Bowen Island Group (equivalent to the Bonanza Formation) strata. The Coast Plutonic Complex underwent compression, metamorphism and crustal thickening in the mid-Cretaceous (100 - 90 ma) and uplift and erosion shortly thereafter. It is locally intruded by younger, post-orogenic, intrusions.

## TABLE 3

## WHOLEROCK MAJOR ELEMENT ANALYSES OF SHAMROCK AREA ROCKS

Elements Units Method Lab. <b>Sample #</b>	SiO2 % XRF1 Com	TiO2 % XRF1 Com	Al2O3 % XRF1 Com	Fe2O3 % XRF1 Com	FeO % TIT Com	MnO % XRF1 Com	MgO % XRF1 Com	CaO % XRF1 Com	Na2O % XRF1 Com	K2O % XRF1 Com	P2O5 % XRF1 Com	Ba % XRF1 Com	LOI % Grav Com	Total % Sum Com
LJKgd														
RP04-01	72.91	0.05	14.65	0.27	0.36	0.01	0.10	1.00	4.28	5.36	0.01	0.08	0.44	99.52
RP04-21	68.25	0.20	14.65	1.00	1.34	0.05	0.44	2.79	2.98	6.92	0.03	0.11	0.69	99.45
K(?)g														
RP04-02	54.47	0.62	18.87	0.82	3.84	0.14	3.22	10.97	4.55	0.98	0.15	0.04	0.86	99.53
RP04-10	60.75	0.62	16.95	2.40	4.18	0.11	2.51	5.69	3.89	1.19	0.17	0.05	1.20	99.71

XRF1 = Li-Borate fused disc - X-ray fluorescence

Ba = Fused disc analysis for XRF calibration. Values should be used with caution

COM = TeckCominco Research Laboratory

FeO by acid digestion and titration.

LOI = Gravimetric detemination

LJKgd ■ Late Jurassic-Cretaceous granodiorite K(?)g = Cretaceous (?) granite

## TABLE 4

## MINOR ELEMENT ANALYSES OF SHAMROCK ROCKS

Elements Units Method Lab. <b>Sample #</b>	Rb ppm XRF2 Com	Sr ppm XRF2 Com	Y ppm XRF2 Com	Zr ppm XRF2 Com	Nb ppm XRF2 Com
<b>LJKgd</b> RP04-01 RP04-21	98 111	523 299	18 5	85 97	11 11
<b>K(?)g</b> RP04-02 RP04-10	33 36	2236 < 454	3 14	187 100	11 14

XRF2 = Pressed pellet - X-ray fluorescence COM = TeckCominco Research Laboratory



Figure 7: Shamrock Alkali-metal "CaO v K2O v Na2O" plot



Figure 8: Shamrock "FeOt v Al2O3 v MgO" plot



3

Figure 6: Shamrock "Alkalis v FeOt v MgO" plot.

The Shamrock area has not been mapped in detail; however, in a broad sense there appears to be a strong correlation between the inferred location of the copper, gold and zinc in-soil geochemical anomalies outlined by Stina Resources (Magrum and von Einseidel, 1987), the presence of aplite intrusions and the occurrence of skarn in altered pendant rocks. Stina's Anomaly I (Cu, Au, & Zn) clearly overlies the Inlet pendant and its Anomaly II (Cu, Au & Zn) appears to trend downhill from the Shamrock pendant, near the Extension adit, towards Anomaly I.

The pyroxene-rich skarn is locally sulphide-bearing and, although no high-grade mineralization has so far been located, it was clearly created by mineralized fluids. Preliminary data show that sulphide-bearing rocks in the Shamrock Extension and Inlet adit areas, and elsewhere, are geochemically enriched in molybdenum, copper, silver and tungsten. However, those samples collected to date show no enrichment in either gold or zinc. Some other source may be responsible for these anomalies. The precise location of Stina's gold-in soil anomaly is uncertain as the old grid could not be located.

