# BRITISH COLUMBIA PROSPECTORS ASSISTANCE PROGRAM MINISTRY OF ENERGY AND MINES GEOLOGICAL SURVEY BRANCH

 PROGRAM YEAR:
 1996/1997

 REPORT #:
 PAP 96-17

 NAME:
 FRANK O'GRADY

# PROSPECTORS Assistance Program 1994–1997

PROSPECTING REPORT FRANK O'GRADY REFERENCE NO. 96/97 P33

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Province of British Columbia Ministry of Energy, Mines and Petroleum Resources

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#### BRITISH COLUMBIA PROSPECTORS ASSISTANCE PROGRAM PROSPECTING REPORT FORM (continued)

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#### **B, TECHNICAL REPORT**

- One technical report to be completed for each project area.
- Refer to Program Requirements/Regulations, section 15, 16 and 17.
- If work was performed on claims a copy of the applicable assessment report may be submitted in lieu of the supporting data (see section 16) required with this TECHNICAL REPORT.

Name Frank O'Grady Reference Number 96/97 P33
LOCATION/COMMODITIES Project Area (as listed in Part A) <u>McNeil Creek</u> Location of Project Area NTS 82F/8E and 82G/5W Lat 49° 23' 15" Long 115° 59' 30 Description of Location and Access East side of McNeil Creek access by
Moyie River road, Semlin Creek road, McNeil Creek road and foot Main Commodities Searched For Pb, Zn
Known Mineral Occurrences in Project Arca <u>Shear zone containing Pb and Zn</u> on MAR 3 claim
WORK PERFORMED         1. Conventional Prospecting (area)         2. Geological Mapping (hectares/scale)         30       hectares         4       reach         4       reach         5       Physical Work (type and amount)         14       5         6       Drilling (no., holes, size, depth in m, total m)         7       Other (specify)
SIGNIFICANT RESULTS CommoditiesPb, Zn, Ag Claim Name McNeil Creek Grov Location (show on map) Lat49°23'15'' Long15° 59'30'' Elevation 1000-1400 met- Best assay/sample type geochemical Pb 48 ppm, Zn 126 ppm
Description of mineralization, host rocks, anomalies <u>The claim group is underlain by</u> <u>Moyie intrusives and Middle Aldridge sediments. The</u> <u>Lower Aldridge is present at depth. Four Geophysical</u> <u>anomalies are present</u> .

Supporting data must be submitted with this TECHNICAL REPORT

#### REPORT

#### GRID INSTALLATION GEOLOGY GEOPHYSICAL GEOCHEMICAL

on the

#### MCNEIL CREEK PROPERTY

including MAR 3, PHANTOM 1 & CUBBY 1 to CUBBY 10 Mineral Claims

situated in the

#### FORT STEELE MINING DIVISION

NTS 82F/8E AND 82G/5W

Latitude 49° 23' 15" Longitude 115° 59' 30"

when work conducted Owner/Operator: Frank O'Grady, P.Eng. 587 Wallinger Ave. Kimberley, B.C. V1A 1Z8

October 15, 1996 Optioned to SEDEX MINING CORP. 1000 - 675 West Hastings Street Vancouver, B.C. V6B 1N2

Work performed during 1996

Report by Frank O'Grady, P.Eng.

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#### BIBLIOGRAPHY

MINFILE NO. 082GSW024	McNEIL CREEK
Assessment Report No. 19989	by Bapty Research Ltd.
Assessment Report No. 24031	by Frank O'Grady, P.Eng.
Assessment Report No. 24044	by Frank O'Grady, P.Eng.
Assessment Report No. 24417	by Frank O'Grady, P.Eng.
MINFILE NO. 082GSW050	VINE Showing
AIR PHOTO 30BCC94090	

#### **INTRODUCTION**

The McNEIL CREEK PROPERTY consists of ten two-post claims, with record numbers:

CUBBY 1	335818	CUBBY 6	335823
CUBBY 2	335819	CUBBY 7	337452
CUBBY 3	335820	CUBBY 8	337453
CUBBY 4	335821	CUBBY 9	337454
CUBBY 5	335822	CUBBY 10	337455

and two four-post claims, with record numbers:

MAR 3	209787	(12 units)
PHANTOM 1	330704	(8 units).

The claims are situated in the Fort Steele Mining Division (Claim Map, Map 3).

The registered owner and operator of the property when the work was conducted was Frank O'Grady of 587 Wallinger Ave., Kimberley, B.C. V1A 1Z8. The property was optioned to SEDEX MINING CORP. of 1000 - 675 West Hastings St., Vancouver, B.C. V6B 1N2 on October 15, 1996.

The McNEIL CREEK PROPERTY is situated 18 kilometers southwest of Cranbrook, B.C. and is centered near Longitude 115 degrees 59 minutes, Latitude 49 degrees 23 minutes (Location Map, Map 1).

Access to the property is by proceeding south of Cranbrook on Highway 3 a distance of 12 kilometers to the Lumberton Road, also known as the Moyie River Road. This road is followed West a distance of 13 kilometers to the junction of the Semlin Creek Road. The Semlin Creek Road is followed South to the 4 km. sign, during which the Moyie River is crossed. The McNeil Creek road is then followed to the South. At the 2.4 kilometer point on the McNeil Creek Road the location line for CUBBY 5 and CUBBY 6 is crossed. The final post for CUBBY 5 and CUBBY 6 is situated 36 meters North of this point (Access Map, Map 2). The CUBBY CLAIMS comprise the northernmost claims of the McNEIL CREEK GROUP.

#### ACCESS TO BRANCHEYE CLAIMS

The **BRANCHEYE** claims staked in September 1996 cover a Cu showing that has minor amounts of Ag as well as Au in geochemical amounts. The showing is situated at:

latitude 49 55' 30" longitude 115 22' 00".

To access the claims proceed from Kimberley North on highway 95A for a distance of 38 kilometers to a point 1 kilometer South of Skookumchuck, B.C. where Farstad Way branches to the West. Farstad Way is the road leading to CRESTBROOK FOREST INDUSTRIES LTD. Skookumchuck Pulp Mill. Follow Farstad Way West for 2.7 kilometers, turn West on Torrent Road and follow Torrent Road for a distance of 2.7 kilometers where the Skookumchuck Mountain Road branches to the West. Follow the Skookumchuck Mountain Road to the 5 kilometer sign, then follow Branch A to the West for a distance of 2.3 kilometers to a switchback. A flagged line intersects the road at the 2.3 kilometer point on Branch A. The flagged line is followed West for 320 meters to the final post of **BRANCHEYE 5** and **BRANCHEYE 6**. The location line for the **BRANCHEYE 1** to **BRANCHEYE 6** is then followed a further 1500 meters to the West to the location of the showing. The talus slope containing the showing terminates on the East bank of the Skookumchuck River.

#### LOGISTICS

The area selected for prospecting on the Skookumchuck project has been difficult to access. To travel to the showing from the nearest access road initially required 8 hours for a return trip. Use of a helicopter was precluded as the cost was estimated at \$1100 per trip. During 1995 a trail was flagged from the Skookumchuck Mountain Road to the East edge of the Skookumchuck canyon. This trail was re - flagged and marked during 1996.

