

## **GEOCHEMICAL, GEOLOGICAL & GEOPHYSICAL**

### ASSESSMENT REPORT

on the

**S CLAIM GROUP** 

**Nicola Mining Division** 

NTS 92I 8W

CEOLOGICAL SURVEY BRANCH





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Vancouver, B.C. December 15, 1999

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## Geochemical, Geological & Geophysical Assessment Report on the S Claim Group

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## Geochemical, Geological & Geophysical Assessment Report on the S Claim Group

#### Introduction

An exploration program consisting of localized geochemical, geological and geophysical surveys, in addition to trenching, was completed on the S Claim Group from May to November, 1999. The purpose of the survey was delineate the Zone II anomalous zone and to examine the bedrock of the anomaly for the causitive source of the anomaly.

Information for this report was obtained from sources as cited under Selected References and from the writers' completion of, and the compilation of results from, the exploration program as reported on herein.

#### Summary

The S Claim Group is located four km southeast of the formerly productive Stump Lake Camp where production from mineralized quartz veins from the Stump Lake Camp reportedly amounted to 77,605 tons averaging a recovered grade of 0.109 oz Au/ton, 3.26 oz Ag/ton, 1.42% Pb and 0.24% Zn. The mineralized quartz veins, which are hosted by shear zones within greenstones of the Nicola volcanics, were explored to a depth of 275 meters and along a strike length of 600 meters. and are of irregular width with an alteration zone of up to "15 feet wide".

On the S claim group ground, exploration work in 1985 on the former CIG 100 claim delineated a northeasterly trending zone of anomalous gold values in the northwest sector of the property where pits and trenches expose barren to lightly mineralized quartz veins. In addition an isolated 420 ppb gold geochem value in the south-central portion of the claim was determined.

The 1987 exploration program completed by New Hombre Resources Ltd. on the CIG claim confirmed the 300 by 400 meter sub-anomalous gold zone in the northwest sector of the property with no additional significant results. However, detailed exploration in the south-central single station gold value of 1985 resulted in the delineation of a 200 by 40 meter sub-anomalous gold zone (Zone II) with soil geochem values of up to 1089 ppb Au. In one of three pits dug in on Zone II, a soil sample returned 1520 ppb Au at a depth of 50 cm. Samples of mineralized quartz vein float material in the pit areas assayed up to 0.690 oz Au/ton and 18.22 oz Ag/ton.

The exploration program also delineated a series of magnetometer lows correlating with a northeast trending electromagnetic anomaly which correlates in part to a geochem anomaly and the mineralized quartz vein float material.

The localized 1996 geochemical survey on the S claim group, which was centred in the area of the Zone II pit containing the 1520 ppb soil geochem gold and the 0.690 oz Au/ton quartz float, delineated anomalous gold values of up to 900 ppb gold to the west of the pit. The anomalous zone is open to the north, south and the west.

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### Summary (cont'd)

In April, May, and October of 1998, trenching was completed on the Zone II showings.

In March, 1999 a localized geophysical (VLF-EM) survey was completed on the HK 9-11 claims south of the Zone II showings.

In May, 1999 a localized geochemical, geophysical (VLF-EM) and geological survey was completed on the Zone II showings.

#### Property

The property consists of twenty-four located mineral claims and four, twenty unit claim blocks. Particulars are as follows:

<u>Claim Name</u>	Tenure No	Expiry Date
S 1 - S 7	334586 - 334592	March 28, 2000
HK 1	360143	October 17, 2000
HK 2 - HK 3	360144 - 360145	October 18, 2000
HK 4 - HK6	360146 - 360148	October 17, 2000
HK 7	360149	October 18, 2000
HK 8	360150	October 17, 2000
HK 9 - HK 11	360151 - 360153	October 18, 2000
Jackpot 1 - Jackpot 2	360528 - 360529	November 9,2000
Luna 1 - Luna 4	360967 - 360970	December 8, 2000
HAKA (20 units)	360160	October 17, 2000
AURA (20 units)	360695	December 7, 2000
TERRA (20 units)	360966	December 10, 2000
TONY (20 units)	362590	May 6, 2000

#### **Location and Access**

The property is located in southwestern British Columbia, forty km northwest of Merritt, northwest of Peter Hope Lake and within five km of Mineral Hill, where production from the Stump Lake Mining Camp occurred.

Access is from the Merritt-Kamloops Highway No. 5 to within three km of the property. A secondary road, the Peter Hope Lake road, junctions off to the east within three km south of Stump Lake and provides access to the property.

#### Physiography

The property is situated at the western edge of the Douglas Plateau which is within the physiographic area designated as the Interior Plateau of British Columbia. Gentle to moderate slopes prevail with relief in the order of some 200 meters from Peter Hope Creek Valley.



#### History

The history of the immediate area stems from the mineral deposits at Mineral Hill some six km west of the northwestern portion of the S Claim Group. Mineralization at Mineral Hill was discovered in 1882 with exploration and shaft development on the Joshua, Tribal Cain, King William Enterprise and Planet claims prior to 1890.

Exploration and development on Mineral Hill was sporadic to 1929 when a mill was built and operated to 1931. From 1939 to 1942, when operations were suspended, some mine development occurred in addition to the rebuilding of the mill. Since 1942 limited exploration was carried out on the various properties of the area.

Production from the Stump Lake camp during the period from 1916 to 1944 and from the Enterprise, King William, Tribal Cain and Joshua Veins is reported as 77,605 tons of ore mined yielding 8,494 ounces of gold, 252,939 ounces of silver, 40,822 pounds of copper, 2,206,555 pounds of lead and 367,869 pounds of zinc or a recovered grade of 0.109 oz Au/ton, 3.26 oz Ag/ton, 0.026% Cu, 1.42% Pb and 0.24% Zn. Other properties in closer proximity to the S Claim Group on which exploration was completed include the Mary Reynolds and the Azela within one km east and north.