The data show that the Shamrock property covers a well-developed, locally very sulphide-rich, skarn system that is probably associated with a post-orogenic aplite intruded into two narrow calcareous pendants (Shamrock and Inlet) in the Coast Plutonic Complex. The geophysical work conducted by Interactive Exploration as part of this program has located two strong (probably sulphide-rich) geophysical targets in the Inlet pendant near the southwest corner of the grid. These are extremely attractive targets; however. It should be noted; however, that in structurally controlled skarn systems the sulphide lenses do *not necessarily* provide the best mineralization. As shown by the Big Gossan deposit at Ertsberg, in West Papua, Indonesia, the pyroxene-rich skarns found structurally below sulphide lenses may be better mineralized (Meinert, 2000).

### 8.0 Recommendations

The Shamrock area is underlain by calcareous pendant rocks cut by syn-orogenic granodiorite and post-orogenic, aplite granite. The latter appears to be responsible for creating sulphide-bearing skarn. Most of the principal area of interest is (where accessible) covered by a grid that has been covered by a preliminary geophysical survey that has identified two strong VLF-EM conductors with coincident "high" magnetic anomalies. The next phase of exploration should be aimed at (1) extending the grid to the north, (2) relocating Stina's soil geochemical anomalies and (3) evaluating the geophysical targets.

It should include:

 The grid should (where possible) be extended from L 50+00 N northwest towards the coast and the full grid (southwest of the main access road) should be prospected and mapped.

- 2) The new grid should be covered by magnetometer and VLF/EM survey and the whole grid should be soil sampled to relocated Stina's gold-in-soil anomalies.
- 3) Depending on access at the end of Interfor's current road building program, either trench or drill a series of short diamond drill holes to establish the cause of the geophysical anomalies and any unexplained geochemical anomalies that come to light.

A proposed budget is attached separately.

## 9.0 Bibliography

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Meinert, L.D. (2000): Gold in skarn related to epizonal intrusions, in Society of Economic Geologists, Reviews in Economic Geology (Editors S.G. Hagemann and P.E. Brown) Volume 13, pages 347-375.

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Yacoub, F. (2003): Geological Summary Report on the Shamrock Claim Group, Vancouver Mining Division; unpublished company report, Interactive Exploration Limited.

## **APPENDIX A**

## **CERTIFICATE OF QUALIFICATIONS**

I, Robert Hugh Pinsent, of 2335 West 13<sup>th</sup> Avenue, Vancouver, British Columbia, hereby certify:

- 1. I am a Consulting Geologist, practicing form 2335 West 13<sup>th</sup> Avenue, Vancouver, British Columbia.
- 2. I graduated from Aberdeen University, Scotland, with a B.Sc. Honours (B.Sc. Hons.) Degree in Geology in 1968.
- 3. I graduated from the University of Alberta, Edmonton, Alberta, with a Master of Science (M.Sc.) Degree in Geology in 1972, and from Durham University, England, with a Doctorate in Geology (Ph.D.) in 1975.
- 4. I am a Practicing Member of the Association of Professional Engineers and Geoscientists of British Columbia, and have been since August, 1992 (Registration No. 19499).
- 5. I have practiced my profession over 30 years as an exploration geologist, a civil servant and a geological consultant.
- 6. This report, dated July 18th, 2004, is based on work conducted on samples collected by the author during a property visit in January, 2003.
- 7. I do not have a direct or indirect interest in the Shamrock property, nor do I own, directly or indirectly, any securities of Interactive Exploration Incorporated.

Dated at Vancouver, British Columbia this 15th day of July, 2004

Report H Kin SCIEN

Robert H. Pinsent, B.Sc., M.Sc., Ph.D., P.Geo.

