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A REPORT ON THE GEOLOGY  
OF THE

WINDY 1 ~ 5 CLAIMS

SALMON RIVER AREA

CARIBOO MINING DIVISION

BRITISH COLUMBIA

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GEOLOGISTS AND ENGINEERS

SPECIALISTS IN MINERAL AND GEOTHERMAL RESOURCE EXPLORATION

SUMMARY

The Windy Claims are situated in the Salmon River area approximately 65 km northeast of Fort St. James, B.C. They are underlain by dioritic rocks which are thought to intrude the Jurassic volcanic and sedimentary rocks of the Takla Group.

The area has a history of gold prospecting and the recent discovery by R. Haslinger of copper mineralization with a gold association resulted in a program of exploration work by Placer Development Corp. who hold an option on the property from Mr. Haslinger. The work identified 3 Cu/As/Au geochemical anomalies which are considered good targets for detailed exploration work and it is recommended that a program of geology, geochemistry, geophysics, trenching and drilling be carried out at an estimated cost of \$150,000.

By carrying out the recommended program and additional annual work commitments for a total exploration expenditure of \$1,000,000 by September 30, 1990, Big Bar Gold Corp. can earn a 49% interest in the property.

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## 1.0 INTRODUCTION

### 1.1 Terms of Reference

This report has been prepared on behalf of Big Bar Resources Ltd. at the request of the company's management. It is based principally upon data contained in an internal report prepared for Placer Development Limited by W. Pentland and R.W. Cannon (Pentland and Cannon, March 1987). Useful information was also obtained from publications of the Geological Survey of Canada and the B.C. Ministry of Energy Mines and Petroleum Resources. The writer has not visited the property.

The intent of this report is to review and evaluate the existing data, prepare a set of detailed recommendations for continued exploration on the property and to provide an estimate of the cost of carrying out these recommendations.

### 1.2 Claims and Ownership

The Windy property consists of five contiguous metric claims totalling 70 units or 1,750 hectares. Claim names and pertinent record data are as follows:

<u>NAME</u>	<u>NO OF UNITS</u>	<u>RECORD NO.</u>	<u>EXPIRY DATE</u>
Windy 1	20 units	6831	May 16, 1991
Windy 2	20 units	6840	June 3, 1991
Windy 3	12 units	7836	July 9, 1991
Windy 4	9 units	7837	July 9, 1991
Windy 5	9 units	7835	July 9, 1991

The claims are presently controlled by Placer Development Ltd. of Vancouver, B.C., who hold them under terms of an option agreement with the recorded owners, A. Halleran and Richard Haslinger of Fort St. James, B.C. Big Bar Gold Corporation can earn a 49% working interest in the project by carrying out work in accordance with the following schedule:

By Dec. 31/87 - make exploration expenditure of	\$150,000
From Jan. 1 to Sept. 30/88 - make exploration expenditure of	\$250,000
From Oct. 1/88 to Sept. 30/89 - make exploration expenditure of	\$250,000
From Oct. 1/89 to Sept. 30/90 - make exploration expenditure of	\$350,000

Upon fulfillment of this commitment Big Bar and Placer will develop the property as a Joint Venture subject only to a 2% NSR to the original claim owners.

### **1.3 Location, Access and Physiography**

The claims are situated 65 km north/northeast of Fort St. James in central British Columbia in an area depicted on NTS Sheet 93-J-13.

They are presently only readily accessible by air and all recent work has been supported by helicopters based in either Fort St. James or Mackenzie, which are about equidistant from the property. The nearest road is approximately 10 km south of the property.

The property is situated in gently sloping terrain between elevations of about 900 m and 1,100 m above sea level. The northern part of the area is generally at the higher elevations and the southern part, where traversed by the Salmon River, is lower and generally flat with numerous swampy areas.

The claims are drained to the east and south by the Salmon River and its tributaries and are mantled by mixed coniferous forest consisting principally of spruce, balsam, pine and fir.

Overburden on the property is principally of glacial origin and, except in the valley of the Salmon River, outcrop is not common.

#### **1.4 History**

Records of early prospecting activities in the area of interest are scant although Pentland and Cannon (1987) report one or two very old prospecting pits and signs of a cabin near the Salmon River. The area was mapped by the Geological Survey of Canada in 1946 (Armstrong, 1948). Their work makes reference to a placer gold occurrence on the Salmon River just south of the claim group and a mica deposit a few kilometers to the east.

