



# Fancamp Option James Bay Lowlands, Ontario

# Report of Diamond Drilling 2006

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Report of Diamond Drilling 2006

Prepared for:

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#### **Summary**

The Fancamp Option consists of 64 claims staked by Famcamp Exploration Ltd, located in the James Bay Lowlands approximately 300km north of Nakina, Ontario. The area was staked owing to the discovery of at least nine volcanogenic massive sulphide (VMS) deposits within the area, which represents a virtually unexplored greenstone belt, and has the potential of developing into a new and important base and precious metal mining camp. Probe Mines has entered into an agreement whereby Probe can earn a 100% interest in the property by, in part, undertaking exploration on the property.

The Fancamp Option is underlain by Archaean felsic intermediate and mafic to ultramafic volcanic fragmentals, tuffs and flows of the Sachigo Volcanic Belt. In addition to numerous geophysical conductors, the property is also distinguished by the presence of sulphide-mineralized volcanic horizons, identified during drilling, which are anomalous in base metals.

From March 4<sup>th</sup> to March 5<sup>th</sup>, 2006, Probe Mines carried out a diamond drilling program on the Fancamp property comprising one hole totaling 171m. The geological and geophysical data suggests that the Fancamp Option has a strong potential for hosting base metal sulphide mineralization of the volcanogenic massive sulphide-type. The property fits a variety of criteria in the descriptive model of VMS deposits, including the presence of felsic volcanics and the presence of other massive sulphide occurrences within the same volcanic belt. Given the encouraging data from the first program, a second, advanced, phase of exploration is recommended, consisting of electromagnetic and magnetic surveys, to further define known conductors and locate new anomalies, followed by diamond drilling to test anomalies identified by the geophysical survey. 

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#### 1. Introduction

This report represents the first assessment submission by Probe Mines Limited for Fancamp Explorations' property located in the James Bay Lowlands of Ontario. The report provides a compilation of previous work performed on the property by persons or companies involved in the mineral exploration industry and the current program by Probe Mines, as well as recommendations for further exploration on the property.

The majority of the geological and geophysical data concerning the McFauld's Lake area was taken from publications of the Ontario Geological Survey while accounts of known mineralization were obtained from reports and public disclosures of Spider Resources Inc. ("Spider") hosted on their website (www.spiderresources.com).

The Fancamp Option is part of the Archean Sachigo Volcanic Belt (SVB), located in the James Bay Lowlands of Ontario approximately 300 km north of the town of Nakina, Ontario (Fig. 1.1). The area has attracted significant attention owing to the recent discovery of volcanogenic massive sulphide (VMS) deposits (Franklin, 2003) by Spider Resources and Probe Mines. Excitement was first generated in the area following the unexpected diamond drilling discovery of VMS mineralization containing Cu, Pb and Zn and minor Au and Ag, over what were thought to represent kimberlite targets. Following a period of intensive exploration, at least nine polymetallic sulphide showings have been discovered in the area. However, before the discoveries very little work was undertaken in the area by either government geological surveys or exploration companies, and as a result very little geological information is available. The property comprises 64 contiguous unsurveyed and unpatented mineral claims.

The area is believed to be underlain by a mixed sequence of felsic to ultramafic volcanics belonging to the SVB with minor clastic metasedimentary rocks and iron formation. Significant base metal mineralization is present within the belt, and numerous geological and geophysical indicators point to a strong potential for economic VMS-type mineralization within its boundaries.



Fig 1.1 Location of the Fancamp property, James Bay Lowlands, Ontario

# 1.1 Terms of Reference

This report uses standard System International (SI) units, unless otherwise noted. The coordinate system used for georeferencing is UTM NAD 83 (Zone 16) for the McFauld's Lake area, with units of meters, and structural data is given in degrees, using the right hand rule convention (dip is always to the right of the strike measurement). For planar features strike measurement is always given first, followed by dip, and for linear features, such as fold axes, it is dip/dip angle. Some common abbreviations found in the text are defined as follows:

| OGS     | Ontario Geological Survey   |
|---------|---|
| UTM     | Universal Trans Mercator (geographic)                                 |
| NAD     | North American Datum (geographic)                                     |
| SVB     | Sachigo Volcanic Belt   |
| VMS     | Volcanogenic Massive Sulphide (deposit type)                          |
| REE     | Rare Earth Elements   |
| g/t     | grams per tonne (equivalent to ppm)                                   |
| ppm/ppb | parts per million/billion   |
|         | Concentrations below detection (for ease in viewing geochemical data) |
| MSL     | Mean Sea Level (0m)   |
| EM      | Electromagnetic (geophysics)  |
| AEM     | Airborne Electromagnetic (geophysics)                                 |
| HLEM    | Horizontal Loop Electromagnetic (geophysics)                          |
| IP      | Induced Polarization (geophysics)                                     |
| TDEM    | Time Domain Electromagnetics  |
| γ       | Gamma (1 gamma = 1 nanoTesla), magnetic units                         |
|         |   |

# 1.2 Disclaimer

Land tenure information and assessment reports have been extracted from the Ontario Ministry of Northern Development and mines web site (<u>www.mndm.gov.on.ca/MNDM</u>), which contains the following disclaimer:

"Use this Internet service at your own risk. The Ministry of Northern Development and Mines disclaims all responsibility for the accuracy of information provided. Material in this service involves a new use of technology, which may cause errors and therefore the information may be inaccurate or incomplete.

The Ministry of Northern Development and Mines cannot and does not warrant the accuracy, completeness, timeliness, merchantability or fitness for a particular purpose of any information available through this service. Furthermore, the Ministry of Northern Development and Mines does not guarantee in any way that it is providing all the information that may be available. The Ministry of Northern Development and Mines shall not be liable to you or anyone else for any loss or injury caused in whole or part by the Ministry of Northern Development and Mines in procuring, compiling, or delivering

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this service and any information through the service. In no event will the Ministry of Northern Development and Mines be liable to you or anyone else for any decision made or action taken by you or anyone else in reliance on this service. Although the Ministry of Northern Development and Mines has used considerable efforts in preparing the information at this site, the Ministry of Northern Development and Mines does not warrant the accuracy, timeliness, or completeness of the information. Lastly, notwithstanding the foregoing, you agree that the liability of the Ministry of Northern Development and Mines, if any, arising out of any kind of legal claim (whether in contract, tort or otherwise) in any way connected with the service or its content shall not exceed the amount paid to the Ministry of Northern Development and Mines for use of the service."

