SUMMIT GEOLOGICAL

GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL REPORT

on the

BIGFOOT PROPERTY

(BIGFOOT, BIGFOOT FRACTION, BF-1 to BF-7 MINERAL CLAIMS)

Harrison Lake, New Westminster Mining Division

British Columbia, Canada

Latitude: 49° 26' 30" North   **Longitude: 121° 51' 30" West**

N.T.S. 92 H / 5 West

-Owner-

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April 15, 1992

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SUMMARY

Winfield Resources Ltd. of Vancouver, British Columbia is the operator of the **BIGFOOT** property which is situated in the New Westminster Mining Division on the west side of Harrison Lake in southwestern British Columbia, Canada. The property is owned by Mr. F. Marshall Smith of Richmond, B.C. and is the subject of an option agreement between Winfield Resources Ltd. and Mr. Smith.

At the request of the directors of Winfield Resources Ltd. the writer has prepared this report to document the geological, geochemical and geophysical surveys that were carried out on the subject property during the 1991 field season by F. Marshall Smith Consulting Inc., a geological consulting and exploration management company. This report also compiles data from previous work done on the property by other operators as well as encompassing work done in 1990 by Winfield Resources Ltd. The writer conducted and supervised the current field program from October 30 to December 20, 1991, and wrote this report following the receipt of all analytical and geophysical results.

The claim holdings are located in British Columbia on the west side of Harrison Lake about sixteen kilometres north of the village of Harrison Hot Springs (Figure 1). Year round vehicle access to the property is via the loose surface West Harrison Forest Access Road from the community of Harrison Mills in the Fraser valley. The total driving distance from Harrison Mills is about 27 kilometres. Vancouver is approximately 105 kilometres west of Harrison Mills via Highway 7.

The property consists of four 4-post mineral claims, three 2-post mineral claims and one fractional mineral claim giving a total of 74 units encompassing 1,750 hectares (Figure 2). The claims are situated in the Southern Fjord (Pacific) Ranges of the Coast Mountains and are characterized by moderate to steep slopes with minimal soil cover. Elevations on the property range from 11 metres at Harrison Lake to approximately 650 metres on the western side of the claims. Logging throughout the property began early in the century and most of the present growth is secondary. Precipitation in the Harrison Lake area is moderate, averaging 2,000 millimetres per year, mostly as rain in the winter months. The property is generally road accessible year round.

The Harrison Lake district was first explored for its gold and silver potential during the late 19th and early 20th centuries. Recent exploration for precious metal deposits in the 1970's and 80's located the Doctors Point and RN deposits, both of which host significant gold and silver values in epigenetic hydrothermal vein systems related to intrusives.

Beginning in the 1950's, the district has been actively explored for volcanogenic massive sulphide deposits. This work followed the discovery in the 1950's of the Seneca deposit which is located approximately twelve kilometres southwest of the subject property (Figure 3). The latest tonnage and grade estimates for the Seneca show at least 1,687,000 tonnes of drill indicated reserves grading 0.63 percent copper, 0.15 percent lead, 3.57 percent zinc, 41.1 grams per tonne silver and 0.82 grams per tonne gold (Pegg, 1986).

The Bigfoot property has been worked on intermittently since the 1960's by several operators. Past work has included geological mapping, soil geochemical surveys, lithogeochemical sampling, heavy sediment sampling, induced polarization and resistivity surveys, magnetometer surveys, VLF-EM surveys, Crone Horizontal Shootback EM surveys, Geometry Normalized In-Phase (GENIE) surveys, surface trenching, and limited percussion and diamond drilling. This work located several sphalerite-chalcopyrite-galena showings resembling the massive sulphide mineralization at the Seneca property and outlined several other areas with good exploration potential.

The dominant geological feature in the Harrison Lake district is the Harrison Lake fracture system which forms a major, southeasterly trending dislocation over 100 kilometres in length. The system separates highly contrasting geological regimes. To the northeast, the rocks include well deformed supracrustals of the Carboniferous to Permian Chilliwack Group, as well as highly foliated gneissic rocks and some younger granites. By contrast, the rocks on the southwestern side of the fracture are generally younger, and less deformed and have suffered lower metamorphic grade; they include a variety of volcanic, volcaniclastic and sedimentary rocks, as well as intrusive granitic rocks and migmatites (Figure 3). These supracrustals are separable into a number of different groups of Jurassic/Cretaceous age including the Middle Jurassic Harrison Lake Group.

The Bigfoot property is underlain by a complex assemblage of volcanic flows, pyroclastics and epiclastics belonging to the Harrison Lake Group, the same rocks which host the Seneca deposit to the southwest. The massive volcanics range in composition from rhyolite to basalt with rhyodacite and andesite predominating, while the pyroclastic rocks are transitional from tuff breccias to lapilli and fine-bedded, light colored to argillaceous black tuffs. Volcanic conglomerates, greywackes, crumbly mudstones and siltstones comprise the epiclastic suite. Strikes and dips measured in the epiclastic units indicate that stratigraphy in the claim group is only slightly deformed. Where observed, most units strike between 080^{o} and 120^{o} with concentrations at these extremities. Dips are generally flat to 15°, rarely exceeding 20°. The region immediately west of the subject property has been extensively intruded by granitic rocks of the Coast Plutonic Complex.

The most significant mineralization located on the Bigfoot property is exposed in several showings within a west-northwesterly trending belt of dacitic and rhyodacitic pyroclastics south of, and parallel to, Simms Creek and one of its tributaries on the Bigfoot claim. The mineralization consists of pyrite, black sphalerite, chalcopyrite and minor galena with quartz and bladed barite as veins, patches and disseminations (Figures 4, 11 and 13). The values obtained from rock sampling include a 6.1 metre chip sample from the Main Road Zone which returned 5.68 percent zinc, 0.58 percent lead, 1.02 percent copper, 0.51 grams per tonne gold and 24.69 grams per tonne silver. These scattered showings encompass a strike length of over 600 metres.

In 1990, Winfield Resources Ltd. optioned the property and contracted Searchlight Consultants Inc., a geological consulting and exploration management company, to carry out exploration on the claims. The program concentrated on the area around the known showings on the north part of the property; the Main Road and Powerline Zones. The 1990 program included: preparation of a topographic base map of the property at a scale of 1:5,000 with 10 metre contour intervals, lithological sampling and petrographic examinations (11 samples); excavator trenching (186 linear metres in 5 trenches); trench reclamation, geological mapping of trenches; and induced polarization and resistivity surveys (5,100 metres in 6 lines). The total cost of the program was approximately $60,000.00. The results of the work were not documented at the end of the program because of an unexpected shortage of funds and the findings are included in this report.

The 1991 exploration program included: trench reclamation (approximately 30 linear metres); geological examinations of known mineralization; compilation and interpretation of geological, geophysical and soil geochemistry data; and induced polarization and resistivity surveys (13,860 metres in 21 lines). The total cost of the program, including report preparation, is approximately $91,000.00.

The findings of the two exploration programs indicate the Bigfoot property has excellent geological potential for hosting economic volcanogenic massive sulphide (VMS) mineralization. Several of the common requirements for, or indicators of, VMS deposits are present on the property. These include: intermediate to felsic volcanic host rocks; a plutonic "heat engine" of similar age to host rocks; the presence of a large rhyolite mass, assumed to be a rhyolite dome; hydrothermal activity and related sericite-chlorite alteration; syngenetic brecciated sulphide mineralization (the 10 Mile Showing); and syngenetic(?) base and precious metal enriched stringer sulphide mineralization.

Surface trenching and petrographic examinations of mineralization at the 10 Mile Showing show that at least some of the mineralization on the Bigfoot property was contemporaneous with the volcanic host rocks. The stringer mineralization at the Main Road Zone may have been part of a feeder system for a VMS deposit from which the sulphide fragments at the 10 Mile Showing were derived. If this is the case, the presumed sulphide lens that formed from the feeder zone is probably eroded away. This hypothesis downgrades the importance of the heavily tested Main Road Zone, and to a lesser degree the Powerline Zone, as exploration targets but in no way diminishes the potential for VMS mineralization elsewhere on the property.

Compilation of soil geochemical results for the Bigfoot Grid from previous operators of the property show several areas anomalous in base and precious metals. Some of these anomalies coincide with the known sulphide showings, but many, especially on the east side of the grid, are unrelated to known mineralization. This indicates that additional mineralization may be present at or near surface that additional prospecting, detailed geological mapping and trenching will help to locate and evaluate.

Plots of the soil geochemistry data show that there is a large area of potassium and barium (± manganese) enrichment on the east end of the Bigfoot Grid. This presumed hydrothermal alteration zone is larger than normal for a VMS system and may indicate epigenetic hydrothermal activity. This is of significance because there are several epigenetic precious metal enriched hydrothermal deposits in the Harrison Lake area (Doctors Point, RN, Fire Mountain). Additional geological and petrographic work will be needed to determine the importance of this style of mineralization on the Bigfoot property.

Induced polarization and resistivity surveys indicate areas of interest on both the Bigfoot and Little Bigfoot portions of the property. Some of the geophysical anomalies correspond with known mineralization and/or geochemical anomalies, but many indicate sulphide mineralization at depth in areas that have yet to be examined in detail. Particular attention should be given to the areas around the Bay and Creek anomalies on the Bigfoot Grid. These areas require additional, and more detailed, geological mapping to determine structural and lithological relationships. This work should be followed by diamond drilling to test the most promising targets.

The Breccia Zone on the southwest part of the Bigfoot Grid shows some potential for hosting fault related, precious metal enriched, hydrothermal mineralization and the large barium geochemistry anomaly in the area may hold some importance as an indicator of VMS mineralization. Quartz vein and chert fragments in the tuffs in this area indicate that a stringer zone (with or without sulphides) was present in this area during volcanic deposition. Additional geological evaluation will be needed in this area to determine its importance.

The Little Bigfoot part of the property was not examined in detail during this phase of work. The I.P. and resistivity surveys indicate two linear targets of interest which require additional work. Plots of the available soil geochemistry data similar to those done for the Bigfoot Grid will be valuable to help define near surface targets for additional work.

RECOMMENDATIONS

The results of exploration work conducted by Winfield Resources Ltd. on the Bigfoot property show that there is excellent potential for locating volcanogenic massive sulphide mineralization on the claims. Several occurrences of sulphide mineralization have already been located and geochemical and geophysical surveys indicate additional mineralization, both at surface and at depth.

The next phase of work should include detailed (1:1,000) geological mapping in the area of the Main Road and Powerline Zones with emphasis on structural and lithological controls for the known mineralization. Hydrothermal alteration should be carefully mapped to avoid problems with determination of original lithologies. Additional detailed geological mapping should be conducted east and south of these zones on the portion of the Bigfoot Grid that contains the Bay and Creek I.P and resistivity anomalies and several soil geochemistry anomalies. This mapping will also aid in identifying and evaluating any epigenetic hydrothermal mineralization on this part of the grid. Geological mapping (1:1,000) and prospecting at the Breccia Zone will help evaluate its potential for hosting both volcanogenic sulphides and epigenetic precious metal mineralization.

The Little Bigfoot Grid has not been examined in detail and needs additional geological mapping and prospecting. Before commencing field work, plots compiling the soil geochemistry results from previous operators should be prepared to help locate anomalous areas. These should be used in conjunction with the I.P and resistivity survey results to determine areas on which to concentrate.

Contingent on the results of the above work, additional work should include surface trenching (blast or excavator) and diamond drilling. It is likely that the Bay and Creek I.P. and resistivity anomalies can only be tested by diamond drilling but it is hoped that initial detailed geological mapping will aid in determining attitudes and structural controls. This phase of work will require road construction and clearing of timber so it is necessary to apply for the pertinent permits well in advance.

INTRODUCTION

Winfield Resources Ltd. of Vancouver, British Columbia, Canada is the operator of the contiguous Bigfoot, Bigfoot Fraction and BF-1 to BF-7 four-post, two-post, and fractional mineral claims that are situated in the Harrison Lake area of the New Westminster Mining Division in southwestern British Columbia, Canada. These claims comprise the **BIGFOOT** property and are owned by Mr. F. Marshall Smith of Richmond, British Columbia, subject to the terms of an Option agreement with Winfield Resources Ltd.

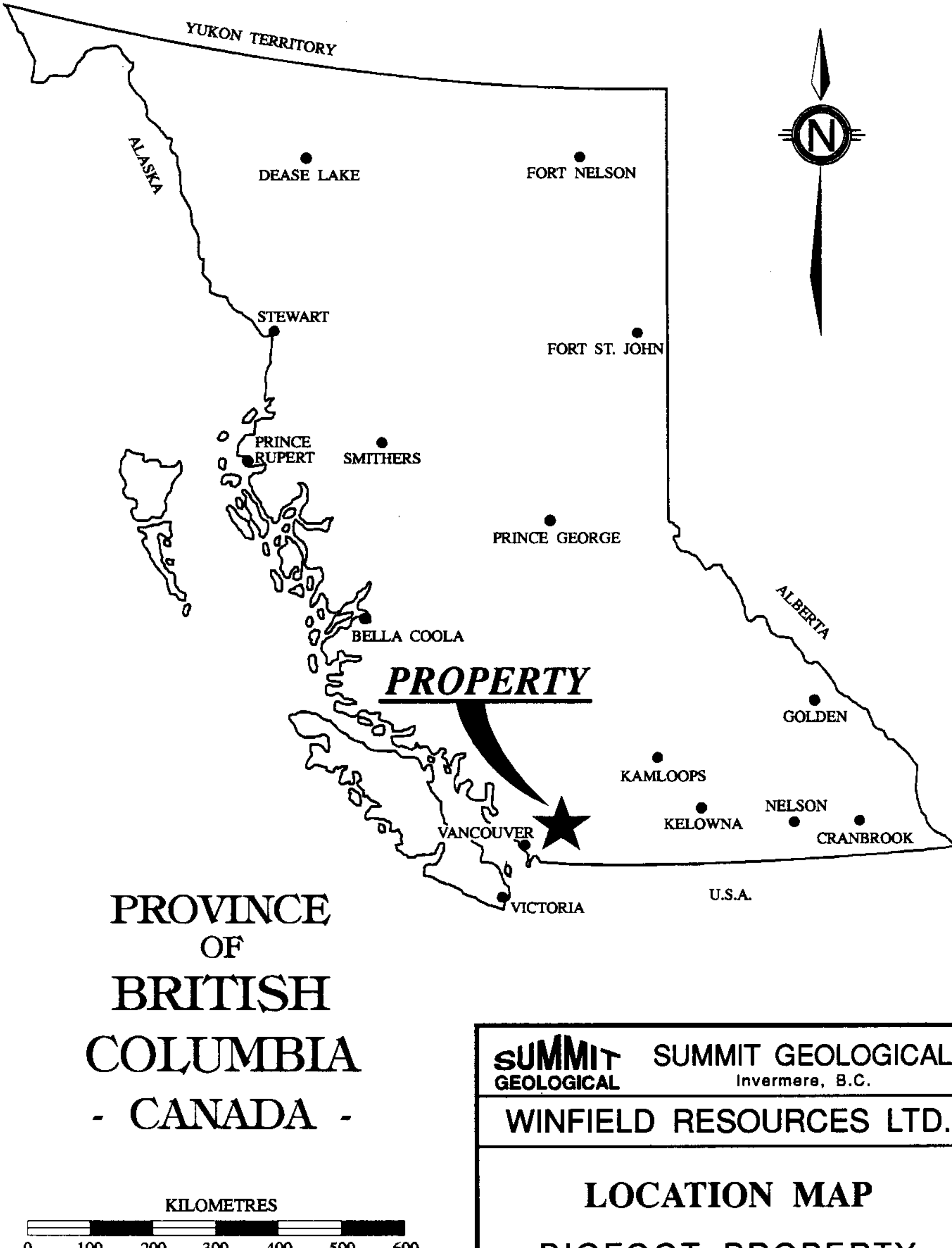
At the request of the directors of Winfield Resources Ltd. ("Winfield Resources"), the writer prepared this report to document geological and geochemical compilation and geological and geophysical surveys that were carried out on the subject property during the 1991 field season by F. Marshall Smith Consulting Inc. ("F.M.S. Consulting"), a geological consulting and exploration management company. The writer conducted and supervised the field program on behalf of F.M.S. Consulting from October 30 to December 20, 1991; after which this report was prepared for Winfield Resources to document the results of the exploration work. This report also compiles data from previous operators of the property as well as summarizing previously undocumented work carried out for Winfield Resources in 1990.

GENERAL DESCRIPTION

Location and Access

The Bigfoot property is situated on the west shore of Harrison Lake in southwestern British Columbia. The center of the property is near geographic coordinates 49° 26' 30" north latitude and 121° 51' 30" west longitude; within N.T.S. 92H/5 (west half). The claims form a block approximately 5.0 kilometres north-south by 3.5 kilometres east-west encompassing 1,750 hectares. The "Harrison Lake" 1:50,000 map sheet provides topographic control of the immediate area. See Figures 1 and 2 of this report for the location and configuration of the located mineral claims.

Year round vehicle access to the property is via the loose surface West Harrison Forest Access Road from the community of Harrison Mills in the Fraser valley. The total driving distance from Harrison Mills is about 27 kilometres. Agassiz, the closest support centre, is located about 16 kilometres east of Harrison Mills via Highway 7. Vancouver is approximately 105 kilometres west of Harrison Mills via Highway 7. The property can also be reached by boat from Harrison Hot Springs, some 15 kilometres to the south.



TO ACCOMPANY REPORT BY S.F. COOMBES

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WINFIELD RESOURCES LTD.

LOCATION MAP

BIGFOOT PROPERTY

New Westminster Mining Division, B.C.

DATE: FEBRUARY, 1992	SCALE: AS SHOWN
DRAWN BY: S.F. COOMBES	FIGURE NO.: 1

Facilities in Agassiz include hotels, restaurants, gas stations, banks, a post office, hardware stores, and grocery stores. Hotel accommodation and restaurants are also available in the nearby tourist community of Harrison Hot Springs. The main industries in the Agassiz/Harrison area are forestry, farming and tourism.

Excellent road access throughout the property has been established over the past several years by various logging interests, who have logged much of the claimed area. A B.C. Hydro power transmission line also crosses the property and the accompanying service road provides access to part of the property. Most of the roads on the property are passable by a four-wheel drive vehicle although many are in need of brushing out.

Physiography, Vegetation and Climate

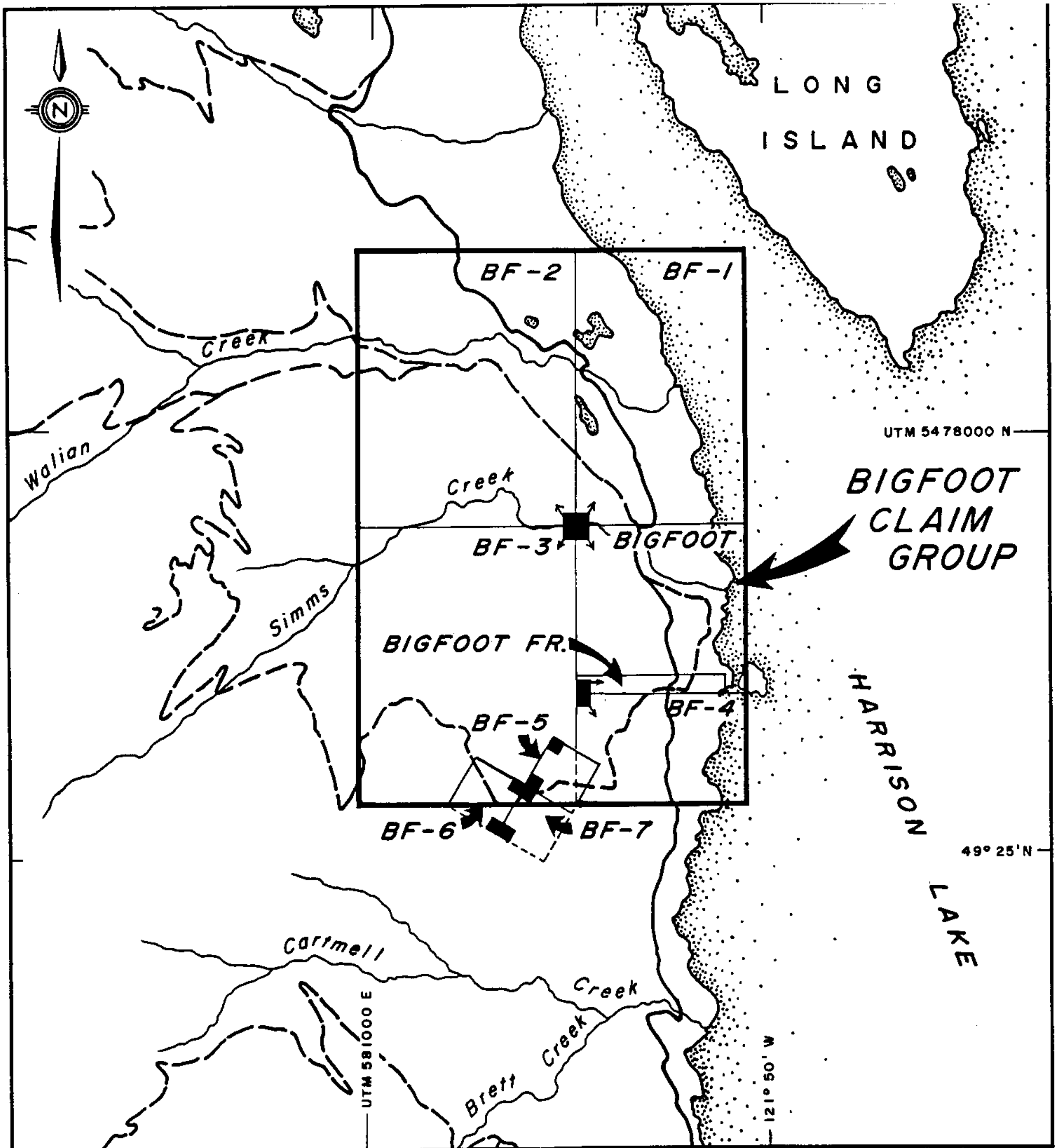
The Bigfoot claims are situated in the Southern Fjord (Pacific) Ranges of the Coast Mountains. Elevations vary from 11 metres at Harrison Lake to approximately 650 metres on the western side of the BF-3 claim. Moderate to steep slopes with minimal soil cover afford good outcrop exposure throughout most of the property.

The property falls within the Coastal Douglas Fir biogeoclimatic zone which is characterized by Douglas fir, hemlock and western red cedar. Logging throughout the property began early in the century and most of the present growth is secondary. The most recent logging activity has been in the northwest part of the property and along the central western margin of the Bigfoot claim.

Precipitation in the Harrison Lake area is moderate, averaging 2,000 millimetres per year, mostly as rain in the winter months. The West Harrison Forest Access Road is generally free of snow all year.

Claim Information

The Bigfoot property consists of five four-post claims, the Bigfoot and BF-1 to 4, three two-post claims, the BF-5 to 7, and one fractional claim, the Bigfoot Fraction giving a total of seventy four units encompassing 1,750 hectares. The claims are located in the New Westminster Mining Division (see Table I). Several posts were examined in the field and are located as shown on the accompanying claim map (Figure 2). The claims were grouped as the Bigfoot Group at the time of filing the assessment work on February 11, 1992 (Notice to Group number 3013955, Statement of Work number 3013930).



METRES

0 500 1000 1500 2000 2500 3000

TO ACCOMPANY REPORT BY S.F. COOMBES

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WINFIELD RESOURCES LTD.

CLAIM MAP

BIGFOOT PROPERTY

New Westminster Mining Division, B.C.

DATE: FEBRUARY, 1992	SCALE: 1:50,000
DRAWN BY: D. MILLER	FIGURE NO.: 2

The Bigfoot, BF-1, BF-2, BF-3 and BF-4 claims were staked by the writer and were transferred to Mr. F. Marshall Smith by a Bill of Sale Absolute on October 11, 1990 (recorded on January 24, 1991) for the sum of $5.00. The remaining claims were staked by the author for Mr. Smith during the 1991 exploration program.

All nine claims are currently owned by Mr. F. Marshall Smith of Richmond, British Columbia. Winfield Resources has entered into an option agreement with the owner whereby it can earn a 100% interest in the Bigfoot property.

TABLE I: Mineral Claim Data

Claim Name	No. of Units	Tenure Number	Record Date	Expiry Year*
BIGFOOT	9	3889	Feb. 15, 1990	1995
BF-1	15	4000	May 08, 1990	1995
BF-2	20	4001	May 08, 1990	1995
BF-3	20	4002	May 08, 1990	1995
BF-4	6	4003	May 08, 1990	1995
BF-5	1	306655	Dec. 08, 1991	1995
BF-6	1	306670	Dec. 08, 1991	1995
BF-7	1	306656	Dec. 08, 1991	1995
BIGFOOT FR.	1	306654	Dec. 08, 1991	1995

* Subject to approval of assessment work filed in February 1992 (No. 3013930).

History

REGIONAL HISTORY

Much of the early mining history of the Harrison Lake area (pre-1940's) has been compiled from contemporary newspaper articles and local sources by Daphne Sleigh in her book "The People of the Harrison" (1990). The following information on the early history is derived from her work as well as from Ministry of Mines Annual Reports. More recent information is from Ministry of Mines Annual Reports, other government publications, and assessment reports by previous operators of properties in the area.

The earliest recorded prospecting in the Harrison Lake area was during the Cariboo gold rush of 1858 when many of the hopeful miners traveled up Harrison Lake and Lillooet River on their way to the gold fields. Placer gold was reportedly found on Harrison and

Lillooet rivers but in such small quantities that serious placer production never took place. Several discoveries of hard rock silver mineralization were made on the east shore of Harrison Lake during this time and one of them, the Esperance Mine, began operating in 1861. Little is known about production but apparently there was a crushing mill established on the property. Operations ceased after only two years.

The next thirty years saw little or no mining activity until the mid 1890's when hundreds of claims were recorded in the area. The most important properties at the time were the Trout Lake mines, the Fire Mountain mines, and the Providence Mine.

The Trout Lake mines were in what is now Sasquatch Park near Harrison Hot Springs at the south end of the lake. The initial discovery was made in 1896 and numerous claims were staked in the area. The showings were exposed in a creek bed and consisted of a sulphide-rich vein presumably with gold and silver values. The operators tunneled for some 30 metres on the showing with little success and only a small quantity of ore was shipped.

The next major discovery was of copper and gold veins at Fire Mountain at the north end of Harrison Lake in the winter of 1896/1897. The most important of the Fire Mountain mines was the Money Spinner on the steep south flank of Fire Mountain. The project was very actively worked during 1897 and development work included: establishing a townsite (Tipella) at the north end of Harrison Lake, building wharves, constructing a sawmill and a small mill for extracting ore at the mine site, surface trenching and about 50 metres of tunneling. A 23 metre shaft was also sunk. A trial shipment of 90 kilograms of the ore was sent to San Francisco and a value of about $74.00 per tonne in gold (135 g/T gold at $0.55/gram) was reported (Roddick, 1966).

The next two years saw continued activity at the Money Spinner with more tunneling, the construction of an aerial tramway and the establishment of a crushing mill. The results of the work were disappointing and by 1899 the main lead was lost, the ore turned out to be lower grade than expected, the tunnels were caving in and the new crushing mill leaked amalgam so badly that it didn't work. Further financing for the venture was not forthcoming and the Money Spinner claim lay abandoned for the next twenty years. Total underground work on the property amounted to about 180 metres of tunnels and shaft and the mine produced only about 60 tonnes of ore.

The Providence Mine was also discovered in 1896 or 1897 and was located on the west shore of Harrison Lake near the mouth of Davidson Creek, about 20 kilometres north of the Bigfoot Claims. The ore was primarily galena, sphalerite, chalcopyrite and pyrite in a quartz-carbonate gangue. The ore reportedly carried high gold values (51 g/T) but recent sampling of the tailings dump returned only trace gold (Ray, et. al., 1985). Unsubstantiated reports suggest that on the order of 350 tonnes of ore were shipped from the Providence Mine between 1896 and 1901 making it the largest producer in the area at the time.

Mining activity died out in the Harrison Lake area after about 1904 with only minor periods of activity during the 1910's and 20's. The Fire Mountain mines attracted renewed interest in the 1920's and 30's with the Money Spinner seeing substantial rehabilitation in 1920 and active exploration over the next fifteen or so years. No production is reported from any of the Fire Mountain mines for this period.

In the 1920's, high grade massive sulphide boulders were discovered in a creek on the east side of Chehalis River about 13 kilometres southwest of the Bigfoot property. The source of these boulders was not discovered until the early 1950's when logging road construction exposed massive sulphides and the area was subsequently staked. The property is now known as the Lucky Jim or Seneca property. The Seneca was actively explored for the next decade by Noranda and M.M. & H. Company.

In 1962, M.M. & H. made a shipment of 292 tonnes of crude ore from the Seneca property which returned 3,229 kilograms copper (1.1%), 18,442 kilograms zinc (6.3%), 29,828 grams silver (102.15 g/T), and 529 grams gold (1.81 g/T). In the early 1970's, the mineralization on the property was recognized as being similar to Kuroko type massive sulphides which sparked renewed interest not only in the property, but in the whole area. The Seneca property has been actively explored to the present by Cominco, Chevron Minerals, Curator Resources Ltd. and most recently by Minnova Inc. The latest reported figures show at least 1,687,000 tonnes of drill indicated reserves grading 0.63% copper, 0.15% lead, 3.57% zinc, 41.1 g/T silver and 0.82 g/T gold (Pegg, 1986).

In the mid-1970's, the Geo claims were staked about five kilometres northwest of Harrison Hot Springs on gold bearing quartz/sulphide veins in diorite plutons and surrounding sediments. In the late-1970's a 50 metre adit was driven on the showings and a 37 tonne bulk sample averaged 31 g/T gold. In the early 1980's, Abo Oil Corporation acquired the property (now called the RN) and in 1983, reported shipping a 1,100 tonne test bulk sample of mineralized quartz veining which averaged 45 g/T gold (Ray, et.al, 1985). Subsequent work carried out by Kerr Addison Mines, in a joint venture with Bema International Resources, included over 5,000 metres of diamond drilling in an effort to define a low-grade bulk tonnage gold deposit. More recently, Kerr Addison undertook considerable underground development and sampling to establish ore continuity and grade.

In the late-1970's, gold-silver mineralization was discovered near Doctors Point, approximately 5 kilometres northwest of the old Providence Mine on the west side of

Harrison Lake. Extensive geological mapping, soil sampling, trenching and diamond drilling by Rhyolite Resources in the early-1980's defined several narrow, shallowly dipping quartz/arsenopyrite veins with associated precious metal values. Drill indicated reserves for the deposit stand at about 100,000 tons grading 3.1 grams per tonne gold and 31 grams per tonne silver. The property saw sporadic work during the late 1980's but ownership was in dispute for much of this time. The claims lapsed in the early 1990's and are now held by Mr. Neil Froc, P.Eng. of Chilliwack, B.C.

BIGFOOT PROPERTY HISTORY

The present Bigfoot property encompasses two former properties; the Sasquatch or Bigfoot property to the north and the SF or Little Bigfoot property to the south.

Sasquatch/Bigfoot

The Sasquatch property was originally staked in the early 1960's, and again in 1967, as the Ho and Sun claims. In 1971, H.V. Barley of Mission, B.C. restaked the property and, in 1973, optioned it to Delphi Resources. Later that year, a program of soil sampling and geological mapping was completed by B.J. Price and M.J. Beley of Manex Mining. In early 1974, the property was optioned by Delphi to Quintana Minerals Corp. of Vancouver who financed a reconnaissance-style Crone Shootback electromagnetic survey. Although the survey outlined several conductors, data was noisy due to interference from the high voltage power line crossing the property. The option was dropped in 1975.

In 1976, the property was optioned to McIntyre Mines who completed additional soil and horizontal loop electromagnetic surveys and geological mapping. Although a limited program of diamond drilling was recommended, the option was dropped when McIntyre Mines closed their exploration office.