Fortunately, during August of 1996 CRESTBROOK FOREST INDUSTRIES LTD. constructed a road into the area that terminates 1.2 kilometers from the showing. The elevation at the road termination is 1400 meters while the elevation at the showing is 1000 meters. Therefore, it is still a substantial walk to the showing area, however, the road construction has greatly facilitated access to the showing and the surrounding area.

The McNEIL CREEK GROUP lies primarily on the East side of McNeil Creek with a small portion of claims CUBBY 9 and CUBBY 10 on the West side of McNeil Creek near its confluence with the Moyie River. A small portion of CUBBY 10 is situated on the North side of the Moyie River.

The elevation ranges from 1400 meters above sea level at McNeil Creek to 1725 meters above sea level along the eastern boundary of the claim group.

The claim group is, for the most part, on the East slope of the McNeil Creek valley. Forest cover along McNeil Creek is Balsalm, small diameter Lodgepole Pine and Spruce with patches of Alders and Willows. On portions of CUBBY 7, CUBBY 8, CUBBY 9 and CUBBY 10 recent ice storms have downed substantial areas of small diameter Lodgepole Pine. Large portions of MAR 3 and PHANTOM 1 were clearcut, slash burned, scarified and replanted. Healthy plantations of young Larch and Pine are established over these areas.

During 1988 and 1989 a program of linecutting, geophysical surveying, geological mapping, soil sampling and diamond drilling was conducted on the McNeil Creek Property. The owner of the property was South Kootenay Goldfields Inc. The exploration program was directed by Bapty Research Ltd.

The exploration program completed on behalf of South Kootenay Goldfields was conducted almost entirely on MAR 3 and MAR 4. The MAR 4 claim corresponds approximately to the present PHANTOM 1 claim. This program is documented in assessment report No. 19989 by Bapty Research as well as minfile 082GSW024.

During 1995 soil sampling and prospecting was carried out on the PHANTOM 1 claim by owner Frank O'Grady. This program is documented in assessment report No. 24031 by Frank O'Grady, P. Eng.

During 1995 a magnetometer and VLF survey was conducted over a portion of the MAR 3 claim by Frank O'Grady. This program is documented in assessment report No. 24044 by Frank O'Grady, P. Eng.

During July 1995 a program of geology, prospecting and soil sampling was conducted on the CUBBY 1 to CUBBY 10 inclusive claims. This program is documented in assessment report No. 24417 by Frank O'Grady P. Eng. The rocks underlying the McNEIL CREEK PROPERTY are of the Aldridge Formation.

During 1996 a program of Grid Installation, Geological Mapping, Geochemical Surveying, and Geophysical Surveying comprised of VLF-EM (very low frequency electromagnetic) survey and a magnetometer survey was conducted by, and under the direction of, Frank O'Grady, P. Eng. (Index Map, Map 4) A total of 14.5 kilometers of grid was established by compass, hip chain and flagging for the purpose of conducting geophysical surveys and collecting soils samples. Geological mapping was carried out at a scale of 1:5,000 over an area of 30 hectares on CUBBY 3, CUBBY 4, CUBBY 5, CUBBY 6, CUBBY 9 and CUBBY 10. A total of 111 soil samples were collected on CUBBY 1 to CUBBY 10 inclusive and four soil samples were collected on PHANTOM 1. One rock sample was collected for assay on CUBBY 6. Three samples were collected from CUBBY 9 and CUBBY 10 for 30 element analysis. Geophysical surveying was conducted over 12 kilometers of grid lines on CUBBY 1 to CUBBY 10 inclusive. On the PHANTOM 1 claim geophysical surveying was conducted over 3 kilometers

The type of deposit being explored for on the McNEIL CREEK PROPERTY is either a Sullivan-type massive sulphide orebody (160 million tonne iron-lead-zinc) or a Vine-type shear zone (MINFILE NO. 082GSW050) with economically mineable reserves. The presence of the McNeil Creek showing on claim MAR 3, combined with the presence at depth of the Lower Middle Aldridge contact (host of the Sullivan orebody), indicate the possibility of the presence of an economic deposit on the McNEIL CREEK PROPERTY.

#### GEOLOGY

Geological mapping was conducted at a scale of 1:5,000 in two locations.

Location One is along the McNeil Creek road on CUBBY 5 and CUBBY 6. Also, the location of several outcrops were noted on CUBBY 3 and CUBBY 4 (map 5).

Location Two is on CUBBY 9 and CUBBY 10 near the confluence of McNeil Creek and the Moyie River (map 6). This location is underlain by the exposed surface trace of the McNeil Creek Fault and rocks that have been subjected to intense chloritization.

This alteration and the presence of the surface trace of the McNeil Creek Fault underlying this area was brought to the attention of the authour by prospector Ed Frost of Fort Steele, British Columbia.

#### LOCATION ONE

Sedimentary rocks of quartzite composition were encountered at several locations near the 3 kilometer sign and up to 400 meters distant in a southerly direction along the McNeil Creek road. The outcrops along the road were mapped in detail.

In addition, the location of outcrops encountered on claims CUBBY 3 and CUBBY 4, during the course of other field work, were noted and given a cursory examination. The examination included rock type and general attitude. Detailed mapping of these outcrops was precluded during 1996 as a result of early and heavy snowfall in the area.

An area of boulders containing substantial amounts of sulphides, mostly in the form of pyrite, was encountered on claim CUBBY 1. Again, because of snowfall intensive prospecting of the boulders for economic minerals was precluded.

One float sample (No. 84283) was selected from claim CUBBY 6 and sent for assay. This sample was selected as it was composed of a Gabbro containing abundant pyrite and limonite in the matrix. This rock type is similar to the rock type that hosts the gold prospect, PROSPECTORS DREAM, situated approximately 5 kilometers North of the sample location. The sample contained no significant amount of Au or Ag. Certificate of Analysis A9626841 forms Appendix 5 of this report.

All sedimentary rocks encountered during mapping of Location One are considered to be members of the Middle Aldridge Formation while the intrusive rocks are considered to be members of the Moyie Intrusives.

#### LOCATION TWO

Several outcrops were examined and mapped at this location. Also, the surface expression of the McNeil Creek Fault was examined and mapped (map 6).

Three rock types are present in this area: a Quartzite, a Diorite and a Gabbro. All three rock types have been subjected to intense chlorite alteration. Also, as chlorite alteration can be genetically related to ore forming processes, three samples, one of each rock type, were selected and sent for 30 element analysis. Certificate of Assay A9628514 forms Appendix 6 of this report and contains the result of the 30 element analysis. The samples exhibit anomalous amounts of Fe, Mg, Mn and P. It can be concluded that some of the elements considered anomalous in the three samples are also present in anomalous amounts in the alteration zone surrounding the Sullivan ore body.

The McNeil Creek Fault plane, where exposed, exhibits slickensides and drag folds. It is not possible to determine with certainty the relative movement of the fault. To determine the relative movement of the fault would require detailed knowledge of the sedimentary sequences East and West of the fault. In fact, the relative movement of the McNeil Creek Fault has been the focus of considerable field work by prospectors and geologists working in this area. Much of the information remains in confidential company files. However, major structural breaks in the Aldridge Formation may be related to ore deposition.