Geological data and information used in this report have also been gathered from government reports and company websites and provided by Probe Mines Limited. The author has declined use of previous interpretations and relies only on the factual data contained within the published and unpublished documents.

A significant volume of material was taken from press releases of Spider Resources, which contain the following disclaimer:

"The TSX Venture Exchange has not reviewed and does not accept responsibility for the adequacy or accuracy of this release".

This report is intended as a technical summary of available factual data by Probe Mines Limited for the Fancamp Option. The author does not accept responsibility for use by third parties of the material contained in this report outside the scope of the stated objective.

1.3 Property Location and Access

The Fancamp Option falls within the Sachigo Volcanic Belt (SVB) of northern Ontario, and comprises 64 contiguous unsurveyed and unpatented claims (Fig. 1.2).

Access to the property is by way of float/ski-equipped fixed-wing aircraft or helicopter from one of a number of communities found along Highway 11. Two companies have been used for this program, and include Gateway Helicopters of North Bay, Ontario and Nakina Air Services, located in Nakina, Ontario. Local access to the properties can be achieved by helicopter, or snowmobile in winter. No water access exists for the properties.

| _              |   |         |         |                          |                       |                |                            |                           |                     |   |                             |        |           |         |         |         |               |                  |                        | _  |
|----------------|---|---------|---------|--------------------------|-----------------------|----------------|----------------------------|---------------------------|---------------------|---|-----------------------------|--------|-----------|---------|---------|---------|---------------|------------------|------------------------|----|
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|                |   | 3008720 |         |                          |                       |                |                            | 30135                     | 47                  | 1   |                             |        |           |         |         | Г       | F             | ancamp           | Option                 |    |
| 3718           | 3008719                                 | 3011555 | 3011558 | 3011557                  | 3011558               | 3011559        | 3011560                    | 301354R<br>42045<br>30135 | 1301354<br>32<br>45 | В   |                             |        |           | 3016691 | 3016692 |         | 4             | other            | 100 <b>-</b> 77529-763 |    |
| 3724           | 3008725                                 | 3008726 | 3011561 | 3011582                  | 3008727               | 3013528        | 3013529                    | 3013530                   |                     |   |                             |        | 3016697   | 3016698 | 3016699 | 0       |               | 4                | km                     |    |
| 583            | 35000 m                                 | N       |         |                          |                       | 0.0114.00.0000 |                            | Commentations             | -                   | inno-lionobrotoinnois                             |                             |        | 0010700   | 0010700 | 0040304 | <b></b> | UTM NADE      | 3 zone 16        |                        |    |
| 534            | 3013535                                 | 3013536 | 3013537 | 3013538                  |                       |                |                            |                           |                     |   |                             |        | 3016702   | 3016703 | 3016704 |         |               |                  |                        |    |

Figure 1.2 Claim locations of McFauld's Lake properties, NW Ontario

#### 1.4 Land Tenure

The 64 unsurveyed and unpatented claims comprise four separate mineral licenses (Fig. 1.2, Table 1.1), which grant the title-holder mineral rights to the area. All claims are recorded in the name of Fancamp Exploration Ltd, and, to the author's knowledge, there are no current or pending challenges to the mineral claims and 100% ownership is maintained by Fancamp. There are no outstanding nor pending adverse environmental issues attached to the property. Regulatory permits are not required for the recommended exploration activities outlined in this report.

The agreement between Fancamp and Probe gives Probe the option of acquiring a 100% interest in the respective claims, provided Probe Mines fulfills the requirements of the agreement, which include work expenditures on the property.

No assessment reports have been previously submitted by Probe Mines Limited for the Fancamp Option property and \$25,600 in assessment credits or payment will be required to maintain all of the claims in good standing in the year following their respective due dates (Table 1.1). The maintenance deadline of April 22, 2006 will be met through exploration expenditures that fulfill the criteria of the Ministry of Northern Development and Mines of Ontario as eligible work expenditures.

| License<br>No. | Claims | Area       | Holder  | Date<br>Recorded | Date Due  | Work<br>Required |
|----------------|--------|------------|---------|------------------|-----------|------------------|
| 3012254        | 16     | BMA 527862 | Fancamp | 2003-Apr-22      | 22-Apr-06 | \$6,400          |
| 3012255        | 16     | BMA 527862 | Fancamp | 2003-Apr-22      | 22-Apr-06 | \$6,400          |
| 3012257        | 16     | BMA 527862 | Fancamp | 2003-Apr-22      | 22-Apr-06 | \$6,400          |
| 3012258        | 16     | BMA 527862 | Fancamp | 2003-Apr-22      | 22-Apr-06 | \$6,400          |
| Total          | 64     |            |         |                  |           | \$25,600         |

 Table 1.1 Land Tenure information for the Fancamp Option property

#### 1.5 Topography

The claim blocks are found within the James Bay Lowlands of Ontario, an area characterized by a plain of low relief, which gently slopes towards James Bay to the northeast. Elevation in the property area is approximately 250m above means sea level (MSL), with local variations of typically less than 10m. An exception occurs along the Attawapiskat River, where elevations can change by up to 30m. Hydrographic features include the Attawapiskat River and numerous small creeks and rivers, although no drainage features are found within the immediate area of the claims (Fig. 1.2). Owing to the thick clay deposits and low relief, the area is poorly drained, resulting in numerous lakes, swamps and muskeg areas. Lakes in the area can reach up to 5km in diameter, with the largest being McFauld's Lake itself, located approximately four kilometers east of the property.

#### 1.6 Previous Work

No exploitable mineral deposits are known in the area surrounding the Fancamp Option, although recent exploration by Probe Mines and Spider Resources suggest the potential for economic base metal (Cu-Pb-Zn) volcanogenic massive sulphide (VMS) deposits is high. The bulk of the previous work data available is taken from public disclosure documents provided by Spider Resources, as no published assessment work is available.