## **APPENDIX B**

## STATEMENT OF COSTS SHAMROCK PROPERTY

Interactive Exploration Inc. 1150 – 355 Burrard Street, Vancouver, B.C., Canada, V6C 2G8

Field Costs	\$CDN
Float Plane	2,005.00
Water Taxi (Campbell River)	4,886.07
BC Ferry Service	622.00
Truck Rentals and Fuel	600.00
Communication (Satellite Phone)	731.92
Field Rentals and Supplies	1,052.60
Food and Accommodation (59 man days)	3,561.72
Geotechnician (Scott Hodges) 13 days @ \$200/day	2,600.00
Geotechnician (Neil) 12 days @ \$200/day	2,400.00
Field Helper 4 days @ \$200/day	<b>8</b> 00.00
Project Geologist	2,800.00
Senior Geologist 6 days @ \$350/day	2,100.00
Geophysical Survey (Mag-VLF/EM)	5,500.00
Laboratory Analysis (TechCominco/Acme/Vancouver Petrographic)	756.25
Report Preparation	2,000.00
Sub-total	32,415.56
G.S.T 7%	2,269.09
Sub-total	34,684.65
Administration @ 10%	3,468.46
Total	38,153.11

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# **APPENDIX C**

# **CERTIFICATES OF ANALYSIS**

Acme Laboratories TechCominco Research Laboratories

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PLE#	Mo	Cu		(Zn	) (Ag)			Mn	Fe	As	U	(Au)	) Th	Sr	Cd		Bi	۷	Ca	P	La	Cı	- Mg	Ba	Ti		A]	Na	K	(W)		TÌ			Se · Te	
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-01 -06 -07 -12	.99 2.84 1.63	17 45 2078.72 1580.15 - 200.09	9.14 )2.02 2.66	7.1 65.7 53.4	119 1157 1179	.7 15(4 34.6	1.4 57.2 117.3	41 177 137	.55 5.15 9.81	.9 .4 <.1	5.2 1.1 .2	.2 1.6 2.6	20.4 1.2 .2	14.8 92.9 11.9	.05 .36 .28	.08 .05	.16 .29 .36	2 6 2	.07	.006 .047 .019	23.7 5.7 .6	3.2 1.8 .5	2.02	19.3 5.2 1.6	.016 .028 .008	1 <1 <1	.19 1.47 .14	.053 .092 .016	.10 .01 .01 2	<.1 9.5 20.8 .7	.9 <. .5 <. .1 <.	02 02 2 02 5	.08 .84 .39	<5 10 4 14 6	.2<.0 .1 .4 .5 .7	2 5 3
14 16 18 19 20	3.16	146.33 193.26 40.22	4.66	42.6 13.6 13.0	(259 (530 96	59.1	48.2 86.6 10.1	189 56 45	6.36 8.39	3.0 1.8 .9	.1 .2 .6	2.3 6.2 1.0	.2 .7 2.8	88.7 22.5 53.3	.42 .05 .10	.10 .22 .05 .09 .11	.12 .13 .05	86 10 14	1.46 1.26 1.27	.043 .253 .065	1.3 6.9 10.6	9.7 1.9 9.8	5.04 3.09	12.5 10.9 15.7	.146 .191 .111	<1 <1 1	1.99 .60 .83	.270 .053 .149	.33 .06 .11	<.1 3 .4 1 .2	1 .	51 3 14 5 06	.75 .79 .88	<5 1 <5 4 <5	.6 .1 .7 .0	6 7 5
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All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of the analysis only.

J2 Accredited Co.)