In summary, the presence of chlorite alteration, the McNeil Creek Fault and the geophysical anomalies in the area a short distance to the East (which will be discussed later in the GEOPHYSICS section of this report) make this area, in the opinion of the authour, a good drill target.

#### **GEOCHEMICAL SURVEY**

A total of 115 soil samples were taken.

A majority of the soil samples (107) were taken at 100 meter intervals along the main grid lines established on the CUBBY CLAIMS during 1996 (map 4). In addition, a total of 8 samples were taken on Lineament One and Lineament Two. Each sample came from the B horizon at depths of 5 centimeters to 20 centimeters, but usually at about 15 centimeters.

The samples were sent to Chemex Labs in North Vancouver, B.C. for soil preparation and Pb, Zn analysis, except for the eight samples from Lineament One and Lineament Two which were analysed for Cu, Pb, Zn and As. The minus 80 fraction was analysed by normal geochemical techniques. The Certificates of Analysis form Appendix 2, Appendix 3, Appendix 4 and Appendix 7 of this report. The values are plotted on Map 7, Map 8, Map 17 and Map 20 of this report.

Kootenay Exploration (COMINCO), based on several years of extensive exploration on the Aldridge Formation, consider the following soil/sediment values to be anomalous:

 Pb
 40 PPM

 Zn
 240 PPM

 As
 18 PPM.

Utilizing this criterion, there is one sample location, situated at 4 + 00S on line 22E that is anomalous with a value of 48 PPM Pb. This value is coincident with the magnetic high on Lineament One and proximal to the conductor on Lineament One. The value may, however, be considered suspect as a lead soil sample anomaly in this geological environment is normally accompanied by an anomalous Zn value. Under normal conditions Zn ions are more mobile than Pb ions. Also, the area underlying the value has been logged, slash burned, scarified and replanted. Therefore, the anomalous Pb value of 48PPM may be the result of contamination from equipment or other activity.

There are no other values of Pb or Zn within the area of the geochemical survey that are considered significant. The Cu values from Lineament One and Lineament Two are not considered significant.

#### GEOPHYSICAL SURVEY

#### VLF-EM SURVEY

A VLF-EM (very low frequency electromagnetic) survey was conducted by traversing the grid installed in 1996 and taking a reading at 25 meter intervals.

The instrument utilized for the survey was an EM16 manufactured by GEONICS CANADA LTD. of Mississauga, Ontario, Canada. The specifications of the instrument form Appendix 1 of this report. The VLF transmitting station utilized for the survey was NLK Seattle, Washington, U.S.A.

The readings were taken by orienting the reference coil along the electromagnetic lines. This was accomplished by swinging the instrument back and forth to locate the minimum sound. The sound was further minimized by adjusting the quadrature component. The reading on the inclinometer was then noted along with the quadrature value.

The profiles were plotted on a horizontal scale of 1:5000 and a vertical scale of one centimeter equals 40 % (map 9, map 10, map 15 and map 18). A plan with the conductors and other interpretations by the authour were plotted at a scale of 1:5000 (map 13 and map 14).

#### CONVENTION AND INTERPRETATION

Positive and negative values recorded on the VLF-EM electromagnetic profiles are by convention. For this survey, if the instrument was tilted to the North the value was recorded as positive and, conversely, readings taken with the instrument tilted to the South were recorded as negative.

There are two components to a VLF-EM profile. The most significant being the in phase; while, in some cases, the quadrature profile may also help to interpret the nature of the conductor. In the following interpretations the in phase component is always analysed with the quadrature being analysed if it is considered relevant.

#### STATION SELECTION

None of the several VLF transmitters around the world are ideally situated to receive the signal at the orientation of the lines on this grid. The Seattle station was, therefore, chosen for clarity of signal.

#### ANALYSIS OF VLF-EM RESULTS

#### Conductor One

Conductor One is considered to be the most significant conductor encountered on the survey because of the adjacent magnetic anomaly (map 9, map11, map13).

On line 6E the in phase component of the electromagnetic profile crosses from negative to positive at approximately 2 + 10N. On line 8E the in phase component, while remaining negative, exhibits a sharp dip in the negative direction at 0 + 50N and remains so to the end of the line at 2 + 50N. On line 10E the in phase component exhibits a positive shoulder from 2 + 50N to 3 + 50N where it crosses over to negative and remains negative to the North end of the line at 4 + 50N.

As a result of comparing the profiles with models of known electromagnetic conductors, Conductor One may be considered a moderate conductor centered on line 8E and tapering off to the northwest on line 6E and to the southeast on line 10E. Furthermore, this conductor appears to be dipping to the northeast, which is compatible with the general geology of this area.

Conductor One, in the opinion of the authour, is considered a drill target for the following reasons:

- 1. It is partially coincident with Magnetic Anomaly One (to be discussed in magnetometer survey section (map11), which may be caused by pyrrhotite, a magnetic mineral that forms part of the gangue material in the Sullivan orebody.
- 2. It is proximal to two major faults, the McNeil Creek fault and the Moyie River fault.
- 3. The Lower Middle Aldridge geological contact (LMC), the geological horizon that hosts the Sullivan ore body situated 35 kilometers to the North, is known to be present at depth.
- 4. An area of intense chlorite alteration outcrops approximately 200 meters West of Anomaly One.

#### Conductor Two

Conductor Two is considered significant as it is continuous from line 16E to line 22E. Unlike Conductor One, Conductor Two is not accompanied by a significant magnetic anomaly; however, the magnetic profile is above background over a portion of it (map 10, map12, map 14).

On line 16E the in phase component of the electromagnetic survey exhibits a large negative component from 5 + 25S to the end of the line at 8 + 50S. Similarly, on line 18E the in phase component exhibits a strong negative component from 6 + 00S to 7 + 75S. This phenomenon is repeated on line 20E from 6 + 25S to 8 + 75S. On line 22E from 6 + 25S to 7 + 75S there is a moderate positive profile on the in phase component.

Based on known models of electromagnetic profiles and a general knowledge of the regional geology, Conductor Two is probably explained as a series of narrow parallel shear zones containing clay alteration products that act as conductors. This interpretation can be supported by the proximity of the well documented McNeil Creek Fault adjacent to the West end of the westerly extent of the lines. It can not be determined with certainty if the accompanying above background magnetic signature is significant.

Conductor Two is considered a drill target by the authour.

#### Conductor Three

Conductor Three is a cross over type of anomaly that crosses over on line 8E at 4 + 50S and on line 10E at 2 + 50S. On line 8E the in phase component goes from moderately negative to slightly positive and back to moderately negative. On line 10E the in phase profile goes from moderately negative to moderately positive.

This conductor roughly parallels Conductor One. Also, on line 8E there is an accompanying magnetic high (map 9, map 11, map 13).

Conductor Three is interpreted as a linear conductor of low intensity based on models of electromagnetic profiles. It is considered a significant conductor for the following reasons:

- 1. proximity to Conductor One
- 2. accompanying magnetic high (possibly from the influence of pyrrhotite)
- 3. the presence of the LMC, host of the Sullivan orebody, at depth.