Recent activity in the area resulted from prospecting by Mr. Richard Haslinger of Fort St. James, who discovered chalcopyrite mineralization carrying low values in gold and silver on the north bank of the Salmon River. The showings were evaluated by both Placer Development and Cassiar Mining Corporation in 1985 and in August, 1986 the claims were optioned by Placer. Placer subsequently carried out a program of line cutting, soil sampling, magnetometer and VLF geophysical surveys and detailed mapping and sampling of showing areas (Pentland and Cannon 1987).

## 2.0 GEOLOGY

### 2.1 General Setting

In the general locality of the claims bedrock is mantled by heavy overburden but interpretations based upon distribution of angular float and the limited exposure available indicate that the property lies within the basic volcanic terrain of the Takla Group. In the area of interest, the Takla Group consists mainly of lower Jurassic, basic lavas and pyroclastic rocks which represent a northwesterly extension of the Quesnel Trough. On and near the Windy Claims these rocks have been extensively intruded by diorite stock of unknown, but probably late Mesozoic, age.

### 2.2 Property Geology and Mineral Occurrences

The prospecting, geological mapping, soil sampling and geophysical surveys carried out to date on the Windy property have been concentrated in the central part of the claim group north of the Salmon River. The work was carried out using a survey grid comprising some 22 km of cut line. Survey results suggest that for the most part, the grid area is underlain by fine to medium grained diorite varying from unaltered to highly altered and locally sheared and pyritized. Prospecting and geochemical surveys have developed three exploration targets within the survey grid area.

The Placer Development report (Pentland & Cannon, 1987) states that the area of greatest interest is in the southwest corner of the grid between Lines 99+50 and 102+00 N and 95+00 and 96+70 E. This area lies within an irregularly shaped copper soil anomaly to the order of

800 m long and 250 m wide (using 150ppm Cu threshold). The maximum observed soil value is 820ppm Cu. The anomaly is associated with exposures of copper mineralization including chalcopyrite and malachite. It also contains a small cluster of anomalous gold soil values. The mineralization is described by Pentland & Cannon as follows:

"The chalcopyrite with minor pyrite occurs as disseminations and veinlets in the diorite where it is associated with quartz and quartz tourmaline veins. The latter situation occurs at 102+00 N, 96+60 E where a pit exposes quartz veining with black patches and sections of intergrown grains of tourmaline.

Assays from this southwest zone have ranged up to >1.00% Cu and 3.0ppm Au, but the average is much less. The maximum values obtained by Placer in the present program were 0.71% Cu and 1.35ppm Au. The average for five samples from the zone was 0.36% Cu and 0.57ppm Au. Paladium was found in several samples to a maximum of 1.25ppm."

Both magnetometer and VLF EM surveys have been carried out over the area. Weak magnetic anomalies were detected on Lines 98+00 N and 102+00 N in the area west of Station 100+00 E (the base line). Depending upon how these results are interpreted, there is evidence of a north-northwesterly trending magnetic high (>58,600 gammas) coinciding with the area of copper mineralization. The magnetic high is flanked on both sides by shallow sub-parallel magnetic troughs. A coincident weak VLF EM anomaly coincides with the magnetic high. Other weak VLF anomalies in the locality appear to have no magnetic correlation.

Another area of potential economic interest is centred at 108+00 N, 101+50 E. Reconnaissance soil sampling carried out in this area by Brinco is reported to have indicated high gold and arsenic values in the soil. The geochemical survey work carried out by Placer

has delineated a north-south trending arsenic anomaly between Lines 104+00 N and 112+00 N. Threshold value for this anomaly is 20ppm As and the maximum observed value is 120ppm As. Coincident elevated Au values (up to 110 PPB) occur on Line 105+00 N between 101+00 E and 103+60 E.

Test pits dug by R. Haslinger in the central part of the anomalous area have revealed sheared diorite at a shallow depth. A quartz vein was also partially exposed over 2 m although no values from this feature have been obtained. Mr. Haslinger also reports that he was able to pan gold from overburden in the vicinity of this anomaly.

The arsenic anomaly appears to have no magnetic correlation although it may correlate on Lines 106+00 N to 110+00 N with a weak north-south trending VLF high.

A third geochemical anomaly characterized by moderately elevated arsenic soil values occurs in the extreme northern part of the grid area in the general vicinity of Line 124+00 N. Coincident high gold values up to 560 PPB and copper values up to 940ppm are also present in this area but there is no apparent correlation with either magnetometer or VLF EM results.