CAL LABORATORIES LTD. 852 E. HASTINGS ST. V. JUVER BC V6A 1R6 PHONE (604) 253-3158 FAX (604)

(b)

GEOCHEMICAL ANALYSIS CERTIFICATE Interactive Explorations Limited File # A402338

		113	20 - 222 1	SULLALO SC.	, vancouv	P BC VOC ZU	io suc	MITCED	by: Kobert	rinsent					
SAMPLE#	Cs ppm	Ge ppm	Hf ppm	Nb ppm	Rb ppm		Ta pm	Zr ppm	Y ppm	Ce ppm	In ppm	Re ppb	Be ppm	Li ppm	
SI RP04-01 RP04-06 RP04-07 RP04-12	<.01 .05 .08 .04 .14	<.1 <.1 .1 .1	<.02 .18 .08 <.02 .35	<.02 2.78 .33 .09 .42	<.1 2.2 .56 1.4	<.1 <. .6 <. 1.0 <. .1 <. .6 <.	05 05 05	.2 1.9 1.2 7.7	.02 22.14 3.77 1.24 7.80	<.1 38.6 8.1 1.2 21.1	<.02 <.02 .04 .02 .02	<1 <1 2 6	<.1 .1 <.1 .5	.1 .6 4.8 .7 2.1	
RP04-14 RP04-16 RP04-18 RP04-19 RP04-20	.06 3.28 .05 .37 .16	<.1 .1 <.1 .1	.13 .07 .18 .13 .13	.14 .21 1.01 .75 .04	26.5 1.3 5.6	.5 <.	05	3.39 3.40 3.25	6.49 6.64 5.85 7.81 10.49	11.7 2.5 11.3 19.1 11.9	.02 .03 <.02 <.02 <.02	7 2 <1 <1 1	.4 .2 .1 .4	.9 18.2 2.3 6.9 .5	
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GROUP 1F1 - 1.00 GM SAMPLE LEACHED WITH 6 ML 2-2-2 HCL-HN03-H20 AT 95 DEG. C FOR ONE HOUR, DILUTED TO 20 ML, ANALYSED BY ICP/ES & MS. (>) CONCENTRATION EXCEEDS UPPER LIMITS. SOME MINERALS MAY BE PARTIALLY ATTACKED. REFRACTORY AND GRAPHITIC SAMPLES CAN LIMIT AU SOLUBILITY. - SAMPLE TYPE: ROCK R150 60C Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data 🔨 FA

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DATE RECEIVED: MAY 28 2004 DATE REPORT MAILED: 4 me 8/04



#### ON TRACK EXPL. LTD.-X04

SHAMROCK:RP-1/2/10/21

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Giobal Discovery Labs

Report d	late: 24 JUN 2004				· · · · ·				н. 					Job V	04-0286R
LAB NO	FIELD NUMBER	SiO2 %	TiO2 %	AI2O3 %	Fe2O3 %	FeO %	MnO %	MgO %	CaO %	Na2O %	к20 %	P205 %	Ba(F) %	LOI %	Total %
 R0409351	SHAMROCK RP-01	72.91	0.05	14.65	0.27	0.36	0.01	0.10	1.00	4.28	5.36		0.08		99.52
R0409352	SHAMROCK RP-02	54.47	0.62	18.87	0.82	3.84	0.14	3.22	10.97	4.55	0.98	0.15	0.04	0.86	99.53
R0409353	SHAMROCK RP-10	60.75	0.62	16.95	2.40	4.18	0.11	2.51	5.69	3.89	1.19	0.17	0.05	1.20	99.71
R0409354	SHAMROCK RP-21	68.25	0.20	14.65	1.00	1.34	0.05	0.44	2.79	2.98	6.92	0.03	0.11	0.69	99.45

I=insufficient sample X=small sample E=exceeds calibration C=being checked R=revised If requested analyses are not shown, results are to follow

#### ANALYTICAL METHODS

FeO determined by acid digestion /volumetric.LOI determined gravimetrically Other elements by Li borate fusion/XRF. Where no FeO value shown "Fe2O3" is total Fe as Fe2O3

# ) ON TRACK EXPL. LTD.-X04

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Global Discovery Labs

#### SHAMROCK:RP-1/2/10/21

#### Report date: 24 JUN 2004

#### Job V04-0286R

LAB NO	FIELD NUMBER	Rb(P) ppm	Sr(P) ppm	Y(P) ppm	Zr(P) ppm	Nb(P) ppm
R0409351	SHAMROCK RP-01	 98	523	18	85	11
R0409352	SHAMROCK RP-02	33	2236	<3	187	11
R0409353	SHAMROCK RP-10	36	454	14	100	14
R0409354	SHAMROCK RP-21	111	299	5	97	11