Conductor Three is considered a drill target by the authour.

#### Conductor Four

Conductor Four is centered at 9 + 25S on line 18E (map 10, map14). The in phase component of the electromagnetic profile goes from a moderate negative to a high positive and back to a high negative. Based on models of electromagnetic conductors Conductor Four can be interpreted as a linear anomaly dipping to the North. It is accompanied by an above background magnetic anomaly (map 12, map 14).

This conductor is considered significant for the following reasons:

- 1. proximity to Conductor One
- 2. accompanying magnetic high (possibly from the influence of pyrrhotite)
- 3. the presence of the LMC, host of the Sullivan orebody, at depth.

Conductor Four is considered a drill target by the authour.

#### Conductor Five (overburden)

Conductor Five is situated along the entire length of line 14E. Both the in phase component and the quadrature have a relatively flat slope. The in phase is entirely negative while the quadrature is negative except for 5 slightly positive values. On line 16E the in phase component has a large negative value from 1 + 25S to 3+00S while the quadrature has a fairly flat slope. On line 18E from the base line to 5 + 25S the in phase component has a moderately negative profile with a fairly flat slope, while the quadrature is from 0 to slightly positive but virtually parallel to the in phase component. On line 20E from the base line to 6 + 00S the in phase component is moderately negative while the quadrature is slightly positive or 0 (map 9, map 13).

Based on models of VLF-EM electromagnetic profiles the described profiles on lines 16E, 18E and 20E probably reflect the influence of conductive overburden. Field observations support this interpretation as no outcrop was encountered in this area.

#### MAGNETOMETER SURVEY

#### Instrument Description

The survey was conducted with a Scintrex MP-2 Proton Precession Magnetometer (S.N. 70238) rented from T. Hasek Associates Ltd.with offices at 704-850 West Hastings St., Vancouver.

#### Survey Method

A base station was established on the Semlin Creek road near where the Semlin Creek road crosses the Moyie River. This base station is approximately 1 kilometer North of the northern extremity of the grid. This location was selected for convenience as it was necessary to pass this point every day on the way to and from the survey area. The location of the base station is shown on MAP 3, ACCESS MAP. Readings, representing the total magnetic field in gammas, were taken at 25 meter intervals along the grid lines and recorded in a notebook. The instrument was looped back to the station where the first reading was taken to close each traverse. The traverses ranged from two hours to four hours duration.

#### Data Treatment

A diurnal correction was made for each loop traverse. In addition, the total drift during the traverse was distributed evenly over the traverse. The finished data is plotted on Map 11, Map 12, Map 16 and Map 19 which accompany this report.

Interpretation and Valuation

Values of the magnetic survey (minus 5700) plotted on Map 11 and Map 12 demonstrate four magnetic anomalies labelled and situated as follows:

Magnetic Anomaly One; situated in the northwest corner of the grid (map 9, map13) Magnetic Anomaly Three; situated on line 8E centered at 3 + 50S (map 9, map 13) Magnetic Anomaly Southeast; situated on line 22E centered at 4 + 50S (map 10, map14) Magnetic Anomaly BL08E; situated near the base line on line 8E (map 9, map13).

In addition, there are two areas of above background magnetic values labelled and situated as follows:

Magnetic Anomaly Two; situated on line 16E from 7 + 50S to 8 + 50S and on adjacent line 18E from 7 + 25S to 8 + 25S (map 12, map 14) Magnetic Anomaly Four; situated on line 18E at the southern extremity.(map 12 and map 14).

Magnetic Anomaly One

Magnetic Anomaly One is considered significant for the reasons listed in the discussion of Conductor One in the VLF-EM section of this report.

As discussed in the VLF-EM portion of this report, the area underlain by Anomaly One is, in the opinion of the authour, a good drill target.

#### Magnetic Anomaly Three

Magnetic Anomaly Three is situated adjacent to VLF-EM Conductor Three. This anomaly is considered significant for the reasons described in the valuation of Conductor One in the VLF-EM section of this report.

As discussed in the VLF-EM portion of this report, the area underlain by Anomaly Three is, in the opinion of the authour, a good drill target.

#### Magnetic Anomaly Southeast

Magnetic Anomaly Southeast is not coincident with a VLF-EM conductor. In addition, it underlies a small area. It is difficult to offer a concise interpretation of this magnetic anomaly. One possible interpretation is a pocket of Moyie Intrusive boulders of gabbro composition present in the glacial overburden. Gabbro may carry magnetite, a highly magnetic mineral, as an accessory mineral.

In the opinion of the authour, Magnetic Anomaly Southeast is not a significant magnetic anomaly.

#### Magnetic Anomaly BL08E

Magnetic Anomaly BL08E is situated approximately 150 meters in a southerly direction from Magnetic Anomaly One and VLF-EM Conductor One. In fact, it is probably correct to group Magnetic Anomaly BL08E with Magnetic Anomaly One.

#### Magnetic Anomaly Two

Magnetic Anomaly Two is considered to be above background magnetics values rather than a bona fide magnetic anomaly. Some significance is attached to Magnetic Anomaly Two as it is associated with VLF-EM Conductor Two. Also, it is in a geologically favourable area considering the LMC is known to be present at depth as discussed in the analysis of Conductor Two in the VLF-EM section of this report

This anomaly is, in the opinion of the authour, considered a drill target.

#### Magnetic Anomaly Four

Magnetic Anomaly Four, like Magnetic Anomaly Two, is considered to be above background magnetic values rather than a bona fide magnetic anomaly. Some significance is attached to Magnetic Anomaly Four as it is associated with VLF-EM Conductor Four. Again, as in Magnetic Anomaly Three, it is in a geologically favourable area as the LMC is known to be present at depth as discussed in the VLF-EM section of this report.

#### LINEAMENT ONE AND LINEAMENT TWO

Two of the most significant showings in the area, the VINE SHOWING (MINFILE NO. 082GSW050), which is situated 15 kilometers slightly East of North of the McNeil Creek Property and the McNEIL CREEK SHOWING (MINFILE NO. 082GSW024) situated 2.5 kilometers South of the CUBBY CLAIMS, on claim MAR 3, which comprises part of the McNeil Creek Property, are hosted by shear zones.

Therefore, air photo 30BCC94090 was examined for lineaments that may be a reflection of shear zones in the underlying bedrock. Two prominent lineaments were selected for geophysical and geochemical investigation The two lineaments selected are referred to as Lineament One and Lineament Two (map 4.).

LINEAMENT ONE Lineament One is situated on claims CUBBY 1, CUBBY 2, CUBBY 3 and CUBBY 4 (map 4). A grid comprised of a base line 150 meters long with 4 cross lines of 300 meters long centered on the base line were installed with compass, hip chain and flagging. The base line is situated approximately along the lowest point, or hopefully, the surface expression of the lineament.

A VLF-EM and magnetometer survey was conducted over the cross lines of the grid installed on Lineament One utilizing the same procedures described earlier in this report. In addition, four soils samples were taken at 100 meter intervals along the base line and analysed for Cu, Pb, Zn and As.