Prior to the discovery of VMS mineralization in the Sachigo Volcanic Belt (SVB) only limited physical examination of the area was undertaken by the Ontario Geological Survey (OGS), and consisted of regional-scale mapping (Thurston *et. al.*, 1975) and airborne magnetic surveys (OGS). Owing to topography, geological exposures are scarce and, within the claim boundaries, consist only of Ordovician sedimentary rocks. River cuts found to the west of the properties contain outcrops of mafic flows and mafic intrusives (subvolcanic?) found as layers within meta-granitoid rocks (Thurston *et. al.*, 1975). Volcanic horizons typically show subvertical to vertical dips. A provincial airborne magnetics survey provides the most accurate depiction of the subsurface geology, displaying an arcuate belt of layered rocks approximately 100km in length.

The recent interest in the diamond potential of the James Bay Lowlands has triggered a number of regional-scale geochemical surveys in the area (OFR-6097 Spider 3; OFR-6108 James Bay), which evaluate heavy mineral geochemistry of stream sediments. However, the presence of Paleozoic rocks overlying the prospective volcanics tends to nullify the effect of surficial geochemistry for the area.

A significant amount of information is available regarding volcanic rocks in the McFauld's Lake area from recent exploration by Spider Resources on its adjacent mineral properties. To date diamond drilling by Spider has intersected a number of VMS occurrences, the most notable being McFauld's #1 and #3, which are located less than 3km south of Probe Mines properties. The VMS mineralization was first identified by De Beers Canada Exploration Inc. ("De Beers") in the Fall of 2002, while exploring for kimberlite. Reverse circulation drilling encountered base metal sulphides, i.e., chalcopyrite, sphalerite, associated with volcanic flows consisting of highly altered mafic and felsic lithologies (Franklin, 2003). Metal zonation in sulphide mineralization is poorly developed, however, Cu-rich stringer-style mineralization has been identified in the footwall, while Zn values tend to increase in the hanging wall direction (Franklin, 2003), suggesting that VMS processes are active.

A substantial geophysical program was completed on the Fancamp Option by previous workers, and includes GEOTEM airborne surveys, followed by a MaxMin II ground geophysical program. This data was used to locate all of the drill targets discussed in this report.

#### 1.7 Deposit Model

A descriptive model of VMS deposits is best applied to the data available for the Fancamp property and environs. VMS deposits are major sources of copper, zinc, lead, silver and gold, with by-products including tin, cadmium, antimony and bismuth. The deposits belong to a larger class of concordant massive sulphide deposits, which can be considered as having formed through discharge of hydrothermal fluids onto the seafloor. VMS deposits occur exclusively in geological domains containing volcanic rocks extruded on the sea floor, and there is no preferred geotectonic environment, although, like submarine volcanic sequences, they are more commonly found near plate margins (Sawkins, 1976). VMS deposits are not restricted to any geochemically distinct volcanic sequence, although there may be a preferential association with evolved calc-alkaline members (Solomon, 1976). There is a spatial association among VMS deposits, with most occurring in clusters associated with a particular level in the stratigraphic sequence. This "favourable horizon" often contains structural or topographic features responsible for the localization of deposits. The deposits also tend to be associated with felsic volcanic rocks, with approximately 50% related to areas of rhyolitic domes and felsic fragmental rocks. Sedimentary rocks are often an integral part of a VMS terrane, and indicate periods of volcanic quiescence, a break required for the deposition of sulphides from hydrothermal fluids emanating from submarine vents. The deposits themselves display a remarkably consistent mineralogical zonation, probably related to the thermal gradient developed around the vent. The vent itself typically consists of a stockwork system containing the richest Cu ore, while within the sulphide mound itself an outward zonation of Fe-Cu to Fe-Cu-Zn-Pb to Fe-Zn-Pb-Ba and finally Fe-Ba is developed.

The McFauld's Lake area satisfies a number of the requirements for the formation of VMS deposits, being underlain by submarine volcanics, including minor felsic volcanics, and most importantly occurring within the stratigraphic horizon where other massive sulphide deposits have been discovered.

#### 1.8 Regional Geology

The Fancamp property is located in the Superior Province of Northern Ontario, an area of 1,572,000 km<sup>2</sup>, which represents 23% of the earth's exposed Archean crust (Thurston, 1991). The Superior Province is divided into numerous Subprovinces (Fig. 1.3), each bounded by linear faults and characterized by differing lithologies, structural/tectonic conditions, ages and metamorphic conditions. These Subprovinces can be classified as one of four types: 1) Volcano-plutonic, consisting of low-grade metamorphic greenstone belts, typically intruded by granitic magmas, and products of multiple deformation events; 2) Metasedimentary, dominated by clastic sediments and displaying low grade metamorphism at the subprovince boundary and amphibolite to granulite facies towards the centers; 3) Gneissic/plutonic, comprised of tonalitic gneiss containing early plutonic and volcanic mafic enclaves, and larger volumes of granitoid plutons, which range from sodic (early) to potassic (late); and 4) High-grade gneissic subprovinces, characterized by amphibolite to granulite facies igneous and metasedimentary gneisses intruded by

tonalite, granodioritic and syenitic magmas (Card and Ciesieliski, 1986). The Fancamp claim blocks lie within the Sachigo metasedimentary subprovince.

#### 1.8.1 Sachigo Subprovince

The Sachigo Subprovince represents the northernmost extent of exposed Archean basement rocks of the Superior Province (Fig 1.4). To the west, the Sachigo is bounded by the Trans-Hudson-Orogen (THO) (1.8 Ga), while to the northwest the subprovince is in contact with granitoid and mafic/ultramafic rocks of the Thompson Belt, a collisional zone formed during the THO. To the east, the Sachigo is delimited by the Winisk River Fault, which separates the Superior Province from rocks of the THO Fox River Belt, while the southern limit of the Sachigo subprovince is defined by the Berens River subprovince, a granite-greenstone terrane.



