RICHARDSON GEOLOGICAL CONSULTING LTD.
4569 WEST 13TH AVENUE, VANCOUVER, B.C. V6R 2V5
TELEPHONE: (604) 224-4272

GEOCHEMICAL SURVEY
ON PART OF
THE WHIPSAW PROPERTY

SIMILKAMEEN MINING DIVISION, BRITISH COLUMBIA

NTS 92H / 7

Latitude 49°16' N ; Longitude 120°45' W

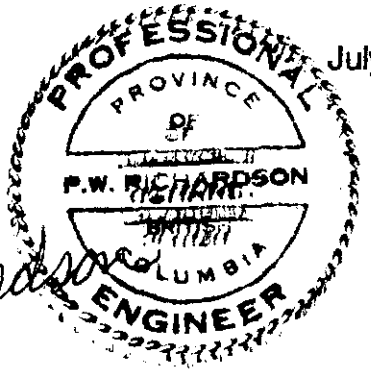
 FOR

WORLD WIDE MINERALS LTD.

BY

PAUL W. RICHARDSON, Ph.D.,P.Eng.

Vancouver, B.C. July 30, 1993



P. W. Richardson

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SUMMARY

The Whipsaw Property contains mineralization which includes copper, gold, silver, molybdenum and zinc and which is related to the Whipsaw Porphyry Stock. The stock intrudes the regionally mineralized contact between the Nicola Group Volcanics and the Eagle Granodiorite. Copper, molybdenum and gold mineralization is related spatially to the perimeter of the Whipsaw Porphyry. Gold, silver and zinc mineralization in quartz-pyrite veins and as replacements in wallrock adjacent to the veins lies to the south of the porphyry mineralization.

Intense copper-zinc stream sediment anomalies were discovered in 43, 45 and 47 Mile creeks in 1959, and were traced upstream to the contacts of the Whipsaw Porphyry. Over the years since 1959, the area of interest was covered by several separate properties. In 1987, for the first time, all the various properties were consolidated by World Wide Minerals Ltd., and it was possible to plan an exploration programme covering the entire area of interest. In addition to the above metals, within the Property there are two potential sources of the platinum found in placer deposits in Whipsaw Creek east of the Property.

In the spring of 1990, a small programme of six diamond drill holes was done to test part of one of the 14 targets in the Porphyry Copper Area and one of the targets, the Silvertip Zone, in the Gold-Silver-Zinc Area. These were not the best targets on the Property, but were accessible at that time of year. In September 1990, a beginning was made on the investigation of several intense soil geochemical anomalies found by the 1987 reconnaissance geochemical survey in the southern part of the Property. The locations of the reconnaissance

samples were mapped using a compass and tape survey, and additional detail samples were collected.

In 1991 and early 1992, Phelps Dodge did diamond and percussion drilling programmes on the Property with inconclusive results.

The 1992 Programme continued the above detail investigation of the reconnaissance geochemical results. Surveying and soil sampling were done in the area of the series of soil anomalies lying south of and uphill from the Silvertip Adit. In addition, some panning near the mouth of Whipsaw Creek was done to investigate the presence of platinum reported in the literature.

The presently-described 1993 Programme consisted of two main parts: continuation of the detail soil and sediment sampling uphill from the Silvertip Adit and some stream sediment sampling in 45 Mile Creek. Also, panning was done in Whipsaw Creek to continue the investigation of the distribution of gold and platinum in the stream system.

INTRODUCTION

The Whipsaw Property, which is in the Similkameen District of British Columbia, contains copper, gold, silver, molybdenum and zinc mineralization in several zones related to the Whipsaw Porphyry Intrusion and extending over a large area north and south of Whipsaw Creek. Placer deposits containing gold and platinum were mined in Whipsaw Creek downstream to the east of the Property. Within the Property, there are several old adits driven on gold- and silver-bearing deposits in veins and adjacent wall rock. Major geochemical stream sediment and soil anomalies of Cu, Mo and Zn have been known since 1959. After the original staking of quartz-sulfide vein deposits in 1908, the ground has always been fragmented with several owners. Recently, for the first time, the ground was consolidated by World Wide Minerals Ltd., and it has been possible to plan exploration projects without property line constraints.

In 1987, the writer was commissioned by Mr. Charles R. Martin, President of World Wide Minerals Ltd., to review all the available data, including historical data, those data derived from a recently completed, major soil sampling programme, an airborne geophysical survey by World Wide Minerals Ltd. and a diamond drilling programme then in progress. The writer was to organize and summarize the data and to recommend a future course of action for the Company on the Property. This was to include, if reasonable, specific recommendations for further exploration.

The Whipsaw Property is very large and contains at least two styles of mineralization: predominantly porphyry copper, molybdenum and gold mineralization occurs around and in the Whipsaw Porphyry Intrusion and, south

of the Porphyry Area, gold-, silver-, zinc-bearing veins and related replacement mineralization occur in several showings.

The above-mentioned, major soil sampling programme done by World Wide Minerals Ltd. in 1987 revealed several strong, significant anomalous soil areas south of Whipsaw Creek. The writer's 1991 and 1993 reports and this second 1993 Report describe the results of compass and tape surveying and detail soil sampling programmes in several anomalous areas, and are a start in carrying out the Recommendations contained in one of the writer's earlier reports (Richardson, 1990b).