#### Interpretation and Valuation

A weak VLF-EM conductor adjacent to a well defined magnetic anomaly is present on Lineament One (map 15, map 16). Utilizing the criterion described in the GEOCHEMICAL SURVEY section of this report for determining geochemical anomalies in the Aldridge, the values of the Pb, Zn and As are not significant. The Cu values are also not considered significant (map 17).

Further investigation of Lineament One by trenching is recommended by the authour. Field observations indicate the overburden thickness is probably thin enough to allow bedrock to be reached by utilizing a hydraulic shovel in backhoe configuration similar to the ones used by logging operations for road building (a caterpilar 225, 235 or equivalent).

#### LINEAMENT TWO

A grid composed of a base line 300 meters long and one cross line 300 meters long centered on the base line was installed utilizing a compass, hip chain and flagging. Lineament Two is situated in the northeast corner of claim PHANTOM 1 (map 4). A VLF-EM and magnetic survey were conducted on the grid installed on Lineament Two utilizing the procedures described earlier in this report. Only one line, Line 1, was installed and surveyed on Lineament Two as the rented instrument was due for return. In addition, four geochemical samples were taken at 100 meter intervals along the base line and analysed for Cu, Pb, Zn and As.

#### Interpretation and Valuation

The profile of the VLF-EM electromagnetic survey and the magnetometer survey are not of any signifigance (map 18, map 19). The one line installed is situated near the southwest end of the lineament where it was not as prominent as to the northeast. Further investigation of Lineament Two by geophysical survey over the unsurveyed portion of the lineament may be justified in the future if encouraging results are encountered elsewhere on the property. Utilizing the criterion for determining geochemical anomalies in the Aldridge described in the GEOCHEMICAL SURVEY section of this report, the values of Pb, Zn and As are not considered significant. The Cu values, as well, are not considered significant (map 20).

#### AUTHOUR'S QUALIFICATIONS

I, Frank O'Grady, address 587 Wallinger Ave., Kimberley, B.C. Canada V1A 1Z8, hereby certify that:

- 1. I am a graduate of the University of British Columbia, B.Sc. Geology 1969.
- 2. I am a graduate of the University of Missouri Rolla (Missouri School of Mines), B.S. Mining Engineering 1977.
- 3. I am a registered Professional Engineer in the Province of British Columbia since 1978.
- 4. I have practiced my profession as a geologist since 1969 and as a Geologist Mining Engineer since 1977.

Fran ng. Janua

#### APPENDIX 1

#### EM16 SPECIFICATIONS

MEASURED QUANTITY

Inphase and quad-phase components of vertical magnetic field as a percentage of horizontal primary field. (i.e. tangent of the tilt angle and ellipticity).

SENSITIVITY

Inphase: ±150%

Quad-phase: ± 40%

±11

units.

RESOLUTION

OUTPUT

**OPERATING FREQUENCY** 

**OPERATOR CONTROLS** 

ON/OFF switch, battery test push button, station selector switch, audio volume control, quadrature dial, inclinometer.

Nulling by audio tone. Inphase indication from mechanical inclinometer and quad-phase from a graduated dial.

15-25 kHz VLF Radio Band. Station selection done by means of plug-in

POWER SUPPLY

DIMENSIONS

WEIGHT

6 disposable 'AA' cells.

42 x 14 x 9cm

Instrument: 1.6 kg Shipping: 5.5 kg



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Chemex Labs Ltd. Analytical Chamiste " Begletered Assayors 212 Brooksbank Ave. North Vancouver British Columbia, Canada V7J 2C1 PHONE: 604-984-0221 FAX: 604-984-0218 To: BHP MINERALS CANADA LTD.

1800 - 1050 W. PENDER ST. VANCOUVER B.C. V8E 357 Page Number 1 Total Pages 1 Certificate CateC2-AUG-96 Invoice No. 19825515 P.O. Number -Account

Project : Comments: ATTN:NEILLE NOBEL CC:FRANK O'GRADY

\_\_\_\_\_

					 CERTIFIC	ATE OF	ANAL	1515	A962	25515		
SAMPLE Description	PBEP CODE	Cu ppm	Ър Бр	Zn ppm								
965K-01 965K-02 965K-03 L12E BLO L12E BLOS	201 202 201 202 201 202 201 202 201 202	B 8 NotRed 	6 8 9 NotRed 11	60 46 45 NotRed 74								_
L12E 1-00NA L12E 1+00NB L12E 2+00N L12E 3+00NA L12E 3+00NB	2012 2011 2011 2012 2012 2012 2012 2012		7 7 10 13 7	27 46 45 50 25			:					APP
L12E 4+00R L12E 1+009 L12E 2+009 L12E 2+009 L12E 3+608 L12E 3+508	201 202 201 202 201 202 201 202 201 202 201 202	NotRed	9 10 8 NotRed 9	51 55; 50 NotRcd 41							•	ENDI
LI4E BLO LI4E 1+00M L14E 2+00M L14E 3+00M L14E 3+50M	201 202 201 202 201 202 201 202 201 202 201 202 201 202		15 14 17 16 7	78 53 64 187 49				:				- X 2
L14E 1+00S L14E 2+00S L14E 1+00SA L14E J+00SB	201 202 201 202 201 202 201 202 201 202		10 14 15 12	77 64 82 73								
												:

CERTIFICATION.



Analytical Chemists \* Geochemists \* Registered Assayers

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1600 - 1050 W. PENDER ST. VANCOUVER, B.C. V6E 3S7 Page Number : 1 Total Pages :2 Certificate Date: 08-AUG-96 Invoice No. : 19626280 P.O. Number : Account :E

Project :

Comments: ATTN: N. LENOBEL CC: FRANK D'GRADY 1/

		_			CERTIFIC	ATE OF	ANALYSIS	5 A9	626280	
SAMPLE	PREP CODE	Pb ppm	Zn ppm							
16E BLO 16E 1+00S 16E 2+00S 16E 3+00S 16E 4+00S	201 202 201 202 201 202 201 202 201 202 201 202	10 10 9 11 11	64 77 86 54 35							
LGE 5+008 LGE 1+00N LGE 2+00N LGE 2+50N LSE BLO	201 202 201 202 201 202 201 202 201 202 201 202	25 10 9 13 9	58 43 33 74 54							
LSE 1+008 LSE 2+008 LSE 3+008 LSE 4+008 LSE 5+008	201 202 201 202 201 202 201 202 201 202 201 202	18 9 13 11	62 50 55 50 58		 					
LSE BLON LSE 1+00N LSE 2+00N LSE 3+00N LSE 4+00N	201 202 201 202 201 202 201 202 201 202 201 202	8 9 9 11 10	58 35 75 52 32							
LBE 5+00N L10E BLO L10E 1+00S L10E 2+00S L10E 3+00S	201 202 201 202 201 202 201 202 201 202 201 202	15 12 22 16 13	46 56 68 55 59	E						
L10E 4+00S L10E 5+00S L10E 1+00N L10E 2+00N L10E 3+00N	201 202 201 202 201 202 201 202 201 202 201 202	8 14 11 24 11	48 63 58 59 50							
L10E 4+00N L10E 5+00N L10E 6+00N L16E BLO L16E 1+00S	201 202 201 202 201 202 201 202 201 202 201 202	9 10 13 17 12	45 54 60 102 88							
L16E 2+008 L16E 3+008 L16E 4+008 L16E 5+008 L16E 5+008 L16E 6+008	201 202 201 202 201 202 201 202 201 202 201 202	18 18 18 21 25	82 76 125 78 100							