The Mary Reynolds or the Jean Group was one of the early claims staked in the Stump Lake area and produced a small amount of gold-silver ore. The workings include a "96 foot" deep shaft with a "240 foot" long adit level in addition to numerous other workings exploring a vein system with general characteristics similar to the other Stump Lake deposits.

The Azela is within the Johannesburg camp situated "about 16,000 feet" southeast of the Enterprise Mine and within 100 meters west of the S Claim Group. The main showing is a shaft reportedly "78 feet" deep with open cuts and other workings within the claim. Previous exploration work on the ground included that of Aarn Exploration and Development Co. Ltd. when "250 feet" of trenches and two "miles" of road were completed.

On the ground presently covered by the S claim group, Times Square Energy and Resources Ltd. (name subsequently changed to New Hombre Resources Ltd.) completed localized geological, geophysical and geochemical surveys on the CIG 100 claim. In 1987, New Hombre Resources Ltd. completed a soil geochemical survey, a VLF-EM survey, a magnetometer survey, a geological survey, and the digging of three test pits (S-1, S-2 & S-3) to examine the soil profile of the southeast gold anomaly (Zone II). In 1990, a fracture density study was completed on the CIG 100 claim. The Cig 100 claim was allowed to expire in 1992.

From 1992 to 1995 the CIG 100 ground was originally covered in part by the Spud claim group and subsequently by the WJA claim group which was owned by Module Resources Incorporated. The only work completed for Module prior to the expiration of the WJA claims in 1995 was some trenching.

The S claim group was staked in 1995 followed by the completion of a localized geochemical survey over the pit area. From 1996 to 1999 localized geochemical, geophysical and geological surveys including trenching, was completed over Zone II of the S claim group. During this period additional contiguous claims to the original seven S claims were staked.

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#### Geology

The regional geology of the area as mapped by W.E. Cockfield and published as map 886 A in G.S.C. Memoir 249 (1947) indicates that the Stump Lake area is underlain by an assemblage of Upper Triassic volcanic flows, pyroclastics and sedimentary units termed the Nicola Group.

In a northerly trending contact with the Nicola the Carboniferous and Permean Cache Creek Group is indicated as occurring at Plateau Lake five km east of the S Claim Group. The Cache Creek rocks are shown to rarely outcrop as windows within the Nicola.

In a later geological map published by the GSC from the geological mapping completed by Monger (1980-82) and McMillan (1969-75 and 77-80) of the B.C. Ministry of Energy, Mines and Resources with supplemental information, the location of the Cache Creek rocks is shown as the Nicola Group. The Nicola Group consists of argillite, siltstone, volcanic sandstone and local intercalated tuff. The formation to the west of the contact and underlying the S Claim Group is the results of which are the subject of this report indicated as consisting of predominantly volcanics with interbedded argillite. The volcanics consist of augite porphyry and augite-plagioclase porphyry, volcaniclastic breccia and tuff.

The area is dominated by Tertiary faults with the major north northeast trending Quilchena-Stump Lake fault system defining in part the eastern limit of the Nicola batholith with the Nicola Group. The fault trends through the northeastern portion of Stump Lake, centrally through the Stump Lake camp and two km west of the S Claim Group. The major northwest trending Cherry Creek Fault 20 km north of Stump Lake truncates the Quilchena fault system. Secondary or associated structures in the area trend northerly to northwesterly.

In the Stump Lake area and specifically within the area of Mineral Hill where the major development and production was carried out the rocks consist of greenstone of the Nicola Group. The greenstone is an andesitic rock usually fine grained; locally it is coarser-grained and is dioritic to diabasic in texture. Occasional bands of tuff and breccia are included in the formation. The tuff is extremely fine-grained, banded and the breccia contains andesitic fragments up to 10 cm in diameter similar in composition to the matrix.

The greenstones strike 40° to 60° east and dip nearly vertical in the vicinity of the workings. Porphyritic to fine-grained hornblende-andesitic dykes, up to two and one-half meters wide occur in the area. Quartz filled fractures and shear zones strike northerly and dip easterly.

On the Enterprise quartz vein system, stoping was primarily carried out below the 150 foot level with a shaft to the "900 foot" level. The vein is commonly under two feet wide and strikes from 350° and 015° and dips easterly from 40° to 80° with considerable pinching and swelling.

The King William vein does not differ greatly from the Enterprise vein off which it forms a branch however it does reach a width of "nine feet". It joins the Enterprise vein at lower levels and has been drifted out south from its intersection with the Enterprise vein on each of the levels except the 800 foot.

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#### Geology (cont'd)

The Joshua mine is developed by a shaft to a depth 755 feet on the dip with the 320 foot drift level continued for "2,160 feet" from the portal to intersect the Joshua vein. The vein follows a fracture and shear zone striking nearly north and dipping 60° east. Below the 400 foot level the dip is stated to be towards the west.

The Planet shaft is about "2,800 feet" southwest of the Enterprise workings. The vein strikes 10° east and dips steeply easterly and is composed of a band of quartz "eight to 18 inches" wide.

At the Azela the occurrence consists of a shear zone six to eight feet wide striking north 015° east and dipping 55° south. Two pits show a vein zone striking north 40° west with a steep northeast dip. In one pit the zone is "three feet" wide with "14 inches" of heavily oxidized country rock carrying bunches of quartz. The cuts show only scanty sulphides.

The Mary Reynolds vein zones strike northeast and dip steeply southwest to northwest. The veins have been traced over "900 feet" by cuts and drill holes. The zones range up to "six feet" wide and carry veins and stringers of quartz mineralized with pyrite, chalcopyrite, galena, zinc blende and tetrahedrite. A fracture zone up to "five feet" wide with stringers of quartz and calcite strikes north 40° E and dips 85° southeast.