Figure 1.3 The Superior Province, and subprovinces, of Ontario



Figure 1.4 - Regional geology of the eastern Sachigo subprovince, McFauld's Lake area

Much less is known about the Sachigo subprovince than the more accessible granitegreenstone belts to the south, with most work concentrating on the handful of isolated greenstone belts found enclosed within the granitic and gneissic units (e.g. Bennet and Riley, 1969; Ayres, 1974; Card and Ciesielski, 1986; Thurston et al., 1991). However, a number of differences can be noted between the greenstone belts of the Sachigo subprovince and younger greenstone terranes to the south, and include some of the oldest ages for greenstones in the Superior Province (2.9 to 3.0 Ga) (Corfu and Wood, 1986; Thurston et al., 1991); and an unusual sequence of quartz-rich metasediments within a sequence of mafic and felsic volcanic rocks (Thurston et al., 1991). The Berens River granite-greenstone subprovince, immediately to the south of the Sachigo, is interpreted to represent a deeply eroded arc or micro continental core, while rocks of the Sachigo are considered remnants of widespread, early (3.0 Ga) sialic crust (Thurston et al., 1991). Geological similarities between the Sachigo, Berens River, and the Uchi subprovince, situated to the south of the Berens River subprovince, have prompted some researches to define an Uchi-Sachigo-Berens River superterrane (Card and Ciesielski, 1986; Thurston et al., 1991).

# Felsic/Intermediate Intrusives

Granitic rocks represent the dominant lithologies in the Sachigo subprovince and include, from oldest to youngest: gneissic tonalites; foliated tonalites; a muscovite granodiorite–granite series; and a diorite-monzonite-granodiorite suite (Thurston et al., 1991).

#### Gneissic Tonalites

These intrusives are possibly the oldest example of plutonic rocks (Thurston et al., 1991), and can be divided into melanocratic (>20% amphibole) and leucocratic (<20% amphibole) series, although dominated by the latter. Rocks are heterogeneous, and are typically cut by several generations of granitic dykes, and may contain mafic inclusions up to kilometers in diameter (Thurston et al., 1991). The origin of these inclusions can be traced back to supracrustal xenoliths and tectonized mafic dykes. Tonalitic rocks of the Sachigo subprovince are batholithic in proportion, and display a general west to northwest strike in their layering, which shows divergence around younger intrusives and in the vicinity of shear zones. Contact relationships with greenstone terranes are almost invariably tectonic, while more gradational with other felsic intrusives (Thurston et al., 1991).

# Foliated Tonalite

Foliated tonalites include amphibole-bearing and biotote-bearing varieties, and typically form irregular batholiths and stocks at the interface between greenstone terranes and massive tonalite in the Sachigo subprovince (Stone, 1989; Thurston et al., 1991). Amphibole-bearing tonalite typically contains less than 20% mafic minerals, usually as

hornblende, while more felsic versions are dominated by biotite in their mafic assemblages. Rocks are generally medium- to coarse-grained, and relatively homogeneous, although megacrysts and clotty amphibole are common in hornblende tonalites and granodiorites (Thurston et al., 1991). The intrusions are well foliated, with foliation described by oriented lenticles of quartz, plagioclase, biotite and hornblende (Thurston et al., 1991).

#### Massive Granodiorite-Granite

Within the granodiorite to granite suite granodiorites predominate, with feldspar megacrystic granodiorite and biotite granodiorite forming the two most voluminous lithologies (Thurston et al., 1991). Megacrystic varieties are grey to pink, and contain feldspar megacrysts up to 2cm in length, and generally less than 15% mafic constituents including possible relict clinopyroxene (Thurston et al., 1991). Magnetite is common in this series and accounts for its high magnetic signature in regional aeromagnetics. Massive biotite granodiorites are a weakly foliated, pale pink rock, containing irregular pods of pegmatitic material (Thurston et al., 1991). Mafic minerals, dominated by biotite, typically make up less than 10% of the rock.

#### Muscovite-Bearing Granite

Members of this suite range from granodiorite to granite, and are coarse-grained to pegmatitic, often containing metasedimentary xenoliths. They include two-mica granites and leucogranites, which are usually associated with major shear zones in the Sachigo subprovince. Their young ages (2653 Ma), compared to two-mica granites in the southern Superior Province, smaller sizes and tectonic association suggest that these granites may have formed from melting of metasedimentary units during late block-to-block movement (Thurston et al., 1991).

#### Diorite-Monzonite-Granodiorite

These rocks represent the youngest felsic/intermediate intrusions in the Sachigo subprovince, and range between quartz diorite and quartz monzonite. Mafic mineral assemblages can be high, up to 30%, with hornblende typically dominant over biotite, and occasional pyroxene (Thurston et al., 1991). Rocks of this suite show a spatial association with mafic intrusives, and usually display a gradational transition to gabbroic compositions. The rocks are generally inclusion-rich, and this, coupled with the mafic mineralogy, suggests that they are mantle derived, similar to monzodiorite plutons in the southern Superior (Stern et al., 1989).

#### Mafic Intrusive Rocks

Pre-tectonic mafic intrusive rocks in the Sachigo subprovince are considered to be synvolcanic by Thurston et al. (1991), and comprise predominantly mafic to ultramafic sills. Post-tectonic magmatism in the northwestern Superior Province includes three diabase dyke swarms, comprising the 2171 Ma Marathon swarm, 1888 Ma Molson Swarm and the 1267 Ma MacKenzie Swarm.

#### Big Trout Lake Intrusive Complex

The Big Trout Lake intrusive complex represents the largest exposed mafic-ultramafic intrusion and consists of a folded 5000m thick sill containing a 500m thick lower ultramafic sequence of dunite, chromite and chromite-rich layers overlain by homogeneous peridotite. Two batches of tholeiitic magma are indicated in the formation of the sill (Borthwick and Naldrett, 1984).