In February, 1982, the original Sasquatch showings were restaked as the Duke claim and optioned to Lornex Mining Corporation Ltd. in conjunction with the Little Bigfoot claims to the south. Lornex then staked the Bigfoot 1 through 3 claims to the north and west of the Duke claim. Under the supervision of B. Price, Lornex carried out a program of induced polarization-resistivity geophysics, line cutting, soil sampling and geological mapping. In 1984, Lornex conducted a 927 metre diamond drill program which included five holes on a zone of intensely altered rhyodacite lapilli tuff hosting sulphide stringers exposed along the main access road, the present Main Road Zone (Figures 4 and 11). While these narrow fracture fillings were consistent over short intervals in successive holes, they were not considered significant enough to account for the geochemical and geophysical anomalies previously outlined in the area. Lornex later dropped their option without explaining these anomalies.

Briana Resources Ltd. subsequently acquired the claims and, in 1986 and 1987, contracted Shangri-La Minerals Limited to carry out two exploration programs which included extending the established grid and completing induced polarization, resistivity, Crone Shootback electromagnetic and magnetic surveys. Additional geological mapping and lithogeochemical and soil geochemical sampling was also completed. This work outlined four target areas over which further work was recommended.

In 1989, Briana contracted Searchlight Consultants Inc. to carry out heavy mineral sediment and soil geochemical sampling within the Bigfoot 2 and 3 and Duke claims. The area tested encompassed scattered mineralized outcrops which were considered trenching targets by Shangri-La. The claims were allowed to lapse in 1990 and were subsequently restaked, along with the Little Bigfoot claims to the south, by the writer and later transferred to Mr. F. Marshall Smith.

SF/Little Bigfoot

The SF claims were first staked in 1972 and several soil samples anomalous in zinc were collected while staking. Work on the claims in 1973 included grid construction, geological mapping and geochemical soil sampling. The work showed a zone of anomalous zinc, copper, cadmium and silver soil geochemical values from an area underlain by hydrothermally altered volcanic flows and pyroclastics; suggesting a possible volcanogenic massive sulphide deposit. This work resulted in further staking (SF 15 and 16 claims) to extend the claim group to the east.

Early in 1974, the original claim group was optioned to Swim Lake Mines Ltd. and the claim area was extended further eastward by staking the SF 17 to 20 claims. Later in the year, Swim Lake Mines carried out geological and further geochemical surveys over the property and identified seven areas of anomalous zinc, copper and cadmium. This work was followed up the following year by gravity and VLF-EM surveys. The VLF-EM survey identified several northwest trending conductors, several of which were coincident with geochemical anomalies.

In 1976, Swim Lake Mines added more ground to their property and in May, conducted a 457 metre percussion drilling program. Five 91.4 metre vertical drill holes were spread throughout the area of the current Little Bigfoot Grid (Figure 4). One zone of anomalous gold mineralization was intersected with values averaging 145 ppb gold over a total of 6.1

metres in hole PD-4. Samples were collected at 3 metre intervals but only select (heavily pyritized) intervals were assayed (only 20 of the 150 intervals were analyzed). Examinations of the drilling records indicates that gold values are not necessarily correlatable with high pyrite content and that the highest value, 230 ppb over 3 metres, was from below a 12 metre pyritic zone. It is interesting to note that the high gold values do not correlate with high copper or zinc values. It is, therefore, possible that significant gold mineralization was overlooked. The property was kept in good standing until the early 1980's when some of the claims were allowed to lapse.

The claims were restaked as the Woolybooger, Bigfoot 4 and 5, and Little Bigfoot 1-4 claims in the early 1980's and were optioned to Lornex Mining Corporation Ltd. in conjunction with the Bigfoot 1-3 and Duke claims to the north. Under the supervision of B. Price, Lornex carried out a program of linecutting, soil sampling, and geological mapping with induced polarization surveys conducted by Phoenix Geophysics Ltd. In 1984, Lornex conducted a diamond drilling program which included two closely spaced drill holes on the Little Bigfoot Grid (Figure 4). These holes did not intersect significant mineralization and Lornex relinquished their option in June, 1984.

A summary report of the Little Bigfoot property was prepared by B. Price in 1986 in which suggestions were made for further exploration and the claims were acquired by Stacia Ventures Inc. Stacia contracted Mountainside Management Ltd. to carry out a program of linecutting, rock and soil sampling, a magnetometer survey and a Crone Shootback EM survey during 1987. The program outlined several areas of interest including three soil geochemical anomalies coinciding with favourable geology and two EM conductors associated with geochemical anomalies. Mountainside Management recommended additional work in the form of bulldozer and blast trenching.

Most of the Little Bigfoot claims were allowed to lapse in 1990 and were subsequently restaked, along with the Bigfoot claims to the north, by the writer and later transferred to Mr. F. Marshall Smith. The remaining Little Bigfoot claims lapsed in 1991 and were staked, along with a fraction to the north, during the 1991 program by the writer for Mr. F. Marshall Smith.

The present Bigfoot property was optioned to Winfield Resources Ltd. in the spring of 1990 and a program of petrographic sampling, excavator trenching and induced polarization and resistivity surveys was carried out by Searchlight Consultants Inc. on the northern part of the claims. The details of this work were not documented in 1990 due to a shortage of funds and are included in this report.

GEOLOGICAL SETTING

Regional Geology

The dominant geological feature in the Harrison Lake region is the Harrison Lake fracture system. The fracture system forms a major, southeasterly trending dislocation over 100 kilometres in length, which in parts passes along, and parallel to, Harrison Lake. The system separates highly contrasting geological regimes (Roddick, 1965; Monger, 1970). To the northeast, the rocks include well deformed supracrustals of the Carboniferous to Permian Chilliwack Group (Monger, 1966), as well as highly foliated gneissic rocks and some younger granites. By contrast, the rocks on the southwestern side of the fracture are generally younger, and less deformed and have suffered lower metamorphic grade; they include a variety of volcanic, volcaniclastic and sedimentary rocks, as well as intrusive granitic rocks and migmatites. These supracrustals are separable into a number of different groups of Jurassic/Cretaceous age (Ray, et. al., 1985). A regional geology map accompanies this report as Figure 3.

LITHOLOGY (reverse stratigraphic order, oldest to youngest)

Paleozoic

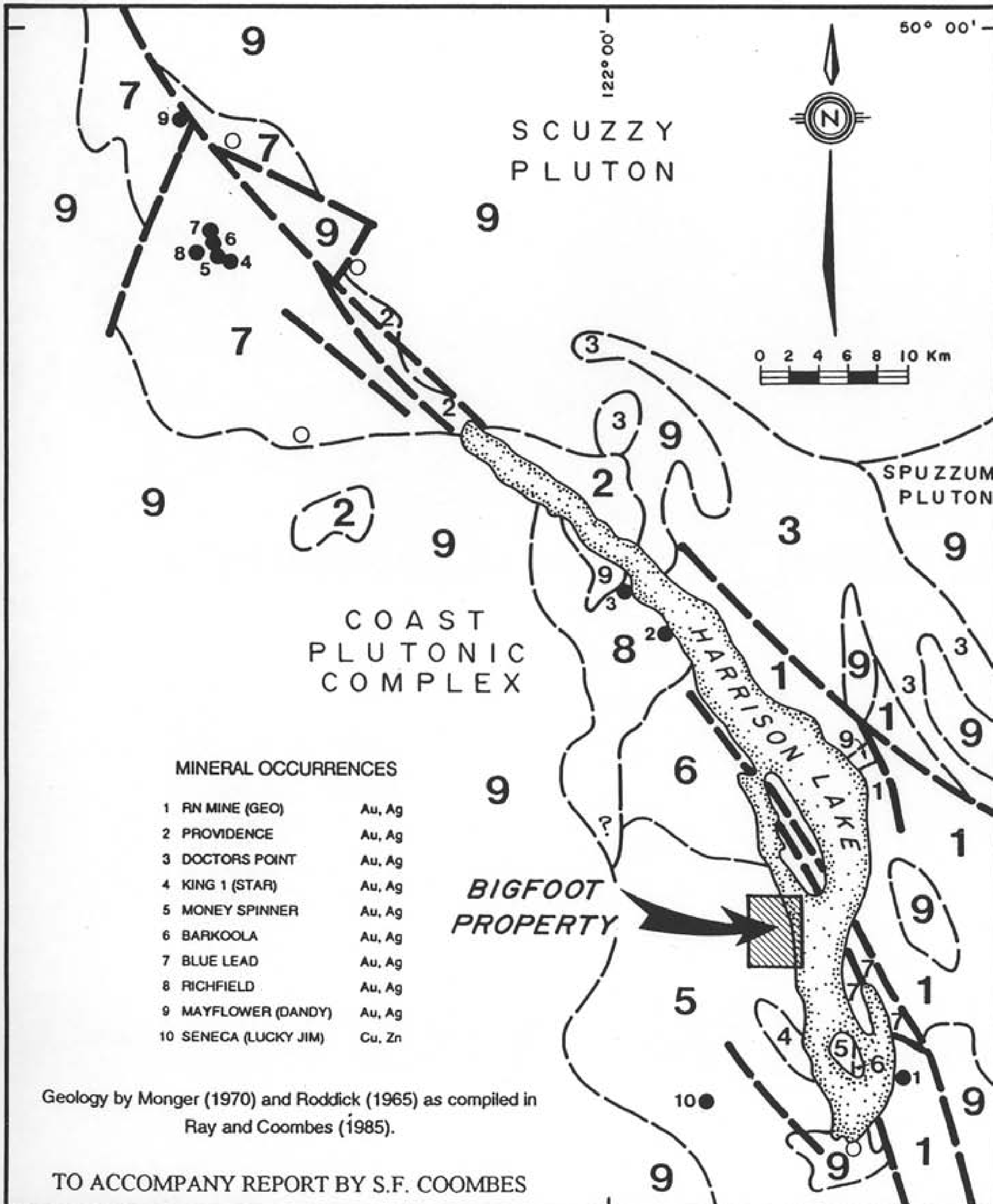
Chilliwack Group (Pennsylvanian and Permian)

The Chilliwack Group rocks are probably the oldest exposed in the region and are Lower Pennsylvanian to Lower Permian in age. The group is composed of metamorphosed pelite, sandstone and minor conglomerate, pyroclastic rock, altered basic volcanic rock (greenstone), limestone and minor chert (Monger, 1970). The groups apparent thickness ranges from 1000 to 2000 metres. The Chilliwack Group is highly deformed having undergone at least two periods of deformation and in general the rocks have a northwesterly foliation. The rocks belong to the lowest part of the greenschist facies, perhaps transitional to the glaucophane schist facies.

Paleozoic/Mesozoic

Twin Islands Group (age uncertain)

This group comprises numerous isolated bodies of medium to high-grade metamorphic rocks engulfed in large areas of plutonic rock. In order of decreasing abundance the rocks



MINERAL OCCURRENCES

1	RN MINE (GEO)	Au, Ag
2	PROVIDENCE	Au, Ag
3	DOCTORS POINT	Au, Ag
4	KING 1 (STAR)	Au, Ag
5	MONEY SPINNER	Au, Ag
6	BARKOOLA	Au, Ag
7	BLUE LEAD	Au, Ag
8	RICHFIELD	Au, Ag
9	MAYFLOWER (DANDY)	Au, Ag
10	SENECA (LUCKY JIM)	Cu, Zn

Geology by Monger (1970) and Roddick (1965) as compiled in Ray and Coombes (1985).

TO ACCOMPANY REPORT BY S.F. COOMBES

LEGEND

CRETACEOUS TO TERTIARY

9 — PLUTONIC ROCKS AND MIGMATITE: mainly diorite, granodiorite, quartz diorite and tonalite.

CRETACEOUS

LOWER TO MIDDLE CRETACEOUS

8 — GAMBIER GROUP (?): volcanic, volcaniclastic and sedimentary rocks.

LOWER CRETACEOUS

7 — FIRE LAKE GROUP (including Penninsula and Brokenback Hill formations): volcanic, volcaniclastic and sedimentary rocks.

JURASSIC

MIDDLE TO UPPER JURASSIC

6 — ECHO ISLAND, MYSTERIOUS CREEK AND BILLHOOK CREEK FORMATIONS: tuff, agglomerate, argillite and volcanic sandstone.

MIDDLE JURASSIC

5 — HARRISON LAKE GROUP: andesitic to dacitic volcanics and volcaniclastics with minor conglomerate, greywacke and siltstone.

LOWER JURASSIC

4 — CAMP COVE FORMATION: conglomerate, greywacke, shale and argillite.

PRE-CRETACEOUS

3 — GNEISS: granitoid gneiss with alternating quartzo-feldspathic and amphibolite layers.

PRE-JURASSIC

2 — TWIN ISLANDS GROUP: granulite, amphibolite, micaceous quartzite, phyllite, schist and gneiss.

PENNSYLVANIAN AND PERMIAN

1 — CHILLIWACK GROUP: metamorphosed pelite, sandstone, conglomerate, pyroclastic rock, greenstone, limestone and minor chert.

Geological boundary
Fault
O Hot Spring
5● Mineral Occurrence

SUMMIT GEOLOGICAL
SUMMIT GEOLOGICAL
Invermere, B.C.

WINFIELD RESOURCES LTD.

REGIONAL GEOLOGY MAP
BIGFOOT PROPERTY

New Westminster Mining Division, B.C.

DATE: FEBRUARY, 1992	SCALE: AS SHOWN
DRAWN BY: D. MILLER	FIGURE NO.: 3

composing this group are: granulite, amphibolite, micaceous quartzite, phyllite, schist, and gneiss with minor conglomerate, meta-andesite, rhyodacite and hornfels. In the Harrison Lake area, the rocks trend northwesterly and dip moderately to steeply to the northeast. Most of the contacts are with intrusive rocks and are generally faults or complex migmatitic zones up to several kilometres wide. On Mount Seymour, west of the map area, the Twin Islands Group is unconformably overlain by Lower Cretaceous rocks of the Gambier Group indicating a pre-Cretaceous age and the formation is generally considered to be pre-Jurassic (Roddick, 1965).

Gneiss (age uncertain)

The gneiss exposed in the map area is mainly a light coloured granitoid gneiss consisting of variable amounts of plagioclase, quartz, biotite and muscovite, and includes zones of regularly layered gneiss in which quartzo-feldspathic layers alternate with amphibolite layers. The age of the gneiss is unknown but is thought to be pre-mid-Cretaceous or older based on structural evidence from outside the map area (Monger, 1970).

Mesozoic

Camp Cove Formation (Lower Jurassic)

The Camp Cove Formation is exposed in a prominent anticlinal window near Camp Cove, 5.5 kilometres south of the Bigfoot property. The basal member exposed in the core of the anticline is a polymictic, poorly sorted conglomerate which is overlain by graded greywackes and interbedded shales that contain several discontinuous black chert beds which are in turn overlain by black argillites. Fossils indicate that some, if not all, of the Camp Cove Formation is of Toarcian (Lower Jurassic) age (Pearson, 1974).

Harrison Lake Group (Middle Jurassic)

The Harrison Lake Group in the region occurs in what is known as the Chehalis Pendant; a roof pendant which measures approximately 18 by 27 kilometres. The Chehalis Pendant is roughly bounded on the west by Chehalis Lake and the Chehalis River, on the east by Harrison Lake, on the south by the Fraser River, and on the north by Hale Creek. This roof pendant is a complex acidic to basic volcanic pile which includes pyroclastics, flows and minor volcanic related sediments. This succession of tuffs, sediments, pillow lavas and breccias has been intruded by numerous feldspar (± quartz) porphyry and rhyolitic to andesitic dykes, which may be in part extrusive, and by quartz diorite and hornblende granodiorite dykes and plugs (Pegg, 1986).

Overall, the Harrison Lake Group is dominated by pyroclastic rocks with lesser flows of intermediate to acidic composition but is marked by a basal conglomerate and at the top by tuffs and argillite. The pyroclastics are dark green, locally red, rocks varying from poorly stratified volcanic breccias containing blocks up to 30 centimetres to well-bedded tuffs. Both lithic and crystal tuffs are represented, and consist of lithic fragments, feldspar and quartz with a little glass; carbonate, chlorite and epidote are alteration products.

Flows in the sequence are dark green or dark grey, massive and locally contain columnar joints. The commonest flow rock is porphyritic and contains variable amounts of feldspar with or without quartz phenocrysts set in a fine-grained spherulitic, intersertal or trachytic matrix composed largely of plagioclase (Monger, 1970). The Harrison Lake Group is conformably overlain by the Echo Island Formation and underlain by sediments of the Camp Cove Formation. The group was originally reported to be 2,800 metres thick (Crickmay, 1925), but more recent estimates are closer to half this thickness (Thompson, 1972). The sequence appears to have formed in a restricted volcanic island arc environment.

The Harrison Lake Group hosts significant massive sulphide mineralization at the Seneca deposit and massive sulphide showings elsewhere in the Harrison Lake area.

Echo Island Formation (Middle Jurassic)

The Echo Island Formation consists of tuffs with minor agglomerate, sandstone and argillite. The formation is characterized by its excellent stratification, and contrasts with the conformably underlying Harrison Lake Formation in its predominantly fine-grained nature and absence of intercalated flows. The estimated thickness is about 850 metres (Monger, 1970).

Mysterious Creek Formation (Upper Jurassic)

The Mysterious Creek Formation comprises 700 to 900 metres of uniform black argillite. The formation contains rare thin sandstone and limestone beds and there is an increase in arenaceous content at its top. The Mysterious Creek Formation conformably overlies the Echo Island Formation and is conformably overlain by the Billhook Creek Formation (Monger, 1970).

Billhook Creek Formation (Upper Jurassic)

The Billhook Creek Formation is composed of grey to green, fine-grained, well-bedded tuff and volcanic sandstone with an apparent thickness of 550 metres (Crickmay, 1930, 1962). This formation conformably overlies the Mysterious Creek Formation and is disconformably overlain by the Peninsula Formation (Monger, 1970).

Peninsula Formation (Lower Cretaceous)

The Lower Cretaceous Peninsula Formation comprises 380 metres of sandstone and basal conglomerate. The bulk of the unit consists of dark grey to green, locally calcareous sandstone which rests on a 60 metre thick base of pebble conglomerate. Well rounded pebbles in the conglomerate are mostly less than 10 centimetres in diameter and are composed, in decreasing order, of granite, sandstone, chert, porphyry and black argillite in a pale sandstone matrix. The lower part of the Fire Lake Group is probably equivalent to the Peninsula Formation (Monger, 1970).

Brokenback Hill Formation (Lower Cretaceous)

The Brokenback Hill Formation is composed mainly of pyroclastic rocks with minor sandstone and shales. It has an approximate composite thickness of 1100 metres. The formation contains both tuff and agglomerate and conformably overlies the Peninsula Formation. It is correlated with part of the Fire Lake Group further north (Monger, 1970).

Fire Lake Group (Lower Cretaceous)

The Lower Cretaceous Fire Lake Group comprises a 4500 metre thick sequence of largely sedimentary rocks with lesser amounts of volcanic greenstone. The group contains a jasper-bearing horizon at the interface between volcanic greenstones and an overlying sequence of aquagene breccias and tuffs. The greenstones in the group host at least five fault filling quartz veins that carry chalcopyrite and sporadic native gold; these are clustered in the vicinity of Fire Mountain and include the defunct Money Spinner gold workings. Another vein, the Dandy, which lies ten kilometres northwest of Fire Mountain, is a lead-zinc-bearing quartz carbonate vein hosted in brecciated sedimentary rocks.

The presence of jasper at the volcanic-sediment interface could indicate submarine exhalative activity, which suggests the Fire Lake Group is a viable exploration target for massive sulphide mineralization (Ray and Coombes, 1985).

Gambier Group? (Lower to Middle Cretaceous)

The western shore of Harrison Lake south of Doctors Point is underlain by a variety of moderately dipping volcanic, volcaniclastic and sedimentary rocks whose age and relationship to one another is poorly understood. Locally derived grey chert float bearing a Middle Albian ammonite fossil was discovered in the Doctors Point area in 1984 (Ray and Coombes, 1985). This suggests that the volcano-sedimentary sequence at Doctors Point is Early Cretaceous in age and may represent a lateral equivalent to the Gambier Group exposed further to the west.

The sequence exposed at Doctors Point hosts gold-silver mineralization in quartz-sulphide veins probably related to nearby intrusive rocks. The Gambier Group elsewhere hosts the Britannia and Northair sulphide deposits and its presence at Doctors Point may have economic significance regarding exploration for massive sulphide mineralization.

Plutonic Rocks

The plutonic rocks in the Harrison Lake region fall into three age groups; Late Jurassic to Early Cretaceous intrusives of the Coast Plutonic Complex, mid-Cretaceous intrusives of the Cascade Suite and mid to Late Tertiary intrusives of the Chilliwack Suite.

Much of the Coast Plutonic Complex north and west of Vancouver, and southwest of the Harrison Lake fracture system and its extension to the northwest, is composed of a "matrix" of generally foliated and altered plutonic rock which is intruded by fresher, crosscutting plutons. The matrix is mostly quartz diorite, tonalite, and granodiorite, but quartz monzodiorite and granite are locally abundant. Generally, hornblende is more abundant than biotite. These rocks are at least in part altered to greenschist facies assemblages; thus relatively few have been dated by K-Ar methods. Planar fabric ranges from absent or very weak to mylonitic. Mylonitic rocks are mainly confined to steeply-dipping, northwest-trending, discrete zones, in most places of unknown width and extent. Isotopic dating and geological relationships indicate that these rocks are at least Early Cretaceous in age and may be as old as Late Jurassic (Woodsworth, et. al., in press).

On the east side of the Harrison Lake fracture system are several mid-Cretaceous plutons of the Cascade Suite. These plutons occur in a belt within the northern Cascades of Washington and southern British Columbia and were intruded synchronously with regional metamorphism and deformation. These bodies are northwest-elongate batholiths largely composed of tonalite, diorite and quartz diorite; hornblende generally is more abundant than biotite. The best local example of the Cascade Suite is the Spuzzum Pluton. The pluton has a southern margin with irregular zonation. and a central core of hypersthene-augite diorite and hornblende diorite rimmed by tonalite. U-Pb dates on zircons range from about 120 to 110 Ma. K-Ar dates range from 76 to 104 Ma and are younger towards the Fraser River to the east. The data suggests an Early Cretaceous age for the pluton and hence for regional metamorphism and deformation, and setting or resetting of the K-Ar systems during the Late Cretaceous (Woodsworth, et. al., in press).

A linear belt of late Tertiary plutons of the Chilliwack Suite extends from northern Washington into the Coast Belt. The largest body in this suite in the Harrison Lake area is the Scuzzy Pluton. The pluton consists largely of massive granodiorite, with coarse-grained quartz and feldspar and much finer biotite. The mafic mineral content is much lower than that of the contiguous Spuzzum Pluton, and averages 5% or less. In contrast to other intrusive rocks in the area they are massive and unsheared (Monger, 1970). Work elsewhere in the suite suggests that the Scuzzy Pluton may be the root of a late Tertiary volcanic complex. Porphyry and stockwork molybdenum (Salal Creek), copper-molybdenum (Franklin Glacier) and gold (Doctors Point) mineralization is associated with some of these intrusions.

STRUCTURE

The structure of the region is very complex and poorly understood. The basic structural pattern of the area appears to have been established in mid-Cretaceous to Early Tertiary time, when orogeny in both tectonic and geomorphic senses took place. Pre-mid-Cretaceous rocks were strongly folded, thrust and reverse faulted and, at least locally, metamorphosed, migmatized and intruded by granitic rocks. Regional uplift took place at this time as well. All pre-mid-Cretaceous stratified rocks in the area are marine whereas all later rocks are non-marine. Following uplift there was a episode of normal and strike-slip(?) faulting in Early Tertiary time. Intrusion of abundant granitic rock in Late Tertiary time apparently had little structural effect.

The dominant structural feature is the north-northwest trending Harrison Lake fracture system which separates highly deformed Paleozoic stratigraphy on the east from relatively undeformed Mesozoic stratigraphy on the west. The sense of movement along the system is unknown but may be at least partially lateral strike-slip. The belt of rocks on the west side of the fracture system is gently folded and cut by numerous northwest-trending faults. One such fault, the Sakwi Creek Fault, about 6 kilometres southwest of the Bigfoot claims, is a normal fault with the southwest side downthrown (Pearson, 1973). Other faults with similar trend but unknown displacement are discernible on aerial photographs. Block faulting (north, northwest and northeast) is common.

ALTERATION

The rocks on the east side of the Harrison Lake fracture system are generally highly deformed and metamorphosed. Common lithotypes include phyllite, schist, gneiss, quartzite, granulite, amphibolite and migmatite. The rocks exposed on the west side of the fracture system are, in contrast, relatively unaltered. In many of the volcanic and sedimentary units in the Chehalis Pendant, secondary carbonate, chlorite and epidote are common, probably as a result of adjacent intrusive activity. The metamorphic grade increases towards the north with volcaniclastics on Fire Mountain being lower greenschist facies. Limited contact metamorphic effects include biotite hornfels aureoles and sericite alteration haloes proximal to some intrusive stocks. Locally, hydrothermal alteration is extensive throughout the region.

MINERALIZATION

Metalliferous deposits within the Harrison Lake area include both precious and base metals. A few of these deposits have been producers but at present there are no producing mines. The mineral deposits can be divided into two groups: volcanogenic massive sulphide deposits; and precious metal deposits related to veins and shear zones.

The best example of a volcanogenic massive sulphide deposit in the area is the Seneca property, located ten kilometres southwest of the Bigfoot claims (Figure 3). The Seneca mineralization was originally interpreted to be part of a steeply dipping vein or shear system but detailed examination of host lithologies has shown them to have sub horizontal dips. The massive mineralization, some of which has a fragmental texture, is closely associated with the pyroclastic rocks. These and other features of the geological setting led to the theory that the Seneca deposit may comprise a conformable volcanogenic massive sulphide deposit similar to the Kuroko-type or Noranda-type massive sulphide occurrences.

Mineralization at the Seneca property consists of massive sphalerite-pyrite-chalcopyrite as discontinuous lenses (pods?) within a thin acid pyroclastic host. The pyroclastic host is predominantly a rhyolite lithic tuff and lapilli tuff. Rounded and sub-rounded rhyolite fragments "float" in a fine grained matrix of quartz and feldspar. Associated with the rhyolite tuff are lenses of breccia and lapilli tuff of bleached rhyolite fragments in a fine grained, black somewhat friable matrix thought to represent lithified carbonaceous mud. Thin beds of laminated argillite and andesite lapilli tuff and breccia are intercalated. Thin rhyolite and andesite flows overlie the pyroclastic rocks. This succession, which has an aggregate thickness of about 60 metres is bounded above and below by dacite porphyry (Thompson, 1972). The host rocks are part of the Middle Jurassic Harrison Lake Group.

Pyrite is ubiquitous throughout the pyroclastic host as fine disseminations, as rims around fragments and along fractures. Texturally, the sulphides comprise aggregates (often massive) of anhedral grains of varying size in a siliceous matrix. Lenses of black sphalerite are often rimmed by fine grained pyrite and chalcopyrite. Fragmental textures are common and bladed barite occurs in the sulphides. Chalcopyrite content varies considerably and silver and gold content are significant in some areas. In 1962 a shipment of 292 tonnes of crude ore from the Seneca property returned 3,229 kilograms copper (1.1%), 18,442 kilograms zinc (6.3%), 29,828 grams silver (102.15 g/T), and 529 grams gold (1.81 g/T). The latest reported figures show at least 1,687,000 tonnes of drill indicated reserves grading 0.63% copper, 0.15% lead, 3.57% zinc, 41.1 g/T silver and 0.82 g/T gold (Pegg, 1986).

Several other sulphide occurrences have been recorded in the region with similar properties to the Seneca deposit. Most of these are within pyroclastic rocks of the Harrison Lake Group in the Chehalis Pendant. The Bigfoot claims encompass one of these occurrences.

Vein gold (± silver) mineralization occurs in several deposits related to Mid- to Late-Tertiary intrusives along the Harrison Lake fracture system. The Doctors Point property (Fig. 3) is the most northerly example of this type of deposit yet identified along the Harrison Lake lineament. Drilling in the early 1980's outlined approximately 100,000 tonnes grading about 3.1 grams per tonne gold and 31 grams per tonne silver. The area is underlain by a variety of intermediate to basic volcanic and volcaniclastic rocks, together with some metasediments of Early Cretaceous age. These are intruded by several diorite-quartz diorite plutons which are generally surrounded by hornfelsic aureoles up to 250 metres in width. The gold and silver is hosted in long, narrow, gently dipping veins that contain abundant quartz, pyrite and arsenopyrite; geochemically they are sporadically enriched in bismuth, antimony and mercury. The veins show an overall spatial relationship with the plutonic margins and some pass without interruption from diorite out into the hornfels. The veins were apparently controlled by low angle, cone sheet fractures developed during the later stages of the diorite intrusion.

The RN property at the south end of Harrison Lake (Fig. 3) is another of this type of deposit. The area is underlain by deformed and hornfelsed metapelites which are intruded by several small diorite-quartz diorite plutons. Gold is hosted in quartz veins and stringers that intersect the plutons. The veins carry visible gold together with pyrite and pyrrhotite; there is sporadic enrichment of arsenic and bismuth. A 1,100 tonne bulk sample from the property reportedly returned 45 grams per tonne gold (Ray, et.al., 1985).

The other precious metal properties in the area (the Fire Mountain gold deposits and the Providence Mine) are also hosted in veins and shear zones. At Fire Mountain the veins are primarily ribboned quartz and chlorite with variable chalcopyrite, traces of bornite and sericite, and minor visible gold within metavolcanics of the Lower Cretaceous Fire Lake Group. The Providence Mine mineralization occurs in brecciated quartz-carbonate veins with galena, sphalerite, chalcopyrite and pyrite within pyroclastic rocks. Recent sampling has returned negligible gold values but reports from the turn of the century suggest the presence of gold values as high as 51 grams per tonne.

Property Geology

The Bigfoot property is underlain by a complex group of volcanic flows, pyroclastics and epiclastics belonging to the Middle Jurassic Harrison Lake Group. The massive volcanics range in composition from rhyolite to basalt with rhyodacite and andesite predominating, while the pyroclastic rocks are transitional from tuff breccias to lapilli and fine-bedded, light colored to argillaceous black tuffs. Volcanic conglomerates, greywackes, crumbly mudstones and siltstones comprise the epiclastic suite. The property geology is shown on Figure 4.

LITHOLOGY

The volcanic rocks exposed on the property range in composition from rhyolite to basalt with textural variations including flows, dykes, tuffs, lapilli tuffs and tuff breccias. The contacts between individual units are usually distinguishable but difficulty is often encountered where the rocks types are virtually identical in hand specimen (i.e. latite and andesite porphyry or rhyodacite lapilli tuff and dacite lapilli tuff). The accompanying geological map of the property (Figure 4), being compiled largely from work by previous operators of the property, is necessarily subject to individual interpretation in naming rock types and should be considered as a general guideline. The writer feels that the possible differences in nomenclature will not have any effect on discovering economic mineralization except possibly where secondary alteration has caused mis-identification.

Volcanic Flows and Intrusive Rocks

Rhyolite (Unit 8)

The rhyolite unit is exposed on the Little Bigfoot Grid and forms a large, roughly circular body in the southwest corner of the property. The unit is composed of a white to light grey rhyolite porphyry containing biotite, amphibole and rare feldspar phenocrysts with up to 5% clear, glassy quartz eyes. Phenocrysts seldom exceed 2 millimetres in size. Disseminated euhedral pyrite is common. Weathered surfaces are usually a rusty brown colour, presumably from oxidation of pyrite. Patchy red hematite also locally stains the rhyolite unit. This unit has been tentatively interpreted as a rhyolite dome.