On the S claim group ground, Vollo (1983) states that from air photo interpretation and field examination the flows of the Nicola volcanic rocks strike about N 20° E and dip steeply. In addition minor zones of acid rocks, quartz veining and quartz carbonate alteration were noted.

Kuran (1985) states that the S claim group ground is underlain by volcanic rocks which "vary from dark green biotite-hornblende porphyritic flows to pale green, pitted weathering, porphyritic flows with biotite and hornblende phenocrysts altered to chlorite. Two main directions of jointing in the volcanics strike north-northeast to north-northwest and dip vertically."

J. Paxton (1987) reports that the chloritized hornblende-biotite porphyry appears to be an epidotized facies of dark green biotite-hornblende. In addition several zones of pyroclastic breccia were noted. At several locations quartz vein float was also noted.

In the current exploration program, the trenches that were completed in the 1998 exploration program were examined. The trenches revealed typical greenstone with a minor degree of quartz-carbonate stringers and flooding. Sampling of the bedrock exposed by the trenches was warranted.

#### Mineralization

Mineralization on Mineral Hill of the Stump Lake camp is essentially associated with quartz veins which occur as quartz fillings in shear and fracture zones. The principal quartz veins strike from north 45° west to north 25° east and dip between 45° easterly and vertical.

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**Mineralization** (cont'd)

The quartz is white and vitreous and is mineralized irregularly with sulphides which include pyrite, galena, sphalerite, tetrahedrite, chalcopyrite and bornite. The sulphides occur in segregations, thin seams and disseminations which make up usually a low proportion of the veins. Gold and silver values are rudely proportional to the amount of sulphides in any one vein.

From results of previous exploration on the S claim group ground, mineralization is reported to consist of variable sulphides within quartz veins. Samples of wall rock with low to moderate carbonate and/or ankerite and/or silica alteration ranged from background to 39 ppb Au. The quartz vein samples ranged from background values in gold to 1650 ppb Au in Trench II of Zone I to 0.690 oz Au/ton and 14.64 oz Ag/ton at Zone II. The higher grade gold values were contained in quartz float with light to moderate degrees of pyrite, chalcopyrite and argentite occurring as blebs, pockets and clusters.

### **Results of Previous Exploration on the S Claim Group Ground**

Exploration work in 1985 on portions of the S Claim Group ground delineated a northeasterly trending zone of anomalous gold values in the northwest sector of the property where pits and trenches expose barren to lightly mineralized quartz veins. In addition an isolated 420 ppb gold geochem value in the south-central portion of the claim was determined (AR 14,785).

The 1987 exploration program completed by New Hombre Resources Ltd. confirmed the 300 by 400 meter sub-anomalous gold zone (Zone I) in the northwest sector of the property with no additional significant results. However, detailed exploration in the south-central single station gold value of 1985 resulted in the delineation of a 200 by 40 meter sub-anomalous gold zone (Zone II) with soil geochem values of up to 1089 ppb Au (AR 17,489).

Three test pits were dug to a maximum depth of 75 cm in order to examine the soil profile of the southeast gold anomaly (4+00S, 7+25W). Pit S-2 is located along the perimeter of a gold soil geochemical anomaly between values of 144 ppb Au and 781 ppb Au. Pit S-1 is located to the west within an area of 17 ppb Au and one ppb Au. Pit S-3 is located near a soil value of 310 ppb Au.

Samples from pit S-2 at 3+85S, 7+35W returned anomalous gold values of up to 1520 ppb Au with increasing values to a depth of 50 cm. The lowest value of 230 ppb Au was from the bottom of the pit. Samples from pits S-1 and S-3 are shallower and returned values of up to 39 ppb Au occurring at the bottom of S-3. Samples of mineralized quartz vein float material in the pit areas assayed up to 624.6g/tAg and 23.65g/tAu.

The exploration program also delineated a series of magnetometer lows (LO's) correlating with a northeast trending electromagnetic (EM) anomaly which correlates in part to a geochem anomaly and the mineralized quartz vein float material.

The Ronka VLF EM-16 survey completed over the soil gold anomalies of Zone II defined a 350 metre anomaly which bifurcates to the northeast and correlates in part with soil geochem anomalous/sub-anomalous values in gold (Figure 2), a VLF-EM anomaly, and two local magnetometer lows.

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### Results of Previous Exploration on the S Claim Group Ground (cont'd)

The 1996 soil geochemical survey was localized and centred on one of the three pits that were excavated in the 1987 exploration program. Eight of the 18 samples, all clustered west of line 5W and the pit where the high-grade quartz float (1.158 oz Au/t) was obtained, returned over 400 ppb gold. The central four soil samples ranged from 57 ppb gold to 238 ppb gold and the eastern portion ranging from seven ppb gold to 34 ppb gold (AR 24,499).

The April-May, 1998 trenching program was not successful in reaching bedrock to determine the source of the high-grade gold-silver float material that was obtained from the shallow pits on Zone II.

The October, 1998 trenching program consisted of two trenches peripheral and to the south of the Zone II showings. The trenches, up to 1.25 metres in depth, exposed greenstone containing occasional stringers and fracture fillings of barren quartz-carbonate.

The May, 1999 geophysical (VLF-EM) survey to the south of Zone II indicated a weak anomaly - possibly indicating a structure paralleling the Zone II gold bearing structure to the west (AR 25,892)

The results of the May, 1999 geochemical, geological and geophysical survey established an anomalous gold in soil continuity between the anomalous gold values on lines spaced at 100 metres (AR 25,952).

## **1999 Geochemical Survey**

The geochemical survey was completed over three periods from September, 1999 to November, 1999; the reason for the three surveys was to acquire sufficient data and results on which to establish the following localized area for exploration. The purpose of the geochemical survey was a fill-in survey to determine the continuity of the anomalous gold soil values, and to delineate the original geochem anomaly, between Lines 3+00S and 4+25S and between 5+25W and 9+00W.