#### 1.9 Property Geology

Very little is known about the geology of the McFauld's Lake area, with most of the information obtained from recent drilling in the area of the VMS discoveries at the eastern extent of the volcanics (Franklin, 2003). Within the eastern section of the belt, in the area of the claims, a thin (<40m) section of Paleozoic sedimentary rocks, comprised predominantly of limestone, overlies the volcanic package. The volcanic sequence at this location is comprised of highly altered mafic and felsic volcanic rocks, which have in some cases undergone extensive Mg-metasomatism to form talc-magnetite alteration. In most cases this replacement alteration has occurred to such a degree as to make primary lithologies indiscernible, with all units resembling basaltic flows (Franklin, 2003). The hydrothermal character of the talc-magnetite rock has been established to a fair degree of confidence through whole rock geochemical comparisons utilizing major and trace element characteristics, while precursor lithologies have been demonstrated to be a bimodal population of basaltic and rhylotic-dactic volcanic rocks (Franklin, 2003). The character of the felsic sequence suggests that there was significant heat available to the system, which indicates a greater potential for the formation of VMS mineralization in the volcanic strata.

Owing to the buried nature of the volcanics in this area, property-scale structural data is unavailable, however, fine structural features are preserved in core samples, and comprise predominantly folding, varying from open to isoclinal. In layered sequences a weak S1 foliation is developed parallel to sub-parallel to layering, while rare S2 foliations could be discerned oblique to S1, typically 30-35° from the earlier foliation.

#### 1.9.1 Mafic/Ultramafic Volcanics

Mafic volcanics comprise a suite of calc-alkaline basalts and chloritic basalts, with some strata being composed of spherulitic varieties (Franklin, 2003). Very little descriptive data is available for the basalts, however, drill sections indicate that it dominates the volcanic sequence in both the hanging wall and footwall sections (Franklin, 2003). The calc-alkaline nature of the basaltic rocks is suggested by high LREE/HREE ratios, however, alteration makes this determination difficult.

## 1.9.2 Felsic Volcanics

Original logging of Spider Resources' diamond drill core from the McFauld's area indicated that felsic volcanic rocks were rare in the sequence, however, Franklin (2004) demonstrates geochemically that they occur in much greater quantities than first thought. Although obfuscated by alteration, felsic volcanics occur in both fragmental and massive flow varieties, and can be distinguished from basaltic members through their distinctive REE and immobile element patterns. Their enrichment in REE, and the flat patterns, are indicative of high temperature rhyolites, which are often associated with VMS terranes (Lesher et al., 1986; Franklin, 2003). In drill sections, the felsic volcanics do not correlate well with each other, suggesting they are laterally discontinuous. Within Noront's claims, diamond drilling has identified several felsic volcanic layers comprising predominantly coarse-grained lapilli tuffs and fragmental units, as well as fine-grained ash-fall tuffs. Alteration is present in these units, however preserved sections reveal the highly siliceous nature of the rocks. Unlike sections to the east of the Fancamp Option claims, mafic to ultramafic rocks are abundant and comprise basalt to gabbro and ultramafic, locally olivine-bearing, ultramafic flows or sills.

#### 1.9.3 Alteration

Talc-magnetite, which is not a common alteration assemblage associated with VMS deposits, predominates in the sulphide mineralized McFauld's Lake volcanics in the area of the discoveries (Franklin, 2003). Originally mapped as iron formation, Franklin (2003) has shown that talc-magnetite zones were produced by hydrothermal alteration of basalt and rhyolite, caused by Mg-bearing brines in seawater convective cells, and not altered ultramafic rock. This alteration formed talc-magnetite "mounds" at seafloor vents by reaction of low-temperature (90-150°C) hydrothermal fluids with surrounding rocks. A number of geochemical characteristics indicate the hydrothermal origin of the Talc, as opposed to formation through alteration of ultramafic rocks, including low Cr and Ni content and positive Eu anomalies (Franklin, 2003). Alteration in the McFauld's Lake volcanics is distinguished by almost total loss of Na and Ca, and significant enrichment in Mg and Fe, which is typical of VMS alteration geochemistry (Franklin, 2003). More common to rocks within the Fancamp section is a strong chloritization, with minor carbonatization and epidotization, of the volcanic units, occasionally with the development of accessory magnetite and biotite.

#### 1.9.4 Mineralization

The McFauld's Lake area contains impressive diamond drill intersections of base and precious metal-bearing massive sulphides, up to 42m wide at McFauld's #3, with significant grades of Cu and Zn (Table 1.2). In addition to the numerous VMS-style intersections of Probe Mines, ten individual zones have been identified in the area, spaced as far as 14km apart, by Probe Mines and Spider Resources.

No truly descriptive accounts of mineralization exist for the Spider VMS occurrences, however, sufficient analytical data is available to indicate that sulphide mineralization is typical of VMS-style deposition, i.e., contains significant base metal component (Table 1.2). To date, drilling suggests that that sulphide mineralization is copper-rich and lead-poor, with Zn:Cu ratios similar to those in the bimodal mafic-dominated Noranda-type deposits (Franklin, 2003). The high Zn:Pb ratios support this comparison, and are in sharp contrast to the younger bimodal felsic and bimodal siliciclastic deposits typical of Kuroko-type and Bathurst-type deposits, respectively.

|            |             | ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, | T     |      |      |       |
|------------|-------------|---|-------|------|------|-------|
| Deposit    | Drill Hole  | Width (m)                                       | Cu    | Zn   | Au   | Ag    |
| McFauld #1 | M-03-06     | 5.60  | 2.89  | 0.45 | N/A  | N/A   |
| McFauld #1 | M-03-07     | 6.90  | 3.55  | N/A  | N/A  | N/A   |
| McFauld #2 | M-03-12     | 12.5  | 1.81  | N/A  | N/A  | N/A   |
| McFauld #3 | M-03-18     | 25.75   | 0.51  | 4.83 | 0.07 | 2.73  |
| McFauld #3 | M-03-18     | 9.5   | 0.72  | 7.95 | 0.06 | 3.15  |
| McFauld #3 | M-03-20     | 5.87  | 2.80  | 0.02 | 0.50 | 15.50 |
| McFauld #3 | M-03-20     | 4.2   | 0.26  | 11.8 | Tr   | 1.57  |
| McFauld #3 | M-03-21     | 13.81   | 5.50  | 0.34 | 0.52 | 15.40 |
| McFauld #3 | M-04-23     | 15.0  | 4.06  | 0.03 | 0.55 | 13.81 |
| McFauld #3 | M-04-23     | 36.73   | 0.40  | 0.62 | 0.04 | 1.20  |
| McFauld #3 | M-04-24     | 12.09   | 1.81  | 0.07 | 0.10 | 3.36  |
| McFauld #3 | M-04-25     | 6.23  | 0.43  | 0.05 | 0.06 | 1.15  |
| McFauld #3 | M-04-41     | 8   | 6.50  | 3.45 | 0.42 | 15.5  |
| NI/A NIat  | A 11-11-1 C | 171 '   | 10/ 1 | 1    |      |       |