Rhyodacite Porphyry (Unit 7a)

This unit consists of pale to medium blue-green rhyodacite flows containing phenocrysts of plagioclase and minor hornblende, ilmenite and apatite in a groundmass dominated by potassium feldspar/plagioclase and lesser quartz. Quartz commonly forms small replacement patches up to 1 millimetre in size which look like quartz "eyes" in hand specimen. Other secondary minerals include sericite and epidote (after feldspar), chlorite (after hornblende) and leucoxene (after ilmenite). Pyrite is common in subhedral to euhedral grains averaging 0.07 to 0.1 millimetres in size scattered throughout the unit. Weathering rind is usually white although surfaces are often stained with limonite and manganese. This unit is locally silicified or solfatarically altered and locally hosts sulphide stringer mineralization within the claims. It is possible that some of the rocks mapped in the field as rhyodacite porphyry are in fact altered latite.

Dacite/Latite (Unit 6a)

This unit is very similar to the above described rhyodacite porphyry flows with a lower potassium feldspar content in the groundmass and less quartz. The two units are commonly gradational and difficult to distinguish in the field. The latite is porphyritic with phenocrysts of plagioclase and minor hornblende in a groundmass dominated by plagioclase.

Andesite (Unit 5a)

Dark greenish-grey andesite is present as flows and intrusions. Large areas of andesite are massive and porphyritic, with plagioclase and smaller hornblende phenocrysts set in an aphanitic groundmass composed mainly of plagioclase with patches of chlorite with lesser epidote and ilmenite. Many of these rocks also contain clear to bluish quartz "eyes" up to several millimetres in size. The ilmenite content renders these rocks weakly magnetic which explains the magnetic high north of Simms Creek that was investigated in detail by Shangri-La Minerals Ltd. in 1986. Weathered surfaces are generally rounded in profile and white to light tan in color. A trace of finely disseminated pyrite is usually present.

Andesite flows, which cover much of the area to the north of Simms Creek, have not been found to contain significant mineralization.

Basalt (Unit 4)

The basalt flows are similar in appearance to the andesite flows and the two are very difficult to separate in the field. The two units have been plotted on the accompanying geological map based on geological mapping by previous operators of the claims. The distributions of the two units may be different than shown because many of the earlier workers included basalt with andesite. One sample of a basalt flow (TS-07) contains phenocrysts of plagioclase, clinopyroxene, and minor quartz and hornblende set in a groundmass dominated by plagioclase, clinopyroxene/ankerite, devitrified glass and unknown opaque minerals.

Lamprophyre Dykes (Unit 9)

Several narrow lamprophyre dykes have been mapped on the property. A sample from one of these dykes (TS-05) describes it as containing ragged phenocrysts of biotite and minor plagioclase in a groundmass dominated by lathy plagioclase with lesser hornblende and disseminated opaque minerals. The dykes generally strike north to northwesterly with a steep dip.

Pyroclastic Rocks

Rhyodacite Tuffs (Unit 7b)

Pyroclastics of rhyodacitic composition are almost exclusively lapilli tuffs. They are pale bluish grey to green in color, and contain angular to rounded lithic fragments up to 65 millimetres in size. They are locally faintly bedded with clasts elongate parallel to bedding.

Lithic fragments, which comprise up to 30% of the unit, vary widely in composition to include chert, latite, argillite, rhyodacite and andesite porphyry, minor tuff and, locally, pyritized mudstone. Plagioclase crystals are often zoned.

Alteration of this unit is variable, with widespread chloritization predominating. Local silicic, solfataric and rare potassic alteration was also noted, the former generally obliterating the original texture of the rock.

These tuffs locally contain minor to a few percent disseminated pyrite, resulting in rusty weathering outcrops. Manganese and some hematite staining was also noted. These rocks occur in association with rhyodacite porphyry flows, and together form a linear northwesterly trending belt of rocks up to 500 metres wide in the centre of the property. This belt hosts most of the significant mineralization located on the property to date.

Centred near Bigfoot Grid coordinates 375W by 550S, is an area of rhyodacite lapilli tuff containing large cherty fragments up to 0.10 metres in size with lesser latite fragments, potassium feldspar/plagioclase phenocrysts, quartz veins and andesite in a groundmass dominated by plagioclase. The chert fragments are grey to white to faint pink and the quartz veins are pale golden, often with colloform banding. Lithologies immediately surrounding this unit are invaded by quartz veins up to 0.25 metres in width. Patchy hematite staining occurs within this unit and surrounding veins. Although these veins were observed to host little visible sulphide mineralization, a grab sample across one returned 1,430 parts per billion gold (Di Spirito, et. al, 1987a).

Dacite/Latite Tuffs (Unit 6b)

The dacite/latite pyroclastics range in texture from tuff to lapilli tuff. One sample of a typical latite tuff (TS-04) contains fragments up to 5 millimetres in size of latite, cherty latite, andesite, pumice, trachyte, quartz and chert and phenocrysts of plagioclase and minor quartz and hornblende in a groundmass dominated by cherty plagioclase and quartz. The tuffs are commonly rusty weathering because of secondary limonite. Secondary chlorite and sericite are common.

A typical dacite lapilli tuff contains fragments up to 10 millimetres across of latite/dacite, pumice, plagioclase, vein quartz and quartz diorite set in a cryptocrystalline felsic groundmass of latite composition. This is the prevalent rock type at the 10 Mile Showing where it contains sulphides, dominated by pyrite, mainly within the fragments. The base metal sulphides (chalcopyrite, sphalerite and galena) occur mainly in quartz-vein fragments and as replacements of plagioclase phenocrysts. The Main Road Zone mineralization is hosted by a porphyritic latite lapilli tuff containing phenocrysts of plagioclase and altered (sericitized) fragments of a few rock types in a groundmass dominated by plagioclase.

Andesite Tuffs (Unit 5b)

Dark greenish-grey andesite tuffs occur in the northern part of the property in association with andesite porphyry flows and intrusions. These tuffs are very similar in appearance to the flow rocks of the same composition and little effort has been made to differentiate the two units. In general, andesite pyroclastics are far less abundant than flow rocks although a brecciated, agglomeratic appearing andesite with coarse dark fragments set in a lighter matrix is not uncommon. These rocks, like the flows, have not been found to contain significant mineralization.

Tuff Breccias (Units 6b and 7b)

Tuff breccias, which grade into lapilli tuffs of rhyodacitic to dacitic composition, are believed to be a coarser phase of these units. Clasts are predominantly rhyodacite or andesite porphyry, angular to sub-spheroidal and up to 0.3 metres in width. Rare, hornfelsed sediments are also present as clasts. The matrix is composed of rhyolitic to rhyodacitic lapilli. These rocks occur primarily in the southern portions of the Bigfoot grid, although one outcrop was mapped along Simms Creek. Mineralization is rare in these breccias.

Epiclastic Rocks

The epiclastic rocks on the property, where examined in detail, have all been found to be of volcanic origin. They range from massive mudstone/siltstone (Unit 3) to lithic wackes (Unit 2) to conglomerates (Unit 1). The coarser epiclastics contain clasts of all of the common rock types on the property and generally have a matrix of plagioclase/quartz composition.

Quaternary Deposits

The overburden on the Bigfoot property is generally thin to non-existent because of extensive glaciation along relatively steep slopes. Most of the soils are thin, mixed with colluvial material and are very suitable for soil geochemistry and surface geophysics. In places, however, deep accumulations of poorly sorted glacial till, probably kame terraces, have filled troughs and gullies in the paleotopography. These deposits are common in the area around Simms Creek and have been used as road building material by logging operations on the property. Parts of the property also have extensive blocky talus formed at the bases of steep slopes and cliffs, particularly on the Little Bigfoot grid.

STRUCTURE

Strikes and dips measured in the epiclastic units indicate that stratigraphy in the claim group is only slightly deformed. Where observed, most units strike between 080^o and 120^o with concentrations at these extremities, apparently resulting from shallow east-west folding in the southwest portion of the claims. Dips are generally flat to 15°, rarely exceeding 20°. Structural attitudes are difficult to determine due to the relatively massive nature of the volcanics and overburden covering of the contact areas. Contacts between volcanic units and epiclastics are steep, most likely due to faulting and the attitude of original flow margins. Steeply dipping rhyolitic to basaltic dykes are also present.

The Bigfoot property is bisected by at least three major northwest trending faults, each over 1,000 metres in length. Two of these appear to be intimately associated with mineralization in the Simms Creek area. Several smaller faults of up to 100 metres in length are also present, oriented perpendicularly to the major faults. All major faults are marked by gouge or breccia. All sedimentary and pyroclastic units also show evidence of later micro-fracturing.

ALTERATION

Propylitic assemblages comprise the primary, most extensive alteration present on the property with chlorite and epidote replacing mafic minerals. In areas where alteration has intensified, the rocks have become successively replaced by sericite/clay assemblages.

Late stage solfataric activity has occurred on the property. Sulphurous (acidic) gases appear to have attacked rocks around vent areas, breaking down silicate minerals and leaving residual silica, sericite and clays. Concentrations of disseminated pyrite are also usually present in these areas.

Country rocks surrounding mineralized areas have been silicified and sericitized. Locally, alteration is extreme enough to mask all primary textures and give no clue to the origin of the rock. Finely striated, disseminated cubic pyrite present in these areas is thought to result from host rock alteration. Silicic "envelopes" also surround quartz veins present in the vicinity of the rhyodacite lapilli tuff with large chert fragments at Bigfoot Grid coordinates 550S by 375W.

MINERALIZATION

Bigfoot Grid

The most significant mineralization on the Bigfoot Grid is exposed in a road cut on the West Harrison Forest Access Road at the Main Road Zone. The mineralization consists of pyrite, black sphalerite, chalcopyrite and minor galena with quartz and bladed barite as veins, patches and disseminations. This mineralization is within a west-northwesterly trending belt of dacitic and rhyodacitic pyroclastics south of, and parallel to, Simms Creek and one of its tributaries (Figures 4 and 11).

Rhyodacite and latite lapilli tuff hosting the mineralization at the Main Road Zone is relatively fine grained, light greyish-green in colour, and contains rounded and angular fragments to 25 millimetres in diameter. Epidote and sericite are common alteration minerals in the pyroclastics. Fine grained disseminated pyrite is noted in both fragments and groundmass and decreases away from the mineralized veinlets. Sphalerite with lesser chalcopyrite, galena and pyrite occur in vuggy quartz ± barite veins filling fractures. Late veinlets and patches contain covellite and secondary lead and zinc minerals. On average, the individual veins strike at 295° and dip 80° northeast to vertical. Veins are 20 to 100 millimetres in width and are up to 3 metres apart.

A channel sample collected from the Main Road Zone in 1976 returned 5.68% zinc, 1.02% copper, 0.58% lead and 24.7g/T silver across 6.1 metres (Sample "A", Table III, Figure 11). The writers impression of the zone is that it may be a west-northwesterly, flat to gently southeasterly dipping horizon containing steeply dipping "ladder veins" which possibly formed within shrinkage joints during or after cooling of the pyroclastic unit. Outcrop exposure is currently too limited to prove or disprove this theory.

Approximately 180 metres to the northwest of the Main Road Zone, and on strike of the mineralized veins, a slumped test pit exposed disseminated pyrite, chalcopyrite and sphalerite mineralization. A grab sample collected in 1974 from this pit returned 4.83% zinc, 1.12% copper, 0.14% lead and 114 g/T silver (Sample 952, Table III, Figure 11).

Some 360 metres to the southeast of the Main Road Zone, at the 10 Mile Showing (Figures 4 and 13), test pits and 1990 trench "B" (Figure 12) expose chalcopyrite, sphalerite and minor galena associated with disseminated pyrite within lapilli tuff. This occurrence is different than those noted elsewhere in that the sulphide mineralization occurs mainly in fragments of the lapilli tuff rather than in cross cutting veins. This is very important because it establishes that at least some of the sulphide mineralization formed syngenetically with the volcanics and is therefore probably of volcanogenic origin. It also indicates that the assumed mineralizing vent is distal to this location.

Blast and excavator trenching done near 187 W by 100 N at the Powerline Zone (Figures 4, 11 and 12) has exposed additional sulphide mineralization. A petrographic sample (PS-BF-II-30) shows that, like at the Main Road Zone, the mineralization is in replacement veins dominated by quartz and sphalerite with lesser pyrite, chalcopyrite, galena and sericite with minor tetrahedrite. The veins are up to 50 millimetres wide and are within a porphyritic latite flow. Pyrite and sphalerite are also disseminated within the groundmass of the latite unit. Assays of samples taken across this mineralization by previous operators are summarized in Tables II and III.

Numerous other small sulphide showings are exposed on the Bigfoot Grid (Figure 4). Near Bigfoot Grid coordinates 750W by 200S, sulphide mineralization at the Camp Showing consists of narrow veins or stringers of pyrite-sphalerite-quartz in a bleached porphyritic andesitic dacite. Also, a small creek just west of the abandoned logging camp at Ten Mile Bay reportedly exposes black argillaceous bedded tuffs with fine chalcopyrite and sphalerite on hairline fractures.

Float sample BF-II-27 (Figure 11, Table II), collected north of the Powerline Zone, is of particular interest because of its high base metal content. No bedrock source has been located for this sample. Also, debris pushed out by road construction near Bigfoot Grid coordinates 687E by 080S contains float containing quartz-sphalerite-pyrite mineralization which has yet to be located in outcrop.

Several sulphide occurrences have been recorded within the canyon cut by Simms Creek east of the Main Road Zone. These showings are mostly pyrite with minor gold values and are probably due to epigenetic fault controlled hydrothermal activity.

Centred near Bigfoot Grid coordinates 375W by 550S, is rhyodacite lapilli tuff containing large cherty fragments up to 0.10 metres in size. Several northwesterly trending faults are mapped in the area which are seen as sharp gullies and cuts. Rocks in the area are intruded by quartz veins up to 0.25 metres in width with patchy hematite staining. A grab sample of one of the quartz veins returned 1,430 parts per billion gold (Di Spirito, et. al, 1987a, sample BF-II-36). The area has been named the "Breccia Zone" because the rock was originally mapped as a silica breccia (Figure 4).

Analytical results from samples collected by previous operators of the property on the Bigfoot Grid are presented in Tables II and III and the sample locations are plotted on Figure 11.

TABLE II: BIGFOOT GRID
Selected assays from 1987 work by Shangri-La Minerals Ltd.

Sample Number	Sample Type	Gold (ppb)	Silver (ppm)	Arsenic (ppm)	Copper (ppm)	Lead (ppm)	Zinc (ppm)
Main Road Zone							
BF-II-19	grab	8	0.1	13	45	178	281
BF-II-20	rep. grab	200	9.8	27	3466	1129	21785
BF-II-39	grab	18	0.7	8	28	38	77
BF-II-45	grab	5	0.4	22	207	72	956
Powerline Zone							
BF-II-7	grab	147	1.2	23	1217	654	4213
BF-II-8	grab	9	0.1	11	27	208	120
BF-II-10	grab	26	0.1	7	68	170	278
BF-II-25	grab	5	0.2	7	18	129	261
BF-II-26	grab	12	0.8	29	127	107	267
BF-II-27	grab float	600	75.2	189	5848	192	>99999
BF-II-29	grab	4	0.4	4	47	10	851
BF-II-30	grab	1230	43.0	221	5363	2439	63033
BF-II-31	grab	860	2.0	73	398	2587	261
BF-II-32	grab	4	0.1	2	33	24	591
BF-II-33	grab	5	0.1	10	21	97	161

Samples were collected by geologists employed by Shangri-La Minerals Ltd. during mapping traverses.
10,000 ppm is equivalent to 1% (>99,999 ppm = >10%), 1,000 ppb is equivalent to 0.029 oz/ton.

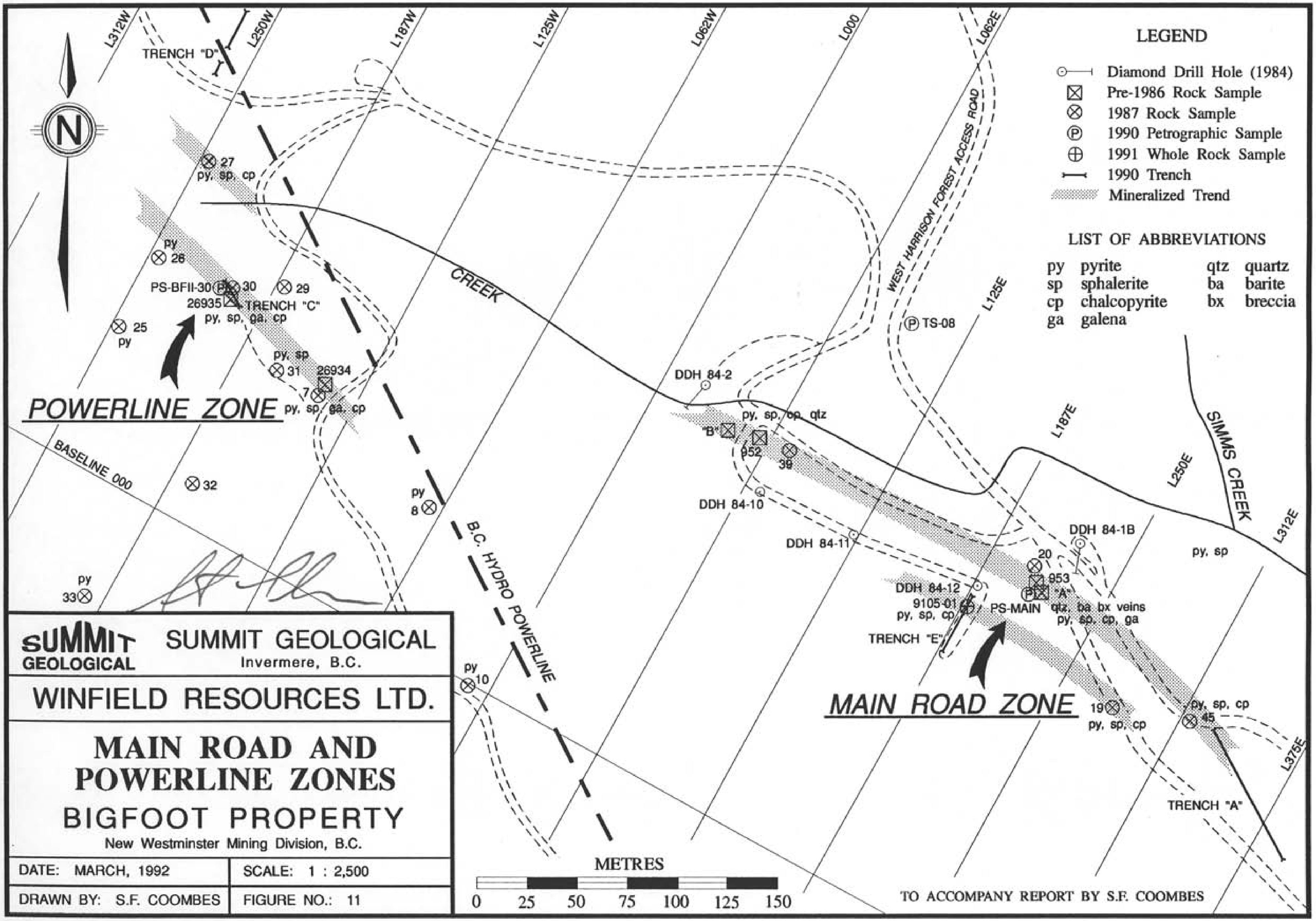

LEGEND
Diamond Drill Hole (1984)
Pre-1986 Rock Sample
1987 Rock Sample
1990 Petrographic Sample
1991 Whole Rock Sample
1990 Trench
Mineralized Trend
LIST OF ABBREVIATIONS
py pyrite
sp sphalerite
cp chalcopyrite
ga galena
qtz quartz
ba barite
bx breccia
L312W
L250W
L187W
L125W
L062W
L000
L062E
L125E
L187E
L250E
L312E
L375E
TRENCH "D"
TRENCH "C"
TRENCH "E"
TRENCH "A"
CREEK
SIMMS CREEK
WEST HARRISON FOREST ACCESS ROAD
B.C. HYDRO POWERLINE
BASELINE 000
POWERLINE ZONE
MAIN ROAD ZONE
27 py, sp, cp
py 28
PS-BFII-30 30
26935
29
py, sp, ga, cp
25 py
py, sp 31
26934
7
py, sp, ga, cp
32
py 8
py 33
py 10
TS-08
DDH 84-2
py, sp, cp, qtz
"B"
952
39
DDH 84-10
DDH 84-11
DDH 84-1B
py, sp
20
953
"A"
DDH 84-12
9105-01
py, sp, cp
PS-MAIN
qtz, ba bx veins
py, sp, cp, ga
19
py, sp, cp
py, sp, cp
45
METRES
0 25 50 75 100 125 150
TO ACCOMPANY REPORT BY S.F. COOMBES
SUMMIT GEOLOGICAL
SUMMIT GEOLOGICAL
Invermere, B.C.
WINFIELD RESOURCES LTD.
MAIN ROAD AND POWERLINE ZONES
BIGFOOT PROPERTY
New Westminster Mining Division, B.C.
DATE: MARCH, 1992
SCALE: 1 : 2,500
DRAWN BY: S.F. COOMBES
FIGURE NO.: 11

TABLE III: BIGFOOT GRID
Assays from pre-1986 work

Sample Number (year)	Sampler	Width (m)	Gold (oz./ton)	Silver (oz./ton)	Copper (%)	Lead (%)	Zinc (%)
Main Road Zone							
952 (1974)	R. Jury	grab	0.007	3.33	1.12	0.14	4.83
953 (1974)	R. Jury	5.0	0.003	0.64	0.93	0.53	4.45
"A" (1976)	G. Noel	6.1	0.015	0.72	1.02	0.58	5.68
"B" (1976)	G. Noel	2.1	0.032	1.66	0.31	0.49	3.31
Powerline Zone							
26934 (1982)	P. Christopher	2.0	0.003	0.08	0.04	0.06	0.13
26935 (1982)	P. Christopher	grab	0.076	1.26	1.44	1.31	10.10

Little Bigfoot Grid

Pyrite is the most abundant sulphide mineral present at surface on the Little Bigfoot grid. It occurs primarily as striated, euhedral disseminations, although it is also present as blebs, stringers and fracture coatings. The pyrite is most common in areas of silicification and sericitization and is presumably related to hydrothermal activity. Geological mapping by Mountainside Management Ltd. (Di Spirito, et.al., 1987b) indicates sphalerite in rocks near Little Bigfoot Grid coordinates 150W by 1600S.

Sulphide bearing float containing possible sphalerite was noted by the writer near grid coordinates 250E by 2150S and veins of sphalerite with minor pyrite are reported to outcrop in this same area (Reamsbottom, 1976). Trace chalcopyrite is also reported from several areas on the grid. To date, no massive sulphide mineralization has been located on the Little Bigfoot Grid although soil geochemistry indicates that significant base metals may be present.

1990 EXPLORATION PROGRAM

The purpose of the 1990 exploration program was to test known mineralization on the Bigfoot Grid through surface trenching and to attempt to locate additional mineralization through the use of detailed induced polarization and resistivity surveys.

Prior to the field season, Winfield Resources Ltd. contracted Searchlight Consultants Inc., a geological consulting and exploration management company based in Vancouver, to conduct the proposed exploration program. The writer, an employee of Searchlight Consultants at the time, supervised the field work between May 18 and June 5, 1990. The writer was assisted in the field by: Mr. Sylvain Vaillancourt, an experienced line cutter and geophysical operator, and Mr. Brian Callaghan, an experienced geologist. The geophysical survey was subcontracted to Geotronics Surveys Ltd. of Vancouver, B.C. and the track excavator and operator was provided by Armstrong Sand and Gravel Ltd. of Rosedale, B.C. Accommodation for the field program was provided by the Pathfinder Motel near Agassiz.

The 1990 exploration program included: preparation of a topographic base map of the property at a scale of 1:5,000 with 10 metre contour intervals, lithological sampling and petrographic examinations (11 samples); excavator trenching (186 linear metres in 5 trenches); trench reclamation, geological mapping of trenches; and induced polarization and resistivity surveys (5,100 metres in 6 lines). The total cost of the program was approximately $60,000.00.

The 1990 exploration program was terminated unexpectedly because of a shortage of funds and the planned program was not completed until the fall of 1991. The lack of a 1990 technical report prevented the geological, geophysical and petrographic work from being used towards assessment credits on the Bigfoot claims. The 1990 work has been included in this report to provide a complete record of work carried out by Winfield Resources on the Bigfoot property.

Surface Trenching

Surface trenching was intended to better expose outcrop in the areas of known sulphide mineralization as well as to test along the anticipated strike of the mineralization. The trenching program was hampered by the requirement that no merchantable timber be removed making it necessary to trench only in areas that were already cleared (old roads, drill pads and powerline cuts). The trenching was done with a Caterpillar 225 track mounted excavator owned and operated by Armstrong Sand and Gravel Ltd. of Rosedale, B.C. The trench locations are shown on Figures 4 and 11.

The trenches were surveyed and geologically mapped in 1990 by the writer at a scale of 1:500. The geology plans are shown on Figure 12.

Petrographic Sampling

Eleven samples were collected from the Bigfoot claims during 1990 for petrographic examinations. The samples were collected to aid in identifying lithotypes present on the claims as well as to determine the relationships of various minerals in the mineralized outcrops. Two of the samples are from trenches excavated as part of the 1990 exploration program. The samples were sent to Vancouver Petrographics Ltd. in Fort Langley, British Columbia where thin and polished sections were prepared and examined. The report of this work, done by Dr. John G. Payne, accompanies this report as Appendix I.

Geophysical Surveys

Induced polarization and resistivity surveys were conducted over part of the Bigfoot Grid during 1990. The work was performed by Geotronics Surveys Ltd. of Vancouver, B.C. under the supervision of Mr. David Mark, a qualified and experienced geophysicist. The field crew consisted of three geophysical technicians under the direction of Mr. Marc Habel, a senior geophysical technician.

A total of 5,100 metres on six lines were surveyed between May 18 and June 2, 1990. The purpose of the induced polarization was to aid in locating sulphides which are known to occur on the property with associated gold values. The resistivity survey was intended to map lithology, geological structures and alteration zones. A full geophysical report encompassing this work containing detailed descriptions of the instrumentation, theory and survey procedures is attached as Appendix IV. Pseudosections are attached as Figures 6a through 6f. The results are also presented in plan form compiled with the 1991 data on Figures 9a through 9f.

1991 EXPLORATION PROGRAM

The purpose of the 1991 exploration program was to complete the induced polarization and resistivity surveys begun in 1990, to reclaim one of the 1990 trenches, and to compile and interpret data collected by previous operators of the property.

Prior to the field season, Winfield Resources Ltd. contracted F. Marshall Smith Consulting Inc. (F.M.S. Consulting), a geological consulting and exploration management company based in Richmond, B.C., to conduct the proposed exploration program. F.M.S. Consulting subcontracted the writer, of Summit Geological, based in Invermere, B.C., to supervise the field work and compile pertinent data on the property. The geophysical survey was subcontracted to Geotronics Surveys Ltd. of Vancouver, B.C. and the track excavator and operator was provided by Armstrong Sand and Gravel Ltd. of Rosedale, B.C. Accommodation for the field program was provided by the Harrison Village Motel in Harrison Hot Springs, B.C.

On October 30 and 31, 1991 the writer met with Mr. F. Marshall Smith of F.M.S. Consulting in Richmond, B.C. to arrange the project logistics and compile base maps and field gear. The writer drove to Harrison Hot Springs on November 1 and obtained accommodation prior to commencing field work. The following four days (November 2 to 5) were spent examining the known mineralization and surveying showings and adjacent roads. The I.P. and resistivity surveys commenced on November 6 and continued with minor interruptions for equipment repair until November 23 (18 days). This work was on the Bigfoot Grid in the area of the Main Road and Powerline Zones. The geophysical work was halted at this point awaiting additional funds which arrived in early December.

The I.P. and resistivity surveys recommenced on December 5 and continued until December 16 (12 days) with work concentrated on the Little Bigfoot Grid. During late November and early December, the writer was intermittently engaged in data compilation from previous programs, interpretation of geochemical and geophysical results and project supervision. On December 8, the writer staked the BF-5, BF-6 and BF-7 claims and the Bigfoot Fractional claims for Mr. F. Marshall Smith to acquire additional ground within the pre-existing claims. On December 9 the 1990 excavator trench "E" was backfilled and smoothed as requested by the Ministry of Energy, Mines and Petroleum Resources. The field work was completed on December 20, 1991.

Upon completion of the field work, F. Marshall Smith Consulting Inc. subcontracted the writer to prepare this report which documents the results of the exploration program. A Statement of Qualifications for the writer accompanies this report.

The 1991 exploration program included: trench reclamation (approximately 30 linear metres); geological examinations of known mineralization; compilation and interpretation of geological, geophysical and soil geochemistry data; and induced polarization and resistivity surveys (13,860 metres in 21 lines). The total cost of the program was approximately $91,000.00.

Trench Reclamation

Trench "E" from the 1990 surface trenching program was backfilled and smoothed during the 1991 field program (see Figures 4 and 11 for location). The other trenches were reclaimed in 1990 with trench "E" being left open to complete geological mapping. The trench reclamation was done with a JSW-80 track mounted excavator owned and operated by Armstrong Sand and Gravel Ltd. of Rosedale, B.C.

Geochemical Data Compilation

Examinations of old reports on the Bigfoot and Little Bigfoot properties showed that several soil geochemistry surveys were conducted at different times. The results obtained from the surveys were generally not subjected to statistical examinations and it was felt that valuable information may have been overlooked. To address this potential oversight, the soil results from the largest surveys, carried out by Shangri-La Minerals and Mountainside Management in 1986 and 1987, were selected for a statistical examination.

The original analytical work for the surveys was carried out by Acme Laboratories Ltd. of Vancouver, B.C.. The soil samples were analyzed for gold (Au) plus 29 elements, including: molybdenum (Mo), copper (Cu), lead (Pb), zinc (Zn), silver (Ag), nickel (Ni), cobalt (Co), manganese (Mn), iron (Fe), arsenic (As), uranium (U), thorium (Th), strontium (Sr), cadmium (Cd), antimony (Sb), bismuth (Bi), vanadium (V), calcium (Ca), phosphorous (Ph), lanthanum (La), chromium (Cr), magnesium (Mg), barium (Ba), titanium (Ti), boron (B), aluminum (Al), sodium (Na), potassium (K) and tungsten (W). The analyses were conducted by professional assayers utilizing accepted inductively coupled argon plasma (ICP) analytical techniques for the 29 elements, and fire assay preparation and atomic absorption procedures for the gold analyses.

Acme Laboratories was contacted in November, 1991, and the analytical results were obtained from them on computer disks. The data was correlated using CSS Statistica software to construct cross-correlation (rank) matrices from this analytical data (Appendix II). The degree of correlation ranges from -1, totally dis-correlated to +1, totally correlated. A significant degree of correlation usually is in excess of +.25. A total of 1,059 samples from the Bigfoot Grid and 489 samples from the Little Bigfoot Grid were analyzed.

Based on the correlation coefficients, and the suitability of various elements as indicators of massive sulphide and hydrothermal mineralization, nine elements were plotted separately for the Bigfoot Grid (Figures 5a to 5i). These elements include: silver (Ag), arsenic (As), gold (Au), barium (Ba), copper (Cu), potassium (K), manganese (Mn), lead (Pb) and zinc (Zn). A compilation map showing the more significant anomalous areas is attached as Figure 13.

The statistics for each element, also calculated using CSS Statistica software, are shown on the plans. The first half of the presented statistics represents the arithmetic means, standard deviations, etc. These values were discarded for plotting purposes because of their tendency to bias the higher values. In all cases it was found that the elements were log normally distributed and that the most effective way of presenting the data was to work with the geometric (log) values (the second half of the presented statistics). The intervals chosen for the different symbols are the geometric mean (anti log of log mean) plus half geometric standard deviation increments. In working with logarithmic data, a threshold value between mean plus half and mean plus one standard deviation can be considered anomalous.

Geophysical Surveys

Induced polarization and resistivity surveys, a continuation of the 1990 work, were conducted over parts of the Bigfoot and Little Bigfoot grids during 1991. The work was performed by Geotronics Surveys Ltd. of Vancouver, B.C. under the supervision of Mr. David Mark, a qualified and experienced geophysicist. The field crew consisted of three geophysical technicians under the direction of Mr. Marc Beaupre, a senior geophysical technician.