The grid utilized for the survey was on the same grid co ordinates as that which was originally placed in 1988. Soil samples were taken at 25 or 50 metre intervals along Lines 3+00S, 3+25S, 3+50, 3+75S and 4+25S at intervals between 5+25W and 9+00W. Samples were selected from the B horizon of the brown to brownish-grey sandy-silted forest soil at a depth of commonly 30 centimetres. The soil was placed in a brown wet-strength paper bag with the grid coordinates marked thereon and a flagged grid station was placed at the sample site. A total of 41 samples were taken

The samples were analyzed by Acme Laboratories of Vancouver, B.C. The analysis procedure is first to thoroughly dry the sample and then a .500 gram sample is digested with 3 ml. of 3:1:2 HCL-HNo3-H2O at 95° for one hour and is diluted to 10 mls. with water. The sample is then analyzed by ICP for 32 elements. Gold analysis is by aqua-regia/MIBK extract and a GF/AA finish.

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#### 1999 Geochemical Survey (cont'd)

The anomalous soil gold values ranged from a background value of 2ppb, to an anomalous high of 126 ppb. The gold soil geochem values from previous exploration in this area were grouped with the current results and the values contoured utilizing the Surfer computer program. The resulting map is indicated as Figure 2. All the values used for the map are documented in Appendix II with only the 1999 values indicated on Figure 2.

#### 1999 VLF-EM Survey

The purpose of the VLF-EM survey was to substantiate and determine the northerly extensions of the 1987 Ronka - VLF-EM anomalies (Figure 2).

A Sabre Model 27 VLF-EM receiver manufactured by Sabre Electronics of Vancouver was utilized in the VLF-EM survey. The primary transmission utilized was from Seattle, broadcasting at a frequency of 18.6 Khz. The VLF-EM receiver measures the amount of distortion produced in the primary transmitted field and a secondary magnetic field which may be induced by a conductive mass such as a sulphide body.

The VLF-EM unit, due to its relatively high frequency, can detect low conductive zones such as fault or shear zones, carbonaceous sediments, or lithological contacts and has the added disadvantage of indicating anomalous conditions from unwanted sources such as swamp edges, creeks and topographical highs.

VLF-EM readings were taken at sites spaced at 25 metres at continuous intervals along Lines 3+00S, 3+25S and 3+50 S. The survey readings are shown as the raw data as plotted on Figure 3.

The results of the survey were interpreted to reveal a two 200 metre VLF-EM anomalies as indicated by cross-overs on Lines 3+00S, 3+25S, 3+50S, and 3+75S. The western anomaly is indicated as a northeasterly extension of the 1987 Ronka VLF-EM anomaly. The western anomaly, parallel to the eastern anomaly and 150 metres to the west, originates within 25 metres of the 1987 pits where float material reportedly returned values of 624.6g/tAg and 23.65g/tAu. The area of the anomalies revealed a paucity of greenstone outcroppings with no surficial geological expression for the cause of the anomalies. The western anomaly was trenched (Trench C) to determine its causative source.

#### **1999 Geological Survey**

The geological survey was restricted to the geological mapping of the "B" Trenches which were physically excavated in October, 1998 to test the 1987 Ronka VLF-EM anomaly.

Greenstone was the predominate rock exposed in the two trenches. Alteration was of dominant chlorite with moderate to heavy splashes of red hematite on the joints and fractures with a light to moderate degree of pervasiveness. A complementary set of joints and fractures are oriented at 110° - 145° and 050° - 080°. A one cm barren carbonate stringer with bordering increased alteration trends at 050° and sub parallels the 1987 Ronka VLF-EM anomaly.

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#### Trenching

The 1999 40 metre east-west trench (Trench C), centred at approximately 3+35 S 7+25W, was physically excavated in October 1999. The purpose of the trenching was to determine the causative source of the western 1999 VLF-EM anomaly. The writer spotted the trench location, however, was not at the site at the time the trenching was carried out. The trench will be geologically mapped before it is filled in.

The trenchers reportedly located a piece of quartz float in the material from the trench at reportedly 20 metres west of the eastern end of the trench. The sample was assayed and returned anomalous values of 3.73g/tAu, 17,959ppm Pb and 49.2ppm Ag.

The westernmost trench of the 1998 "A" Trenches exposed a very limited a greenstone which may not have been bedrock.

#### Conclusions

The 1999 soil geochemical survey resulted in the delineation of the northern portion of Zone II soil geochem anomaly which contained soil geochem values of up to 1,089 ppb. The 1999 VLF-EM survey resulted in delineating a correlative anomalous zone which provided a target for potential structural localization of the indicated gold bearing quartz veins which may be the causative source for the soil geochem anomaly. However, even though trenching to date, including the 1998 and 1999 trenching, has indicated (quartz float) that the source of the soil gold anomaly is from a mineralized quartz, the location of the vein in bedrock could not be determined.

Respectfully submitted Sookochoff Consultants Inc.

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Laurence Sookochoff, P.Eng.

Vancouver, BC December 15, 1999

Sookochoff Consultants Inc.

## S Claim Group Statement of Costs

The field work on the S Claim group was carried out between May 15, 1999 and November 3, 1999 to the value as follows:

L. Sookochoff, P.Eng.	
5.0 man days @ \$550.	\$ 2,750.00
Car rental:	
4 days @ \$45.00 plus gas & km	385.60
Room & board:	
3 man days @ \$100.00	300.00
VLF-EM Rental	150.00
Assays	661.63
Results, maps compilation & draughting	675.00
Report, xerox, & printing	1,100.00
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\$ 6,022.23

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### Selected References

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Geological Survey of Canada -Bedrock Geology of Ashcroft (92I) map area, Open File 980

Kuran, V. - Assessment Report on the CIG 100 claim for Time Square Energy Resources Ltd. April 27, 1986. AR 14,785.