APPENDIX 3

CERTIFICATION

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1600 - 1050 W. PENDER ST. VANCOUVER, B.C. V6E 3S7

Page Number :2 Total Pages :2 Certificate Date: 08-AUG-96 Invoice No, :19626280 P.O. Number : Troount : E

Project :

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Comments: ATTN: N. LENOBEL CC: FRANK O'GRADY

					- (	CERTIFIC	ATE OF A	NALYSIS	A96	626280	
SAMPLE	PREP CODE	PD ppm	Zn ppm								
L16E 7+008 L16E 9+008 L16E 9+508 L16E 1+00N L16E 2+00N	201 202 201 202 201 202 201 202 201 202 201 202	20 13 8 11 12	110 48 50 40 93								
L16E 3+00N L16E 4+00N L16E 4+50N L18E BLO L18E 1+00S	201 202 201 202 201 202 201 202 201 202 201 202	10 10 17 14 18	68 58 70 60 86								
L18E 2+008 L18E 3+008 L18E 4+008 L18E 5+008 L18E 6+008	201 202 201 202 201 202 201 202 201 202 201 202	11 21 19 9 12	50 98 102 50 50								
L18E 7+00S L18E 8+00S L18E 9+00S L18E 10+00S L18E 10+50S	201 202 201 202 201 202 201 202 201 202 201 202	10 16 25 12 13	57 88 74 74 50								
L20E 06+00N L20E 07+00N L20E 08+00N L20E 09+00N L20E 10+00N	201 202 201 202 201 202 201 202 201 202 201 202	17 13 24 16 12	105 62 75 88 35								
L22E 6+00S L22E 7+00S L22E 8+00S L22E 9+00S	201 202 201 202 201 202 201 202 201 202	17 20 23 15	54 63 62 48	, ,							
											Sec. Sec.

APPENDIX 3 (cont.)

CERTIFICATION:



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1600 - 1050 W. PENDER ST. VANCOUVER, B.C. V6E 3S7 Page Number : 1 Total Pages : 1 Certificate Date: 13-AUG-96 Invoice No. : 19626842 P.O. Number : Account : E

Project : SHIPMENT #3 Comments: ATTN:NEIL LENOBEL CC:FRANK O'GRADY

CERTIFICATION:

				C	ERTIFIC	ATE OF /	ANALYSIS	A96:	26842	
SAMPLE	PREP CODE	Pb ppm	Zn ppm							
L18E 1+00N L18E 2+00N L18E 3+00N L18E 4+00N L20E 1+00N	201 202 201 202 201 202 201 202 201 202 201 202	22 13 11 12 9	132 116 69 134 84							
L20E 2+00N L20E BLO L20E 1+00S L20E 2+00S L20E 3+00S	201 202 201 202 201 202 201 202 201 202 201 202	11 15 5 9 25	116 92 49 46 88							
L20E 4+00S L20E 5+00S L22E 1+00N L22E BLO L22E 1+00S	201 202 201 202 201 202 201 202 201 202 201 202	12 8 8 22 14	75 80 92 90 84							
L22E 2+00S L22E 3+00S L22E 4+00S L22E 5+00S	201 202 201 202 201 202 201 202 201 202	12 14 48 14	88 82 126 99							
									ſ	
						[		4512	•	



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1600 - 1050 W. PENDER ST. VANCOUVER, B.C. V6E 3S7 Page Number : 1 Total Pages : 1 Certificate Date: 13-AUG-96 Invoice No. : 19626841 P.O. Number : Account : E

Project : SHIPMENT #3 J Comments: ATTN:NEIL LENOBEL CC:FRANK O'GRADY

# A9626841 **CERTIFICATE OF ANALYSIS** PREP Au g/t Ag ppm SAMPLE CODE FA+AA Aqua R 205 226 < 0.005 < 0.2 NO. 84283

APPENDIX 5

tart Buchler

CERTIFICATION:\_



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1600 - 1050 W. PENDER ST. VANCOUVER, B.C. V6E 3S7 Page Number :1-A Total Pages :1 Certificate Date: 22-AUG-96 Invoice No. :19628514 P.O. Number : Account :E

Project :

Comments: ATTN: NEIL LENDBEL CC: FRANK O'GRADY

										CE	RTIF	CATE		NAL	rsis	4	9628	514		
SAMPLE	PREP	Ag ppm	A1 *	As ppm	Ba	Be ppm	Bi ppm	Ca %	Cd meqq	Co ppm	Cr ppm	Cu ppm	Fe %	Hg ppm	K %	Mg %	Мл ррш	Мо ррт	Na. %	Ni ppm
NO. 84284 No. 84285 No. 84286	208 226 208 226 208 226	< 1 < 1 < 1	0.90 1.43 2.84	< 10 < 10 < 10	40 20 < 20	~ \$ ~ 5 ~ 5	< 10 < 10 < 10	0.14 1.17 1.86	< 5 < 5 < 5	< 5 20 20	160 110 160	15 < 5 < \$	1.59 2.13 5.37	< 10 < 10 < 10	0.21 0.20 0.14	0.51 1.26 2.81	210 410 600	< 5 < 5 < 5	0,06 0.05 0.03	15 35 55
															·					



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1600 - 1050 W. PENDER ST. VANCOUVER, B.C. V6E 3S7 Page Number : 1-B Total Pages : 1 Certificate Date: 22-AUG-96 Invoice No. : 19628514 P.O. Number : Account : E

Project :

Comments: ATTN: NEIL LENDBEL CC: FRANK O'GRADY

				·								CE	RTIF	CATE	OF ANALYSIS	A9628514	
SAMPLE	SAMPLE	PI	rep DDE	p ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	T1 ppm	U ppm	V mqq	W ppm	Zn ppm			
NO. NO.	84284 84285 84286	206 206 208	3 226 3 226 3 226	100 300 300	20 20 30	< 10 < 10 < 10	< 5 < 5 15	5 5 20	0.05 0.14 0.22	< 20 < 20 < 20	< 20 < 20 < 20	< 20 60 160	< 20 < 20 < 20	50 55 100			

APPENDIX 6 (cont)

CERTIFICATION:\_



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To: BHP MINERALS CANADA LTD.

# 1600 - 1050 W. PENDER ST. VANCOUVER, B.C. V6E 3S7

Page Number : 1 Total Pages : 1 Certificate Date: 20-AUG-96 Invoice No. : 19627657 P.O. Number : \_ Е Account

Project : SHIPMENT #5 Comments: ATTN:NEIL LENOBEL CC:FRANK O'GRADY

1

						CERTIFIC	ATE OF ANALYSIS	A9627657	<del>2</del>
SAMPLE	PRE. COD	P Cu E ppm	bp dđ	Zn ppm	As ppm				
BLIN1-1 BLIN1-2 BLIN1-3 BLIN1-4 BLIN2-0	201 2 201 2 201 2 201 2 201 2 201 2	02 18 02 22 02 30 02 16 02 23	21 37 21 8 15	144 102 64 38 74		1 2 1 1 2			
BLIN2-1N BLIN2-2N BLIN2-3N	201 2 201 2 201 2	02 1 02 1 02 2	11 10 11	52 132 76		2 1 2			

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F.P. CUBBY 1&2



















#### **BRITISH COLUMBIA PROSPECTORS ASSISTANCE PROGRAM PROSPECTING REPORT FORM (continued)**

#### **B. TECHNICAL REPORT**

- One technical report to be completed for each project area. ٠
- Refer to Program Requirements/Regulations, section 15, 16 and 17. .
- If work was performed on claims a copy of the applicable assessment report may be submitted in lieu of the • supporting data (see section 16) required with this TECHNICAL REPORT.