A total of 13,860 metres on twenty one lines were surveyed from November 6 to 23, and December 5 to 16, 1991. Twelve lines (7,830 metres) were on the Bigfoot Grid and nine lines (6,030 meters) were on the Little Bigfoot grid. The purpose of the induced polarization was to aid in locating sulphides which are known to occur on the property with associated gold values. The resistivity survey was intended to map lithology, geological structures and alteration zones. A full geophysical report encompassing this work containing detailed descriptions of the instrumentation, theory and survey procedures is attached as Appendix IV. Pseudosections and plans are attached as Figures 7a through 10f.

DISCUSSION OF EXPLORATION RESULTS

Surface Trenching Results

The surface trenching was generally unsuccessful in extending known mineralization. This was due in part to the necessity of locating trenches on previously cleared areas such as old roads and powerline cuts. Another factor was the extremely deep overburden encountered in several of the trenches. Trench "D" failed to reach bedrock at all and Trenches "A" and "E" encountered extremely deep overburden for most of their length. Trench locations are shown on Figures 4 and 11. Trench geology is plotted on Figure 12.

Trench "A" was intended to test for mineralization to the southeast along strike from the Main Road Zone. The trench encountered glacial till overburden in excess of 6 metres for most of its length. The rock exposed was mainly dacite tuff and lapilli tuff with a narrow band of massive porphyritic andesite, probably a flow. No mineralization was seen in this trench.

Trench "B" was located on an area with previously reported sulphide mineralization. The trench was intended to expose this mineralization and, if possible, follow it along strike. The trench exposed dacite lapilli tuff with sulphides (pyrite, sphalerite, chalcopyrite and galena) associated with quartz vein material as fragments within the tuff. The exposure is oxidized and very rusty in colour because of disseminated pyrite in the groundmass.

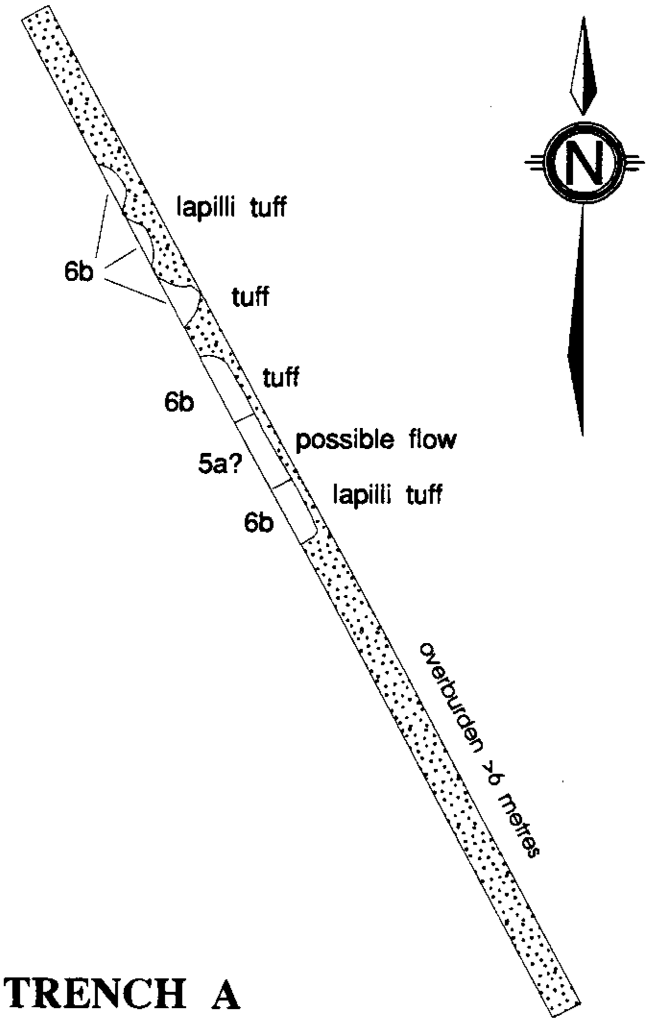
Trench "C" was designed to improve the exposure of mineralization at the Powerline Zone. The trench exposed a sequence of latite lapilli tuffs and porphyritic latite flows with a west-northwest strike and a moderate dip to the southwest. Sulphide mineralization occurs as veins and stringers of quartz with pyrite, sphalerite, chalcopyrite and galena. The veins are at various orientations but appear to be confined to a fairly narrow (±1.5 metre) horizon at the top of the porphyritic latite unit.

Trench "D" was intended to test coincident SP and resistivity anomalies from previous work on the property (Di Spirito, et. al., 1987a). The excavator failed to reach bedrock in the tested area and encountered only glacial till to a depth of about 6 metres.

Trench "E" was designed to test the area to the west of the Main Road Zone and east of the sulphide mineralization reported near the start of 1984 diamond drill hole DDH 84-11 (Serak, 1984). The trench was in glacial till in excess of 6 metres depth for much of its length. The north end of the trench exposed dacite and rhyodacite lapilli tuffs and flows with veins and stringers of pyrite, sphalerite and chalcopyrite. The sulphide mineralization is confined to two narrow (±1 metre) west-northwesterly trending horizons within the lapilli

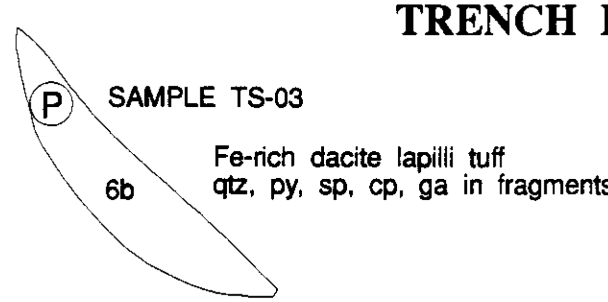
LEGEND

(stippled)	overburden (mainly glacial till)
5a	andesite porphyry flows
6a	dacite/latite flows
6b	dacite/latite pyroclastics
7b	rhyodacite pyroclastics
(P)	1990 Petrographic Sample
qtz	quartz
py	pyrite
sp	sphalerite
cp	chalcopyrite
ga	galena

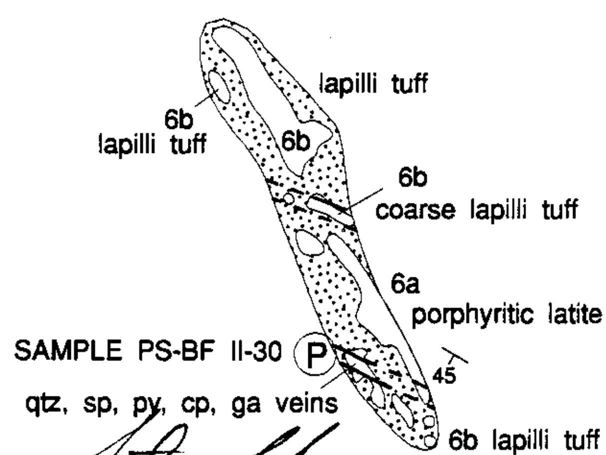


TRENCH A

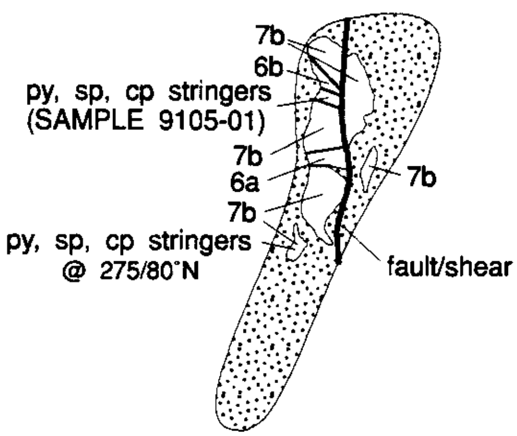
TRENCH B



TRENCH C



TRENCH E



Trench D not shown.
>6 metres overburden over entire length.

METRES

0 5 10 15 20 25 30

TO ACCOMPANY REPORT BY S.F. COOMBES

SUMMIT GEOLOGICAL

SUMMIT GEOLOGICAL
Invermere, B.C.

WINFIELD RESOURCES LTD.

1990 TRENCH PLANS

BIGFOOT PROPERTY

New Westminster Mining Division, B.C.

DATE: MARCH, 1992	SCALE: 1 : 500
DRAWN BY: S.F. COOMBES	FIGURE NO.: 12

tuffs. The attitude of the host rock was difficult to determine but it appeared to strike roughly west-northwest and dip shallowly to moderately to the southwest. Individual sulphide veins strike east-west and dip steeply to the north. When the trench was reclaimed, the northernmost occurrence of sulphides was left exposed.

Geochemical Data Compilation Results

The geochemical data compilation work showed that there are marked differences in the geochemical signatures of the Bigfoot and Little Bigfoot Grid areas. The compilation also showed that soil geochemistry by itself only gives broad, unrefined anomalies for locating massive sulphide mineralization on the Bigfoot property. The correlation coefficients for the two grids are attached as Appendix II. Plans showing selected elements on the Bigfoot Grid are attached as Figures 5a to 5i and a compilation map showing the major anomalous areas is attached as Figure 13.

STATISTICAL ANALYSIS

The correlation coefficients calculated for the Bigfoot Grid show very strong associations (>0.70) between molybdenum, copper, zinc, silver and cadmium and strong correlations (0.50 to 0.70) between these elements and tungsten. Elements with almost total correlation (0.99) are zinc-silver-cadmium. Molybdenum, cadmium and tungsten levels in the soils are near the detection limit so can be ignored for this discussion. Lead is less correlatable with the other base metals with a range between 0.23 (lead-zinc) and 0.39 (lead-copper). Gold is also associated with the above elements. In decreasing order of correlation with gold are: lead (0.64), copper (0.53), silver (0.48), zinc (0.45), molybdenum (0.45), cadmium (0.41), tungsten (0.24), arsenic (0.18), potassium (0.15) and antimony (0.10). All other gold associations have coefficients less than 0.03.

Other noteworthy correlations on the Bigfoot Grid are between chromium, vanadium, nickel, cobalt, aluminum and iron. These associations are difficult to explain but are not considered to be significant for finding economic mineralization. Potassium is strongly associated with barium (0.54) and with magnesium (0.24), molybdenum (0.23) and arsenic (0.21). A positive, although weak, correlation between potassium and base and precious metals is probably due to an increase in potassium from hydrothermal alteration associated with the sulphide mineralization on the grid. Noteworthy dis-correlations are titanium-potassium (-0.38), titanium-barium (-0.34) and vanadium-potassium (-0.28).

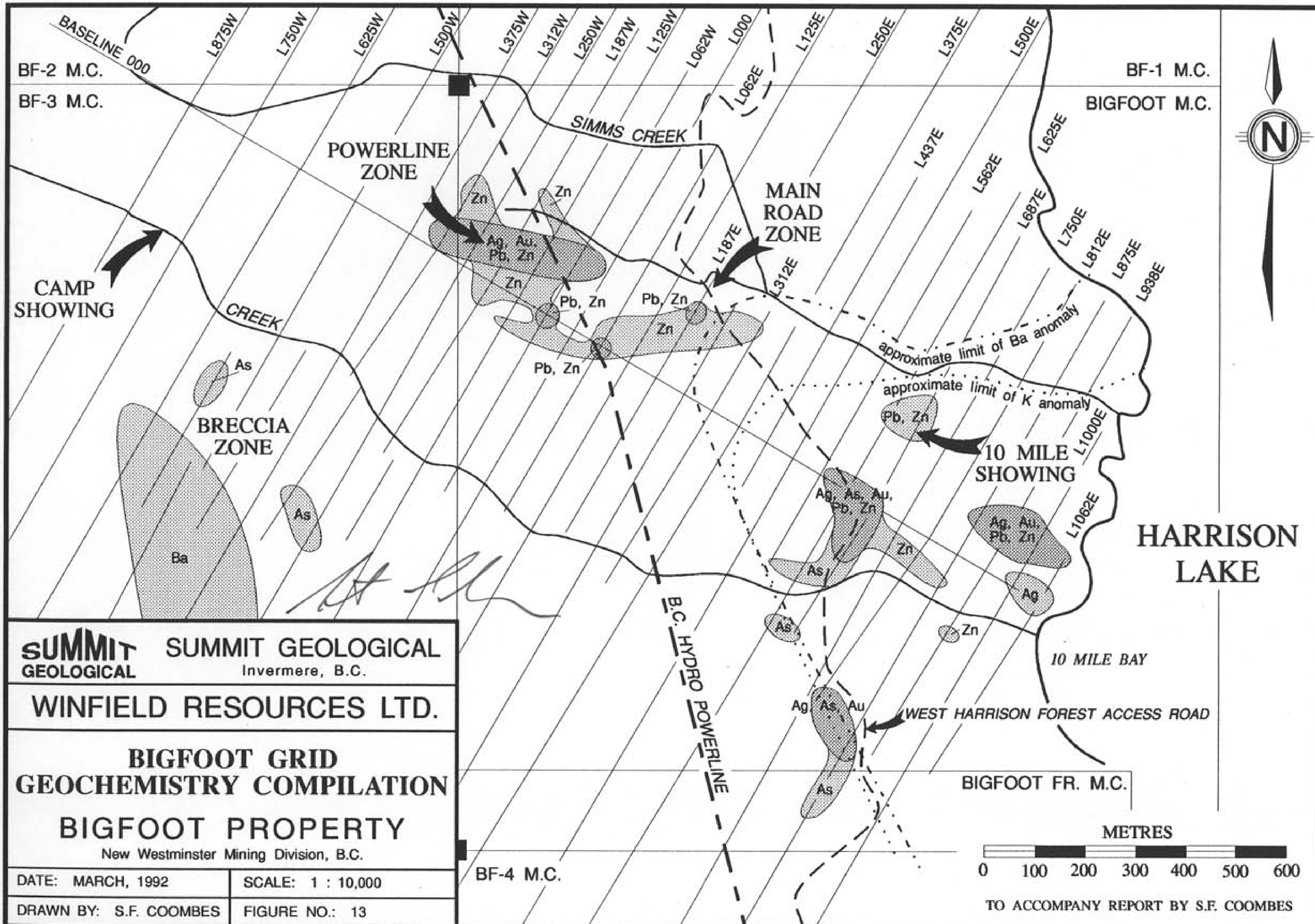
On the Little Bigfoot grid, base and precious metal correlations are much less pronounced. Some examples of base and precious metal correlation coefficients include: copper-lead (0.25), copper-zinc (0.49), copper-silver (0.24), lead-zinc (0.13), lead-silver (0.29) and zinc-silver (0.06). The strongest correlations on the Little Bigfoot Grid are cadmium-zinc (0.81), chromium-nickel (0.71) and manganese-cobalt (0.70). Gold coefficients are generally low with the highest values being recorded for gold-zinc (0.11), gold-arsenic (0.11) and gold-thorium (0.11). The lower metal correlations may be due to lower amounts of these elements in the soils (i.e. fewer highs) and the smaller number of samples analyzed.

Potassium-sodium relationships are noticeably different between the two grids: -0.10 on the Bigfoot Grid and 0.51 on the Little Bigfoot grid. The strong correlation on the Little Bigfoot Grid is probably normal for the host rocks in the area. The low value for the Bigfoot Grid may be due to potassium enrichment by hydrothermal alteration. This hypothesis is supported by the association of potassium with barium and base and precious metals on the Bigfoot Grid (all common elements in hydrothermal systems). These correlations, along with the large cluster of anomalous potassium values in soil on the southeast end of the grid (Figure 5f), led to the speculation that the mineralization may be, at least in part, related to epigenetic hydrothermal activity. Typically, in a volcanogenic massive sulphide (VMS) deposit, potassium alteration is confined to a fairly narrow halo around the actual ore body and vent zone. The large size of the area with potassium enrichment on the Bigfoot Grid is more indicative of an epithermal system.

SOIL GEOCHEMISTRY PLANS

The accompanying soil geochemistry plans (Figures 5a to 5i) show silver, arsenic, gold, barium, copper, potassium, manganese, lead and zinc on the Bigfoot grid. Silver, gold, copper, lead and zinc were plotted to show direct concentrations of these elements, whether from VMS or epithermal sources. Arsenic was chosen as an indicator element for gold mineralization; barium and potassium were chosen as indicators of hydrothermal alteration (barium is also common in the upper part of VMS deposits); and manganese was chosen because it is common to have an increase in manganese and iron content adjacent to VMS deposits.

Figure 13 is a compilation of the geochemistry plans showing most of the significant anomalous areas described below. The sizes and exact locations of the anomalies are approximate and the detailed single element plans should be referred to for specific locations.


BASELINE 000
L875W
L750W
L625W
L500W
L375W
L312W
L250W
L187W
L125W
L062W
L000
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L125E
L250E
L375E
L500E
L437E
L562E
L625E
L687E
L750E
L812E
L875E
L938E
L187E
L312E
L1000E
L1062E
BF-2 M.C.
BF-3 M.C.
BF-1 M.C.
BIGFOOT M.C.
N
SIMMS CREEK
CREEK
POWERLINE ZONE
MAIN ROAD ZONE
CAMP SHOWING
BRECCIA ZONE
10 MILE SHOWING
HARRISON LAKE
10 MILE BAY
WEST HARRISON FOREST ACCESS ROAD
B.C. HYDRO POWERLINE
approximate limit of Ba anomaly
approximate limit of K anomaly
Zn
Ag, Au, Pb, Zn
Pb, Zn
As
Ba
Ag, As, Au, Pb, Zn
Ag
Ag, As, Au
BIGFOOT FR. M.C.
BF-4 M.C.
METRES
0 100 200 300 400 500 600
TO ACCOMPANY REPORT BY S.F. COOMBES
SUMMIT GEOLOGICAL
SUMMIT GEOLOGICAL
Invermere, B.C.
WINFIELD RESOURCES LTD.
BIGFOOT GRID
GEOCHEMISTRY COMPILATION
BIGFOOT PROPERTY
New Westminster Mining Division, B.C.
DATE: MARCH, 1992
SCALE: 1 : 10,000
DRAWN BY: S.F. COOMBES
FIGURE NO.: 13

Silver

Silver analysis revealed four prominent anomalous clusters and several one or two point highs on the Bigfoot Grid (Figure 5a). One cluster is at L312W by 050N to L062W by 100N, a zone about 300 metres long and 50 metres wide which coincides roughly with the Powerline Zone. Another cluster occurs centred at L687E by 050S and forms a zone about 150 metres by 75 metres which partially coincides with the mineralized float located beside the road at L687E by 080S for which no bedrock source has yet been located.

A small cluster on lines L812E and L875E, on the uphill side of the main road at about 400S, doesn't coincide with any known mineralization. A fourth cluster, on lines L875E to L1062E from 000 to 125N, an area about 250 metres by 100 metres, similarly doesn't coincide with any known mineralization. It is interesting to note that the Main Road Zone, the largest area of sulphide mineralization located to date, with established silver values, shows only as a single point silver anomaly.

Arsenic

Arsenic analysis shows several anomalous clusters. Two of these clusters, centred at L562W by 450S and L312W by 575S coincide with the "Breccia Zone", an area of rhyodacite tuff with associated gold-bearing, fault controlled quartz veins. These two clusters and the several spot arsenic highs in the same area are probably related to these quartz veins.

The other significant arsenic clusters are confined to the southeast end of the Bigfoot grid. One, on line L687E extends from 000 to 200S and coincides in part with the mineralized float located beside the road at L687E by 080S. Another cluster centred at L875E by 450S is about 300 metres by 50 metres oriented north-south and is not associated with any known mineralization.

Gold

The anomalous gold clusters coincide almost exactly with the four anomalous silver clusters. One cluster is at L312W by 025N to L062W by 100N, a zone about 300 metres long and up to 100 metres wide which coincides with the Powerline Zone. Another cluster is centred at L687E by 100S and forms a zone about 200 metres by 50 metres which partially coincides with the mineralized float located beside the road at L687E by 080S.

A third gold cluster is on lines L812E and L875E at about 400S to 450S which doesn't coincide with any known mineralization. A fourth cluster, on lines L938E to L1062E from 075N to 125N, an area about 175 metres by 500 metres, similarly doesn't coincide with any known mineralization. In addition, there is a weak cluster and several single point highs in the area of the Breccia Zone.

Barium

The distribution of anomalous barium values is difficult to evaluate. Most of the high values are grouped in two areas of the grid; the southeast and southwest corners. The largest grouping is on the southeast part of the grid and is bounded on the southwest by a line drawn between L1000E by 500S and L187E by 200N and on the north by Simms Creek. Lines L812E through L938E are also generally anomalous on the north side of Simms Creek. This anomalous zone is terminated on its east side by Harrison Lake. Barite values are also elevated in the area around the Breccia Zone in the southwest corner of the grid.

Copper

Copper values in soil are not very definitive for locating mineralization. The highs are very erratically distributed over most of the grid. The only significant grouping is two samples on baseline 000 at L625E and L687E. This area doesn't correspond with any known mineralization, the closest being the mineralized float found at L687E by 080S.

Potassium

The potassium distribution is roughly the same as for barium on the Bigfoot grid. Elevated potassium values occur over a large area bounded on the southwest by a line drawn between L1000E by 500S and L375E by 000 and on the north by Simms Creek. The anomalous zone is bounded on its east side by the shore of Harrison Lake. The anomalous zone encompasses several small sulphide occurrences including the 10 Mile Showing and the sphalerite stringers west of the logging camp at 10 Mile Bay.

Manganese

Manganese is erratically distributed over the grid. Several small anomalous clusters occur in the southeast corner of the grid as well as near the Breccia Zone. The distribution is basically the same as barium (correlation coefficient of 0.41) but is less well defined because of erratic spot highs throughout the grid area.

Lead

Lead values form several anomalous clusters. The clusters are grouped in two broad areas: the Powerline-Main Road Zone area, and the southeast corner of the grid. In the Powerline-Main Road area the largest (and strongest) cluster is from L312W by 050N to L062W by 100N and is 300 metres long by 75 metres wide. This cluster roughly coincides with the Powerline Zone. One smaller cluster in this area coincides with the mineralization at the Main Road Zone and others are probably related to unlocated mineralization on the same trend.

There are four small clusters and several spot highs in the southeast corner of the grid. One cluster coincides with the breccia mineralization exposed at the 10 Mile Showing. Another cluster is near the float sulphide mineralization located at L687E by 080S. The other clusters don't coincide with known mineralization but do correlate well with highs in other elements.

Zinc

The zinc distribution is essentially the same as for lead but the anomalous areas are somewhat larger. Clusters are grouped into two main areas: the Powerline-Main Road Zone area, and the southeast corner of the grid. A large amorphous cluster roughly coincides with the Powerline Zone and another elongate cluster coincides with, and to the west of the Main Road Zone.

Two clusters in the southeast part of the grid coincide with the mineralized float at L687E by 080S and with the 10 Mile Showing. Other clusters and spot highs are not associated with known mineralization.

Geophysical Survey Results

The detailed results of the geophysical surveys are described in the accompanying report by Mr. David Mark of Geotronics Surveys Ltd. (Appendix IV). The geophysical pseudosections and plans are attached as Figures 6a through 10f. A compilation map showing the anomalous areas is attached as Figure 14. The following is a summary of the more significant features.

BIGFOOT GRID

Three significant zones of induced polarization anomalies were identified during the 1990 and 1991 programs on the Bigfoot grid: the S.C. (Simms Creek) Anomalous Zone, the Bay Anomaly, and the Creek Anomaly.

The S.C. Anomalous Zone is a zone of I.P. highs that trends east-southeasterly across the grid along, or south of, the trend of Simms Creek. This zone encompasses the Powerline and Main Road Zones and the 10 Mile Showing and corresponds with soil samples anomalous in base and precious metals. The minimum strike length is 1,350 metres and the zone is open to both the east and west. The known mineralization within this zone occurs mainly as sulphides in stringers that may have been a feeder zone for massive sulphide mineralization.

The Bay Anomaly consists of a strong I.P. high correlating with a resistivity low. From a geophysical point of view it is perhaps the most likely of the anomalies to represent a massive sulphide occurrence. The anomaly is centred on the baseline west of 10 Mile Bay and has a minimum strike length of 100 metres and may be up to 450 metres or more. The anomaly dips to the south and is open along strike to the east. There is some correlation with anomalous lead, zinc, silver, copper and gold in soils. The correlation with soil anomalies is expected to be weak because the I.P./resistivity anomaly occurs at depth.

The Creek Anomaly is also an I.P. high corresponding with a resistivity low and may represent a faulted off extension of the Bay Anomaly. The anomaly is west of the Bay Anomaly and has a strike length of at least 130 metres, possibly open to the west, and dips to the south. If combined with the Bay Anomaly, the total strike length of this zone is over 600 metres. The Creek Anomaly has some corresponding soil geochemistry response in silver, arsenic and gold. Like the Bay Anomaly, the main part of the anomaly is at depth.

Several areas of epithermal mineralization have been tentatively identified from the I.P./resistivity data. Epithermal events are characterized by significant hydrothermal alteration on the hanging wall side of the vein(s) which reflects as resistivity lows. Generally, the flatter the dip of the mineralization, the more extensive the alteration. Sulphides within the veins, and common pervasive pyritization on the footwall side of the veins, show up as I.P. highs.

Two areas fit the epithermal model particularly well on the Bigfoot grid. The first is associated with the Creek Anomaly and has a minimum strike length of 200 metres with coincident arsenic soil geochemistry highs. The second zone of epithermal interest occurs on the west part of the grid in the area of the Breccia Zone and has coincident barium and arsenic soil geochemical anomalies. Other areas showing a weaker, although similar signature, include: along the trace of Simms Creek east of the Main Road Zone, and on the north side of the baseline (000 to 120N) from lines L250E to L687E.

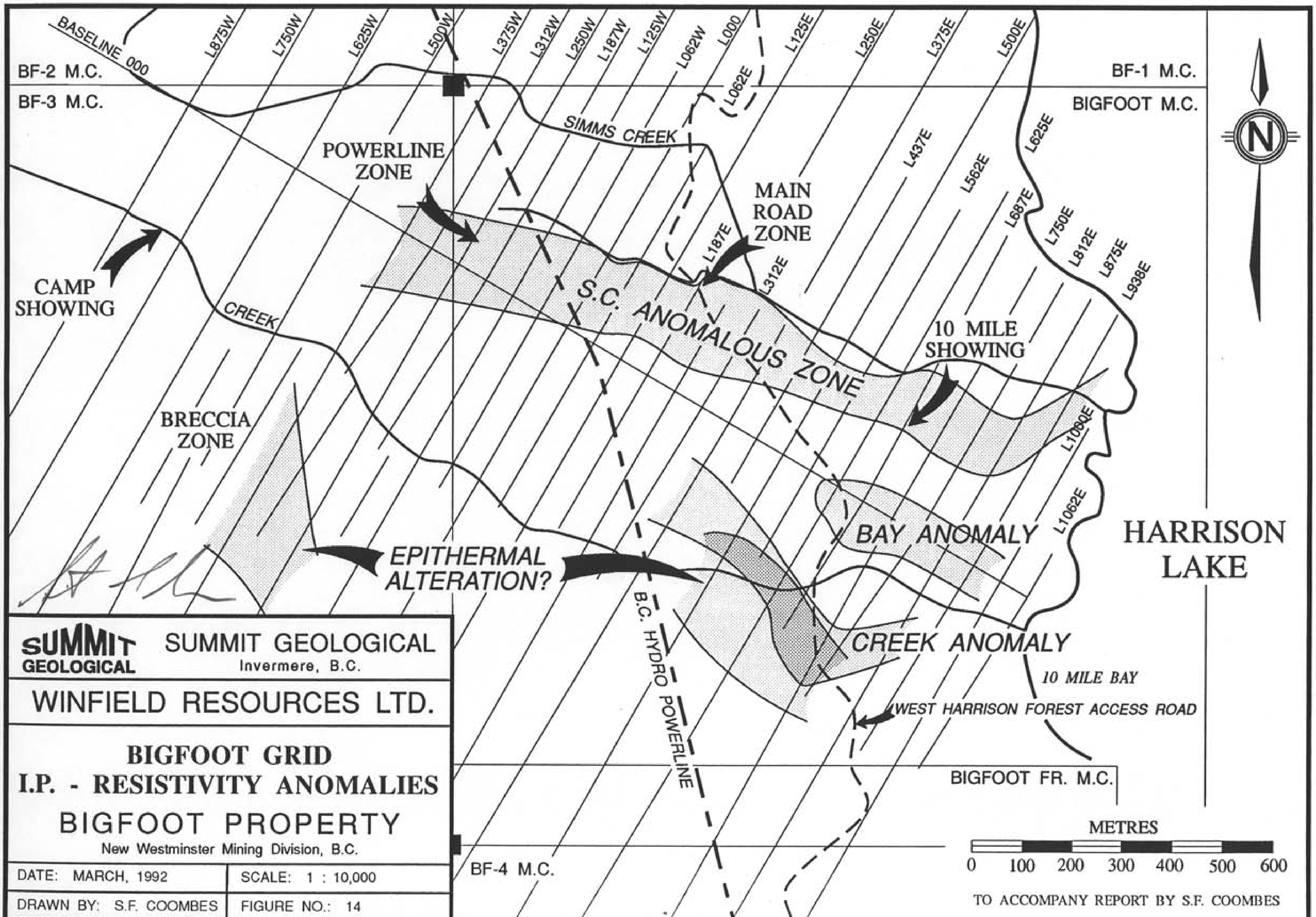
The resistivity survey, in addition to helping locate hydrothermal alteration, was useful in defining lithological boundaries. Of particular note is the contrast in resistivity responses on the north and south side of Simms Creek. The resistivity highs on the north side of the creek reflect fairly massive andesite flows and pyroclastics while the lower resistivity response to the south reflects shattered dacitic and rhyodacitic tuffs and lapilli tuffs. The resistivity survey also indicates that the contact along Simms Creek is a steep north dipping fault.

LITTLE BIGFOOT GRID

There are two main areas of interest on the Little Bigfoot Grid based on the I.P./resistivity surveys; the L.B. and Well anomalies. Both anomalies are I.P. highs with corresponding resistivity lows.

The L.B. Anomaly trends west-northwest in the centre of the surveyed area from L450E to L050W at about 1900S to 2000S. The zone has a minimum strike length of 500 metres and dips to the northeast. The strongest part of the anomaly is between L350E and L150E (200 metres). Part of this anomaly corresponds with sulphides in float and soil geochemical highs in base metals.

The Well Anomaly is at the west side of the surveyed area on lines L550E to 250W where it is open to the northwest. The anomaly corresponds with Well Creek and may be related to fault controlled mineralization.



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Invermere, B.C.