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Sookochoff, L. - Geochemical Assessment Report on the S Claim Group. July 24, 1996. AR 24,499.

Sookochoff, L. - Geophysical Assessment Report on the S Claim Group. March 31, 1996. AR 25,892.

Sookochoff, L. - Geochemical, Geological & Geophysical Assessment Report on the S Claim Group. July 19, 1999. AR 25,952.

Vollo, N.B. - Report on the CIG 100 claim for Times Square Energy Resources Ltd., 1984.

## Certificate

I, Laurence Sookochoff, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

That I am a Consulting Geologist and principal of Sookochoff Consultants Inc. with offices at Suite 1027, The Standard Building, 510 West Hastings Street, Vancouver, BC V6B 1L8.

- I, Laurence Sookochoff, further certify that:
- 1) I am a graduate of the University of British Columbia (1966) and hold a B.Sc. degree in Geology.
- 2) I have been practicing my profession for the past thirty-three years.
- 3) I am registered and in good standing with the Association of Professional Engineers and Geoscientists of British Columbia.
- 4) The information for this report is based on information as itemized in the Selected Reference section of this report and from work the writer has completed on the S claim group ground from 1980 to November, 1999.

Laurence Sookochoff, P. Eng.

Sookocboff Consultants Inc.

Vancouver, BC December 15, 1999 Appendix I

# ASSAY CERTIFICATES

\_Sookochoff Consultants Inc..

852 E. HASTINGS ST. ACME A YTICAL LABORATORIES LTD. INCOUVER BC V6A 1R6 PHONE (604) 253-3158 FAX (6 253-1716 9002 Accredited Co.) (1 GEOCHEMICAL ANALYSIS CERTIFICATE Sookochoff Consultants Inc. PROJECT S File # 9903861 1027 - 510 W. Hastings St, Vancouver BC V6B 1L8 Submitted by: L. Sookochoff SAMPLE# Cu Pb Ni Мо Zn Ag Со Mn Fe As U Au Th Sr Cd Sb Bi ٧ Са Ρ La Cr Mg Ba Τi В Αl Na κ W Au\* % ppm mag ppm nda ppm ppm Mag mag nda % ppm ngq ppm MCC ррл mag ppm ppm % % ppm % % ppm ppm ppm % % ppm ppb 3+00s 7+75W <1 27 9 81 <.3 16 9 310 2.22 8 <8 <2 <2 25 .2 <3 .26 .047 <3 48 3 27 .52 117 <2 .10 3 1.89 .03 .20 33 27 10 545 2.12 3+00s 7+50W 74 15 8 8 <8 <2 <2 29 <3 <3 42 .29 .057 <1 .4 <.2 4 25 .47 145 .09 3 1.81 .02 .27 2 7 3+00s 7+00W <1 37 9 110 .3 18 9 485 2.44 8 <8 <2 <2 32 .5 4 <3 51 .37 .058 6 32 .53 190 .10 4 2.19 .02 .27 <2 21 3+00s 6+75W 31 <3 75 <.3 336 2.27 10 <8 <2 <2 27 <.2 <3 <3 <1 16 8 48 .29 .043 4 27 .46 147 .10 3 1.79 .03 .23 <2 14 3+00s 6+50W <1 23 <3 72 <.3 13 8 623 2.11 <8 <2 <2 38 <.2 <3 <3 5 6 45 .46 .035 29 .50 131 .09 <3 1.62 .03 .26 <2 5 3+00s 6+25W 158 <3 157 .3 15 7 331 2.21 9 <8 <2 <2 38 .38 .024 <1 .7 3 <3 43 4 27 .74 45 .08 5 1.86 .03 .32 <2 18 3+255 8+00W 18 9 85 <.3 13 7 1017 2.02 3 <8 <2 <2 30 .3 <3 <3 41 <1 .40 .045 3 26 .43 189 .08 4 1.35 .02 .23 <2 60 <3 27 3+25s 7+75W <1 16 50 <.3 10 7 419 1.94 <2 <8 <2 2 .2 <3 <3 43 .26 .034 4 25 .35 112 <3 1.24 .09 .02 .19 <2 2 3+25s 7+25W <1 31 15 168 .4 15 8 766 1.83 19 <8 <2 <2 32 .8 3 <3 35 .40 .118 3 24 .44 203 .07 3 1.55 .02 .18 <2 21 34 183 .5 14 <8 35 3+25s 7+00W <1 18 16 8 722 1.96 <2 <2 1.0 3 <3 39 .39 .072 3 24 .46 193 .08 4 1.75 .03 .20 2 32 RE 3+25S 7+00W 32 173 15 684 1.86 <2 <2 33 <1 18 .6 8 12 <8 1.0 <3 <3 37 .37 .067 3 23 .43 182 .08 4 1.66 .02 .19 <2 18 3+25s 6+75W 23 4 78 <.3 12 7 594 1.85 9 <8 <2 <2 26 .2 <3 <3 38 .27 .056 2 1 23 .41 123 .07 3 1.52 .02 .20 <2 126 3+255 6+50W <1 24 7 470 <.3 11 7 735 1.77 28 <8 <2 <2 39 1.3 . <3 <3 34 3 .47 .40 .066 20 109 .06 3 1.45 .02 .14 <2 21 RE 3+25S 6+50W <1 24 5 467 .3 11 7 725 1.77 26 <8 <2 <2 39 1.2 <3 <3 33 .40 .065 3 19 .47 108 .06 4 1.43 .03 .14 <2 24 3+25s 6+25W 1 37 9 98 <.3 17 9 485 2.29 9 <8 <2 <2 36 .5 <3 <3 47 .33 .073 3 28 .53 115 4 1.56 .09 .02 .28 <2 6 3+50S 8+00W 488 2.07 1 22 6 44 <.3 12 8 5 <8 <2 <2 33 <.2 <3 <3 48 .37 .039 5 31 .41 125 .09 3 1.20 .03 .22 <2 4 25 7 70 13 7 669 2.04 6 <8 <2 <2 33 3+50s 7+75W 1 <.3 .3 <3 <3 43 . 40 .059 5 25 .37 166 .08 5 1.36 .02 17 .26 <2 STANDARD C3/AU-S 31 170 5.5 37 26 63 12 770 3.35 59 22 3 21 28 24.2 20 25 79 .56 .092 17 164 .59 150 .08 20 1.82 .04 .15 20 47