I=insufficient sample X=small sample E=exceeds calibration C=being checked R=revised If requested analyses are not shown, results are to follow

#### ANALYTICAL METHODS

Rb(P) X-Ray fluorescence / pressed pellet Sr(P) X-Ray fluorescence / pressed pellet Y(P) X-Ray fluorescence / pressed pellet Zr(P) X-Ray fluorescence / pressed pellet Nb(P) X-Ray fluorescence / pressed pellet

## ADDENDUM

## **GEOPHYSICAL REPORT**

ON

## MAGNETIC and VLF-EM SURVEYS

**ON THE** 

## **SHAMROCK CLAIM**

## POISON CREEK, LOUGHBOROUGH INLET

## VANCOUVER MINING DIVISION, BRITISH COLUMBIA

WRITTEN FOR:

INTERACTIVE EXPLORATION INC. #1150 – 350 West Hastings Vancouver, BC V6C 2G8

WRITTEN BY:

David G. Mark, P.Geo. GEOTRONICS SURVEYS LTD. 6204 – 125<sup>th</sup> Street Surrey, British Columbia V3X 2E1

DATED:

August 31, 2004



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## **LIST OF ILLUSTRATIONS**

MAPS	Scale	<u> Map #</u>
Magnetic Survey Contour Plan	1:5,000	GP-1a
Magnetic Survey Profile Plan	1:5,000	GP-1b
VLF-EM Survey Contour Plan - Fraser-filtered	1: 5,000	GP-2a
VLF-EM Survey Profile Plan - Fraser-filtered	1: 5,000	GP-2b
Magnetic and VLF-EM Surveys Road (First Leg) - Profiles	1: 5,000	GP-3
Magnetic and VLF-EM Surveys Road (Second Leg) - Profiles	1: 5,000	GP-4
Magnetic and VLF-EM Surveys Road (Third Leg) - Profiles	1: 5,000	GP-5


### **SUMMARY**

Magnetic and very low frequency electromagnetic (VLF-EM), surveys were carried out in May, June, and August, 2004 within a portion of the Shamrock Mine Property located on Poison Creek on the south side of Loughborough Inlet within the Vancouver Mining Division of B.C.

The main purpose of the geophysical surveys was to locate sulphide mineralization within roof pendants occurring within Coast Intrusives. Strong soil geochemistry anomalies occur in the area. The type of mineralization being sought is sulphides of zinc, copper, and lead with associated gold and silver values.

The magnetic and VLF-EM surveys were carried out taking readings at 12.5-meter stations on 50-meter separated lines. The magnetic survey was carried out with a Geometrics G-816 proton precession magnetometer and the results were computer-plotted and contoured, as well as profiled. The VLF-EM survey was carried out with a Sabre model 27 reading the Jim Creek transmitter at a direction of about south-southeast. The results, using a computer, were Fraser-filtered, plotted and contoured as well as profiled.



# **CONCLUSIONS**

- 1. The VLF-EM survey revealed two strong conductors, labeled 'a' and 'b', that could well be reflecting sulphide mineralization of economic interest, i.e., sulphides of zinc, copper, and lead with gold and silver values. These two conductors correlate with soil geochemistry anomalies within an area of outcropping roof pendant rock-types.
- 2. Float rock containing sulphides occur throughout the area of conductors 'a' and 'b'. The minimum strike length of these two conductors is 250 meters with it being open both to the north and to the south.
- 3. Conductor 'c' could be the strike extension of one of these conductors, which would lengthen the strike length to 550 meters.
- 4. The magnetic survey revealed weak magnetic highs correlating with conductors 'a' and 'b' suggesting the possibility of pyrrhotite occurring with the possible sulphide mineralization.
- 5. Conductors 'd' and 'e' are weak and thus could be reflecting geological structure.
- 6. The magnetic survey shows a broad magnetic high to occur within the southeastern part of the survey area that is probably reflecting a more basic intrusive phase.
- 7. The magnetic and VLF-EM surveying done along the road did not reveal any features of economic interest.