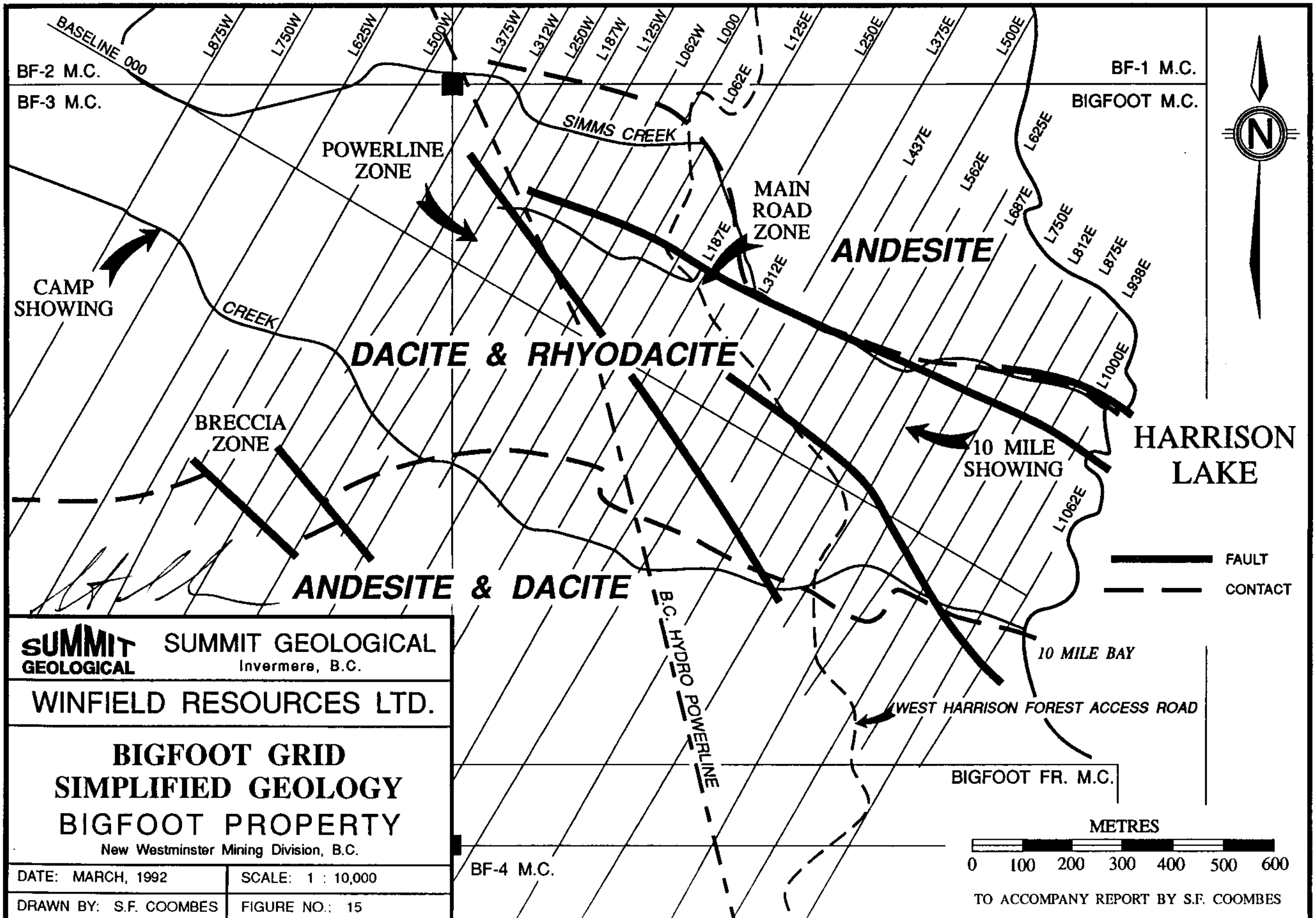
WINFIELD RESOURCES LTD.

BIGFOOT GRID
I.P. - RESISTIVITY ANOMALIES

BIGFOOT PROPERTY

New Westminster Mining Division, B.C.

DATE: MARCH, 1992	SCALE: 1 : 10,000
DRAWN BY: S.F. COOMBES	FIGURE NO.: 14


BASELINE 000
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L750W
L625W
L500W
L375W
L312W
L250W
L187W
L125W
L062W
L000
L062E
L125E
L250E
L375E
L500E
BF-2 M.C.
BF-3 M.C.
BF-1 M.C.
BIGFOOT M.C.
N
SIMMS CREEK
POWERLINE ZONE
MAIN ROAD ZONE
L437E
L562E
L625E
L687E
L750E
L812E
L875E
L938E
L187E
L312E
ANDESITE
CAMP SHOWING
CREEK
DACITE & RHYODACITE
L1000E
HARRISON LAKE
10 MILE SHOWING
BRECCIA ZONE
L1062E
FAULT
CONTACT
ANDESITE & DACITE
B.C. HYDRO POWERLINE
10 MILE BAY
WEST HARRISON FOREST ACCESS ROAD
BIGFOOT FR. M.C.
METRES
0 100 200 300 400 500 600
BF-4 M.C.
TO ACCOMPANY REPORT BY S.F. COOMBES
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Invermere, B.C.
WINFIELD RESOURCES LTD.
BIGFOOT GRID
SIMPLIFIED GEOLOGY
BIGFOOT PROPERTY
New Westminster Mining Division, B.C.
DATE: MARCH, 1992
SCALE: 1 : 10,000
DRAWN BY: S.F. COOMBES
FIGURE NO.: 15

CONCLUSIONS

Geological mapping of the Bigfoot property and surrounding area show that it is in an area of Jurassic age intermediate to felsic volcanics adjacent to slightly younger granitic rocks of the Coast Plutonic Complex. The same volcanic rocks host a significant volcanogenic massive sulphide deposit at the nearby Seneca property.

The Bigfoot property has excellent geological potential for hosting economic volcanogenic massive sulphide (VMS) mineralization. Several of the common requirements for, or indicators of, VMS deposits are present on the property. These include: intermediate to felsic volcanic host rocks; a plutonic "heat engine" of similar age to host rocks; the presence of a large rhyolite mass, assumed to be a rhyolite dome; hydrothermal activity and related sericite-chlorite alteration; syngenetic brecciated sulphide mineralization (the 10 Mile Showing); and syngenetic(?) base and precious metal enriched stringer sulphide mineralization.

The surface trenching and petrographic examinations of mineralization at the 10 Mile Showing show that at least some of the mineralization on the Bigfoot property was contemporaneous with the volcanic host rocks. The stringer mineralization at the Main Road Zone may have been part of a feeder system for a VMS deposit from which the sulphide fragments at the 10 Mile Showing were derived. If this is the case, the presumed sulphide lens that formed from the feeder zone is probably eroded away. This hypothesis downgrades the importance of the heavily tested Main Road Zone, and to a lesser degree the Powerline Zone, as exploration targets but in no way diminishes the potential for VMS mineralization elsewhere on the property.

Compilation of soil geochemical results for the Bigfoot Grid from previous operators of the property show several areas anomalous in base and precious metals. Some of these anomalies coincide with the known sulphide showings, but many, especially on the east side of the grid, are unrelated to known mineralization. This indicates that additional mineralization may be present at or near surface that additional prospecting, detailed geological mapping and trenching will help to locate and evaluate.

Plots of the soil geochemistry data show that there is a large area of potassium and barium (± manganese) enrichment on the east end of the Bigfoot Grid. This presumed hydrothermal alteration zone is larger than normal for a VMS system and may indicate epigenetic hydrothermal activity. This is of significance because there are several epigenetic precious metal enriched hydrothermal deposits in the Harrison Lake area (Doctors Point, RN, Fire Mountain). Additional geological and petrographic work will be needed to determine the importance of this style of mineralization on the Bigfoot property.

Induced polarization and resistivity surveys indicate areas of interest on both the Bigfoot and Little Bigfoot portions of the property. Some of the geophysical anomalies correspond with known mineralization and/or geochemical anomalies, but many indicate sulphide mineralization at depth in areas that have yet to be examined in detail. Particular attention should be given to the areas around the Bay and Creek anomalies on the Bigfoot Grid. These areas require additional, and more detailed, geological mapping to determine structural and lithological relationships. This work should be followed by diamond drilling to test the most promising targets.

The Breccia Zone on the southwest part of the Bigfoot Grid shows some potential for hosting fault related, precious metal enriched, hydrothermal mineralization and the large barium geochemistry anomaly in the area may hold some importance as an indicator of VMS mineralization. Quartz vein and chert fragments in the tuffs in this area indicate that a stringer zone (with or without sulphides) was present in this area during volcanic deposition. Additional geological evaluation will be needed in this area to determine its importance.

The Little Bigfoot part of the property was not examined in detail during this phase of work. The I.P. and resistivity surveys indicate two linear targets of interest which require additional work. Plots of the available soil geochemistry data similar to those done for the Bigfoot Grid will be valuable to help define near surface targets for additional work.

Submitted by,
SUMMIT GEOLOGICAL

GEOLOGICAL ASSOCIATION OF CANADA
S. F. COOMBES
FELLOW

April 15, 1992

Steven F. Coombes, F.G.A.C.
Consulting Geologist

STATEMENT OF 1991 COSTS

The following expenses were incurred during the 1991 exploration program on the Bigfoot property. The field program was conducted between October 30 and December 20, 1991. The bulk of the report was prepared during February and March, 1992.

1) Personnel Expenses:

S. Coombes (Summit Geological) - project management
and geological mapping - 39 days @ $350.00 .... 13,650.00

Total personnel expenses 13,650.00

2) Contract Expenses:

Geotronics Surveys Ltd. - I.P./resistivity survey and plotting
- 30 days @ $1,500.00 plus plotting and summary 45,910.00

Armstrong Sand and Gravel Ltd. - Excavator hire for reclamation
- excavator: 4 hours @ $80.00
- lowbed move: $420.00
- lowbed standby: $80.00 .... 820.00

Total contract expenses 46,730.00

3) Transportation Expenses:

Vehicle rentals 1,725.00

Transportation expenses (fuel, etc.) 251.18

Total transportation expenses 1,976.18

4) Room and Board Expenses:

Accommodation 915.84

Meals and groceries 1,192.10

Total room and board expenses 2,107.94

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Box 2865, Invermere, British Columbia V0A 1K0

5) Consumable Field Supply Expenses:

Field Supplies 154.27

6) Field Equipment Rental:

Computer rental 375.00

Chainsaw rental 300.00

F.M. Smith Consulting field gear rental 112.50

Total field equipment rentals 787.50

7) Analytical Expenses:

Chemex Labs. - Whole rock analysis (11 samples) 243.50

8) Office Expenses:

Freight, telephone, photocopies, etc. 320.00

Secretarial 200.00

Total office expenses 520.00

9) Report Preparation and Reproduction Expenses:

Steven Coombes - report writing and drafting
- 15 days @ $350.00 .... 5,250.00

Abbas Consulting - computer plotting of
geochemical data - 21.4 hours @ $35.00 .... 749.00

Dawn Miller - map drafting 813.56

Reproduction 637.07

Total report preparation expenses 7,484.59

10) Management Fees:

F. Marshall Smith Consulting - 20% of direct expenses 1,801.75

F. Marshall Smith Consulting - 10% of contract expenses 4,591.00

Total management fees 6,392.75

11) Taxes:

Goods and Services Tax (7%) 5,953.27

12) Other Expenses:

F. Marshall Smith - moneys owed for filing 1990 assessment, etc. 5,000.00

TOTAL 1991 EXPENSES 91,000.00

Note: Eight days of the induced polarization and resistivity surveys took place after the staking of the BF-5 through BF-7 and Bigfoot Fractional mineral claims. This work alone was at a cost of $12,000.00 (8 days @ $1,500/day), more than enough to cover the work requirements for the three years of assessment which has been applied to the new claims.

STATEMENT OF QUALIFICATIONS

I, **Steven F. Coombes**, of the Village of Invermere, Province of British Columbia, DO HEREBY CERTIFY THAT:

1) I am a Consulting Geologist with a business office at 1725 - 10th Avenue, Invermere, British Columbia, and a mailing address of P.O. Box 2865, Invermere, British Columbia, V0A 1K0; and am proprietor of Summit Geological.

2) I am a graduate in Geology with a Bachelor of Science degree from the University of British Columbia in 1983.

3) I am a Fellow of the Geological Association of Canada (Number F5457).

4) I have practiced my profession as a geologist for the past nine years.

   Pre-Graduate field experience in Geology, Geochemistry and Geophysics (1979 to 1982).

   Two years as Exploration Geologist with Rhyolite Resources Inc. (1983 to 1985).

   Five years as Exploration Geologist with Searchlight Consultants Inc. (1985 to 1990).

   Two years as Consulting Geologist and proprietor of Summit Geological (1990 to 1992).

5) I staked the Bigfoot and BF-1 to BF-4 mineral claims in February and May, 1990 respectively and transferred title to Mr. F. Marshall Smith for the sum of five dollars on October 11, 1990 (recorded January 24, 1991).

6) I currently own no direct, indirect or contingent interest in the subject claims, nor shares in or securities of **WINFIELD RESOURCES LTD.**

7) I examined the subject property from May 18 to June 5, 1990 and October 30 to December 20, 1991; supervised the 1990 and 1991 exploration programs and wrote this report which documents the results of this work.

GEOLOGICAL ASSOCIATION OF CANADA
S. F. COOMBES
FELLOW

April 15, 1992
F.G.A.C.

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Consulting Geologist

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APPENDIX I

Petrographic Sample Descriptions

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Report for: **Steve Coombs,**
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Invoice 96
June 199Ø

Samples: West Side of Harrison Lake
In part from Middle Jurassic Harrison Lake Formation
TS-Ø1 to TS-Ø9; PS-BF II-3Ø, PS-Main

Summary:

Sulfides are in veins with quartz and less sericite and ankerite in felsic volcanic pyroclastic and flow rocks. They consist of sphalerite with less pyrite, chalcopyrite, and galena, and minor tetrahedrite (in one sample). Veins may be associated with, and possibly remobilized from a volcanogenic massive sulfide associated with the felsic volcanic pile.

Plagioclase composition was estimated from the appearance of the phenocrysts, rather than from detailed measurements of extinction angles, etc. Insufficient properly oriented grains were available to use extinction angles of albite twins.

Siderite was identified tentatively on the basis of its very high relief.

Individual samples are summarized below:

Sample TS-Ø1 is a massive **siltstone/mudstone** containing patches with large lithic fragments of siltstone with a darker matrix. The texture is obvious in the thin section when viewed with a hand lens. Small fragments include dacite/andesite, plagioclase, quartz, carbonate, and andesite/basalt. The abundance of volcanic fragments and the high ratio of plagioclase to quartz suggests a predominantly volcanic origin. The groundmass is cryptocrystalline and of uncertain composition.

Sample TS-Ø2 is an altered porphyritic andesite containing a few phenocrysts of plagioclase and smaller ones of hornblende in a groundmass dominated by plagioclase with patches of chlorite and disseminated grains and patches of epidote and of ilmenite. A broad band through the center contains abundant sericite. A few veins are of epidote with patches of quartz and calcite. A few veinlets are of gypsum.

(continued)

Sample TS-03 is a dacite fine lapilli tuff containing fragments of a variety of felsic volcanic and subvolcanic rock types and minor ones of quartz veins in a cryptocrystalline felsic groundmass. Fragments range up to 1 cm across. Minor sulfides, dominated by pyrite, occur mainly in the fragments. Base-metal sulfides occur mainly in quartz-vein fragments and as replacements of plagioclase phenocrysts.

Sample TS-04 is a latite tuff containing fragments up to 5 mm in size of several volcanic rock types and phenocrysts of plagioclase and minor quartz and hornblende in a groundmass dominated by cherty plagioclase/quartz and less sericite. Limonite forms wispy veinlets and patches associated with weathering.

Sample TS-05 is a lamprophyre containing ragged phenocrysts of biotite and minor plagioclase in a groundmass dominated by lathy plagioclase with much less hornblende and disseminated opaque, and minor K-feldspar, epidote, and clinopyroxene.

Sample TS-06 is a bleached porphyritic andesitic dacite containing scattered phenocrysts of plagioclase in a groundmass dominated by plagioclase with much less quartz, siderite, sericite, and K-feldspar. Veins are of pyrite-sphalerite-quartz and of quartz-ankerite/siderite.

Sample TS-07 is a porphyritic basalt flow containing phenocrysts of plagioclase, clinopyroxene, and minor quartz and hornblende in a groundmass dominated by plagioclase, clinopyroxene/ankerite, devitrified glass and opaque.

Sample TS-08 is a porphyritic rhyodacite containing phenocrysts of plagioclase and minor ones of hornblende, ilmenite and apatite in a groundmass dominated by K-feldspar/plagioclase and less quartz. Quartz also forms a few replacement patches.

Sample TS-09 is a rhyodacite lapilli tuff containing fragments of a wide variety of rock types including large cherty fragments, latite, K-feldspar/plagioclase phenocrysts, quartz veins, and andesite in a groundmass dominated by plagioclase.

Sample PS-BF II-30 is a porphyritic latite containing phenocrysts of plagioclase and minor hornblende in a groundmass dominated by plagioclase. A few fragments are dominated by sericite. Veins up to a few mm wide are dominated by quartz and sphalerite, with less pyrite, chalcopyrite, galena, and sericite, and minor tetrahedrite. Veinlets are dominated by quartz and sericite.

Sample PS-Main is a porphyritic latite lapilli tuff containing phenocrysts of plagioclase and fragments of a few rock types in a groundmass dominated by plagioclase. One large fragment is dominated by sericite, and a few smaller ones are of chert. Replacement veins are dominated by sphalerite and quartz, with less chalcopyrite, galena, and pyrite. Late veinlets and patches are of covellite and secondary Pb- and Zn-minerals.

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Sample TS-01 Fragmental Siltstone/Mudstone

The sample is a massive siltstone containing patches with large lithic fragments of siltstone with a darker matrix. The texture is obvious in the thin section when viewed with a hand lens. Small fragments include dacite/andesite, plagioclase, quartz, carbonate, and andesite/basalt. The abundance of volcanic fragments and the high ratio of plagioclase to quartz suggests a predominantly volcanic origin. The groundmass is cryptocrystalline and of uncertain composition.

fragments	
large	
siltstone/mudstone	17-20%
fine	
dacite/andesite	15-17
plagioclase	5- 7
quartz	1- 2
calcite	1- 2
andesite/basalt	2- 3
ankerite	0.3
zircon	*
groundmass	50-55

Large fragments average 0.5-3 mm long, with one up to 2 cm across. They contain finer and fewer particles of plagioclase, quartz, and volcanic rocks in a medium brown groundmass containing abundant opaque/semiopaque. The largest fragment is somewhat gradational texturally between the other dark fragments and the rest of the rock.

Finer fragments average 0.05-0.15 mm in size, with a few up to 0.2 mm across.

Dacite/andesite forms equant fragments consisting of cryptocrystalline aggregates of uncertain composition, probably dominated by plagioclase and/or quartz, with minor to moderately abundant patches of pale to light green chlorite. Some fragments are difficult to distinguish from the groundmass.

Plagioclase forms equant to elongate fragments, most of which are fresh, and a few of which are altered moderately to a patch of calcite.

Andesite forms a few fragments averaging 0.1-0.2 mm in size, characterized by extremely fine grained, lathy plagioclase. One fragment 0.5 mm across contains a few plagioclase phenocrysts and patches of calcite averaging 0.1 mm in size in a groundmass dominated by extremely fine grained plagioclase and patches of Ti-oxide.

Quartz forms angular, equant to elongate fragments.

Calcite and ankerite each form equant patches. Some may be fragments and some may be replacements of plagioclase.

The groundmass is dominated by cryptocrystalline material of uncertain composition, with a color ranging from colorless to light brown. It probably is dominated by plagioclase/quartz and contains moderately abundant opaque/semiopaque as disseminated grains and as wispy lenses. Zircon forms a few subrounded grains up to 0.05 mm in size.

Sample TS-Ø2 **Altered Porphyritic Andesite; Sericite-rich Zone; Veins of Epidote-(Quartz-Calcite), Veinlets of Gypsum**

(Note: thin section thicker than normal)

A few phenocrysts of plagioclase and smaller ones of hornblende are set in a groundmass dominated by plagioclase with patches of chlorite and disseminated grains and patches of epidote and of ilmenite. A broad band through the center of the section contains abundant sericite. A few veins are of epidote with patches of quartz and calcite. A few veinlets are of gypsum.

phenocrysts		veins, veinlets	
plagioclase	2- 3%	1) epidote	3- 4%
hornblende	1	quartz	Ø.2
groundmass		calcite	minor
plagioclase	5Ø-55	2) gypsum	minor
chlorite	12-15		
sericite	15-17		
epidote	5- 7		
ilmenite-(Ti-oxide)	1- 2		
quartz	trace		

Plagioclase forms equant to prismatic phenocrysts averaging 1-1.5 mm across. Alteration is moderate to strong to extremely fine grained sericite.

Hornblende forms a few subhedral to euhedral, prismatic phenocrysts up to Ø.6 mm across. Alteration is complete to extremely fine grained chlorite.

In the groundmass, plagioclase forms lathy grains averaging Ø.1-Ø.2 mm long and anhedral, interstitial grains averaging Ø.Ø7-Ø.15 mm in size. Alteration is slight to moderate to sericite and slight to patches of epidote.

Chlorite forms patches averaging Ø.3-Ø.7 mm in size of extremely fine grained, unoriented aggregates. Some of these contain minor disseminated patches of Ti-oxide. Some may be secondary after small hornblende phenocrysts, and other, more irregular ones are interstitial to plagioclase.

Sericite is concentrated in an irregular band several mm across in the center of the section and as irregular, interstitial patches up to a few mm across elsewhere. It forms extremely fine grained aggregates which show no relic textures. Sericite probably is secondary after plagioclase.

Epidote forms disseminated, subhedral grains averaging Ø.1-Ø.25 mm in size. Some epidote-rich patches up to 1.5 mm across may represent strongly replaced plagioclase phenocrysts.

Ilmenite forms anhedral patches averaging Ø.1-Ø.2 mm in size. Some patches are altered slightly to moderately along borders to Ti-oxide.

Quartz forms one elongate grain Ø.25 mm long surrounded by sericite.

Lensy, braided veins averaging Ø.2-Ø.4 mm wide and up to 1 mm wide are dominated by very fine to fine grained epidote, with larger prismatic grains commonly oriented parallel to vein walls.

A few veinlets averaging Ø.Ø3-Ø.Ø5 mm wide are dominated by gypsum.

Sample TS-03 **Dacite Fine Lapilli Tuff; Minor Base-Metal Sulfides**

Fragments of a variety of felsic volcanic and subvolcanic rock types and minor ones of quartz veins are set in a cryptocrystalline felsic groundmass. Fragments range up to 1 cm across. Sulfides, dominated by pyrite, occur mainly in the fragments. Base-metal sulfides occur mainly in quartz-vein fragments and as replacements of plagioclase phenocrysts.

fragments		sulfides	
latite/dacite	40-45%	pyrite	4- 5%
pumice	5- 7	chalcopyrite	trace
plagioclase	3- 4	sphalerite	trace
chlorite-quartz	1- 2	galena	*
quartz vein	1		
hypabyssal quartz diorite	1		
groundmass			
latite	40-45		

Several types of latite and dacite fragments are present. Most contain phenocrysts of plagioclase averaging 0.2-0.7 mm long in a groundmass dominated by extremely fine grained, equant plagioclase. Some contain hornblende phenocrysts up to 0.7 mm in length; these are altered completely to chlorite. One contains a phenocryst of biotite(?) 1.5 mm across; it is altered completely to chlorite with minor parallel lenses of Ti-oxide parallel to original cleavage in biotite. One contains a few apatite grains up to 0.12 mm in size associated with hornblende. One large fragment contains a few blebby patches up to 1.5 mm in size of sphene(?) altered completely to cryptocrystalline Ti-oxide and chlorite. Some contain irregular, interstitial patches of chlorite up to 0.5 mm in size.

One fragment 2 cm across contains irregular patches up to 1.5 mm in size of cryptocrystalline sericite (possibly after plagioclase phenocrysts) in a groundmass dominated by extremely fine grained, cherty quartz/plagioclase. It contains abundant disseminated pyrite which ranges from cryptocrystalline to euhedral cubic grains up to 0.1 mm in size. Surrounding coarser grained pyrite, quartz is recrystallized slightly to moderately to aggregates averaging 0.02-0.05 mm in grain size.

A pumice fragment 4 mm long is dominated by unoriented, equant cryptocrystalline flakes of sericite, with much less slightly coarser grained sericite flakes oriented to define a wispy foliation. In many of these, plagioclase phenocrysts are altered moderately to completely to sericite. Several smaller fragments are similar in texture and composition; in some of these sericite is mainly in flakes which are oriented moderately.

Plagioclase forms crystals and crystal fragments averaging 0.1-0.5 mm in size, with a few up to 1 mm across and others up to 1.2 mm long. Most are fresh to altered slightly to sericite. Some are replaced moderately to strongly by irregular patches of K-feldspar. The distribution of K-feldspar is seen well on the stained offcut block.

Several fragments up to 1 mm in size are of quartz veins. Most are aggregates of anhedral grains averaging 0.05-0.1 mm in size. Some fragments contain minor seams of sericite. A few quartz fragments are

(continued)

single grains up to 0.6 mm in size. A few contain clusters of pyrite grains up to 0.3 mm across. In one of these, pyrite contains a few irregular blebs averaging 0.01-0.02 mm in size of galena. It also contains a few blebs of chalcopyrite up to 0.05 mm in size.

Several patches up to 1 mm in size consist of dense aggregates of chlorite containing patches of very fine grained quartz and minor Ti-oxide. Some of these also contain several acicular grains of apatite averaging 0.05-0.15 mm in length. They are of replacement origin, possibly in part after original hornblende grains. Other patches of chlorite up to 0.5 mm across may be replacements of hornblende phenocrysts.

Hypabyssal quartz diorite forms a few equant fragments up to 1 mm in size. It is dominated by anhedral, equant plagioclase and lesser quartz grains averaging 0.1-0.5 mm in size. Some fragments contain patches of Ti-oxide up to 0.1 mm across and minor apatite. Some altered(?) quartz diorite fragments are dominated by very fine to fine grained quartz with much less disseminated sericite and Ti-oxide.

One euhedral, prismatic mafic(?) crystal 0.9 mm long is altered completely to extremely fine grained sericite with minor apatite grains. It was replaced strongly in patches and on fractures by pyrite which ranges from cryptocrystalline aggregates to euhedral cubic grains averaging 0.05-0.1 mm in size.

The groundmass is dominated by cryptocrystalline to extremely fine grained plagioclase and sericite, with minor disseminated pyrite and Ti-oxide.

Replacement patches up to 1 mm in size in some pumice fragments consist of very fine grained quartz.

Some fragments contain moderately abundant disseminated pyrite grains averaging 0.01-0.05 mm in grain size. A few contain coarser aggregates of pyrite. One contains clusters of pyrite grains up to 0.1 mm in grain size intergrown with patches of semiopaque (Ti-oxide?); in one of these Ti-oxide shows a delicate concentric growth structure.

One plagioclase grain is replaced largely by sulfides. These include a patch 0.4 mm across of sphalerite with abundant exsolution blebs of chalcopyrite averaging 0.002-0.003 mm in size, and a few cubic grains of pyrite averaging 0.02-0.07 mm in size. A second plagioclase phenocryst in a latite fragment contains a patch of sulfides dominated by sphalerite (with minor exsolution chalcopyrite) and pyrite.

Chalcopyrite forms irregular patches up to 0.15 mm in size in some quartz veins and in some altered quartz diorite fragments.

Sample TS-04 Latite Tuff

Fragments up to 5 mm in size of several volcanic rock types and phenocrysts of plagioclase and minor quartz and hornblende are set in a groundmass dominated by cherty plagioclase/quartz and less sericite. Limonite forms wispy veinlets and patches associated with weathering.

fragments	
latite	10-12%
cherty latite(?)	2- 3
andesite	5- 7
pumice	5- 7
trachyte(?)	0.3
quartz-sericite	0.2
chert	minor
phenocrysts	
plagioclase	7- 8
hornblende	2- 3
quartz	0.2
groundmass	
plagioclase/quartz	55-60%
sericite	3- 4
pyrite	0.3
Ti-oxide	0.1
weathering	
limonite	1- 2

Latite fragments contain subhedral to euhedral plagioclase phenocrysts up to 1 mm in size in an extremely fine grained groundmass dominated by equant plagioclase with minor to moderately abundant interstitial, cryptocrystalline sericite. With increasing abundance of sericite in the groundmass, these grade texturally into pumice fragments. One latite fragment contains ragged plagioclase phenocrysts and a few biotite phenocrysts up to 1.2 mm in size. Biotite is pleochroic from straw to light/medium brown.

Several fragments are of pumice dominated by extremely fine grained sericite, in part showing a wispy foliation, with lesser patches of cryptocrystalline to extremely fine grained plagioclase/quartz, and minor Ti-oxide. One sericite-rich fragment shows weakly a delicate, spheroidal texture. One fragment contains a cluster of plagioclase phenocrysts up to 1 mm in grain size. Two fragments contain moderately abundant K-feldspar in the groundmass (see stained offcut block).

One fragment 1.8 mm across of hypabyssal latite is dominated by equant, interlocking grains of plagioclase averaging 0.1-0.2 mm in size with much less interstitial material of much finer grain size dominated by lathy plagioclase with moderately abundant opaque.

Andesite fragments contain phenocrysts of plagioclase in a groundmass with scattered lathy plagioclase grains in a cryptocrystalline groundmass of plagioclase-chlorite-(opaque). Some fragments have a very fine grained groundmass dominated by ragged prismatic to irregular plagioclase grains. One fragment contains minor altered hornblende phenocrysts up to 0.3 mm across and patches of Ti-oxide up to 0.3 mm across in a groundmass dominated by very fine grained, lathy to interstitial plagioclase. One fragment contains a cluster up to 1.5 mm across of plagioclase and altered hornblende phenocrysts in a groundmass dominated by very fine grained, lathy plagioclase.

A few andesitic dacite fragments are dominated by lathy plagioclase up to 0.2 mm long in a groundmass of finer grained, anhedral plagioclase and minor, disseminated, equant patches 0.03-0.05 mm across of chlorite (after hornblende).

A few fragments of trachyte(?) up to 1.7 mm across contain scattered plagioclase phenocrysts up to 0.15 mm in size in an extremely fine grained groundmass containing several radiating aggregates averaging 0.2-0.4 mm across of fine grained K-feldspar/plagioclase.

A few fragments up to 1.3 mm across are dominated by equant to slightly elongate quartz grains with minor to moderately abundant interstitial cryptocrystalline sericite and Ti-oxide; they probably are of replacement origin.

One fragment 1 mm across is dominated by cryptocrystalline chert colored light to medium brown by dusty inclusions. It contains a few patches of slightly coarser grained quartz, sericite, and Ti-oxide.

One fragment 0.6 mm long is of extremely fine grained chert containing moderately abundant disseminated pyrite grains averaging 0.005-0.015 mm in size. Much of the pyrite was altered to limonite.

Plagioclase forms subhedral to euhedral phenocrysts averaging 0.5-1.5 mm in size. Grains are fresh to altered slightly to sericite.

Hornblende forms subhedral phenocrysts averaging 0.5-1.2 mm in size, and one 1.7 mm across. Alteration is complete to aggregates of very fine grained quartz with minor to moderately abundant patches of extremely fine grained chlorite, and locally patches of Ti-oxide. A few contain subhedral to euhedral inclusions of apatite up to 0.1 mm long.

Quartz forms a few elongate, anhedral phenocrysts up to 1.1 mm long.

Ti-oxide forms equant patches up to 0.5 mm in size of cryptocrystalline to very fine grained aggregates.

A few replacement patches and/or fragments up to 0.5 mm in size are of very fine grained quartz.

The groundmass is dominated by extremely fine grained, equant., slightly interlocking grains of plagioclase/quartz, with minor to moderately abundant interstitial patches of cryptocrystalline sericite.

Pyrite forms disseminated grains and clusters of grains averaging 0.05-0.2 mm in size. In some parts of the rock, pyrite is altered strongly to limonite, and locally all that remains are casts of pyrite grains with minor limonite along their margins.

The rock and some fragments are cut by quartz veinlets averaging 0.01-0.03 mm wide, and locally up to 0.1 mm wide.

Irregular late veinlets and veins up to 0.2 mm wide are of orange limonite.

Sample TS-05 **Lamprophyre**

Ragged phenocrysts of biotite and minor plagioclase are set in a groundmass dominated by lathy plagioclase with much less hornblende and disseminated opaque, and minor K-feldspar, epidote, and clinopyroxene.

phenocrysts	
biotite	3- 4%
plagioclase	0.3
groundmass	
plagioclase	77-80
hornblende	12-15
opaque	3- 4
K-feldspar	1
epidote	0.7
clinopyroxene	0.3
apatite	minor

Biotite forms phenocrysts and clusters of grains averaging 0.7-1 mm in size, with a few up to 1.5 mm across. Grains are replaced by semi-pseudomorphic to irregular grains and aggregates of phlogopite and locally patches of muscovite. Phlogopite is pleochroic from pale to light brownish green.

Plagioclase forms scattered equant phenocrysts averaging 0.5 mm in size, and a few prismatic grains up to 0.7 mm long. In the groundmass, plagioclase forms prismatic grains averaging 0.1-0.25 mm in length. Alteration is slight to moderate to disseminated sericite and cryptocrystalline epidote.