Table 1.2 – Selected drill core analyses, Spider Resources, McFauld's Lake area

N/A - Not Available; Cu and Zn values in wt.%, Au and Ag in ppm

#### 1.10 Exploration

Probe Mines has completed its first phase of exploration on the Fancamp Option, comprising diamond drilling, in order to evaluate the potential of the claims for hosting VMS deposits.

# 2. Diamond Drilling

A preliminary diamond drilling program was carried out between March 4th and March 5th, 2006 to test selected ground and airborne geophysical targets identified from





Previous surveys contracted by Fancamp Exploration. The program consisted of one diamond drill hole (DDH) 171 meters in length (Figs. 2.1-2.3; Table 2.1). Norex Drilling of Timmins was contracted for the diamond drilling program.

|      | Tuble 2.1 Diffi fibre data for fibre data 5 Date 110 juli |       |           |         |       |       |  |  |  |  |  |  |
|------|---|-------|-----------|---------|-------|-------|--|--|--|--|--|--|
| DDH# | Eas   | North | Elevation | Azimuth | Dip   | Depth |  |  |  |  |  |  |
| FC1  | 54+00E  | 2+55N | 125       | 135     | -50   | 171   |  |  |  |  |  |  |
|      |   |       |           |         | Total | 171m  |  |  |  |  |  |  |
|      |   |       |           |         |       |       |  |  |  |  |  |  |

Table 2.1 Drill hole data for McFauld's Lake Project

## 2.1 Drilling Results

The diamond drilling on the Fancamp Option explained the one conductor sufficiently, caused by sulphide mineralization in a quartz-feldspar porphyry, which dominated the first 100 meters of the hole.

## 2.1.1 Geology

Lithologies intersected in the Fancamp property drilling were dominated by felsic intrusives comprising quartz-feldspar porphyry (QFP) and granodiorite, with minor variably chloritized felsic and mafic volcanics (Appendix I). Within the initial 100m of drill core, the rock consists of massive to weakly foliated QFP containing volcanic xenoliths, and distinguished by pervasive disseminated pyrite, locally making up to 15% of the rock. Alteration is of two types, chlorite or weak epiditozation, with the latter typically developed near volcanic material. Rare volcanic layers, or large xenoliths, occur through the drill section, and are accompanied by strong epidotization and pyrite banding. At depth, the felsic intrusive changes to a granodioritic material, containing up to 30% mafic constituents, as well as blue quartz eyes, in a matrix dominated by feldspar. Sulphide contents, and alteration, decrease rapidly (<2%), occurring as local accumulations along small secondary structures. The last 30 meters of DDH FC1 consisted of grey striped talcose schist, containing less than 1% sulphide.

# 2.1.2 Geochemistry

Unfortunately, geochemical results were not available at the writing of this report, but will comprise a second report to be submitted in the near future.

# 3. Conclusions

Geological and geophysical data obtained for the Fancamp property indicates a strong potential for hosting polymetallic sulphide mineralization of the type typically associated with submarine volcanic environments, i.e., VMS-type, and the property merits further exploration expenditures.

Owing to the encouraging geological and geophysical indications for the presence of VMS-type deposits within the claims a second-phase program of airborne geophysics and diamond drilling is proposed for the property.



Figure 2.2 Diamond Drill Hole Section FC1

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#### 5. Certification and Date

David Palmer, Ph.D., P.Geo. 306 – 2 Toronto Street, Toronto, Ontario M5C 2B6

I, David Palmer, do hereby certify that:

- 1. I am a consulting geologist, and reside at 91 Empress Avenue, Toronto, Ontario M2N 3T5;
- 2. I graduated with a Bachelor of Science degree from St. Francis Xavier University in 1991; a Master of Science degree from McGill University in 1994 and a Doctor of Philosophy degree from McGill University in 1999;
- 3. I am a member, in good standing, of the Association of Professional Geoscientists of Ontario (APGO Member Number 0796);
- 4. I have worked as a geologist for a total of 15 years since my graduation from university;
- 5. I am employed as the President of Probe Mines;
- 6. I am not aware of any material fact or material change with respect to the subject matter of the Report that is not reflected in the Report, the omission to disclose which makes the Report misleading.

Dated this 18th Day of April, 2006.

Signature of Qualified Person

David Palmer, Ph.D., P. Geo. (No. 0796)