> GROUP 1D - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY ICP-ES. UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM. - SAMPLE TYPE: SOIL AU\* GROUP 3A - 10.00 GM SAMPLE, AQUA-REGIA,MIBK EXTRACT, ANALYSIS BY GF/AA. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

5 74 <.2

<3

<3

41

.65 .098

7 74

.60 233

.12

<3.99

.09

.50

Data 🛝 FA

3 <1

8

4

536 2.04

<2

<8

<2

STANDARD G-2

2

3

<3

43 <.3

ACME AL YTICAL LABORATORIES LTD. (ISU 9002 Accredited Co.) 852 E. HASTINGS ST. NCOUVER BC V6A 1R6

PHONE (604) 253-3158 FAX (6L 253-1716



GEOCHEMICAL ANALYSIS CERTIFICATE

Sookochoff Consultants Inc. PROJECT S File # 9903514 1027 - 510 W. Hastings St, Vancouver BC V6B 1L8 Submitted by: L. Sookochoff

Mo Cu Pb Zn Ag Ni Co Mn Fe As U Au Th Sr Cd Sb Bi SAMPLE# V Ca P La Cr Mg Ba Ti В Αl Na K W TI Hg Au\* % ppm ppm ppm ppm ppm ppm ppm ppm % % ppm ppm % ppm % ppm % mage mage mage mage mage mage mage % dag mga mga mga % 780 2.41 30 <8 <2 <2 27 <.2 <3 <3 52 .28 .079 3+50S 6+75W <1 37 9 157 <.3 17 9 4 30 .51 132 .10 7 2.03 .03 .23 <2 <5 <1 3+50S 6+50W <1 412 8 168 .6 16 7 788 1.84 16 <8 <2 <2 60 .8 <3 <3 47 .69 .047 5 21 .66 47 .07 9 1.26 .05 .24 <2 <5 <1 12 <1 30 12 79 .3 13 8 990 2.16 10 <8 <2 <2 37 <.2 <3 <3 48 .52 .055</pre> 4 29 .44 159 .10 5 1.63 .03 .34 <2 <5 <1 2 3+50s 6+25W <1 21 8 <8 <2 <2 31 <.2 <3 <3 50 .38 .028 3+50S 6+00W 6 53 < .3 13 8 697 2.21 4 32 .43 127 .11 <3 1.55 .03 .29 <2 <5 <1 2 8 57 .3 15 8 524 2.62 14 <8 <2 <2 31 <.2 <3 <3 58 .36 .041 5 35 .49 119 .11 <3 1.74 .03 .33 <2 <5 3+50S 5+75W <1 33 <1 11 3+50S 5+50W 57 17 59 <.3 27 13 1068 3.29 9 <8 <2 <2 <2 <2 <3 <3 68 .71 .038 6 53 .84 164 .12 3 2.12 .02 .50 <2 <5 <1 <1 13 6 64 <.3 22 13 786 2.95 5 < 8 <2 <2 31 <.2 <3 <3 63 .42 .032 5 55 .80 148 .13 <3 2.10 .02 .39 <2 <5 <1 2 3+50S 5+25W <1 39 11 912 3.10 24 <8 <2 <2 49 1.0 <3 <3 63 .68 .041 6 41 .71 161 .12 4 1.77 .03 .55 3+758 7+75₩ <1 43 37 122 .6 23 <2 <5 <1 44 11 692 2.83 18 <8 <2 <2 45 .6 <3 <3 66 .60 .028 3+75\$ 7+50W <1 38 31 86 .6 20 6 39 .69 129 .13 3 1.86 .03 .39 <2 <5 <1 17 3+758 7+25W <1 29 12 82 .3 16 9 639 2.54 11 <8 <2 <2 36 .4 <3 <3 57 .42 .036 6 32 .48 137 .13 <3 1.91 .03 .40 <2 <5 <1 3 8 440 2.46 15 <8 <2 <2 27 <.2 <3 <3 52 .26 .079 4 32 .53 140 .11 <3 1.86 .03 .22 <2 <5 <1 13 3+75s 7+00W 27 14 113 .3 16 <1 12 94 <.3 20 <8 <2 <2 42 .4 <3 <3 57 .56 .052 3+755 6+75W <1 55 10 780 2.81 10 7 41 .58 177 .11 5 1.67 .03 .52 <2 <5 <1 13 <1 37 10 1047 2.61 11 <8 <2 <2 39 <.2 <3 <3 55 .44 .048 5 39 .60 170 .11 4 1.81 .02 .37 <2 <5 <1 3 3+75\$ 6+25W 8 79 <.3 18 8 81 <.3 18 10 1076 2.53 11 <8 <2 <2 41 <.2 <3 <3 52 .46 .048 5 41 .61 177 .11 <3 1.84 .02 .38 <2 <5 <1 <1 38 RE 3+75S 6+25W 2 4+25\$ 7+75W <1 28 15 104 .3 18 8 583 2.42 11 <8 <2 <2 33 <.2 <3 <3 49 .38 .072 5 33 .47 166 .10 <3 1.74 .02 .26 <2 <5 <1 13 <2 <2 48 1.7 <3 <3 49 .56 .068 5 29 .53 184 .11 4+25\$ 7+50W 36 12 278 .3 18 9 920 2.55 48 <8 6 2.03 .03 .38 <2 <5 <1 <1 32 4+25S 7+25W <1 32 8 131 <.3 17 10 712 2.55 30 <8 <2 <2 36 .8 <3 <3 50 .39 .043 6 34 .52 152 .12 3 2.13 .03 .27 <2 <5 <1 11 8 1263 2.05 10 <8 <2 <2 39 .3 <3 <3 42 .49 .026 4 28 .44 190 .10 <3 1.76 .03 .30 <2 <5 <1 2 4+25S 7+00W <1 24 6 74 <.3 14 22 68 40 167 6.2 36 11 814 3.49 61 26 2 21 30 27.7 14 26 84 .59 .094 19 174 .63 132 .09 27 1.98 .05 .20 13 <5 1 50 STANDARD C3/AU-S STANDARD G-2 2 3 4 44 <.3 8 4 537 2.10 <2 <8 <2 3 66 <.2 <3 <3 42 .65 .103 7 82 .59 202 .13 <3 .96 .08 .53 3 <5 <1 <1