Hornblende forms prismatic grains averaging 0.1-0.2 mm in length. Color is mainly light to medium greenish brown.

Opaque forms disseminated, equant, euhedral to subhedral grains averaging 0.03-0.07 mm in size.

K-feldspar forms interstitial grains averaging 0.03-0.07 mm in size.

Epidote forms disseminated, equant, anhedral to subhedral grains averaging 0.1-0.2 mm in size.

Clinopyroxene forms clusters of equant grains averaging 0.1-0.3 mm in size.

Apatite forms acicular grains averaging 0.07-0.15 mm in length.

Sample TS-06 **Bleached Porphyritic Andesitic Dacite: Veins of Pyrite-Sphalerite-Quartz and Quartz-Ankerite/Siderite**

Scattered phenocrysts of plagioclase are set in a groundmass dominated by plagioclase with much less quartz, siderite, sericite, and K-feldspar. Veins are of pyrite-sphalerite-quartz and of quartz-ankerite/siderite.

phenocrysts		veins	
plagioclase	7- 8%	1) pyrite	2%
hornblende	1	sphalerite	1
groundmass		quartz	0.5
plagioclase	70-75	Mineral X	minor
quartz	3- 4	chalcopyrite	minor
siderite	4- 5	galena	minor
sericite	3- 4	tetrahedrite	minor
K-feldspar	1	2) quartz	1- 2
pyrite	1	ankerite/siderite	1- 2
Ti-oxide	0.2		
apatite	minor		

Plagioclase forms subhedral, equant to stubby prismatic phenocrysts averaging 0.5-1 mm in size, and a few up to 1.8 mm in size. Most are single grains, and a few occur in one clusters a few mm across. Alteration is slight to moderate to sericite and siderite. A few contain irregular replacement patches of K-feldspar. One phenocryst contains a few irregular patches up to 0.1 mm in size of sphalerite (without chalcopyrite) and up to 0.05 mm in size of galena.

Hornblende forms a few subhedral to euhedral prismatic phenocrysts up to 1 mm long. Alteration is complete to extremely fine grained sericite with moderately abundant patches of siderite. Most phenocrysts contain inclusions of apatite.

In the groundmass, plagioclase forms prismatic to anhedral grains averaging 0.05-0.15 mm in size. Alteration is as in the phenocrysts.

Quartz is concentrated in patches averaging 0.1-0.4 mm in size, and locally up to 1 mm across. Interstitial to quartz in some of these is minor sericite. These patches are similar to some of the quartz-rich fragments in Sample TS-04.

Siderite forms ragged, very fine to extremely fine grains and aggregates interstitial to plagioclase and commonly intergrown with patches of extremely fine grained sericite. Carbonate is identified as siderite because of its extremely high relief.

K-feldspar was not identified in thin section, but its presence is indicated by the light yellow stain on the offcut block.

Pyrite forms subhedral to euhedral grains averaging 0.05-0.1 mm in size; these are disseminated in the rock and locally concentrated in clusters up to 0.5 mm across, mainly near the sulfide vein.

Sphalerite (with minor exsolution chalcopyrite) forms a few patches up to 0.4 mm in size associated with a few pyrite grains.

Ti-oxide forms irregular patches up to 0.4 mm in size of cryptocrystalline to extremely fine grained aggregates.

Apatite forms euhedral, acicular to elongate prismatic grains up to 0.3 mm long.

(continued)

Sample TS-06 (page 2)

An irregular, replacement vein averages 0.3-0.8 mm wide. It contains patches of sulfides dominated by pyrite and sphalerite, and other sections dominated by quartz. Pyrite forms anhedral to euhedral grains averaging 0.03-0.15 mm in size. A few pyrite grains contain moderately abundant blebby inclusions up to 0.01 mm in size of galena, and others up to 0.005 mm in size of pyrrhotite(?).

Sphalerite forms patches up to 1 mm across, and locally forms veinlets between pyrite grains. Borders of the patches are irregular against silicates. Sphalerite is colorless and contains moderately abundant tiny exsolution blebs of chalcopyrite, and locally a few coarser chalcopyrite grains up to 0.02 mm across. In one sphalerite patch are three aggregates up to 0.2 mm across of about equal amounts of galena, chalcopyrite, and tetrahedrite. Tetrahedrite also forms a discontinuous veinlet 0.003 mm wide and 0.3 mm long in this patch of sphalerite. Galena also forms minor patches up to 0.01 mm in size in sphalerite near pyrite grains.

Mineral X forms anhedral grains up to 0.3 mm in length. It resembles apatite in relief and birefringence, but is softer.

Two later veins, 0.2 and 0.5 mm wide, respectively, consist of about equal amounts of very fine grained quartz and ankerite/siderite.

Sample TS-07 **Porphyritic Basalt Flow**

Phenocrysts of plagioclase, clinopyroxene, and minor quartz and hornblende are set in a groundmass dominated by plagioclase, clinopyroxene/ankerite, devitrified glass and opaque.

phenocrysts	
plagioclase	15-17%
clinopyroxene	4- 5
quartz	0.2
hornblende	0.1
groundmass	
plagioclase	20-25
clinopyroxene/ankerite	25-30
opaque	2- 3
devitrified glass	20-25
limonite	0.5

Plagioclase forms lathy phenocrysts averaging 0.15-0.5 mm long. Carlsbad-albite twinning is common. Grains show two major growth zones from cores probably of labradorite/andesine composition to rims of andesine composition.

Clinopyroxene forms colorless, equant to prismatic phenocrysts averaging 0.1-0.5 mm in size, with a few up to 1 mm across. Several are fresh. Most are altered strongly to completely to light brown aggregates of dominated by ankerite with scattered grains of phlogopite. Ankerite is stained light yellow brown by limonite. Phlogopite is pleochroic from pale to light brown and averages 0.05-0.1 mm in grain size. A few clinopyroxene phenocrysts contain patches of very fine grained clinopyroxene with interstitial plagioclase. One patch 0.6 mm long is a clinopyroxene(?) phenocryst containing very abundant dusty opaque which obscures the optical properties of the silicate. It is surrounded by an aggregate of lathy plagioclase grains.

Quartz forms a few subrounded grains averaging 0.2-0.3 mm in size.

Hornblende forms a few fresh, anhedral phenocrysts averaging 0.1-0.3 mm in size. Pleochroism is from pale to medium greyish green.

The groundmass contains lathy plagioclase grains averaging 0.05-0.15 mm in size surrounded by extremely fine grained patches of ankerite. Clinopyroxene forms grains averaging 0.03-0.05 mm in size. It is altered moderately to completely to ankerite, which commonly is semiopaque from dusty limonite. oxides. Ankerite also forms colorless, disseminated grains averaging 0.1 mm in size. Opaque forms disseminated, subhedral to euhedral cubic grains averaging 0.01 mm in size. Kaolinite(?) forms scattered patches averaging 0.1 mm in size of aggregates of equant flakes averaging 0.003-0.005 mm in grain size.

Patches of devitrified glass range from 0.1-0.5 mm in size. They are medium to dark brown in color.

Sample TS-08 **Porphyritic Rhyodacite**

Phenocrysts of plagioclase and minor ones of hornblende, ilmenite and apatite are set in a groundmass dominated by K-feldspar/plagioclase and less quartz. Quartz also forms a few replacement patches.

phenocrysts	
plagioclase	15-17%
hornblende	3- 4
ilmenite	1
apatite	0.3
groundmass	
K-feldspar/plagioclase	55-60
quartz	15-17
plagioclase	1- 2
chlorite/sericite	2- 3
replacement patches	
quartz	1- 2

Plagioclase forms subhedral to euhedral phenocrysts and clusters of phenocrysts averaging 0.7-1.5 mm in size, with a few up to 2.5 mm long. Grains are oligoclase in composition and generally are fresh. Some contain minor ragged patches of epidote and a few are bordered by similar patches of epidote. A few grew around elongate hornblende phenocrysts, now altered to chlorite.

Hornblende forms subhedral to euhedral phenocrysts averaging 0.3-0.6 mm in size. It commonly is replaced completely by irregular to subradiating aggregates of light green chlorite. Calcite occurs in some as minor to very abundant irregular patches; it commonly contains dusty opaque inclusions. A few phenocrysts contain minor patches of epidote. One is replaced mainly by sericite with an irregular rim of epidote.

Ilmenite forms equant grains averaging 0.1-0.3 mm in size. Much of it is altered moderately to leucoxene.

Apatite forms subhedral to euhedral prismatic to locally acicular grains averaging 0.05-0.1 mm in size, with a few elongate grains up to 0.2 mm long. It commonly is concentrated with phenocrysts of hornblende and less commonly with those of plagioclase.

One fragment 1.1 mm long is of basalt/andesite. It contains minor lathy plagioclase grains up to 0.12 mm long in a groundmass dominated by extremely fine grained chlorite and dusty opaque. It contains a replacement patch 0.1 mm long of very fine grained quartz.

The groundmass is dominated by K-feldspar/plagioclase and less quartz. K-feldspar/plagioclase forms intergrowths of extremely fine grains. Based on the color of the stained offcut block, K-feldspar is dominant over plagioclase. Quartz forms grains averaging 0.03-0.07 mm across intergrown intimately with K-feldspar/plagioclase. Plagioclase forms disseminated, subhedral to euhedral grains averaging 0.1-0.15 mm in size, which are finer grained equivalents of the coarser phenocrysts. Chlorite/sericite forms ragged, cryptocrystalline aggregates intergrown with K-feldspar/plagioclase. Pyrite forms scattered subhedral to euhedral grains averaging 0.07-0.1 mm in size.

Quartz forms replacement patches up to 1 mm in size of grains averaging 0.05-0.1 mm in size.

Sample TS-09 **Rhyodacite Lapilli Tuff**

Fragments of a wide variety of rock types including large cherty fragments, latite, K-feldspar/plagioclase phenocrysts, quartz veins, and andesite are set in a groundmass dominated by plagioclase.

fragments	
chert	15-17%
latite/dacite)	10-12
K-feldspar/plagioclase	7- 8
quartz phenocrysts	0.3
hornblende phenocrysts	0.3
quartz veins	3- 4
andesite	2- 3
groundmass	
plagioclase	40-45
sericite	3- 4
quartz	1- 2
chlorite	1
Ti-oxide	0.5

replacement patches	
quartz	1- 2%

A few fragments up to 2 cm across and smaller ones down to 1 mm in size are of chert. The largest fragment is dominated by extremely fine grained chert containing scattered porphyroblasts up to 0.1 mm in size of ankerite/siderite. It is cut by veinlets and wispy seams dominated by quartz, with much less sericite and limonite, and locally coarse grains of gypsum up to 1.5 mm long in the cores of the veinlets. Elsewhere it contains minor phenocrysts of plagioclase and irregular patches of coarser grained quartz in a much finer grained groundmass dominated by cherty quartz with minor disseminated chlorite. Here it has a delicate laminated structure with scattered spheroidal patches outlined by coarser grained quartz and/or chlorite. In part, grains are uniform, and elsewhere grains and aggregates of grains averaging 0.03-0.05 mm in grain size are set in a cryptocrystalline groundmass. Some smaller cherty fragments have a uniform, extremely fine to very fine grained texture.

Latite fragments are dominated by extremely fine grained, equant plagioclase with minor interstitial, extremely fine grained chlorite and scattered patches of Ti-oxide. Some contain minor to moderately abundant interstitial quartz; these grade into dacite in composition. They are coarser grained than the groundmass, but in places borders are diffuse. A few latite fragments up to 1 mm in size contain minor plagioclase phenocrysts up to 0.5 mm in size in a groundmass containing minor plagioclase laths up to 0.1 mm long in a cryptocrystalline to extremely fine grained groundmass dominated by plagioclase with much less chlorite.

A few fragments up to a few mm across are similar in composition to the rock, in that they contain K-feldspar/plagioclase phenocrysts in an extremely fine grained plagioclase-rich groundmass.

One rhyodacite(?) fragment contains minor plagioclase and hornblende phenocrysts up to 0.2 mm in size in a groundmass containing lathy K-feldspar(?) grains averaging 0.05 mm long with a moderate flow foliation enclosed in poikilitic quartz grains averaging 0.2 mm in size. A few rhyodacite fragments are of intergrowths of K-feldspar/plagioclase and less quartz as in the groundmass of Sample TS-08.

(continued)

Sample PS-BF II-30 **Porphyritic Latite; Veins of Quartz-Sphalerite-Pyrite-Chalcopyrite-Galena-Sericite-(Tetrahedrite)**

Phenocrysts of plagioclase and minor hornblende are set in a groundmass dominated by plagioclase. A few fragments are dominated by sericite. Veins up to a few mm wide are dominated by quartz and sphalerite, with less pyrite, chalcopyrite, sericite, and galena, and minor tetrahedrite. Veinlets are dominated by quartz and sericite.

phenocrysts	
plagioclase	4- 5%
hornblende	0.3
fragments	
sericite-plagioclase	3- 4
groundmass	
plagioclase	50-55
sericite	2- 3
pyrite	1
Ti-oxide	0.5
sphalerite	trace
zircon	•
replacement lenses	
quartz	10-12
sphalerite	8-10
pyrite	3- 4
chalcopyrite	2- 3
sericite	2- 3
galena	1
tetrahedrite	minor

Plagioclase forms subhedral phenocrysts averaging 0.2-0.5 mm in size. Alteration is slight to moderate and locally strong to sericite.

Hornblende forms subhedral to euhedral phenocrysts averaging 0.2-0.9 mm long. It is replaced by aggregates of extremely fine grained sericite, with or without patches of quartz. Pyrite is common as subhedral grains from 0.1-0.2 mm in size. Apatite forms scattered inclusions up to 0.05 mm long inn hornblende phenocrysts.

The groundmass is dominated by extremely fine grained plagioclase with much less sericite, and minor dusty opaque. Scattered patches averaging 1-1.5 mm in size are of slightly coarser grained, equant plagioclase

Diffuse fragments averaging 1-1.5 mm in size are dominated by extremely fine grained sericite with minor relic(?) plagioclase and minor disseminated Ti-oxide. Fragments of two types up to several mm across occur in the hand sample away from the veins.

A few andesite(?) fragments up to 1.5 mm in size are dominated by very fine grained plagioclase with less sericite, Ti-oxide and pyrite.

Ti-oxide (after ilmenite) forms disseminated, equant patches averaging 0.1-0.25 mm in size, with a few up to 0.4 mm across. Some are replaced partly by pyrite.

Pyrite forms disseminated, commonly euhedral grains and clusters of grains averaging 0.05-0.2 mm in size, with a few clusters of grains averaging 0.01-0.02 mm in size.

Apatite occurs with hornblende, plagioclase, and ilmenite phenocrysts and alone in the groundmass as subhedral to euhedral, prismatic grains averaging 0.03-0.12 mm in length.

Sphalerite forms scattered grains averaging 0.02-0.03 mm in size.

Zircon forms a euhedral, stubby prismatic grain 0.09 mm long.

In the veins, quartz generally forms aggregates of equant to prismatic grains averaging 0.05-0.2 mm in size; a few grains are up to 1 mm long. In several places along the border of sulfide lenses it was recrystallized to very fine grained, feathery aggregates generally in subparallel orientation and at a moderate to high angle to the sulfide lens. Feathery quartz commonly is warped around pyrite grains away from the main sulfide lenses.

Sphalerite forms coarse grained aggregates containing moderately abundant inclusions of chalcopyrite as tiny exsolution blebs, coarser patches (0.02 mm), and as seams along sphalerite grain borders. It also contains scattered tiny inclusions of pyrite and of galena.

Pyrite forms anhedral to subhedral grains averaging 0.2-1 mm in size. A few are fractured coarsely, with chalcopyrite common in fractures. A few contain irregular blebs of galena up to 0.03 mm in length.

Chalcopyrite forms scattered patches up to 2 mm in size, and also occurs with sphalerite and pyrite as described above. The largest patch contains abundant corroded pyrite grains averaging 0.1-0.2 mm in size. A few smaller patches of chalcopyrite in one replacement lens contain abundant euhedral pyrite cubes averaging 0.01-0.02 mm in size, and a few up to 0.07 mm across.

Galena is concentrated in a few patches up to 1.5 mm in size. The largest patch contains a few inclusions of chalcopyrite averaging 0.03-0.1 mm in size. In several large patches, galena is altered moderately to anglesite(?) in ragged zones along the border of the patch against quartz.

Tetrahedrite locally forms irregular grains averaging 0.03-0.08 mm in size along borders of chalcopyrite and sphalerite.

Sample PS-Main **Porphyritic Latite Lapilli Tuff; Replacement Veins of Sphalerite-Quartz-Chalcopyrite-Galena-Pyrite**

Phenocrysts of plagioclase and fragments of a few rock types are set in a groundmass dominated by plagioclase. One large fragment is dominated by sericite, and a few smaller ones are of chert. Replacement veins are dominated by sphalerite and quartz, with less chalcopyrite, galena, and pyrite. Late veinlets and patches are of covellite and secondary Pb- and Zn-minerals.

phenocrysts	
plagioclase	5- 7%
fragments	
sericite-rich	17-20
cherty	1
groundmass	
plagioclase	35-40
sericite	3- 4
pyrite	1
Ti-oxide	0.1
veins (percentages less in hand sample than in thin section)	
sphalerite	12-15
quartz	7- 8
chalcopyrite	4- 5
galena	2- 3
pyrite	1
sericite	0.3
covellite	0.1
secondary Pb-, Zn-minerals	0.3
limonite	0.1

Plagioclase forms phenocrysts averaging 0.3-1.0 mm in size, with a few up to 1.7 mm long. Alteration is slight to moderate to sericite and locally slight to strong to patches of epidote.

The groundmass is variable, in part dominated by cryptocrystalline plagioclase and in part by extremely fine grained plagioclase. It shows a variety of textures in diffuse patches; some of these may represent fragments. Sericite forms disseminated grains and patches. Ti-oxide forms anhedral patches up to 0.7 mm in size. Pyrite forms disseminated grains and clusters of grains averaging 0.01-0.1 mm in size, with a few up to 0.5 mm across. On one side of the largest pyrite grain is an overgrowth of quartz grains 0.05 mm long oriented perpendicular to the pyrite crystal face.

The sericite-rich fragment shows a variety of textures, which suggest that it may be fragmental as well. However, alteration has destroyed original textures. Much of the fragment is dominated by sericite. A few patches are dominated by extremely fine grained plagioclase. The color varies in patches from colorless to deep orange, depending on the abundance of limonite.

Cherty fragments up to 1.7 mm in size are dominated by cryptocrystalline aggregates, which were recrystallized along a few veinlets to extremely fine grained quartz with patches of sericite.

Vein textures are generally similar to those in PS-BF II-30.

Quartz shows two textures. Most commonly it forms aggregates of unoriented, anhedral grains averaging 0.05-0.25 mm in size. Less commonly it forms subparallel, feathery aggregates, mainly along borders of a sulfide lens and the sericite-rich fragment.

(continued)

In the main vein, sulfides show a banded texture, with coarse lenses rich in chalcopyrite, galena, or sphalerite.

Sphalerite forms patches up to several mm across. Large grains contains irregular inclusions of chalcopyrite, but exsolution blebs are scarce. It is intergrown coarsely to locally finely with chalcopyrite and galena.

Chalcopyrite forms patches up to a few mm across. These commonly contain minor to abundant anhedral to subhedral grains of pyrite. Smaller patches are intergrown coarsely to finely with sphalerite and galena.

Galena forms patches up to a few mm across. Along borders of galena and sphalerite commonly are minor patches of chalcopyrite. Galena-chalcopyrite forms intimate intergrowths along some grain borders in sphalerite aggregates.

Sericite forms scattered patches of extremely fine grains.

Covellite occurs in replacement patches along borders of chalcopyrite patches, and in veinlets cutting sulfides. Associated with covellite in veins are cryptocrystalline aggregates of secondary, high-relief Pb- and Zn-minerals of unknown composition.

Late wispy veinlets up to 0.05 mm wide are of limonite.

APPENDIX II

Soil Geochemistry Correlation Coefficients

BIGFOOT GRID - 1986/87 SOIL GEOCHEMISTRY CORRELATION COEFFICIENTS
SAMPLING BY SHANGRI-LA MINERALS LTD., DATA SUPPLIED BY ACME ANALYTICAL LABORATORIES LTD.
N = 1059

	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Au
Mo	1.00	0.81	0.28	0.81	0.80	-0.04	0.00	0.03	0.14	0.31	0.02	-0.08	-0.05	0.79	0.18	0.01	-0.15	-0.10	-0.03	0.02	-0.10	-0.03	0.01	-0.16	-0.02	-0.12	-0.08	0.23	0.53	0.45
Cu	0.81	1.00	0.39	0.95	0.92	-0.03	0.02	-0.01	0.15	0.26	0.01	-0.04	0.00	0.91	0.11	-0.01	-0.09	-0.05	-0.03	0.00	-0.07	0.01	-0.03	-0.09	-0.01	-0.07	-0.03	0.16	0.57	0.53
Pb	0.28	0.39	1.00	0.23	0.26	0.07	0.01	0.02	0.06	0.14	0.01	-0.02	0.00	0.19	0.05	0.00	-0.07	-0.04	0.01	0.01	-0.07	-0.01	0.12	-0.10	-0.01	-0.07	-0.04	0.15	0.07	0.64
Zn	0.81	0.95	0.23	1.00	0.99	-0.05	-0.01	-0.01	0.13	0.25	0.01	-0.03	-0.02	0.99	0.09	-0.01	-0.10	-0.06	-0.04	-0.02	-0.08	-0.02	-0.04	-0.08	-0.01	-0.09	-0.05	0.13	0.66	0.45
Ag	0.80	0.92	0.26	0.99	1.00	-0.05	0.00	-0.02	0.13	0.27	0.01	-0.02	-0.03	0.99	0.10	0.02	-0.11	-0.06	-0.03	-0.01	-0.08	-0.02	-0.02	-0.09	-0.02	-0.08	-0.06	0.14	0.67	0.48
Ni	-0.04	-0.03	0.07	-0.05	-0.05	1.00	0.60	0.21	0.46	0.09	0.09	0.30	0.43	-0.06	0.02	-0.10	0.46	0.26	0.31	0.22	0.73	0.25	0.18	0.23	0.15	0.54	0.18	0.07	0.03	-0.03
Co	0.00	0.02	0.01	-0.01	0.00	0.60	1.00	0.38	0.43	0.11	0.01	0.20	0.35	-0.01	0.06	0.00	0.34	0.31	0.37	0.32	0.50	0.30	0.25	0.15	0.16	0.45	0.10	0.14	0.03	-0.05
Mn	0.03	-0.01	0.02	-0.01	-0.02	0.21	0.38	1.00	0.09	0.05	0.20	-0.03	0.17	-0.02	-0.01	-0.01	-0.02	0.15	0.47	0.15	0.14	0.05	0.41	-0.12	0.00	0.03	0.02	0.16	0.01	-0.03
Fe	0.14	0.15	0.06	0.13	0.13	0.46	0.43	0.09	1.00	0.23	0.00	0.28	0.25	0.12	0.19	-0.02	0.73	0.21	0.26	0.08	0.63	0.33	0.00	0.41	0.13	0.50	0.15	0.06	0.16	0.01
As	0.31	0.26	0.14	0.25	0.27	0.09	0.11	0.05	0.23	1.00	0.07	0.00	0.05	0.24	0.23	0.01	-0.01	0.01	0.03	0.21	0.04	0.10	0.07	-0.06	0.08	0.04	0.00	0.21	0.21	0.18
U	0.02	0.01	0.01	0.01	0.01	0.09	0.01	0.20	0.00	0.07	1.00	-0.08	0.06	0.00	0.02	0.00	-0.10	0.05	0.11	0.09	0.00	0.04	0.18	-0.01	0.01	0.03	0.11	0.14	0.01	0.01
Th	-0.08	-0.04	-0.02	-0.03	-0.02	0.30	0.20	-0.03	0.28	0.00	-0.08	1.00	0.09	-0.03	0.02	-0.06	0.34	0.12	0.18	0.07	0.38	0.17	-0.12	0.28	0.03	0.45	0.04	-0.16	0.02	-0.06
Sr	-0.05	0.00	0.00	-0.02	-0.03	0.43	0.35	0.17	0.25	0.05	0.06	0.09	1.00	-0.03	-0.04	-0.05	0.26	0.64	0.16	0.20	0.36	0.24	0.27	0.10	0.19	0.21	0.09	0.14	0.01	-0.05
Cd	0.79	0.91	0.19	0.99	0.99	-0.06	-0.01	-0.02	0.12	0.24	0.00	-0.03	-0.03	1.00	0.07	-0.01	-0.09	-0.06	-0.04	-0.03	-0.07	-0.02	-0.04	-0.08	-0.02	-0.09	-0.04	0.12	0.68	0.41
Sb	0.18	0.11	0.05	0.09	0.10	0.02	0.06	-0.01	0.19	0.23	0.02	0.02	-0.04	0.07	1.00	0.05	0.02	-0.04	0.01	-0.02	0.04	0.09	0.04	-0.01	0.03	0.02	0.03	0.13	0.19	0.10
Bi	0.01	-0.01	0.00	-0.01	0.02	-0.10	0.00	-0.01	-0.02	0.01	0.00	-0.06	-0.05	-0.01	0.05	1.00	-0.09	-0.06	-0.07	0.01	-0.09	0.13	0.05	-0.13	-0.05	-0.09	-0.03	0.15	0.00	-0.01
V	-0.15	-0.09	-0.07	-0.10	-0.11	0.46	0.34	-0.02	0.73	-0.01	-0.10	0.34	0.26	-0.09	0.02	-0.09	1.00	0.29	0.11	-0.06	0.71	0.35	-0.17	0.69	0.11	0.51	0.28	-0.28	-0.01	-0.14
Ca	-0.10	-0.05	-0.04	-0.06	-0.06	0.26	0.31	0.15	0.21	0.01	0.05	0.12	0.64	-0.06	-0.04	-0.06	0.29	1.00	0.08	0.14	0.23	0.41	0.27	0.23	0.20	0.17	0.15	0.15	-0.02	-0.09
P	-0.03	-0.03	0.01	-0.04	-0.03	0.31	0.37	0.47	0.26	0.03	0.11	0.18	0.16	-0.04	0.01	-0.07	0.11	0.08	1.00	0.13	0.36	0.01	0.19	-0.01	0.06	0.44	0.06	0.04	0.02	-0.05
La	0.02	0.00	0.01	-0.02	-0.01	0.22	0.32	0.15	0.08	0.21	0.09	0.07	0.20	-0.03	-0.02	0.01	-0.06	0.14	0.13	1.00	0.05	0.14	0.29	-0.13	0.10	0.28	-0.08	0.24	-0.01	-0.04
Cr	-0.10	-0.07	-0.07	-0.08	-0.08	0.73	0.50	0.14	0.63	0.04	0.00	0.38	0.36	-0.07	0.04	-0.09	0.71	0.23	0.36	0.05	1.00	0.22	-0.09	0.46	0.16	0.60	0.29	-0.19	0.06	-0.11
Mg	-0.03	0.01	-0.01	-0.02	-0.02	0.25	0.30	0.05	0.33	0.10	0.04	0.17	0.24	-0.02	0.09	0.13	0.35	0.41	0.01	0.14	0.22	1.00	0.15	0.29	0.13	0.24	0.18	0.24	-0.03	-0.03
Ba	0.01	-0.03	0.12	-0.04	-0.02	0.18	0.25	0.41	0.00	0.07	0.18	-0.12	0.27	-0.04	0.04	0.05	-0.17	0.27	0.19	0.29	-0.09	0.15	1.00	-0.34	0.02	0.06	-0.14	0.54	-0.04	0.03
Ti	-0.16	-0.09	-0.10	-0.08	-0.09	0.23	0.15	-0.12	0.41	-0.06	-0.01	0.28	0.10	-0.08	-0.01	-0.13	0.69	0.23	-0.01	-0.13	0.46	0.29	-0.34	1.00	0.10	0.31	0.44	-0.38	-0.02	-0.14
B	-0.02	-0.01	-0.01	-0.01	-0.02	0.15	0.16	0.00	0.13	0.08	0.01	0.03	0.19	-0.02	0.03	-0.05	0.11	0.20	0.06	0.10	0.16	0.13	0.02	0.10	1.00	0.09	0.04	0.02	0.03	-0.01
Al	-0.12	-0.07	-0.07	-0.09	-0.08	0.54	0.45	0.03	0.50	0.04	0.03	0.45	0.21	-0.09	0.02	-0.09	0.51	0.17	0.44	0.28	0.60	0.24	0.06	0.31	0.09	1.00	0.22	-0.04	0.02	-0.14
Na	-0.08	-0.03	-0.04	-0.05	-0.06	0.18	0.10	0.02	0.15	0.00	0.11	0.04	0.09	-0.04	0.03	-0.03	0.28	0.15	0.06	-0.08	0.29	0.18	-0.14	0.44	0.04	0.22	1.00	-0.10	0.05	-0.09
K	0.23	0.16	0.15	0.13	0.14	0.07	0.14	0.16	0.06	0.21	0.14	-0.16	0.14	0.12	0.13	0.15	-0.28	0.15	0.04	0.24	-0.19	0.24	0.54	-0.38	0.02	-0.04	-0.10	1.00	0.06	0.15
W	0.53	0.57	0.07	0.66	0.67	0.03	0.03	0.01	0.16	0.21	0.01	0.02	0.01	0.68	0.19	0.00	-0.01	-0.02	0.02	-0.01	0.06	-0.03	-0.04	-0.02	0.03	0.02	0.05	0.06	1.00	0.24
Au	0.45	0.53	0.64	0.45	0.48	-0.03	-0.05	-0.03	0.01	0.18	0.01	-0.06	-0.05	0.41	0.10	-0.01	-0.14	-0.09	-0.05	-0.04	-0.11	-0.03	0.03	-0.14	-0.01	-0.14	-0.09	0.15	0.24	1.00

LITTLE BIGFOOT GRID - 1987 SOIL GEOCHEMISTRY CORRELATION COEFFICIENTS
SAMPLING BY MOUNTAINSIDE MANAGEMENT LTD., DATA SUPPLIED BY ACME ANALYTICAL LABORATORIES LTD.
N = 489