## ADDENDUM GEOPHYSICAL REPORT

#### ON

### **MAGNETIC and VLF-EM SURVEYS**

### ON THE

#### SHAMROCK CLAIM

## POISON CREEK, LOUGHBOROUGH INLET AREA

## VANCOUVER MINING DIVISION, BRITISH COLUMBIA

#### **INTRODUCTION AND GENERAL REMARKS**

This report discusses survey procedure, compilation of data, interpretation methods, and the results of magnetic and very low frequency electromagnetic (VLF-EM) surveys carried out within the Shamrock Mine Property belonging to Interactive Explorations Inc. The property is located within the Vancouver Mining Division on Poison Creek on the south side of Loughborough Inlet.

The magnetic and VLF-EM surveys were carried out by a 2-man crew, headed by the writer, of Geotronics Surveys Ltd. from May 6<sup>th</sup> to 11<sup>th</sup>, June 11<sup>th</sup>, and August 16<sup>th</sup>, 2004. The amount of magnetic surveying totaled 5,962.5 meters and the amount of VLF-EM surveying totaled 6,537.5 meters.

The main purpose of the geophysical surveys was to locate sulphide mineralization, that is, the source(s) of soil geochemistry anomalies that contain anomalous values in zinc, copper, lead, gold, and silver. Sulphide mineralization with associated gold and silver values are known to occur on the property and were discovered in the 1890's. The specific purpose of the magnetic survey was to locate pyrrhotite and/or magnetite that could be associated with the sulphide mineralization. Its secondary purpose was to map lithology and structure. That of the VLF-EM survey was to locate sulphide mineralization directly with a secondary purpose to map geological structure.

This report is written as an addendum to a report by Robert H. Pinsent, P.Geo, titled "Geological Report on the Shamrock Property, Loughborough Inlet" for Interactive



Explorations Inc and dated July 15<sup>th</sup>, 2004. Mr. Pinsent was examining the property in May when the Geotronics crew was carrying the magnetic and VLF-EM surveying.

## **MAGNETIC SURVEY**

#### a) Instrumentation

The magnetic survey was carried out with a model MP-2 proton precession magnetometer, manufactured by Scintrex of Mississauga, Ontario. This instrument reads out directly in gammas to an accuracy of  $\pm 1$  gammas, over a range of 20,000 - 100,000 gammas. The operating temperature range is -40° to +50° C, and its gradient tolerance is up to 3,000 gammas per meter.

### (b) Theory

Only two commonly occurring minerals are strongly magnetic, magnetite and pyrrhotite; magnetic surveys are therefore used to detect the presence of these minerals in varying concentrations. Magnetics is also useful as a reconnaissance tool for mapping geologic lithology and structure since different rock types have different background amounts of magnetite and/or pyrrhotite.

## (c) Survey Procedure

Readings of the earth's total magnetic field were taken at 12.5 m stations along lines trending in 040°E direction and 50 meters apart, with the base line running 130°E. The number of meters surveyed was 4,150.

Magnetic readings were also taken along the road from station (50+00N, 50+00E) to the camp near tidewater. The amount surveyed along the road totaled 1,812.5 meters.

The total amount of magnetic surveying therefore was 5,962.5 meters.

The diurnal variation of the magnetic field was monitored by the closed loop method using (50+00N, 50+00E) as the base station. The magnetic field was found to vary from 0 nT to about 40 nT.

## (d) Data Reduction

The data was first input into a computer. Then using Geosoft software, it was plotted with 55,000 nT subtracted from each posted value onto a base map, GP-1a, with a scale of 1:5,000. It was then contoured at an interval of 200 nT.