> GROUP 1D - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY ICP-ES. UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM. - SAMPLE TYPE: SOIL AU\* GROUP 3A- 10.00 GM SAMPLE, AQUA-REGIA/MIBK EXTRACT, ANALYSIS BY GF/AA. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: SEP 20 1999 DATE REPORT MAILED: Sep 7 28 99

SIGNED BY ..... D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of the analysis only.

<1 24 11 6	91 <.3 14			ppm pp			••					- X		ppm ]				t p							ppb	
<1 24 11 6	• - · · ·	0 002																	< 1 73	0.2	24	 -	<5	-1	2	-
				11 <				<.2									197.		6 1.73 6 1.39			-			11	
	64 .3 13							<.2									128.		6 1.54					_		1
1 20 13 9	92 .3 13	8 937						<.2									198 . 124 .		6 1.29							-
1 30 12 5		10 654						<.2									336 .		6 1.32							1
<1 26 16 19	.95 .5 12	7 1396	1.53	10 <	:8 <2	2 <2	38	. 4	< 3	<3	32	.41	.115	3	19	. 31	330 .	07	0 1.52	.02		5		-		-
1 27 10 10	00 5 12	7 1455	1.51	11 4	:8 <2	2 <2	39	. 5	<3	<3	30	.42	.118	3	17	. 31	350	06								
			2.08	10 <	8 <2	2 <2	26	<.2	<3	<3	44	. 27	.048	4	25	.46	124 .	09								· ·
		9 462	1.93	13 4	8 <2	2 <2	23	<.2	<3	<3	40	. 18	.084	3	23	.40	153 .									/
						3 21	28	24.0	19	26	78	. 56	.089	17	168	.60	144 .									
		5 565	2.04	2															5.95	.07	.50	4	<5	1	<1	
2 4 6 4	4/ (.3 0																									
8	1 27 19 1 1 29 17 1 26 19 1 25 66 38 1	1 27 19 199 .5 12 1 29 17 73 .4 14 1 26 19 105 .4 15	1 27 19 199 .5 12 7 1455 1 29 17 73 .4 14 9 491 1 26 19 105 .4 15 9 462 25 66 38 177 5.9 37 13 807	1 27 19 199 .5 12 7 1455 1.51 1 29 17 73 .4 14 9 491 2.08 1 26 19 105 .4 15 9 462 1.93 25 66 38 177 5.9 37 13 807 3.34	1 27 19 199 .5 12 7 1455 1.51 11 1 29 17 73 .4 14 9 491 2.08 10 1 26 19 105 .4 15 9 462 1.93 13 25 66 38 177 5.9 37 13 807 3.34 55 2	1 27 19 199 .5 12 7 1455 1.51 11 <8 < 1 29 17 73 .4 14 9 491 2.08 10 <8 < 1 26 19 105 .4 15 9 462 1.93 13 <8 < 25 66 38 177 5.9 37 13 807 3.34 55 26	1 27 19 199 .5 12 7 1455 1.51 11 <8 <2 <2 1 29 17 73 .4 14 9 491 2.08 10 <8 <2 <2 1 26 19 105 .4 15 9 462 1.93 13 <8 <2 <2 25 66 38 177 5.9 37 13 807 3.34 55 26 3 21	1 27 19 199 .5 12 7 1455 1.51 11 <8 <2 <2 39 1 29 17 73 .4 14 9 491 2.08 10 <8 <2 <2 26 1 26 19 105 .4 15 9 462 1.93 13 <8 <2 <2 23 25 66 38 177 5.9 37 13 807 3.34 55 26 3 21 28	1       27       19       199       .5       12       7       1455       1.51       11       <8	1       27       19       199       .5       12       7       1455       1.51       11       <8	1       27       19       199       .5       12       7       1455       1.51       11       <8	1       27       19       199       .5       12       7       1455       1.51       11       <8	1       27       19       199       .5       12       7       1455       1.51       11       <8	1       27       19       199       .5       12       7       1455       1.51       11       <8	1       27       19       199       .5       12       7       1455       1.51       11       <8	1       27       19       199       .5       12       7       1455       1.51       11       <8	1       27       19       199       .5       12       7       1455       1.51       11       <8	1       27       19       199       .5       12       7       1455       1.51       11       <8	1       27       19       199       .5       12       7       1455       1.51       11       <8	1       27       19       199       .5       12       7       1455       1.51       11       <8	1       27       19       199       .5       12       7       1455       1.51       11       <8	1       27       19       199       .5       12       7       1455       1.51       11       <8	1       27       19       199       .5       12       7       1455       1.51       11       <8	1       27       19       199       .5       12       7       1455       1.51       11       <8	1       27       19       199       .5       12       7       1455       1.51       11       <8	1       27       19       199       .5       12       7       1455       1.51       11       <8