	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Au
Mo	1.00	0.18	0.21	0.13	0.29	0.07	0.11	0.12	0.30	0.25	0.04	0.08	0.00	0.09	0.03	-0.06	-0.15	-0.06	0.03	0.20	-0.08	-0.02	0.17	-0.18	0.09	0.04	0.00	0.12	0.07	0.01
Cu	0.18	1.00	0.25	0.49	0.24	0.36	0.36	0.37	0.37	0.19	0.11	0.17	0.15	0.43	0.01	-0.05	0.16	0.23	0.23	0.15	0.15	0.19	0.28	-0.04	0.12	0.26	0.05	0.07	0.01	0.02
Pb	0.21	0.25	1.00	0.13	0.29	0.06	0.26	0.23	0.18	0.20	-0.03	0.12	0.07	0.02	-0.02	-0.03	0.03	-0.01	0.18	0.25	0.01	-0.01	0.43	0.03	0.11	0.16	-0.03	0.14	0.00	0.03
Zn	0.13	0.49	0.13	1.00	0.06	0.50	0.35	0.37	0.10	0.27	0.14	0.09	0.22	0.81	-0.01	-0.06	0.01	0.49	0.06	0.17	0.07	0.11	0.32	-0.02	0.10	0.05	0.00	0.06	-0.06	0.11
Ag	0.29	0.24	0.29	0.06	1.00	0.07	0.04	0.04	0.11	0.36	-0.01	0.08	0.00	0.00	0.00	-0.01	-0.02	-0.04	0.10	0.07	-0.03	-0.04	0.10	-0.08	0.03	0.01	0.04	0.10	-0.03	-0.03
Ni	0.07	0.36	0.06	0.50	0.07	1.00	0.50	0.38	0.14	0.26	0.03	0.21	0.39	0.34	0.09	-0.16	0.31	0.39	0.18	0.14	0.71	0.33	0.31	0.27	0.15	0.34	0.16	0.07	-0.03	0.04
Co	0.11	0.36	0.26	0.35	0.04	0.50	1.00	0.70	0.29	0.26	0.16	0.31	0.31	0.21	-0.03	-0.12	0.25	0.31	0.21	0.50	0.24	0.31	0.40	0.19	0.31	0.36	0.20	0.17	-0.01	0.04
Mn	0.12	0.37	0.23	0.37	0.04	0.38	0.70	1.00	0.33	0.18	0.30	0.18	0.31	0.33	0.00	-0.07	0.13	0.35	0.30	0.28	0.20	0.43	0.44	-0.03	0.15	0.13	0.24	0.24	0.00	-0.01
Fe	0.30	0.37	0.18	0.10	0.11	0.14	0.29	0.33	1.00	0.21	0.14	0.25	0.02	0.06	-0.02	-0.04	0.37	-0.01	0.31	0.14	0.18	0.40	0.15	-0.01	0.14	0.32	0.18	0.16	0.11	0.00
As	0.25	0.19	0.20	0.27	0.36	0.26	0.26	0.18	0.21	1.00	-0.01	0.08	0.26	0.08	-0.02	-0.07	0.09	0.19	0.18	0.22	0.08	0.17	0.16	0.11	0.16	0.13	0.12	0.14	0.03	0.11
U	0.04	0.11	-0.03	0.14	-0.01	0.03	0.16	0.30	0.14	-0.01	1.00	0.10	0.09	0.25	0.17	0.17	-0.01	0.13	0.00	0.01	-0.04	0.08	0.06	-0.04	0.00	-0.05	0.12	0.05	-0.05	0.00
Th	0.08	0.17	0.12	0.09	0.08	0.21	0.31	0.18	0.25	0.08	0.10	1.00	-0.05	0.03	0.08	0.06	0.08	-0.07	0.24	0.42	0.20	-0.07	0.07	0.13	0.14	0.56	-0.03	-0.01	0.03	0.11
Sr	0.00	0.15	0.07	0.22	0.00	0.39	0.31	0.31	0.02	0.26	0.09	-0.05	1.00	0.21	-0.06	-0.17	0.36	0.68	-0.01	0.00	0.30	0.35	0.15	0.46	0.20	-0.02	0.32	0.10	0.01	0.00
Cd	0.09	0.43	0.02	0.81	0.00	0.34	0.21	0.33	0.06	0.08	0.25	0.03	0.21	1.00	-0.02	-0.03	0.00	0.54	0.01	0.04	-0.02	0.08	0.15	-0.06	0.10	-0.08	0.02	0.06	-0.03	0.05
Sb	0.03	0.01	-0.02	-0.01	0.00	0.09	-0.03	0.00	-0.02	-0.02	0.17	0.08	-0.06	-0.02	1.00	0.19	-0.07	-0.07	0.03	-0.01	0.13	0.01	-0.04	-0.07	-0.04	0.12	-0.02	-0.05	0.25	0.00
Bi	-0.06	-0.05	-0.03	-0.06	-0.01	-0.16	-0.12	-0.07	-0.04	-0.07	0.17	0.06	-0.17	-0.03	0.19	1.00	-0.11	-0.16	-0.02	0.02	-0.11	-0.14	-0.08	-0.16	-0.06	0.00	-0.10	-0.08	-0.06	0.02
V	-0.15	0.16	0.03	0.01	-0.02	0.31	0.25	0.13	0.37	0.09	-0.01	0.08	0.36	0.00	-0.07	-0.11	1.00	0.31	0.14	-0.16	0.42	0.39	-0.02	0.66	0.12	0.26	0.18	-0.17	0.00	0.01
Ca	-0.06	0.23	-0.01	0.49	-0.04	0.39	0.31	0.35	-0.01	0.19	0.13	-0.07	0.68	0.54	-0.07	-0.16	0.31	1.00	0.05	0.02	0.16	0.41	0.11	0.33	0.20	-0.06	0.34	0.20	0.03	0.02
P	0.03	0.23	0.18	0.06	0.10	0.18	0.21	0.30	0.31	0.18	0.00	0.24	-0.01	0.01	0.03	-0.02	0.14	0.05	1.00	0.12	0.25	0.09	0.18	0.01	0.04	0.46	0.10	0.09	0.00	-0.01
La	0.20	0.15	0.25	0.17	0.07	0.14	0.50	0.28	0.14	0.22	0.01	0.42	0.00	0.04	-0.01	0.02	-0.16	0.02	0.12	1.00	-0.02	0.00	0.30	-0.07	0.12	0.32	0.00	0.08	0.03	0.09
Cr	-0.08	0.15	0.01	0.07	-0.03	0.71	0.24	0.20	0.18	0.08	-0.04	0.20	0.30	-0.02	0.13	-0.11	0.42	0.16	0.25	-0.02	1.00	0.33	0.11	0.33	0.05	0.37	0.12	-0.06	0.01	0.03
Mg	-0.02	0.19	-0.01	0.11	-0.04	0.33	0.31	0.43	0.40	0.17	0.08	-0.07	0.35	0.08	0.01	-0.14	0.39	0.41	0.09	0.00	0.33	1.00	0.14	0.13	0.17	0.10	0.66	0.41	0.13	0.01
Ba	0.17	0.28	0.43	0.32	0.10	0.31	0.40	0.44	0.15	0.16	0.06	0.07	0.15	0.15	-0.04	-0.08	-0.02	0.11	0.18	0.30	0.11	0.14	1.00	-0.10	0.06	0.15	0.04	0.24	-0.02	0.01
Ti	-0.18	-0.04	0.03	-0.02	-0.08	0.27	0.19	-0.03	-0.01	0.11	-0.04	0.13	0.46	-0.06	-0.07	-0.16	0.66	0.33	0.01	-0.07	0.33	0.13	-0.10	1.00	0.23	0.19	0.17	-0.14	-0.04	0.05
B	0.09	0.12	0.11	0.10	0.03	0.15	0.31	0.15	0.14	0.16	0.00	0.14	0.20	0.10	-0.04	-0.06	0.12	0.20	0.04	0.12	0.05	0.17	0.06	0.23	1.00	0.15	0.19	0.16	0.04	0.01
Al	0.04	0.26	0.16	0.05	0.01	0.34	0.36	0.13	0.32	0.13	-0.05	0.56	-0.02	-0.08	0.12	0.00	0.26	-0.06	0.46	0.32	0.37	0.10	0.15	0.19	0.15	1.00	0.00	-0.11	0.11	0.06
Na	0.00	0.05	-0.03	0.00	0.04	0.16	0.20	0.24	0.18	0.12	0.12	-0.03	0.32	0.02	-0.02	-0.10	0.18	0.34	0.10	0.00	0.12	0.66	0.04	0.17	0.19	0.00	1.00	0.51	0.09	-0.02
K	0.12	0.07	0.14	0.06	0.10	0.07	0.17	0.24	0.16	0.14	0.05	-0.01	0.10	0.06	-0.05	-0.08	-0.17	0.20	0.09	0.08	-0.06	0.41	0.24	-0.14	0.16	-0.11	0.51	1.00	0.02	-0.01
W	0.07	0.01	0.00	-0.06	-0.03	-0.03	-0.01	0.00	0.11	0.03	-0.05	0.03	0.01	-0.03	0.25	-0.06	0.00	0.03	0.00	0.03	0.01	0.13	-0.02	-0.04	0.04	0.11	0.09	0.02	1.00	-0.01
Au	0.01	0.02	0.03	0.11	-0.03	0.04	0.04	-0.01	0.00	0.11	0.00	0.11	0.00	0.05	0.00	0.02	0.01	0.02	-0.01	0.09	0.03	0.01	0.01	0.05	0.01	0.06	-0.02	-0.01	-0.01	1.00

BIGFOOT PROPERTY - DIFFERENCES IN SOIL GEOCHEMISTRY CORRELATION COEFFICIENTS BETWEEN THE BIGFOOT AND LITTLE BIGFOOT GRIDS
SAMPLING BY SHANGRI-LA MINERALS LTD. AND MOUNTAINSIDE MANAGEMENT LTD.
DATA SUPPLIED BY ACME ANALYTICAL LABORATORIES LTD.

	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Au
Mo	0.00	-0.63	-0.07	-0.68	-0.51	0.11	0.11	0.09	0.16	-0.07	0.02	0.16	0.05	-0.69	-0.14	-0.07	0.00	0.03	0.06	0.19	0.02	0.02	0.16	-0.02	0.11	0.16	0.08	-0.11	-0.45	-0.44
Cu	-0.63	0.00	-0.15	-0.45	-0.67	0.39	0.34	0.39	0.22	-0.07	0.10	0.21	0.15	-0.48	-0.10	-0.04	0.25	0.28	0.26	0.15	0.22	0.18	0.31	0.05	0.13	0.33	0.09	-0.09	-0.56	-0.51
Pb	-0.07	-0.15	0.00	-0.10	0.02	0.00	0.25	0.21	0.12	0.06	-0.04	0.14	0.07	-0.17	-0.06	-0.03	0.10	0.03	0.17	0.24	0.08	0.01	0.31	0.13	0.12	0.23	0.02	-0.01	-0.08	-0.60
Zn	-0.68	-0.45	-0.10	0.00	-0.92	0.55	0.36	0.39	-0.03	0.01	0.14	0.13	0.24	-0.19	-0.10	-0.05	0.11	0.54	0.10	0.20	0.15	0.12	0.36	0.07	0.11	0.14	0.05	-0.07	-0.72	-0.34
Ag	-0.51	-0.67	0.02	-0.92	0.00	0.11	0.04	0.06	-0.02	0.08	-0.02	0.10	0.03	-0.99	-0.10	-0.03	0.09	0.02	0.14	0.07	0.05	-0.02	0.12	0.01	0.05	0.10	0.10	-0.04	-0.70	-0.51
Ni	0.11	0.39	0.00	0.55	0.11	0.00	-0.10	0.17	-0.33	0.17	-0.06	-0.09	-0.04	0.40	0.07	-0.06	-0.15	0.13	-0.13	-0.09	-0.02	0.07	0.13	0.04	0.00	-0.20	-0.02	0.00	-0.06	0.07
Co	0.11	0.34	0.25	0.36	0.04	-0.10	0.00	0.32	-0.14	0.15	0.15	0.11	-0.04	0.22	-0.09	-0.12	-0.10	0.00	-0.16	0.18	-0.25	0.01	0.15	0.04	0.15	-0.09	0.10	0.03	-0.05	0.09
Mn	0.09	0.39	0.21	0.39	0.06	0.17	0.32	0.00	0.24	0.13	0.11	0.21	0.14	0.35	0.01	-0.07	0.15	0.20	-0.17	0.14	0.05	0.38	0.03	0.09	0.15	0.10	0.22	0.09	-0.01	0.02
Fe	0.16	0.22	0.12	-0.03	-0.02	-0.33	-0.14	0.24	0.00	-0.02	0.15	-0.03	-0.22	-0.06	-0.21	-0.03	-0.37	-0.22	0.05	0.06	-0.44	0.08	0.16	-0.42	0.00	-0.18	0.03	0.10	-0.05	-0.01
As	-0.07	-0.07	0.06	0.01	0.08	0.17	0.15	0.13	-0.02	0.00	-0.08	0.09	0.22	-0.16	-0.25	-0.08	0.09	0.18	0.15	0.02	0.03	0.07	0.10	0.17	0.08	0.09	0.11	-0.07	-0.19	-0.07
U	0.02	0.10	-0.04	0.14	-0.02	-0.06	0.15	0.11	0.15	-0.08	0.00	0.18	0.03	0.25	0.15	0.18	0.09	0.09	-0.11	-0.08	-0.04	0.04	-0.12	-0.04	-0.01	-0.07	0.01	-0.09	-0.07	-0.01
Th	0.16	0.21	0.14	0.13	0.10	-0.09	0.11	0.21	-0.03	0.09	0.18	0.00	-0.14	0.06	0.05	0.12	-0.26	-0.18	0.06	0.35	-0.18	-0.24	0.19	-0.14	0.10	0.11	-0.07	0.15	0.01	0.17
Sr	0.05	0.15	0.07	0.24	0.03	-0.04	-0.04	0.14	-0.22	0.22	0.03	-0.14	0.00	0.24	-0.03	-0.11	0.09	0.04	-0.16	-0.20	-0.05	0.11	-0.12	0.36	0.01	-0.23	0.23	-0.04	0.00	0.05
Cd	-0.69	-0.48	-0.17	-0.19	-0.99	0.40	0.22	0.35	-0.06	-0.16	0.25	0.06	0.24	0.00	-0.09	-0.02	0.09	0.60	0.05	0.07	0.05	0.10	0.19	0.01	0.11	0.00	0.06	-0.06	-0.70	-0.36
Sb	-0.14	-0.10	-0.06	-0.10	-0.10	0.07	-0.09	0.01	-0.21	-0.25	0.15	0.05	-0.03	-0.09	0.00	0.14	-0.09	-0.03	0.02	0.00	0.09	-0.08	-0.09	-0.06	-0.08	0.10	-0.05	-0.18	0.06	-0.09
Bi	-0.07	-0.04	-0.03	-0.05	-0.03	-0.06	-0.12	-0.07	-0.03	-0.08	0.18	0.12	-0.11	-0.02	0.14	0.00	-0.03	-0.10	0.05	0.01	-0.02	-0.27	-0.12	-0.03	-0.01	0.09	-0.07	-0.22	-0.06	0.02
V	0.00	0.25	0.10	0.11	0.09	-0.15	-0.10	0.15	-0.37	0.09	0.09	-0.26	0.09	0.09	-0.09	-0.03	0.00	0.02	0.04	-0.09	-0.29	0.05	0.15	-0.03	0.01	-0.25	-0.11	0.11	0.01	0.15
Ca	0.03	0.28	0.03	0.54	0.02	0.13	0.00	0.20	-0.22	0.18	0.09	-0.18	0.04	0.60	-0.03	-0.10	0.02	0.00	-0.03	-0.12	-0.07	0.00	-0.16	0.11	0.00	-0.23	0.19	0.05	0.05	0.11
P	0.06	0.26	0.17	0.10	0.14	-0.13	-0.16	-0.17	0.05	0.15	-0.11	0.06	-0.16	0.05	0.02	0.05	0.04	-0.03	0.00	-0.01	-0.11	0.08	-0.01	0.02	-0.02	0.02	0.04	0.05	-0.01	0.03
La	0.19	0.15	0.24	0.20	0.07	-0.09	0.18	0.14	0.06	0.02	-0.08	0.35	-0.20	0.07	0.00	0.01	-0.09	-0.12	-0.01	0.00	-0.08	-0.14	0.01	0.06	0.02	0.04	0.08	-0.16	0.04	0.13
Cr	0.02	0.22	0.08	0.15	0.05	-0.02	-0.25	0.05	-0.44	0.03	-0.04	-0.18	-0.05	0.05	0.09	-0.02	-0.29	-0.07	-0.11	-0.08	0.00	0.11	0.20	-0.13	-0.11	-0.23	-0.17	0.13	-0.05	0.14
Mg	0.02	0.18	0.01	0.12	-0.02	0.07	0.01	0.38	0.08	0.07	0.04	-0.24	0.11	0.10	-0.08	-0.27	0.05	0.00	0.08	-0.14	0.11	0.00	-0.01	-0.16	0.04	-0.15	0.48	0.17	0.16	0.04
Ba	0.16	0.31	0.31	0.36	0.12	0.13	0.15	0.03	0.16	0.10	-0.12	0.19	-0.12	0.19	-0.09	-0.12	0.15	-0.16	-0.01	0.01	0.20	-0.01	0.00	0.24	0.04	0.09	0.18	-0.30	0.02	-0.02
Ti	-0.02	0.05	0.13	0.07	0.01	0.04	0.04	0.09	-0.42	0.17	-0.04	-0.14	0.36	0.01	-0.06	-0.03	-0.03	0.11	0.02	0.06	-0.13	-0.16	0.24	0.00	0.13	-0.12	-0.27	0.24	-0.02	0.19
B	0.11	0.13	0.12	0.11	0.05	0.00	0.15	0.15	0.00	0.08	-0.01	0.10	0.01	0.11	-0.08	-0.01	0.01	0.00	-0.02	0.02	-0.11	0.04	0.04	0.13	0.00	0.07	0.15	0.14	0.01	0.02
Al	0.16	0.33	0.23	0.14	0.10	-0.20	-0.09	0.10	-0.18	0.09	-0.07	0.11	-0.23	0.00	0.10	0.09	-0.25	-0.23	0.02	0.04	-0.23	-0.15	0.09	-0.12	0.07	0.00	-0.22	-0.07	0.09	0.20
Na	0.08	0.09	0.02	0.05	0.10	-0.02	0.10	0.22	0.03	0.11	0.01	-0.07	0.23	0.06	-0.05	-0.07	-0.11	0.19	0.04	0.08	-0.17	0.48	0.18	-0.27	0.15	-0.22	0.00	0.61	0.05	0.07
K	-0.11	-0.09	-0.01	-0.07	-0.04	0.00	0.03	0.09	0.10	-0.07	-0.09	0.15	-0.04	-0.06	-0.18	-0.22	0.11	0.05	0.05	-0.16	0.13	0.17	-0.30	0.24	0.14	-0.07	0.61	0.00	-0.05	-0.16
W	-0.45	-0.56	-0.08	-0.72	-0.70	-0.06	-0.05	-0.01	-0.05	-0.19	-0.07	0.01	0.00	-0.70	0.06	-0.06	0.01	0.05	-0.01	0.04	-0.05	0.16	0.02	-0.02	0.01	0.09	0.05	-0.05	0.00	-0.25
Au	-0.44	-0.51	-0.60	-0.34	-0.51	0.07	0.09	0.02	-0.01	-0.07	-0.01	0.17	0.05	-0.36	-0.09	0.02	0.15	0.11	0.03	0.13	0.14	0.04	-0.02	0.19	0.02	0.20	0.07	-0.16	-0.25	0.00

APPENDIX III

Chemex Labs Ltd.

Certificate of Analysis

for

Whole Rock Analyses

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: SMITH, F. MARSHALL CONSULTING

6580 MAYFLOWER DR.
RICHMOND, BC
V7C 3X6

A9125908

Comments: CC: S. COOMBES

CERTIFICATE A9125908

SMITH, F. MARSHALL CONSULTING

Project: P9105-BIGFOOT
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 19-JAN-92.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
208	10	Assay ring to approx 150 mesh
294	10	Crush and split (0-10 pounds)
200	10	Whole rock fusion

* NOTE 1:

Code 1000 is used for repeat gold analyses
It shows typical sample variability due to
coarse gold effects. Each value is
correct for its particular subsample.

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
594	10	Al2O3 %: Whole rock	ICP-AES	0.01	99.99
542	10	BaO %: Whole rock	ICP-AES	0.01	99.99
588	10	CaO %: Whole rock	ICP-AES	0.01	99.99
586	10	Fe2O3(total) %: Whole rock	ICP-AES	0.01	99.99
821	10	K2O %: Whole rock	ICP-AES	0.01	99.99
593	10	MgO %: Whole rock	ICP-AES	0.01	99.99
596	10	MnO %: Whole rock	ICP-AES	0.01	99.99
599	10	Na2O %: Whole rock	ICP-AES	0.01	99.99
597	10	P2O5 %: Whole rock	ICP-AES	0.01	99.99
592	10	SiO2 %: Whole rock	ICP-AES	0.01	99.99
595	10	TiO2 %: Whole rock	ICP-AES	0.01	99.99
475	10	L.O.I. %: Loss on ignition	FURNACE	0.01	99.99
540	10	Total %	CALCULATION	0.01	105.00

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: SMITH, F. MARSHALL CONSULTING **

6580 MAYFLOWER DR.
RICHMOND, BC
V7C 3X6

Project : P9105-BIGFOOT
Comments: CC: S. COOMBES

Certificate Date: 19-JAN-92
Invoice No. : I9125908
P.O. Number :
Account :SV

CERTIFICATE OF ANALYSIS A9125908

SAMPLE	PREP CODE		Al2O3 %	BaO %	CaO %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %	P2O5 %	SiO2 %	TiO2 %	LOI %	TOTAL %
9105-01	208	294	16.62	0.10	0.90	7.40	2.66	3.45	0.29	4.10	0.13	61.06	0.63	3.42	100.75
RS-MAIN	208	294	6.46	0.02	0.32	5.74	1.36	0.42	0.03	1.21	0.29	45.70	0.23	7.85	69.64
PS-BF2-30	208	294	11.78	0.05	0.14	6.64	3.33	1.00	0.02	1.23	0.17	68.32	0.33	5.88	98.89
TS 02	208	294	17.26	0.03	9.42	9.81	0.89	5.96	0.16	3.42	0.17	48.12	0.81	3.83	99.87
TS 03	208	294	13.69	0.06	0.38	4.53	3.32	2.21	0.10	1.30	0.13	69.65	0.47	4.05	99.88
TS 04	208	294	14.84	0.06	0.37	4.92	2.52	1.70	0.07	3.72	0.17	69.10	0.53	3.07	101.05
TS 05	208	294	18.51	0.07	5.69	8.92	2.84	5.21	0.14	5.35	0.32	50.20	1.17	2.62	101.05
TS 06	208	294	15.79	0.08	0.84	4.66	3.58	2.30	0.20	3.70	0.24	65.60	0.56	5.29	102.85
TS 08	208	294	14.16	0.14	1.01	3.23	3.06	0.96	0.04	5.44	0.18	73.00	0.37	0.99	102.55
TS 09	208	294	9.99	0.13	0.39	2.10	4.88	1.61	0.04	0.96	0.10	78.30	0.36	1.72	100.55

CERTIFICATION: Thai D Ma

APPENDIX IV

Geotronics Surveys Ltd.

Geophysical Report

GEOPHYSICAL REPORT

ON

INDUCED POLARIZATION AND RESISTIVITY SURVEYS

OVER THE

BIGFOOT PROJECT

SIMM'S CREEK, HARRISON LAKE

NEW WESTMINSTER M.D.

BRITISH COLUMBIA

PROPERTY	: On southwest shore of Harrison Lake, 160 km from Vancouver, B.C.
	: 49° 27' North Latitude 121° 51' West Longitude
	: N.T.S. 92H/5W
WRITTEN FOR	: F. MARSHALL SMITH CONSULTING INC. : WINFIELD RESOURCES LTD. 6505 Mayflower Drive Richmond, B.C., V7C 3X6
WRITTEN BY	: David G. Mark, Geophysicist GEOTRONICS SURVEYS LTD. #405 - 535 Howe Street Vancouver, B.C., V6C 2Z4
DATED	: March 4, 1992

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APPARENT RESISTIVITY AND IP PSEUDOSECTIONS — Scale 1: 2,500

Survey Date - May, 1990

Survey date - November, 1991

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B. LITTLE BIGFOOT GRID

APPARENT RESISTIVITY AND
IP PSEUDOSECTIONS — Scale 1: 2,500

Survey Date - December, 1991

SURVEY PLANS — Scale 1: 5,000

SUMMARY

Induced polarization and resistivity surveys were carried out during May and June, 1990, and during November and December, 1991, over the Bigfoot property located on the southwest shore of Harrison Lake near the town of Harrison Mills, British Columbia. The purpose of the work was to locate sulphide mineralization containing gold values known to occur on the property, as well as in nearby sulphide deposits such as the Seneca. The purpose was also to locate possible areas of epithermal gold mineralization since there was evidence it may occur on the property.

The IP and resistivity surveys were carried out over two grids, namely, the Bigfoot grid and the Little Bigfoot grid. A Huntec receiver was utilised, operating in the time-domain mode with the dipole-dipole array at one to seven, one to eight, or one to ten separations. The dipole length and reading interval were 30 m, except for two lines on the Bigfoot grid which were also surveyed at 15 m. Fifteen lines were surveyed on the Bigfoot grid and nine lines were surveyed on the Little Bigfoot grid.

Both the induced polarization (chargeability) and the resistivity results were plotted and contoured in pseudosection form by computer. Also plotted on the pseudosections were soil geochemistry results from previous work, as well as some geology. Three levels of the induced polarization, as well as the resistivity data, were each plotted in plan form by computer.

CONCLUSIONS

BIGFOOT GRID

1. The I.P./resistivity surveys reflected both the main showings within the survey grid area, namely the Main Road Zone and the Powerline Zone. For the Main Road Zone, the surveys extended the known strike length of 250m to a possible minimum strike length of 950m. The dip is indicated to be, for the most part, northerly. For the Powerline Zone, the surveys extended the known strike length of 125m to a possible minimum strike length of 500m. The dip is indicated to be southerly.

2. Both showings occur in an anomalous trend that strikes westerly across the survey grid and that has been named the S.C. Anomalous Zone. It consists of a zone of I.P. highs that correlate with a zone of resistivity highs, although individual I.P. highs usually correlate with individual resistivity lows. The I.P. highs reflect sulphides, and the zone of resistivity highs probably reflect increased silicification and/or a different rock-type, and the individual resistivity lows reflect fracturing and/or alteration associated with the sulphide mineralization. Anomalous soil values also occur along this trend, especially those of lead, zinc, and silver.

3. Much of the previous exploration work has been centered on the Main Road Zone and the Powerline Zone. The exploration potential therefore lies at depth as well as along strike of the S.C. Anomalous Zone.

4. Of strong exploration interest are two geophysical anomalies that have been revealed by the I.P./resistivity surveys,

namely the Bay Anomaly and the Creek Anomaly. Both anomalies could be reflecting Seneca-type sulphide mineralization, both dip southerly, and both occur primarily at depth. It is possible that each anomaly is the faulted-off extension of the other. The strongest part of the Bay Anomaly has a minimum strike-length of 100m, which could extend to 450m. The strongest part of the Creek Anomaly has a minimum strike length of 130m which could extend to 600m. There is some correlation with anomalous soil values but a strong soil correlation is not expected since the causative source occurs at depth.

5. Also of strong exploration interest are two possible areas of epithermal gold mineralization. One occurs within the southern part of the grid area, mainly on lines 625E to 750E, giving a minimum strike length of 200m, which possibly extends to 600m. The other occurs on line 375W as well as possibly 250W. The geophysical signature of these two areas is a broad, near flat-lying, but mostly southerly-dipping, resistivity low which is underlain by an I.P. high. The resistivity lows are interpreted to reflect epithermal alteration zones and the I.P. highs are interpreted to reflect pyritization within the footwall and/or within the epithermal vein itself. There is some correlation with anomalous soil values especially with arsenic. The possible northern extension of the Creek Anomaly underlies the southeastern resistivity low/epithermal alteration.

6. The resistivity survey has reflected the Simm's Creek Fault as well as, possibly, a number of other faults. It has also mapped the contact between the rhyodacites south of the Simm's Creek Fault and the andesites north of the fault.

LITTLE BIGFOOT GRID

1. The I.P./resistivity surveys revealed two main anomalous zones of exploration interest, namely the L.B. Anomaly and the Well Anomaly.

2. The L.B. Anomaly occurs within the center of the survey area and consists of an I.P. high correlating with a resistivity low. The dip of the causative source is northerly and the strike-length of the strongest part is 200m, with this increasing to 750m if the weaker parts of the anomaly are included. This anomaly, on line 250E, correlates with an occurence of sulphides within talus, therefore suggesting that the causative source is a zone of sulphides. The correlating resistivity low would be caused by alteration and/or fracturing associated with the sulphides.

3. The Well Anomaly occurs along the southwestern edge of the survey area and appears to be associated with the Well Creek Fault as defined by the resistivity survey. This anomaly consists of a series of I.P. highs that are in all liklihood caused by sulphides. The strike length is a minimum 800m but the dip is difficult to determine since the anomaly occurs on the edge of the survey area.

4. Two other anomalies of possible exploration interest occur within the survey area. One occurs at the north end of lines 150W and 250W, and the other occurs at the south end of lines 650E and 550E. Little else can be said about these anomalies since they occur on the edge of the survey area.

5. The resistivity survey revealed the Well Creek Fault as a strong anomalous low. It is also probably a lithological contact between rhyolite to the north and dacite/latite pyroclastics to the south. Other probable faults were also revealed.

RECOMMENDATIONS

BIGFOOT GRID

1. Further work is recommended along the Bay Anomaly, the Creek Anomaly, and the two areas of possible epithermal gold mineralization. Work is also recommended along the S.C. Anomalous Zone but this zone is considered to be of secondary importance because of the work that has already been done and the narrowness of the known mineralization. The potential along this zone is considered to be at depth and along strike.

2. Detailed geological mapping is recommended on all the target areas in order to determine rock-types, alteration patterns, structure and, possibly, sulphides. The main purpose for the epithermal areas would be to determine whether the two areas are in fact epithermal zones. Backhoe trenching would probably be needed for this. It is quite probable that the trenching would be able to determine the causative source of the I.P. highs, as well.

3. If the possible epithermal zones are determined to be epithermal, then detailed I.P./resistivity surveys are recommended in order to give more accurate drill targets. Additional lines would be needed on the zone on line 375W in order to determine size and strike.

4. Other than the geological mapping recommended above, little else can be done on the Bay Anomaly and the Creek Anomaly since the causative source is likely at depth. Drill hole locations, dips, and strikes could at this time be given but this is not recommended until the geological mapping has been carried out.

LITTLE BIGFOOT GRID

1. The main purpose of further work in this area would be to determine whether the sulphide zones as reflected by the I.P. anomalies carry economic mineralization, i.e., base metals or gold. Therefore, geological mapping is recommended, as well as, possibly, soil sampling and rock geochemistry. Soil sampling has been carried out, but, possibly, different sampling techniques or laboratory techniques may give superior results. The causative source of the L.B. Anomaly can probably be easily revealed by backhoe trenching on line 350E where it appears to be close to the surface. Backhoe trenching is also recommended on the Well anomaly.

GEOPHYSICAL REPORT

ON

INDUCED POLARIZATION AND RESISTIVITY SURVEYS

OVER THE

BIGFOOT PROPERTY

SIMM'S CREEK, HARRISON LAKE

NEW WESTMINSTER M.D.

BRITISH COLUMBIA

INTRODUCTION AND GENERAL REMARKS

This report discusses the instrumentation, theory, field procedure and results of induced polarization (IP) and resistivity surveys carried out over the Bigfoot property located on the southwest shore of Harrison Lake within southern British Columbia.

The IP and resistivity surveys cover two grids within the property. The Bigfoot Grid was surveyed during two periods, from May 18 to June 2, 1990, and from November 5 to 23, 1991. The Little Bigfoot Grid was surveyed from December 4 to 16, 1991.

All work was carried out under the supervision of the writer. The 1990 work was under the field supervision of Marc Habel, a senior geophysical technician, and the 1991 work was under the field supervision of Marc Beaupre, also a senior geophysical technician. Three additional geophysical technicians completed the crew of four.

The purpose of the induced polarization survey work was to locate sulphides which are known to occur with gold mineralization. The IP method has proven to be quite successful in locating sulphide mineralization on the nearby Seneca deposit. In addition, Geotronics Surveys has had positive results in other surveys carried out in the area. The purpose of the resistivity survey was to map lithology, geological structure, and alteration zones. Alteration zones are of particular interest since epithermal alteration has been found on the property as well as in the area.

Much work has previously been carried out on the Bigfoot property, including IP/resistivity surveying. However, with a 25-meter dipole, the previous work was surveyed to only the fourth separation, which gave a theoretical depth penetration of about 60 meters (which is a little more than the third level of the current surveying). The purpose of the additional work was therefore to explore to greater depths as well as to cover areas that had not been previously covered.

Steven Coombes, a geologist with F. Marshall Smith Consulting, was on-site during all phases of the work. He is currently preparing a geological report on the property and this report is being written as an addendum to his. Therefore, general and geological descriptions which occur in his report are omitted from this one.

INSTRUMENTATION

Three alternate transmitters were used for the induced polarization-resistivity survey. One was a Model IPT-1, manufactured by Phoenix Geophysics Ltd. of Markham, Ontario and powered by a 2.5 kw motor-generator, Model MG-2, also manufactured by Phoenix. The second was a Model Mark IV, manufactured by Huntec ('70)

Limited of Scarborough, Ontario, and powered by a 7.5 kw motor-generator also manufactured by Huntec. The third was a Model IPC-7 transmitter powered by a 2.5 kw motor generator, both manufactured by Scintrex of Concord, Ontario.