Name Frank O'Grady Reference Number 96/97 P33	
LOCATION/COMMODITIES Project Area (as listed in Part A) <u>Skookumchuck</u> MINFILE No. if applicable Location of Project Area NTS <u>82G/13W</u> Lat Long Description of Location and Access <u>Located on East side of Skookumchuck</u> <u>Canyon</u> . <u>Access by Skookumchuck Mountain road and</u> <u>foot</u> .	
Main Commodities Searched For	
Known Mineral Occurrences in Project Area <u>None</u>	
WORK PERFORMED         1. Conventional Prospecting (area)       6 km²         2. Geological Mapping (hectares/scale)         3. Geochemical (type and no. of samples)       16 soil samples, 5 rock samples         4. Geophysical (type and line km)         5. Physical Work (type and amount)         6. Drilling (no., holes, size, depth in m, total m)         7. Other (specify)	
SIGNIFICANT RESULTS Commodities <u>Cu + Ag</u> Location (show on map) Lat <u>49° 55′ 30″</u> Long <u>115° 22′ 00″</u> Elevation <u>1000 m</u> Best assay/sample type <u>10 ppb Au</u> , <u>06 oz ton Ag</u> , 1. <sup>03</sup> % <u>Cu - rock sample</u>	ılæd ⊥
Description of mineralization, host rocks, anomalies <u>A copper</u> showing of <u>malachite</u> and <u>chalcopyrite</u> hosted by a <u>dolomitized</u> shale and <u>quartz</u> veining <u>The malachite is on all fracture planes</u> while the <u>chalcopyri</u> <u>is contained in the dolomitized</u> shale in <u>carbonate</u> filled fracture and as 10-15 cm blebs within the <u>quartz</u> .	

Supporting data must be submitted with this TECHNICAL REPORT

#### SUMMARY

#### of the

#### **SKOOKUMCHUCK Project Area**

#### including claims staked BRANCHEYE 1 to BRANCHEYE 6 Mineral Claims

#### situated in the

#### FORT STEELE MINING DIVISION

#### NTS 82G/13W

Latitude 49° 55' 30" Longitude 115° 22' 00"

#### Owner/Operator: Frank O'Grady, P.Eng. 587 Wallinger Ave. Kimberley, B.C. V1A 1Z8

#### Work performed during 1996

Summary by Frank O'Grady, P.Eng.

#### SKOOKUMCHUCK January 1997 TABLE OF CONTENTS

#### PAGE

SUMMARY OF 1996 PROSPECTING	1
ACCESS	2
LOGISTICS	2
AUTHOUR'S QUALIFICATIONS	3

#### LIST OF APPENDICES

APPENDIX A	Certificate of Analysis	A9625515	soil samples
APPENDIX B	Certificate of Analysis	A9627595	soil samples
APPENDIX C	Certificate of Analysis	A9632495	rock samples(2 pages)

#### LIST OF MAPS

MAP	1	Province Location
MAP	2	Regional Location
MAP	3	Geology Map, Open File Map No. 197-8
		by Ginette Carter and Trygve Hoy
MAP	4	NTS Topographic 82G/13W
MAP	5	Air Photos 30BCC94045 No. 190 and
		30BCC94128 No. 138
MAP	6	BRANCHEYE Claims
MAP	7	Soil Sample Reconnaissance
MAP	8	Prospecting Branch Road A
MAP	9	Prospecting Map

#### SUMMARY OF 1996 PROSPECTING SKOOKUMCHUCK RIVER AREA

The authour initially became interested in prospecting the Skookumchuck area in 1984.

Geologically the area is similar to the environment of ASARCO's Troy Mine (Spar Lake deposit) in Lincoln County, Montana. The Spar Lake deposit is situated approximately 180 kilometers slightly East of South of the area prospected in the Skookumchuck River area.

During 1984 minor amounts of float comprised of shale containing chalcopyrite/malachite were encountered.

Several days of prospecting during 1995 did not reveal any further float or mineralization.

Routine prospecting during 1996 revealed a talus slope mostly composed of dolomitized shale containing chalcopyrite and malachite. The malachite is prolific throughout the rock. Chalcopyrite is contained in closely space veinlets accompanied by carbonate. In addition quartz was found in the talus containing blebs of chalcopyrite. Quartz containing chalcopyrite was also found in place near the top of the talus slope. The quartz is moss and debris covered but appears to be a flat lying vein approximately 25 centimeters thick.

The talus slope is approximately 30 meters wide at the bottom and extends up slope for approximately 100 meters. The dolomitized shale comprising most of the talus material could not positively be found in place. However, boulders 1 meter by 2 meters are present at the top of the talus slope. Also, beds of quartzite overlay the top of the talus slope that have no structural break in them.

Several samples of the mineralization are at the authour's home in Kimberley.

Four samples of the material were sent for assay. The results are reported on Certificate of Assay A9632495.

Six two-post claims, called the Brancheye 1 to Brancheye 6, were staked over the showing.

There is no record of this showing in MINFILE or any mention of it in other literature researched. Therefore, it is safe to assume it is a new showing.

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#### ACCESS TO BRANCHEYE CLAIMS

The **BRANCHEYE** claims staked in September 1996 cover a Cu showing that has minor amounts of Ag as well as Au in geochemical amounts. The showing is situated at:

latitude 49 55' 30" longitude 115 22' 00".

To access the claims proceed from Kimberley North on highway 95A for a distance of 38 kilometers to a point 1 kilometer South of Skookumchuck, B.C. where Farstad Way branches to the West. Farstad Way is the road leading to CRESTBROOK FOREST INDUSTRIES LTD. Skookumchuck Pulp Mill. Follow Farstad Way West for 2.7 kilometers, turn West on Torrent Road and follow Torrent Road for a distance of 2.7 kilometers where the Skookumchuck Mountain Road branches to the West. Follow the Skookumchuck Mountain Road to the 5 kilometer sign, then follow Branch A to the West for a distance of 2.3 kilometers to a switchback. A flagged line intersects the road at the 2.3 kilometer point on Branch A. The flagged line is followed West for 320 kilometers to the final post of **BRANCHEYE 5** and **BRANCHEYE 6**. The location line for the **BRANCHEYE 1** to **BRANCHEYE 6** is then followed a further 1500 meters to the West to the location of the showing. The talus slope containing the showing terminates on the East bank of the Skookumchuck River.