Print name of Qualified Person

Appendix I – Diamond Drill Hole Logs



|                              |   | BE                                     |  | Diamor<br>Drilling<br>Log                  | nd Journ<br>forag<br>diam   | nal de<br>je au<br>ant                         |  |                               |  |                       |   |                     | ⇒      | Hole No.<br>Forage n<br>DDH FC        | •        | Page No.<br>Page n°<br>1 of 2 |        |  |  |
|------------------------------|---|--|--|--|---|--|--|-------------------------------|--|-----------------------|---|---------------------|--------|---------------------------------------|----------|-------------------------------|--------|--|--|
| Drilling Comp<br>Compagnie o | bany<br>de forage   | ······································ | Core Size<br>Dimensions de la<br>carotte | Collar Elevation<br>Elévation du collier   | Bearing of hole from<br>true North/Position du<br>forage par rapport au | Total Footage<br>Avancement total<br>du forage | Dip of Hole at °<br>Inclinaison du forage au | Address<br>Adresse<br>stockée | /Location where co<br>/endroit où la caro                        | ore stored<br>tte est | Map Reference No.<br>N° de référence sur la carte |                     |        | Claim No.<br>N° de concession minière |          |                               |        |  |  |
| CARTWRIG                     | нт  |  | втw                                      | 135  | nord vrai   | 171m   | Collar/collier 50                            | Victory L                     | ake  |                       |   |                     |        |                                       |          |                               |        |  |  |
| Date Hole St<br>Date de com  | arted<br>mencement du   | forage                                 | Date Completed<br>Date                   | Date Logged<br>Date d'inscription au       | Logged by (print)<br>Inscrit par (écrire en                             | lettres moulées)                               | l l  |                               | Location (Twp. Lot, Con. or L<br>Emplacement (canton, lot, conce |                       |   |                     |        |                                       |          | Je)                           |        |  |  |
| March 4, 200                 | 16  | -                                      | d'achèvement<br>March 5, 2006            | journal<br>March 12, 2006                  | D. Palmer   |  |  |                               |  |                       |   | 54+00               | νE     |                                       | 2+       | 55N                           |        |  |  |
|                              |   |  |  |  |   |  |  |                               |  |                       | 04100   |                     |        | 2.1                                   | 5014     |                               |        |  |  |
| Exploration Compagnie        | Exploration Co., Owner or Optionee<br>Compagnie d'exploration, propriétaire ou titulaire d'option |  |  |  |   | e)<br>:)                                       | °<br>Ft./Pi                                  |                               |  |                       |   |                     |        |                                       |          |                               |        |  |  |
|                              |   | PROBE MINES LIMITED                    |  |  |   | -  | Ft./Pi                                       |                               |  |                       | Property<br>Nom de l                              | Name<br>a propriété |        | Fa                                    | ncamp Or | otion                         |        |  |  |
|                              |   |  |  |  |   |  | о<br>Б+/Рі І                                 |                               |  |                       |   |                     |        |                                       |          |                               |        |  |  |
| Footage/A                    | vancement   | Rock type                              | Description (Colour, gr                  |  | , grain size, texture, minerals, alteration, etc.)                      |  | n, etc.)                                     | Planar<br>Feature             | Ref Sample No. Geoch<br>Sample                                   |                       | Planar Ref Sample No.<br>Feature                  |                     | Sample | Sample Footage Sampl                  |          |                               | Assays |  |  |
| From/De                      | To/A  |  |  |  |   |  |  | Angle                         |  |                       | From/De   | To/À                |        | Cu                                    | Zn       | [                             |        |  |  |
| 0                            | 14.5  | Overburden                             | Clay boulders                            |  | · · · · · · · · · · · · · · · · · · ·                                   |  |  |                               |  |                       |   |                     |        |                                       |          |                               |        |  |  |
| 14.5                         | 20.6  | Massive fg intrusive                   | Brown weathered r                        | nassive medium to t                        | fine grained rock,  | looks like anythin                             | ng from sediment (arkose)                    | o S1=35                       |  |                       |   |                     |        |                                       |          |                               |        |  |  |
|                              |   |  | fine grained intrusi                     | ve, no sulphides, no                       | nmagnetic   |  | 1.00.000/11                                  |                               | 1  | · · · ·               | ļ   | ļ                   |        |                                       | ┟───┘    |                               |        |  |  |
| 20.6                         | 25  | Porphyry (QFP)                         | Weathered QF por                         | phyry with 30-40 %                         | sub-angular felds   | par up to 1 cm in                              | diameter and 20-30% blue                     | S1=40                         |  |                       |   |                     |        |                                       |          |                               |        |  |  |
| 25                           | 28.8  | Intermediate tuff                      | Weathered interme                        | diate volcanic tuff o                      | comprised of chlor  | ritic matrix with m                            | redium grained feldsnar                      | S1=50                         | 1  | 44838                 | 30.5  | 31.5                | 1      |                                       | +        |                               |        |  |  |
| 20                           | 20.0  |  | well foliated, no su<br>28.5-28.8 m FW   | lphides, nonmagnet<br>V volcanic with 5-10 | ic, except as noted<br>% fine py bands of                               | d<br>comprised of fine                         | to medium grained                            | S1=45                         |  | 44839                 | 31.5  | 32.5                | 1      |                                       |          |                               |        |  |  |
| 20.0                         | 24.2  | Bomhury                                | Ealdspar porphyra                        | with minor volcani                         | a venalithe (~5%)   | 5 10% fine to n                                | nedium grained                               |                               | - <b></b>  | 14840                 | 325   | 33.5                |        |                                       | +        | <u> </u>                      |        |  |  |
| 20.0                         | 54.5  | тогршугу                               | disseminated pyrite                      | e throughout, typical                      | lly along grain bo  | undaries with 10-                              | 15% associated with rare                     |                               |  | 44841                 | 34.5  | 35.5                | 1      |                                       | 1        |                               |        |  |  |
|                              |   |  | volcanic xenoliths                       | or as thin (<0.5 cm)                       | bands, or as clots  | s up to 1 cm. wea                              | ak epidote alteration                        |                               |  | -                     |   |                     |        |                                       |          |                               |        |  |  |
|                              |   |  | developed locally i                      | in porphyry and per                        | vasively in xenoltl   | h, non magnetic                                |  |                               |  |                       |   |                     |        |                                       |          |                               |        |  |  |
|                              |   |  | 32  m volcanic  x                        | tenolith                                   | /   |  |  |                               |  |                       |   |                     |        |                                       |          |                               |        |  |  |
| 34.3                         | 36.4  | Intermediate tuff                      | Strongly epidotized                      | d intermediate volca                       | <sup>6</sup> py, strong epidiz  | py throughout m                                | inor porphyry within                         |                               |  | 44842                 | 35.5  | 36.5                | 1      |                                       | +        |                               |        |  |  |
| 54.5                         | 50.4  |  | (<10%)                                   |  |   | py inoughout, in                               | mior porphyry wrunn                          |                               |  | 11042                 | 55.5  | 50.5                |        |                                       |          |                               |        |  |  |
| 36.4                         | 54.7  | Porphyry (altered)                     | Altered QF porphy                        | ry, containing mino                        | r xenoliths of edip   | ootized volcanic, j                            | porphyry shows local                         |                               |  | 44843                 | 36.5  | 37.5                | 1      |                                       |          |                               |        |  |  |
|                              | epidization and contains 10 % py t  |  |  |  |   | green chlorite alt                             | tered  |                               |  | 44844                 | 39  | 40                  | 1      |                                       |          |                               |        |  |  |
|                              | 39.6-39.8 m volcanic xenoliths  |  |  |  |   | epidotization                                  |  |                               | 44845  | 45.8                  | 46.8  |                     |        |                                       |          |                               |        |  |  |
|                              | 40.8-50 m voicane layer/xenonu  |  |  |  |   | ong chidotization,                             |  |                               | 44847  | 50                    | 51  |                     |        |                                       |          |                               |        |  |  |
| 54.7                         | 61.4  | Porphyry                               | Unaltered pink and                       | l black weakly folia                       | ted to massive QF   | P, 50% subangula                               | ar-angular feldspar                          |                               | 1  | 1                     | +   |                     |        |                                       | 1        | <b></b>                       |        |  |  |
|                              |   |  | phenocrysts, 20%                         | qz, < 5% fine to me                        | dium grained diss   | eminated py throu                              | ighout                                       |                               |  |                       |   |                     |        |                                       |          |                               |        |  |  |