Although the soil samples from the Placer survey were tested for elements in addition to copper and arsenic, including molybdenum, zinc, lead, silver, gold and antimony, the results for these elements were, in the main, not contourable. The gold results nevertheless produced several discreet anomalies. Work to date has not reconciled these with the geophysical surveys but anomalous gold value may correlate with low



to moderate VLF anomalies at the following stations:

100+00 N, 105+60 E	110 PPB
104+00 N, 96+80 E	100 PPB
106+00 N, 104+80 E	190 PPB
114+00 N, 97+60 E	60 PPB
114+00 N, 98+40 E	50 PPB
118+00, 99+60 E	40 PPB
124+00, 100+80 E	100 PPB
124+00, 104+80 E	560 PPB
126+00, 104+80 E	210 PPB

In their report for Placer Development, Pentland & Cannon (1987) state that:

"Gold is erratically distributed across the grid with a tendency for detectable concentrations to be more frequently recorded in the southwest. The lack of any coherence or clear association with the areas of known gold in bedrock is discouraging. Further examination of the data, however, reveals that Au values closely approximate a poisson distribution which tends to indicate that gold occurs preferentially as free grains 0.150mm or larger in diameter. The implication of this observation is that gold is coarse and free and poorly represented by the -80 mesh fraction used for analysis."

The report adds that:

"It is noteworthy that R. Haslinger has successfully panned gold grains from the overburden in areas where the soil data show gold as largely undetected."

### 3.0 CONCLUSION

#### 3.1 Discussion and Conclusions

Results from the soil geochemical survey show that elevated gold values occur scattered throughout the property as single sample anomalies or in small clusters. In general the background gold values obtained from the soil geochemical survey were found to be low (<20 PPB). This may be a function of overburden conditions and consequently, results of pathfinder element surveys are of particular significance. These suggest that Cu and As may be the most useful indicators and three potentially interesting areas anomalous in these elements have now been defined (See Fig. 2).

A copper anomaly in the southwestern part of the claim group is associated with copper mineralization and low gold values hosted by altered diorite. The zone is also characterized by weak magnetic and VLF responses. Surface trenching has been carried out in the area but without the benefit of the EM and magnetometer results recently produced by Placer.

In the south central part of the grid area is an elongate arsenic anomaly which appears to correlate in part with a weak VLF EM anomaly and several isolated elevated soil gold values. The feature is underlain by dioritic rocks locally cut by quartz veins. Only minimal follow-up testing has been carried out in this area.

The third geochemical anomaly is the copper/arsenic high situated in the extreme northern part of the grid area. The feature does not correlate with magnetometer or VLF EM results and the geology is at present unknown. It does, however, contain several point soil gold values which are untested and unexplained.

Gold has now been discovered in bedrock associated with sulphide mineralization on the property in showings within the southwest anomaly although grades of samples taken to date tend to be low. Gold is also reported to occur in panned concentrates from overburden at several localities throughout the claim area and has been found in the alluvial gravels of the Salmon River which drains the target area. On the basis of these observations and the geochemical and geophysical survey results, it is the writer's opinion that the Windy Claims warrant continued exploration. The objective in mind is discovery of bulk mineable gold or gold/copper mineralization hosted either by the diorite stock which is inferred to underlie much of the claim group or possibly by Takla Group volcanic rocks.

### **3.2 Recommendations**

Detailed exploration work should be carried out in the three geochemically anomalous areas which have been identified by the work to date. A secondary objective should be reconnaissance exploration - principally soil sampling - in the untested parts of the claim group, which lie on the Windy 1,3, and 4 Claims.

Preparatory work should include compilation of detailed topographical maps of the area of interest and, in accordance with the recommendations contained in the Placer report (Pentland and Cannon 1987), a size fraction analysis of soil samples from the vicinity of the known gold showings should be carried out. In addition the existing computer plotted geochemical and geophysical maps should be re-evaluated.

Field work should consist of the following tasks:

1. Extend the existing grid to 130+00 N.
2. Carry out soil sampling survey of grid extension and fill-in sampling in areas of anomalous gold including the three known geochemical anomalies and the isolated clusters of elevated gold values on Lines 114+00 N and 126+00 N. (Test for Cu, As, Au, Ag and possibly Hg).
3. Carry out magnetometer and VLF EM surveys on extended grid.
4. Carry out an induced polarization survey on the existing grid on Lines 100+00 N through 110+00 N between Stations 95+00 E and 105+00 E.
5. Excavate trenches to bedrock in areas of interest defined by geochemical and/or geophysical data within each of the three known anomalies. Bedrock should be mapped and sampled in detail.
6. Carry out reconnaissance soil sampling using chain and compass for control over the Windy 1, 3 and 4 Claims.
7. Provision should be made for diamond drilling of up to 5 shallow holes totalling approximately 400 M using light helicopter transportable equipment.