#### LOGISTICS

The area selected for prospecting on the Skookumchuck project has been difficult to access. To travel to the showing from the nearest access road initially required 8 hours for a return trip. Use of a helicopter was precluded as the cost was estimated at \$1100 per trip. During 1995 a trail was flagged from the Skookumchuck Mountain Road to the East edge of the Skookumchuck canyon. This trail was re - flagged and marked during 1996.

Fortunately, during August of 1996 CRESTBROOK FOREST INDUSTRIES LTD. constructed a road into the area that terminates 1.2 kilometers from the showing. The elevation at the road termination is 1400 meters while the elevation at the showing is 1000 meters. Therefore, it is still a substantial walk to the showing area, however, the road construction has greatly facilitated access to the showing and the surrounding area.

#### AUTHOUR'S QUALIFICATIONS

I, Frank O'Grady, address 587 Wallinger Ave., Kimberley, B.C. Canada V1A 1Z8, hereby certify that:

- 1. I am a graduate of the University of British Columbia, B.Sc. Geology 1969.
- 2. I am a graduate of the University of Missouri Rolla (Missouri School of Mines), B.S. Mining Engineering 1977.
- 3. I am a registered Professional Engineer in the Province of British Columbia since 1978.
- 4. I have practiced my profession as a geologist since 1969 and as a Geologist Mining Engineer since 1977.

Frank Janua



#### Chemex Labs Ltd. Analytical Chamists \* Geochemists \* Registered Assayste 212 Brocksbank Ave., North Vancouver Britteh Columbia, Canade V7J 2C1 PHONE: 604-984-0221 FAX: 604-984-0218

To: BHP MINERALS CANADA LTD.

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1600 - 1050 W. PENDER ST. VANCOUVER, B.C. V6E 3S7

Project : Comments: ATTN:NEIL LE NOBEL CC:FRANK O'GRADY

Page Number 1 Total Pages 1 Certificate Date(2-AUG-96 Invoice No. L9025515 P.O. Number : Account :

-					CERTIFICATE OF ANALYSIS	A9625515
SAMPLE Description	PREP CODE	Cu PPm	D D D D D D	Zı: ppm		
965K-01 965K-02 965K-03 L12E BLO L12E BLO L12E BLOS	201 202 201 202 201 202 201 202 	8 8 NotRed 	6 8 9 FotEcd 11	69 46 45 NotEcd 74		
L12E 1+00NA L12E 1+00NB L12E 2+00N L12E 3+00NA L12E 3+00NB	201 202 201 202 201 202 201 202 201 202 201 202 201 202		7 7 10 13 7	27 46 45 50 25		APP
L12E 4+00N L12E 1+003 L12E 2+003 L12E 3+005 L12E 3+505	201 202 201 202 201 202 201 202 201 202	NotRed	9 10 BotRcd 9	51 55 50 NotRed 41		
L14E BLO L14E 1+00N L14E 2+00N L14E 3+00W L14E 3+50B	201 202 201 202 201 202 201 202 201 202 201 202		15 14 17 16 7	78, 53 64 107 49		X A
L14E 1+00\$ L14E 2+00\$ L14E 1+00\$A L14E 1+00\$A L14E 3+00\$B	201 202 201 202 201 202 201 202 201 202 201 202		10 14 15 12	77 64 82 73		

CERTIFICATION:

11/19/96 11:55AM CHEMEX LABS VAX-FAX2



Analytical Chemists \* Geochemists \* Registered Assayers

212 Brooksbank Ave.,North VancouverBritish Columbia, CanadaV7J 2C1PHONE: 604-984-0221FAX: 604-984-0218

To: BHP MINERALS CANADA LTD.

#### 1600 - 1050 W. PENDER ST. VANCOUVER, B.C. V6E 3S7

Page Number :1 Total Pages :1 Certificate Date: 20-AUG-96 Invoice No. :19627595 P.O. Number : Account :E

A9627595

Project : SHIPMENT #4 Comments: ATTN:NEIL LENOBEL

NOBEL CC:FRANK O'GRADY

**CERTIFICATE OF ANALYSIS** 

#### PREP Cu Pb Zn Co SAMPLE CODE ppm ppm ppm ppmSK96-04 **sk96-05** SK96-06 SK96-07 SK96-08 SK96-09 SK96-10 SK96-11 SK96-12 SK96-13 SK96-14 SK96-15 SK96-16

# APPENDIX

B

CERTIFICATION:

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1600 - 1050 W. PENDER ST. VANCOUVER, B.C. V6E 3S7 Page Number 1-A Total Pages 1 Certificate Date25-SEP-96 Invoice No. I-9632495 P.O. Number : Account :

Project : Comments: ATTN: CC:FRANK O'GRADY-

	CERTIFICATE OF ANALYS							YSIS A9632495													
SAMPLE DESCRIPTION	PRI	EP DE	Ацррь ГА+АА	Ag oz/T	Cu	Ag ppm	A1 1	λs ppn	Ba ppn	Be ppm	Bi ppm	Ca S	cđ pp	Co ppm	Cr ppm	Cu ppu	Fe 3	Ga ppn	Hg PPM	K 3	La ppn
84287 84288 84289 84290 84290 84291	208 208 208 208 208 208	226 226 226 226 226 226	<pre>&lt; 5 10 &lt; 5 40 &lt; 5</pre>	< 0.01 0.06 < 0.01 < 0.01	0.30 1.03 0.08	1.2	0.74	 < 2	190	< 0.5	 24	1.23	< 0.5	4	32	1585	2.21	< 10	 < 1	0.30	30
			:																		

APPENDIX C

	Chemex Labs Ltd.
MEX	Analytical Chemists * Geochemists * Registered Assayers
	212 Brooksbank Ave., North Vancouver
384	British Columbia, Canada V7J 2C1
90	PHONE: 004-004-0221 FAX. 004-004-0210

To: BHP MINERALS CANADA LTD.

•

1600 - 1050 W. PENDER ST. VANCOUVER, B.C. V6E 3S7

CC:FRANK O'GRADY-

Project : Commente: ATTN: Page Number 1-B Total Pages 1 Certificate Date25-SEP-96 Invoice No. I-9632495 P.O. Number : Account :

											CERTIFICATE OF ANALYSIS A963								32495
SAMPLE DESCRIPTION	PE	EP DB	Mg 1	Nin Ppin	Mo	Na 1	Ni ppa	P ppn	Pb ppm	Sb ppn	Sc ppm	Sr ppm	Ti J	T1 ppm	U ppn	V ppm	W ppm	Zn ppn	
1287 1288 1289 1290 1291	208 208 208 208 208 208	226 226 226 226 226 226	0.82	305	 9	< 0.01	8	350	48	< 2	1	12	0.01	< 10	< 10		< 10	12	

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CERTIFICATION:



MAP 1 96/97 P 33 PROVINCE LOCATION SKOOKUMCHUCK PROJECT JANUARY 1997 F.O'GRADY











#### MAP 5 95/96 P033

BRANCHEYE CLAIM LOCATION SKOOKUMCHUCK RIVER AREA NTS 82G/13W SCALE 1:15,840 PHOTOS 30BCC94045 NO. 190 & 30BCC94128 NO. 138 JANUARY 1997 F. O'GRADY











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