| PF        |           | BF   | Diamond Journal de<br>Drilling forage au   |                   |                   |                          |                      |                      | ⇒                | Hole No<br>Forage r                                | . Pa<br>n° Pa                         | age No.<br>age n° |  |
|-----------|-----------|--|--|-------------------|-------------------|--------------------------|----------------------|----------------------|------------------|--|---------------------------------------|-------------------|--|
| MIN       | ES LI     | MITED  | Log diamant  |                   |                   |                          |                      |                      | DDH FC1          |  | of 2                                  |                   |  |
| Footage/A | vancement | Rock type  | Description (Colour, grain size, texture, minerals, alteration, etc.)  | Planar<br>Feature | Ref Sample<br>No. | Geochem<br>Sampie<br>No. | Sample               | e Footage            | Sample<br>Length |  | l<br>Assays                           | iys               |  |
| From/De   | To/À      | Type de roche  |  |                   |                   |                          | From/D               | To/A                 | 1                |  |                                       |                   |  |
| 61.4      | 92.6      | Porphyry (altered)   | <ul> <li>SAP no volcanic xenoliths at top, less epidotization, chlorite altered, 5% disseminated bandede clotty</li> <li>py</li> <li>87.4-88.2 m volcanic xenoliths, epidotized chlorite altered, 5-10% py</li> <li>89.3-90 m volcanic xenoliths, epidotized chlorite altered, 5-10% py</li> </ul>   |                   |                   | 44848<br>44849<br>44850  | 60.4<br>61.4<br>62.4 | 61.4<br>62.4<br>63.2 | 1<br>1<br>0.8    |  | •<br>•                                |                   |  |
| 92.6      | 96        | Intermediate<br>volcanic   | SAP 5% py  |                   |                   |                          |                      |                      |                  |  |                                       |                   |  |
| 96        | 100.5     | QFP (altered)  | SAP<br>98.9-99.1 m 20 cm semi massive py band  |                   |                   |                          |                      |                      |                  |  |                                       |                   |  |
| 100.5     | 119.9     | Granodiorite?<br>Quartz diorite  | Black and white coarse grained weakly foliated granodiorite intrusive comp[rised of 10-15% blue quartz eyes/crystals (2-3 mm) 50 % white feldspar/plagioclase? 35-40% biotite as matrix between grains, <1% fine disseminated py, non magnetic, minor volcanics xenoliths typically less than 20 cm  | S1=50<br>S1=55    |                   |                          |                      |                      |                  |  |                                       |                   |  |
| 119.9     | 140.3     | Interlayered<br>granodiorite/<br>intermediate<br>volcanic (sheared<br>QFP) | Zone of interfingering/alternating granitic intrusive and dark green foliated (50-50)<br><2 % py on average with most in volcanics as fine grained disseminations-<br>volcanic may represent sheared QFP (alteration) seen previously or shearing of granodiorite-<br>evidence in later boxes supports shearing<br>138.5-140.3 sheared at fw contact with 2-3% disseminated py |                   |                   |                          |                      |                      |                  |  |                                       |                   |  |
| 140.3     | 142.3     | QFP  | Massive (not sheared) later event parallel to S0 (sills)   | 1                 |                   |                          |                      | 1                    |                  |  | · · · · · · · · · · · · · · · · · · · |                   |  |
| 142.3     | 170.6     | Talc schist/Mafic to<br>intermediate<br>volcanic                           | Thick unit of light grey- dark grey striped talcose schist – talc schist, well-foliated, moderately<br>magnetic, < 1% sulphide except as noted:<br>142.3-142.8 m 1% py at hanging wall contact<br>142.9-143.9 m 2-3% py in highly contorted talc schist  | S1=55<br>S1=50    |                   |                          |                      |                      |                  |  |                                       |                   |  |
| 170.6     |           | EOH  | End of hole  |                   |                   |                          |                      |                      |                  |  |                                       |                   |  |
|           |           |  |  |                   |                   | <u> </u>                 |                      |                      | _                |  |                                       | ļ                 |  |
|           |           |  |  | <u> </u>          |                   | <b>_</b>                 |                      |                      |                  |  |                                       | <u> </u>          |  |
| l         |           |  |  |                   |                   | <b> </b>                 |                      |                      |                  |  |                                       | <u> </u>          |  |
|           |           |  |  | +                 | +                 |                          |                      | +                    |                  | ╂────╂   |                                       |                   |  |
|           | 1         |  |  |                   | <u> </u>          | 1                        | 1                    | 1                    | -                | łł   |                                       | <u> </u>          |  |
|           | -         |  |  | <u> </u>          |                   | 1                        |                      | +                    | +                | $\left\{ \begin{array}{c} \\ \end{array} \right\}$ |                                       | <u> </u>          |  |
| ·         |           | 1  | L  | 1                 | l                 | 1                        | . I                  | 1.                   | 1                | 1  |                                       | <u> </u>          |  |

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\*For features such as foliation, bedding, schistosity, measured from the long axis of the core.