The magnetic data was also profiled onto a base map, GP-1b, with the same scale. The profile scale was 1 cm = 1,000 nT using a base of 55,000 nT.

The data taken along the road was profiled, using the same scales as for the grid data, along with the VLF-EM data in three different segments as follows:



- 1. First leg-from camp to 1<sup>st</sup> switchback Fig GP-3
- 2. First leg -- from camp to 1st switchback -- Fig GP-4
- 3. First leg –from camp to 1<sup>st</sup> switchback Fig GP-5

#### **VLF-EM SURVEYS**

#### (a) Instrumentation

The VLF-EM survey was carried out with a VLF-EM receiver, Model 27, manufactured by Sabre Electronics Ltd. of Burnaby, British Columbia. This instrument is designed to measure the electromagnetic component of the very low frequency field (VLF-EM), which for this survey is transmitted at 24.8 kHz from Jim Creek, Washington, which is east of Arlington.

#### (b) Theory

In all electromagnetic prospecting, a transmitter induces an alternating magnetic field (called the primary field) by having a strong alternating current move through a coil of wire. This primary field travels through any medium and if a conductive mass such as a sulphide body is present, the primary field induces a secondary alternating current in the conductor, and this current in turn induces a secondary magnetic field. The receiver picks up the primary field and, if a conductor is present, the secondary field distorts the primary field. The fields are expressed as a vector, which has two components, the "in-phase" (or real) component and the "out-of-phase" (or quadrature) component. For the VLF-EM receiver, the tilt angle in degrees of the distorted electromagnetic field with a conductor is measured from that which it would have been if the field was not distorted with a conductor.

Since the fields lose strength proportionally with the distance they travel, a distant conductor has less of an effect than a close conductor. Also, the lower the frequency of the primary field, the further the field can travel and therefore the greater the depth penetration.

The VLF-EM uses a frequency range from 13 to 30 kHz, whereas most EM instruments use frequencies ranging from a few hundred to a few thousand Hz. Because of its relatively high frequency, the VLF-EM can pick up bodies of a much lower conductivity and therefore is more susceptible to clay beds, electrolyte-filled fault or shear zones and porous horizons, graphite, carbonaceous sediments, lithological contacts as well as sulphide bodies of too low a conductivity for other EM methods to pick up. Consequently, the VLF-EM has additional uses in mapping structure and in picking up sulphide bodies of too low a conductivity for conventional EM methods and too small for induced polarization. (In places it can be used instead of IP). However, its susceptibility to lower conductive bodies results in a number of anomalies, many of



them difficult to explain and, thus, VLF-EM preferably should not be interpreted without a good geological knowledge of the property and/or other geophysical and geochemical surveys.

### (c) Survey Procedure

The VLF-EM readings were taken along with the magnetic survey using the same grid and therefore the amount surveyed was the same, 38,150 meters

Tilt angle readings of the electromagnetic field from the transmitter station, Seattle (Jim Creek) at 24.8 kHz, were taken at the 25 m stations on the 100-meter separated lines with the operator facing towards the transmitter, which is at a direction of  $205^{\circ}E$  (S25°W).

# (d) Compilation of Data

The VLF-EM tilt angle data were input into a computer and subsequently 4-point Fraser-filtered. The filtered data were then plotted and contoured onto a base map, GP-2a, at a scale of 1:5,000. The contour interval used was 5°.

The VLF-EM Fraser-filtered data was also profiled onto a base map, GP-2b, with a scale of 1 cm = 5,000 meters and a profile scale of 1 cm = 40 degrees.

As mentioned above within the "Data Reduction" for the magnetic survey, the VLF-EM Fraser-filtered survey data along the road was profiled with the magnetic data using a profile scale of 1 cm = 10 degrees.