1

Data

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CHE AFALYFICAL LABORATORIES LTD. \$52 B. HASTINGS ST. VANCOUVER BC VAL 186 PROME (404) 251-3158 PAX (604) 253-1716 (180 9002 Accredited Co.) GEOCHEMICAL AMALYSIS CERTIFICATE Capella Remonrows Ltd. File # 9904508 SHELSE MD Cu Po Za AS NE CO MA PE AS U AU TH SE CO SO BL V CA 2 La Cτ K M TI Mg Au++ in Tá 3 AL 34 pps upa pon spat bhu bhu bhu bhu shu thu bhu bhu bhu bhu bhu bhu bhu shu s A ppa ppa 1 ppm 1 ppm . 1 1 ppm ppm ppm gm/L ROCK SAMPLE 11 142 17959 51 49.2 17 4 207 1.40 30 48 2 41 15 3.7 35 5 8 8.28.013 3 55 11 35 01 43 18 09 04 17 45 41 1.73 CROUP 10 - 0.50 KM SAMPLE LEACHED NITH 3 ME 2-2-2 MCL-RHD3-H20 AT 95 DE2. C FOR CHE HOUR, DILITER TO 10 ME, AMALYSED BY ECP-86. UPPER LIMITS - AG, AU, HG, W = 100 PPM; NO, CO, CD, SB, BI, TH, U & R = 2,000 PPM; CU, PB, 2N, ME, NN, AS, Y. LA, CR = 10.000 PPM. ASDAY RECOMMENDED FOR ROCH AND CORE SAMPLES IF CU PB ZH AS > 18. AG > 30 PM & AU > 1000 PVB - SAMPLE TYPE: ROCK AU\*\* BY FIRE ASSAY FROM 1 A.T. SAMPLE. DATE RECEIVED: NOV 19 1919 DATE REPORT MAILED: NOV 27/99 BIGHED BY. Trench"C" Alz Mact. hil zwoulte are considered the confidential property of the client. Anne assumes the Limbilities for actual cost of the enalysis only. Date 24 

Appendix  $\Pi$ 

**VLF-EM DATA** 

Sookochoff Consultants Inc.\_

	Capella Reso	urces Ltd.				
	VLF-EM Data					
	Station	VLF-EM				
		Dip Angle				
	3+00S 6+00W	-6				
	3+00S 6+25W	2				
	3+00S 6+50W	-2				
	3+00S 6+75W	-4				
	3+00S 7+00W	-2				
	3+00S 7+25W	6				
	3+00S 7+50W	0				
	3+00S 7+75W	5				
	3+00S 8+00W	8				
	3+00S 8+25W	12				
	3+00S 8+50W	20				
	3+00S 8+75W	12				
	3+25S 6+25W	-2				
	3+25S 6+50W	4				
	3+25S 6+75W	10				
	3+25S 7+00W	4				
	3+25S 7+25W	2				
	3+25S 7+50W					
	3+25S 7+75W	0				
	3+25S 8+00W	4				
	3+50S 5+25W	6				
	3+50S 5+50W	10				
	3+50S 5+75W	2				
	3+50S 6+00W	0				
	3+50S 6+25W	1				
	3+50S 6+50W	-8				
	3+50S 6+75W	4				
	3+50S 7+00W	-8				
	3+50S 7+25W	-5				
	3+50S 7+50W	V V				
	3+50S 7+75W	3				
	3+50S 8+00W	0				
	3+75S 6+25W	-2				
	3+75S 6+50W	-10				
	3+75S 6+75W	-6				
	3+75S 7+00W	4				
	3+75S 7+25W	4				
L	3+75S 7+50W	-4				
	3+75S 7+75W	1				

Appendix III

# **GEOCHEMICAL DATA**

(Data used for creation of Figure 2.)

Sookochoff Consultants Inc..

	Resources				
Geoch	emical Dat	a			
South	East	Au/ppb	South	East	Au/ppb
-680	-10	1	-730	) -90	
-680	-20	1	-730		
-680	-30	1	-74(		
-680	-40	1	-74(	-70	
-680	-50	1	-74(	0 -80	
-680	-60	3.5	-74(	) -90	
-680	-70	1	-74(	-100	
-680	-80	7	-750	) -60	
-680	-90	1	-75(	) -70	
-680	-100	6	-750	) -80	
-680	-110	1	-750	) -90	
-680	-120	3	-750		
-680	-130	1	-760		
-680	-140	6	-760		
-680	-150	1	-760		15
-680	-160	5	-760		
-680	-170	1	-760		
-680	-180	5	-77(		
-680	-190	1	-77(		
-680	-200	8	-77(		
-680	-210	1	-77(		
-680	-220	9	-77(		
-680	-230	1	-780		
-680	-240	6	-780		
-690	-60	1	-780		
-690	-70	1	-780		•
-690	-80	1	-780		14
-690	-90	1	-780		
-690	-100	1	-780		
-700	-60	1	-790		
		1	-790		
-700	-70		-790		
-700	-80	1			
-700	-90	1 F	-790		
-700	-100	5	-790		1;
-710	-60	1	-800		
-710	-70		-800		1
-710	-80	1	-800		
-710	-90	1	-800		
-710	-100	1	-800		
-720	-60	1	-800		
-720	-70	1	-810		
-720	-80	1	-810		
-720	-90	1	-810		
-720	-100	1	-820		
-730	-60	1	-830		
-730	-70		-840	) -100	
-730	-80	1		<u> </u>	1

Capella	Resources	s Ltd.			1
Geoch	emical Dat	a			
South	East	Au/ppb	<u> </u>	 	
-860	-100	1	1	 	
-870	-100	1	1		
-880	-100	1	1	 	1
-890	-100	1	1		
-900	-100	1			
-910	-100	1			
-920	-100	1			