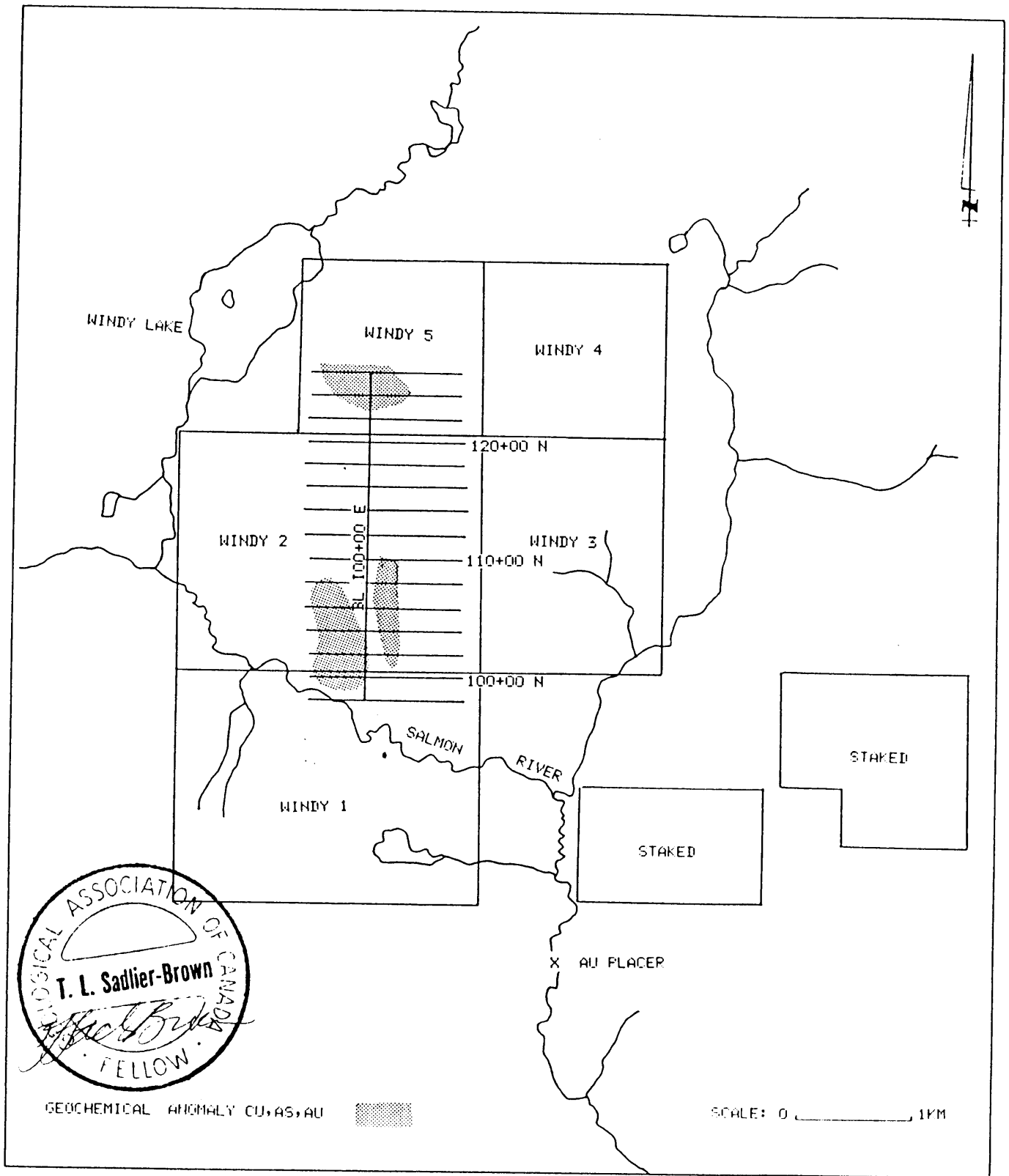


FIGURE 2. Property Map showing Survey Grid Location and Distribution of Geochemical Anomalies on the Windy Claims.

## REFERENCES

- Muller, J.E. and Tipper, H.W. (1968), McLeod Lake Geology Map and Marginal Notes GSC Map 1204A
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