## **DISCUSSION OF RESULTS**

The most important results are those of the VLF-EM survey, which has resulted in five conductors considered by the writer to be worthy of discussion. These, therefore, have been labeled by the lower case letters, 'a' to 'e'.

<u>Conductors 'a' and 'b'</u> are each very strong VLF-EM conductors that are located within the southwestern part of the survey area. They are parallel with each other and are about 100 meters apart striking in a 350°E direction. However, at the northern end the strike appears to be more northwesterly (315°E) though this is shown on only one line. The strike length is a minimum 250 meters with it being open both to the south and to the north.

From field observations by the writer, it is obvious that each of these two geophysical features occurs within a roof pendant. This roof pendant is the site of the soil geochemistry anomalies. Also, the soil within this area is generally quite rusty, and a number of pieces of float containing sulphides were found in the area.

As a result, the writer considers it quite probable that the EM conductors are responding to massive sulphide mineralization. Also considering the correlation with the soil geochemistry



anomalies, it is quite probable that this mineralization contains copper, zinc, and lead sulphides with values in gold and silver.

The correlation of the results of the magnetic survey with conductors 'a' and 'b' shows correlating weak magnetic highs either directly with the each conductor or adjacent to each. This indicates the possibility of pyrrhotite, which is highly conductive and usually weakly magnetic, occurring with the mineralization.

It is possible that anomalies 'a' and 'b' are each reflecting the edge of a broad 100-meter wide conductor. This would be something like a graphitic argillite. However, no float has been within this area to support this possibility.

<u>Conductor 'c'</u> occurs only on lines 5000N and 4950N. It is on strike of conductors 'a' and/or 'b' and thus could actually be the northern extension of one of these conductors. If this were the case, then it would add 300 meters to the strike length of 'a' resulting in a total strike length of 550 meters. The writer noted roof pendant outcroppings in the area.

The magnetic survey results show a very weak magnetic high correlating with conductor 'c'.

<u>Conductor 'd'</u> is a broad weak conductor that is striking in a similar direction to that of conductors 'a' and 'b'. It has a minimum strike length of 220 meters and is open to both the north and the south. Its causative source could be structural such as faulting and or shearing but soil geochemistry anomalies do occur in the area indicating the possible causative source as being sulphides. As with the other conductors, there is a weak correlating magnetic high.

<u>Conductor 'e'</u> occurs within the southeastern part of the survey area. It is also a weak anomaly but very lineal in shape suggesting geological structure as the causative source. It strikes northwesterly and has a minimum strike length of 150 meters being open to the southeast. The writer only noted granitic intrusive outcrops in the area. (This does not preclude the possibility of roof pendants occurring in the area.) There is some correlation with a weak magnetic high.



## **GEOPHYSICIST'S CERTIFICATE**

I, DAVID G. MARK, of the City of Vancouver, in the Province of British Columbia, do hereby certify that:

I am registered as a Professional Geoscientist with the Association of Professional Engineers and Geoscientists of the Province of British Columbia.

I am a Consulting Geophysicist of Geotronics Surveys Ltd., with offices at  $6204 - 125^{\text{th}}$  Street, Surrey, British Columbia.

I further certify that:

- 1. I am a graduate of the University of British Columbia (1968) and hold a B.Sc. degree in Geophysics.
- 2. I have been practicing my profession for the past 36 years, and have been active in the mining industry for the past 39 years.
- 3. This report is compiled from data obtained from magnetic and VLF-EM surveys carried out by a 2-man crew of Geotronics Surveys headed by me within the Shamrock Property from May 6<sup>th</sup> to 11<sup>th</sup>, June 11<sup>th</sup>, and August 16<sup>th</sup>, 2004.
- 4. I do not hold any interest in Interactive Explorations Inc, nor in the property discussed in this report, nor in any other property held by Interactive Explorations, nor do I expect to receive any interest as a result of writing this

report.

David G. Mark, P.Geo. Geophysicist

August 31, 2004