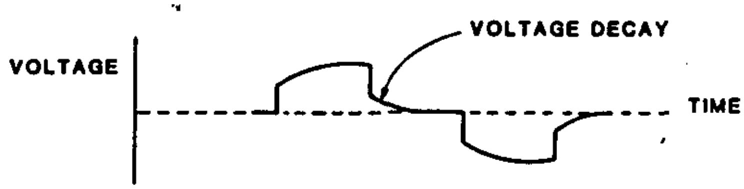
The receiver used was a model Mark IV manufactured by Huntec ('70) Limited. This is state-of-the-art equipment, with software-controlled functions, programmable through the front panel. The Mark IV system is capable of time domain, frequency domain, and complex resistivity measurements.

THEORY

When a voltage is applied to the ground, electrical current flows, mainly in the electrolyte-filled capillaries within the rock. If the capillaries also contain certain mineral particles that transport current by electrons (most sulphides, some oxides and graphite), then the ionic charges build up at the particle-electrolyte interface, positive ones where the current enters the particle and negative ones where it leaves. This accumulation of charge creates a voltage that tends to oppose the current flow across the interface. When the current is switched off, the created voltage slowly decreases as the accumulated ions diffuse back into the electrolyte. This type of induced polarization phenomena is known as electrode polarization.

A similar effect occurs if clay particles are present in the conducting medium. Charged clay particles attract oppositely-charged ions from the surrounding electrolyte; when the current stops, the ions slowly diffuse back to their equilibrium state. This process is known as membrane polarization and gives rise to induced polarization effects even in the absence of metallic-type conductors.

Most IP surveys are carried out by taking measurements in the "time-domain" or the "frequency-domain".



RECORDED VOLTAGE

Time-domain measurements involve sampling the waveform at intervals after the current is switched off, to derive a dimensionless paramater, the chargeability, "M" which is a measure of the strength of the induced polarization effect. Measurements in the frequency-domain are based on the fact that the resistance produced at the electrolyte-charged particle interface decreases with increasing frequency. The difference between apparent resistivity readings at a high and low frequency is expressed as the percentage frequency effect, "PFE".

The quantity, apparent resistivity, , computed from electrical survey results is only the true earth resistivity in a homogenous sub-surface. When vertical (and lateral) variations in electrical properties occur, as they always will in the real world, the apparent resistivity will be influenced by the various layers, depending on their depth relative to the electrode spacing. A single reading cannot therefore be attributed to a particular depth.

The ability of the ground to transmit electricity is, in the absence of metallic-type conductors, almost completely depending on the volume, nature and content of the pore space. Empirical relationships can be derived linking the formation resistivity to the pore water resistivity, as a function of porosity. Such a formula is Archie's Law, which states (assuming complete saturation) in clean formations:

$$\frac{Ro}{Rw} = 0^{-2}$$

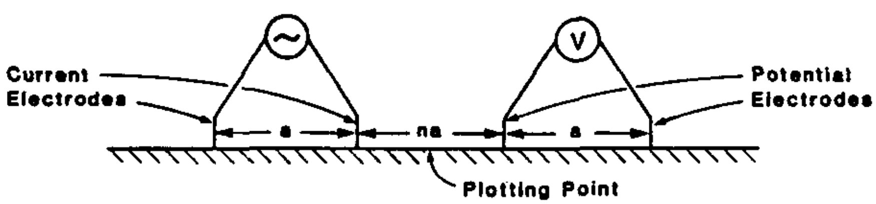
Where: Ro is formation resistivity
Rw is pore water resistivity
0 is porosity

SURVEY PROCEDURE

The IP and resistivity measurements were taken in the time-domain mode using an 8-second square wave charge cycle (2-seconds positive charge, 2-seconds off, 2-seconds negative charge, 2-seconds off). The delay time used after the charge shuts off was 200 milliseconds and the integration time used was 1,500 milli-seconds divided into 10 windows.

The configuration used in the field was the dipole-dipole array shown as follows:

DIPOLE - DIPOLE ARRAY



The dipole-dipole array was chosen because of its symmetry. Narrow vein-type targets such as can occur on the Bigfoot property can be missed using non-symmetrical arrays such as the pole-dipole.

The following table shows for each line the number of separations that the dipole-dipole array was taken to, and, as a result, the theoretical depth penetration. Both grids were surveyed with a 30-meter dipole length. However, two lines on the Bigfoot Grid were first surveyed with a 15-meter dipole length for purposes of greater detail.

BIGFOOT GRID: 15-meter dipoles

Line #	Number of Separations	Theoretical Depth Penetration	Date Surveyed	Length	Map #
125E	10	80 m	May 1990	450 m	6c
187E	10	80 m	May 1990	450 m	6d
			sub-total	900 m	

BIGFOOT GRID: 30-meter dipoles

Line #	Number of Separations	Theoretical Depth Penetration	Date Surveyed	Length	Map #
375W	3-10	60-165 m	May 1990	1,050 m	6a
250W	7-10	120-165 m	May 1990	1,500 m	6b
125W	8	130 m	Nov 1991	600 m	7a
000	8	130 m	Nov 1991	600 m	7b
62E	8	130 m	Nov 1991	570 m	7c
125E	8	130 m	Nov 1991	420 m	7d
187E	8	130 m	Nov 1991	450 m	7e
250E	8	130 m	Nov 1991	480 m	7f
375E	8	130 m	Nov 1991	840 m	7g
500E	8	130 m	Nov 1991	690 m	7h
625E	8	130 m	Nov 1991	990 m	7i
687E	7-10	120-165 m	May 1990	900 m	6e
750E*	7-10	120-165 m	May 1990	1,080 m	6f
875E	8	130 m	Nov 1991	900 m	7j
938E	8	130 m	Nov 1991	960 m	7k
			sub-total	12,030 m	

LITTLE BIGFOOT GRID: 30-m dipoles

250W	8	130 m	Dec 1991	720 m	8a
150W	8	130 m	Dec 1991	660 m	8b
50W	8	130 m	Dec 1991	630 m	8c
150W	8	130 m	Dec 1991	630 m	8d
250W	8	130 m	Dec 1991	690 m	8e
350W	8	130 m	Dec 1991	720 m	8f
450W	8	130 m	Dec 1991	690 m	8g
550W	8	130 m	Dec 1991	720 m	8h
650W	8	130 m	Dec 1991	570 m	8i
			sub-total	6,030 m	

* Line 750E had 750 m surveyed in May 1990 and 330 m surveyed in November 1991.

A total of 18,960 m of IP-resistivity surveying was carried out on the two grids over the three periods. For the purposes of assessment credits as well as the reader's interest, this total is sub-divided as follows:

Total Bigfoot Grid (including 15-m dipoles)	- 12,930 m
Total Little Bigfoot Grid	- 6,030 m
Total May 1990	- 5,100 m
Total November 1991	- 7,830 m
Total December 1991	- 6,030 m

Stainless steel stakes were used for current electrodes. For the potential electrodes, metallic copper in copper sulphate solution in non-polarizing, unglazed, porcelain pots was used.

COMPILATION OF DATA

The chargeability (IP) values are read directly from the instrument and no data processing is therefore required prior to plotting. The resistivity values are derived from current and voltage readings taken in the field. These values are combined with the geometrical factor appropriate for the dipole-dipole array, to compute the apparent resistivities.

The chargeability and resistivity data were each computer-plotted in pseudosection form on maps as shown in the above table at a scale of 1:2,500 for the 30-m dipoles and at a scale of 1:1,250 m for the 15-m dipoles. The chargeability data were then contoured at an interval of 3 msec, and the resistivity data at a logarithmic interval, to the base 10.

The software program used was one put out by Geosoft of Toronto and modified by Geotronics Surveys.

Survey plans, each at a scale of 1:5,000, were also computer-drawn for the two grids. For the Bigfoot Grid, the chargeability and the resistivity data were each drawn for three different dipole separations; n=1, n=4, and n=6, therefore producing six different survey plans, maps 9a to 9f. The same was also done for the Little Bigfoot Grid, but for levels n=2, n=4, and n=6. These are seen on maps 10a to 10f. The same contour intervals were used as for the pseudosections.

No survey plans were drawn for the 15-m dipole data.

PREVIOUS SP SURVEY RESULTS

SP survey results were produced as a by-product of the 1987 IP survey reported by Di Spirito, et al. (report dated November 10, 1987). Of strong exploration interest was an anomaly in the order of 250 to 300 mvolts and occurring on lines 312W to 62E at about 250N. In reading the report as well as examining the maps, it could not be determined whether the anomaly was a positive one or a negative one. A negative anomaly of this magnitude is very strongly indicative of massive sulphides. However, a positive SP anomaly is indicative of graphite or some other cause, but not sulphides.

Considering the possible importance of this anomaly, it was therefore decided to check it out in the field. This was done by the writer on November 20, 1991 with the help of Steven Coombes. The testing was done on line 125W with one pot stationary outside of the anomalous area and the other pot moving and taking readings every 25m. The instrument used was a Terrameter SAS 300B manufactured by ABEM of Sweden. The readings, complete with sign, were read directly from the instrument.

The result was that the SP anomaly was determined to be positive, with readings reaching about 300 mvolts. This confirmed that the causative source was not sulphides. That it might be caused by graphite was not considered likely since no significant graphite had been seen in the area. However, the SP anomaly occurs in an area of considerable overburden and therefore the occurrence of graphite is possible. A more likely causative source may simply be a water table occurring within clays (hydrothermal alteration product?). Such anomalies have been reported to occur in Poland, according to Andrew Rybaltowski, a Vancouver geophysicist who took his training in Poland.

DISCUSSION OF RESULTS

The induced polarization (I.P.) and resistivity surveys on both grids have revealed a number of anomalies. The I.P. anomalies in all likelihood are reflecting sulphides since graphite, being a common cause of I.P. anomalies, is not known to occur in the area in any significant amount. The main interest in the resistivity results on this survey are broad resistivity lows that could be reflecting epithermal alteration zones associated with gold/quartz mineralization.

A. BIGFOOT GRID

Three main showings occur on the Bigfoot Grid and are as follows: (1) Main Road Zone, (2) Powerline Zone, and (3) Ten Mile Showing. All three are reflected by I.P. and resistivity anomalies and occur with the S.C. Anomalous Zone. Four additional geophysical features of exploration interest are two I.P. highs labelled the Bay Anomaly and the Creek Anomaly, respectively, and two broad resistivity lows, one associated with the Creek Anomaly and the other occurring on line 375W.

The soil sample results from previous work have been plotted on the I.P. and resistivity pseudosections. There is good correlation with the I.P. and resistivity anomalies but not on every line with every anomaly. It must be remembered that soil results do not always reflect the mineralization it is supposed to reflect, either because of changing chemical conditions within the soil or changing physical characteristics such as soil type, grain size, or water table. Also, soil anomalies only reflect the subsurface of the bedrock and not the bedrock at depth. Therefore, I.P. anomalies such as the Bay and Creek anomalies which occur principally at depth would not be expected to have a soil correlation. Furthermore, the complete length of each I.P./resistivity survey line was not necessarily completely soil sampled.

As stated in the "Survey Procedure", two lines were surveyed with 15-meter dipoles as well as with the 30-meter dipoles which the rest of the grid was surveyed with. In comparing the I.P. and resistivity survey results on the 15-meter pseudosections with those of the 30-meter pseudosections on the two lines, 125E and 187E, it can be seen that there is greater detail to the anomalies. For example, the lead/zinc anomaly at 150S on line 125E correlates with a south-dipping I.P. anomaly on the 15-meter pseudosection. However, the I.P. anomaly is not so clearly seen on the 30-meter pseudosection. On the 15-meter I.P. pseudosection on line 187E, the results are very detailed to the point of being quite noisy. The ground was quite wet at the time from continuous rain which therefore may have been a factor. However, the anomalies can still be correlated between the 15-meter pseudosection and the 30-meter pseudosection.

In examining the plans and the pseudosections of the I.P. data, it can be seen that the anomalies are greater in size and amount at depth on the eastern part of the grid than on the western part. However, the reverse is true on the western part. That is, the anomalies are greater in size and amount at surface on the western part of the grid than on the eastern part. This would indicate that on the western part of the grid, most of the sulphides occur near surface, and on the eastern part, most of the sulphides occur at depth.

On line 687E at 90S is an area of boulders that contain pyrite, sphalerite, and chalcopyrite. There is a correlation with an I.P. anomaly containing values slightly higher than background. This indicates that the boulders may not have come from this area, but somewhere else, possibly moved by glacial action. There is a correlating soil geochemistry expression but this could simply be from the boulders rather than from the underlying bedrock.

Other showings and anomalies are further discussed as follows:

(1) Main Road Zone

This showing consists of quartz/barite breccia veins occurring within rhyodacite pyroclastics and contains pyrite, sphalerite, chalcopyrite, and galena. It is also highly pyritized around the veins. The known mineralization runs from (62E, 175N) to (312E, 150N), giving a strike length of 250m.

This zone is very well reflected by I.P. highs, which of course are caused by the sulphides. The I.P. indicates the mineralization to extend to depth, the depth being at least 120m. It also indicates the zone to occur from at least line 000E to at least line 500E, doubling the probable strike length to 500m. In addition, the I.P. indicates that it is quite possible the Main Road Zone may change direction at line 500E to strike in a more easterly direction and therefore extend to line 938E where it would be open to the east. This would therefore give a minimum strike length of 950m.

The resistivity correlation is for the most part resistivity lows which likely reflects geological structure and/or alteration associated with the sulphide mineralization. There is also some resistivity high correlation which could reflect increased silicification.

There is a correlation of the soil sample results on many of the lines with the known mineralization as well as with the I.P. extension of the known mineralization, including lines up to 938E.

The line-by-line description of the I.P. anomaly up to line 500E is as follows:

000E - correlates with resistivity low and anomalous zinc in soil
- dips northerly

062E correlates with resistivity low and anomalous zinc in soil
- dips northerly

125E - correlates with footwall of resistivity high and hangingwall of resistivity low
- dips southerly

187E - correlates with resistivity high and anomalous zinc, lead, and silver in soil

250E - correlates with resistivity low
- dips northerly

375E - correlates with footwall of resisitivity low
- dips northerly

500E - weak I.P. anomaly that correlates with resistivity high
- unknown dip

(2) Powerline Zone

This zone consists of the same type of mineralization occurring in the same rock-type as occurs in the Main Road Zone. However, the known mineralization has a significantly shorter strike length of 125m extending from (250W, 120N) to (125W, 90N).

The known mineralization occurs on only two survey lines, but on each line there is a direct correlation with an I.P. high. In addition, the I.P. survey results show the mineralization extends to a minimum depth of 120m. It also extends the zone to line 250E which increases the strike length to 500m.

The I.P. anomaly mostly correlates with the footwall of a resistivity low(s). Possibly the low may be reflecting alteration asociated with the sulphide mineralization. On some of the lines there is also soil anomaly correlations.

The line-by-line description of the Powerline Anomaly is as follows:

250W - correlates with resistivity low
- dip may be southerly

125W - correlates with resistivity low
- I.P. shows southerly dip and resistivity shows northerly dip. Probably the dip is to the south.

000 - correlates with footwall of resistivity low and anomalous lead and zinc in soil
- difficult to say dip but it appears to be southerly

062E - correlates with resistivity high
- resistivity indicates a southerly dip

125E - correlates with resistivity low and anomalous zinc in soil

187E - correlates with footwall of resistivity low and anomalous lead and zinc in soil
- dip is southerly

250E - correlates with footwall of resistivity low
- dip is southerly

(3) Ten Mile Showing

This showing occurs at (687E, 170N). It is different from the other two showings in that it consists of sulphides occurring within fragments within volcanics and therefore it is considered not to have much potential. The sulphides are mainly pyrite and some sphalerite and the host rock is rhyodacite pyroclastics. The showing occurs in a heavily pyritized area.

The Ten Mile Showing correlates with a zinc soil anomaly and occurs at the southern edge of an I.P. anomaly. The I.P. anomaly itself is the possible eastern extension of the Main Road Zone.

(4) S.C. Anomalous Zone

The S.C. Anomalous Zone consists of a zone of I.P. highs that trend in an easterly direction across the whole grid. It occurs along or just to the south of Simm's Creek. The zone correlates with a zone of resistivity highs, though individual I.P. highs will usually correlate with individual resistivity lows. The zone of resistivity highs may be caused by a slightly different rock-type, or, possibly, increased silicification or calcification. The lows, as mentioned above, are probably caused by geological structure and/or alteration associated with the sulphide mineralization. As mentioned above, the zone encompasses the Main Road Showing/I.P. high, the Powerline Showing/I.P. high, and the Ten Mile Showing. Most of the soil sample anomalous values occur along this trend, especially the lead, zinc, and silver values.

The minimum strike length is 1350m, being open both to the east and to the west. The zone has a southerly dip though some individual I.P. highs dip northerly. At the surface the zone has a width of 130 to 180m and at depth, about 200m. The widening at depth is probably due to the survey array and not widening of the mineralization.

It is obvious from the above that the S.C. Anomalous Zone is important for the exploration of mineralization on the Bigfoot property. It is possible, however, that the S.C. Zone is only reflecting mineralization occurring in veins that are too small for mining potential such as is known so far about the known mineralization on the property. However, it is also very possible that economic mineralization in large enough amounts for mining purposes may occur at depth or along strike where mineralization is so far unknown. In other words, the S.C. Anomalous Zone is considered to still have exploration interest.

The following is a line-by-line description of the anomalous zone. It is only given for lines 938E to 375E since the rest of the lines are described under the Main Road Zone and under the Powerline Zone.

938E - 180 to 200m wide
- consists of different I.P. highs
- 2 main ones dip southerly and correlate with resistivity lows
- correlates with anomalous zinc and gold in soil
- northerly-dipping resistivity lows occur across zone; this may be due to cross-structure

875E - 150 to 210m wide
- complex I.P. highs
- dips southerly
- correlates with resistivity low

750E - 150 to 200m wide
- consists of strong central main I.P. anomaly correlating with resistivity high
- dips southerly
- outskirts of sub-outcrop at I.P. high correlates with lead, zinc, silver, copper, and arsenic anomalous values in soil

687E - 130 to 200m wide
- two distinct southerly dipping I.P. highs
- north arm correlates with resistivity low within resistivity high
- south arm occurs on hangingwall of resistivity high (or footwall of resistivity low)
- correlates with highly anomalous zinc and anomalous lead, copper, silver and gold values in soil
- Ten Mile Showing on southern edge of anomalous zone

625E - broad southerly-dipping I.P. high correlates with broad, southerly-dipping resistivity high
- some localized I.P. highs within zone correlate with resistivity low within zone
- correlates with anomalous arsenic and silver values and highly anomalous zinc value in soil

500E - I.P. highs correlate more with resistivity highs
- one I.P. high occurs on footwall of near flat-lying northerly-dipping resistivity low
- eastern extension of Main Road Zone

375E - southern limb is eastern extension of Main Road Zone
- northern limb correlates with resistivity low/Simm's Creek fault

(5) Bay Anomaly

The Bay Anomaly is of strong exploration interest since it has the appearance of reflecting a Seneca-type massive sulphide deposit. The anomaly consists of a strong distinct I.P. high correlating with a resistivity low, especially on lines 938E, 875E, and 750E. This gives a minimum strike-length of 100m (not 188m since the lines are closer together than on the ideal grid), being open to the east. However, the anomaly appears to extend as far west as line 500E which would then give a minimum strike-length of 450m. The dip is to the south.

Stringers of sphalerite on the road in the area of the Bay anomaly have been noted. There is also some correlation with anomalous soil sample results in lead, zinc, silver, copper, and gold. However, it is expected that there would be a minimal soil response since the bulk of the causative source occurs at depth.

The line-by-line description of the anomaly is as follows:

938E - I.P. high correlating with resistivity low
- dip is southerly

875E - strong I.P. high correlating with a strong, linear-shaped resistivity low
- dip is southerly

750E - strong I.P. high correlating with resistivity low
- dip is southerly
- second resistivity low dips northerly, therefore indicating cross-structure
- sub-outcrop extension of anomaly correlates with anomalous lead, zinc and silver values in soil

687E - less distinct I.P. high correlates with resistivity low
- dip is southerly
- south of I.P. high (hangingwall) there occurs very anomalous lead, zinc, silver, copper and gold values in soil

625E - I.P. high correlates with resistivity low
- dip is southerly
- anomalous zinc, copper, silver values in soil occur to immediate south

500E - possible extension to Bay anomaly
- I.P. high correlates with north-dipping resistivity low

(6) Creek Anomaly

The Creek Anomaly, which is also an I.P. high correlating with a resistivity low, is also the possible reflection of a Seneca-type massive sulphide deposit. In fact, the main part of the anomaly may be the faulted-off extension of the main part of the Bay Anomaly. The main part of the Creek Anomaly occurs on lines 375E and 500E giving it a minimum strike length of 130m with it possibly being open to the west. However, as is indicated on the pseudosections, the anomaly quite possibly extends to line 938E and beyond to give it a minimum strike length of 600m. As is with the Bay Anomaly, the dip is southerly.

There is no soil response to the causative source of the main part of the anomaly on lines 375E and 500E, and only some response on the easterly extension of the anomaly. This is to be expected, since, as for the Bay Anomaly, the main part of the anomaly is at depth.

As will be discussed in the next section, at least part of the Creek Anomaly, especially on lines 625E, 687E, and 750E, may be reflecting pyritization within the footfall of an epithermal alteration zone.

The line-by-line description of the anomaly is as follows:

938E - either of two I.P. highs at depth
- dip is southerly
- no resistivity correlation

875E - I.P. high correlates with resistivity low
- dip is southerly
- sub-outcrops at creek where occurs lead/zinc soil anomaly

750E - I.P. highs correlate more with resistivity highs
- sub-outcrops at or near creek
- I.P. highs are very choppy
- could be reflecting pyrite footwall to broad resistivity low which is flat-lying to southerly-dipping; could be reflecting epithermal alteration zone

687E - upper part of I.P. high correlates with footwall of resistivity low
- lower part of I.P. high correlates with resistivity high
- sub-outcrop correlates with arsenic/gold soil anomaly
- also, possible epithermal alteration zone

625E - very indistinct
- I.P. highs correlate with resistivity high or footwall of broad resistivity low (epithermal?)
- correlates with zinc soil anomaly

500E - very strong southerly-dipping I.P. high correlates with southerly-dipping resistivity low within broad northerly-dipping resistivity low
- therefore, possibly epithermal (I.P. high/pyrite is footwall to resistivity low/alteration zone)

375E - very strong southerly-dipping I.P. high correlates with southerly-dipping resistivity low within broad northerly-dipping resistivity low
- therefore, possibly epithermal (I.P. high/pyrite is footwall to resistivity low/alteration zone)

(7) Possible Epithermal Alteration Zones

There is a strong possibility that epithermal gold mineralization occurs on the property, for two reasons. One is that epithermal alteration has been noted on the property on the main road as well in other areas of the region. Two is that Steven Coombes has noted that the statistical analysis of the geochemical data suggest epithermal mineralization within the southeast area of the survey grid. From this as well as other evidence he suggests that the epithermal model for this area would be a near flat-lying, southerly-dipping vein that is striking near east-west. Above this vein in the hangingwall would be the alteration which would be reflected by a broad, flat-lying resistivity low. Below the vein within the footwall would occur pyritization which would be reflected by an I.P. high.

The I.P. and resistivity results have revealed two areas that fit this model very well. In addition, there are two other areas that do not quite fit the model but still could be reflecting epithermal mineralization.

The first area occurs within the southeast part of the survey grid and is closely associated with the Creek I.P. anomalies. In fact, the Creek I.P. anomalies could be reflecting the footwall pyritization associated with the epithermal mineralization, or possibly the vein itself. The possible epithermal zone is most easily seen on lines

750E, 687E, and 625E where there occurs a broad, flat-lying resistivity low that is underlain by I.P. highs. On these three lines the minimum strike length is 200m. If the zone strikes more northwesterly, then it may extend from line 375E to line 938E where it would be open to the southeast. This would give a minimum strike length of 600m. But if the strike is closer to east-west, then the zone would extend from line 625E to line 938E where it would be open on both the east and west ends. The minimum strike length would then be 300m.

Soil anomalous results in arsenic correlate very well with the broad resistivity low. There is also some correlation of the anomalous gold results as well.

The second area of possible epithermal mineralization occurs on line 375W from 400S to 790S. At this location there appears to be two zones, one lying on top of the other. There is evidence that these zones extend to line 250W as well. In fact, it is quite possible that these zones are the western extension of the possible epithermal mineralization occurring within the southeast corner of the grid area that is discussed above.

These zones are also characterized by I.P. highs which reflect pyritization underlying broad, near flat-lying resistivity lows which reflect epithermal alteration. Also of strong exploration interest is the fact that anomalous arsenic soil values correlate with each of three I.P. highs within this zone.

The third area is along the Simm's Creek fault. Epithermal alteration has apparently been noted along Simm's Creek and gold values within veins have been noted along the creek from 500E to 750E. The resistivity low that reflects the fault is relatively wide but is more indicative of a near vertical (probably north-dipping) fault than a flat-lying epithermal alteration zone. However, some of the pseudo-sections do show I.P. highs that are indicative of pyritization and that are located along or adjacent to the fault.

The fourth area of possible epithermal mineralization occurs along the north side of the baseline, that is, from 000 to 120N and on lines 250E to 687E. This gives a strike length of 437m. The geophysical response of this zone is a resistivity low with underlying I.P. highs. However, the resistivity low does not have the broad, flat-lying shape that is expected on this property to reflect epithermal alteration. There is some anomalous soil results correlating with the resistivity low, but these could just as well be reflecting other types of mineralization.

(8) <u>Geology Mapped From Resistivity Results</u>

The resistivity results have mapped the Simm's Creek fault as can be seen on those pseudosections that have crossed Simm's Creek. It is reflected by a resistivity low that indicates the fault to dip steeply to the north.

This fault is also a geological contact. North of the fault, the resistivity results are much higher which are reflecting andesitic pyroclastics and flows. The lower resistivity results south of the fault are reflecting rhyo-dacite pyroclastics.

Often linear-shaped resistivity lows on pseudosections are a reflection of faults or shears. A number of these occur within the grid area and these have been marked by "fault?"

on the resistivity pseudosections. The possible epithermal zone mentioned above that occurs to the north of the baseline on lines 250E to 687E is located along a very probable fault system. The lineal resistivity low that reflects the fault system is clearly seen on the level 1 survey plan for the resistivity results (map #9d). It can also be observed that this probable fault parallels the Simm's Creek fault. Other lineations of resistivity lows that could well be reflecting faults can also be seen.

Though almost all the grid area is underlain by rhyodacite pyroclastics, the resistivity results indicate variations within these rocks, or, they indicate different rock-types. Two areas of resistivity highs occur at: (1) 60N to 90N on lines 750E to 938E, and (2) 60S on lines 375E to 625E, respectively. Both highs occur with topographic highs (see the pseudosections), indicating increased silicification and/or a more competent rock-type that is more resistant to weathering. (This is usually the case; - resistivity lows weather low and resistivity highs weather high.)

On some of the pseudosections can be seen lineal resistivity highs that are probably reflecting intrusive dykes or more competent volcanic flows. The best example is the south-dipping lineal high on line 375E at Simm's Creek.

A number of shallow resistivity highs correlating with I.P. highs can be observed on the pseudosections within the western part of the survey area. All of these correlate with areas of substantial overburden that have been identified as consisting mostly of sand. This certainly explains the cause of the resistivity highs, but not satisfactorily the I.P. highs. Possibly, the I.P. anomalies are caused by sulphides and/or magnetite within the sand, though it would be expected that the sulphides would be oxidized. An alternate explanation is that the resistivity/ I.P. highs are caused by volcanic flows, mineralized with sulphides or magnetite, infilling pre-volcanic valleys.

B. LITTLE BIGFOOT GRID

There has been little previous work carried out on this grid. As far as the writer is aware, this has only included some geological mapping, which is very limited because of the pervasive overburden cover, and some geophysical and soil geochemical surveys. The geological mapping has shown that the I.P./resistivity grid is underlain almost entirely by a rhyolite dome that is pyritized in places. The results from the geophysical and geochemical surveys were somewhat inconclusive.

There are two main geophysical features on the Little Bigfoot Grid that are considered to be of exploration interest. Both are I.P. highs that correlate with resistivity lows and have been labelled the L.B. anomaly and the Well anomaly, respectively.

These two highs have been defined from examining the pseudosections in regard to anomaly shape, dip of the causative source, and location along the survey line. The writer, however, has plotted the center of the anomaly and/or the top of the sub-outcrop of the anomaly, onto the survey plan for the chargeability data, n=2, (map #10a). One can see in examining the plan that the eastern part of each anomaly strikes parallel to the contouring (east-west) and the western part strikes across the contouring. Therefore, if the anomalies strike east-west as the contouring suggests, then the eastern part of the

L.B. anomaly strikes onto the western part of the Well anomaly and two additional anomalies exist, one to the north and one to the south. The writer, however, favors the interpretation as suggested by the pseudosections.

(1) L.B. Anomaly

The L.B. anomaly occurs within the center of the survey area extending in a northwesterly direction from line 450E to line 50W and possibly to line 250W. The strike length of the definite part of the anomaly is about 525m with it increasing to a minimum 750m if the anomaly extends to line 250W where it is open to the northwest. The strongest part of the anomaly occurs on lines 350E to 150E which gives it a strike length of 200m. The pseudosections indicate the causative source to dip to the northeast. It is difficult to say what the width of the causative source is, but on line 350E, where it sub-outcrops close to the surface, it appears to be about 80m.

Talus, containing sulphides, mostly pyrite, possibly some chalcopyrite and sphalerite, can be found at 200S on line 250E. This correlates directly with the L.B. anomaly which fairly conclusively shows what the causative source of the I.P. high is. The correlating resistivity low is probably caused by geological structure and/or alteration associated with the sulphide mineralization.

(2) Well Anomaly

The Well anomaly occurs at the southwestern (or grid west) edge of the survey area on lines 550E to 250W where it is open to the northwest. This gives a minimum strike length of 800m. It is difficult to say what the width is since in places it seems to be composed of several causative sources. However, on line 150W it appears to be 70m, which the writer would consider to be a maximum. The dip of the causative source is also difficult to determine since the anomaly occurs at the edge of the survey grid.

Much of the anomaly correlates with a strong resistivity low, especially on the western lines. Here the low is likely reflecting a fault (the Well Creek fault?) that is also the reason for the location of Well Creek.

(3) Other Anomalies

A third anomaly can be seen at the north end of lines 150W and 250W. The dip and the resistivity correlation is difficult to determine without extending the survey further north on both lines. But the dip appears to be northerly and there is at least some resistivity low correlation.

A fourth anomaly occurs on line 650E sub-outcropping at about 1860S. This anomaly dips southerly and correlates with a resistivity low. It appears the anomaly also occurs on line 550E.

(4) Geology Mapped from Resistivity Results

The main geological features shown by the resistivity results is a probable fault system that is reflected as a broad resistivity low that occurs along Well Creek. This feature can be seen on the western pseudosections at the southern ends. The fault is probably also a lithological contact since a contact occurs in this area between rhyolite to the north and dacite/latite pyroclastics to the south. As mentioned above, the Well anomaly is associated with this fault/contact zone.

There are also a number of lineal-shaped resistivity lows on a few of the pseudosections that are probably due to fault or shear zones.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.

David G. Mark
Geophysicist

March 4, 1992

53/G433

GEOPHYSICIST'S CERTIFICATE

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

That I am a Consulting Geophysicist of Geotronics Surveys Ltd., with offices at #405-535 Howe Street, Vancouver, 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 practising my profession for the past 24 years.
3. This report is compiled from data obtained from induced polarization/resistivity surveys carried out under my supervision on the Bigfoot property during the periods of May 18 to June 2, 1990; November 5 to 23, 1991; and December 4 to 16, 1991.
4. I do not hold any interest in the Bigfoot property, nor in Winfield Resources Ltd., nor do I expect to receive any interest as a result of writing this report.

David G. Mark
Geophysicist

March 4, 1992