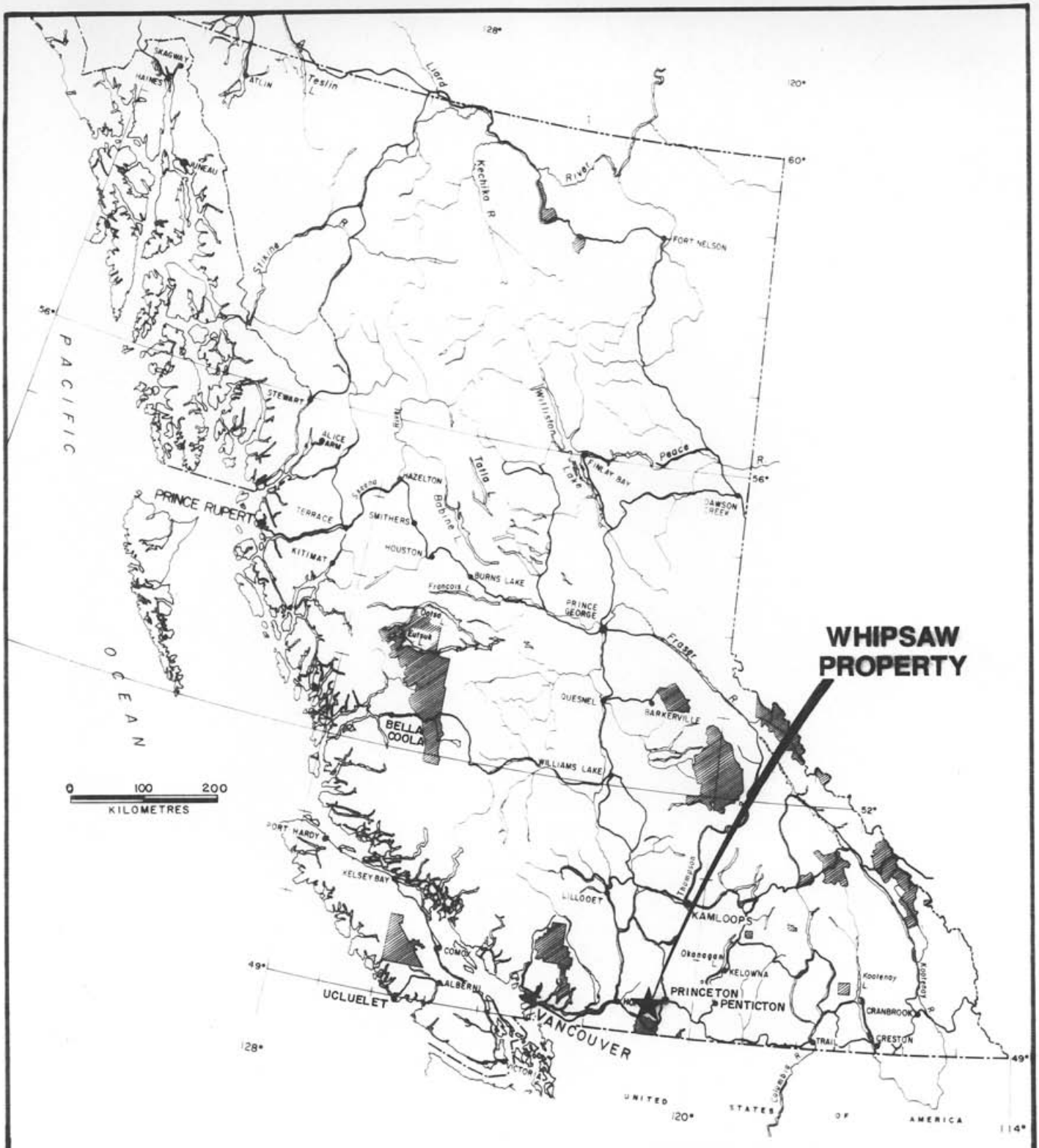
LOCATION AND ACCESS

The Whipsaw Property is in the Similkameen Mining Division, British Columbia, at latitude 49°16' N , longitude 120°45' W on NTS Map 92H / 7 (Figure 1). The Property is 170 km east of Vancouver, and is 26 km SW of Princeton. The major Similkameen copper-gold mine lies 15 km ENE of the Property (Figure 2).

Access from Vancouver is by paved road via Highway 401 to Hope and Highway 3 to Princeton. Thirteen km S of Princeton, a good logging road leaves Highway 3 and goes westward up the north bank of Whipsaw Creek through the Property, a distance of 20 km to the camp (Figure 2). Numerous logging and mining roads give good access to most parts of the Property.

Whipsaw Creek flows eastward through the middle of the Property (Figure 3). The topography within the Property is generally moderate, but there are some deeply incised valleys. Elevations range from 1385 m to 1660 m. The Property is covered with large stands of commercial evergreen trees with little undergrowth, but thick, dense brush does occur locally. Extensive logging is currently being done, and there are increasing areas of clearcut. Outcrop is sparse, but in many areas the overburden is not more than one metre thick.

The Princeton Area has a long tradition of mining, and all the necessary infrastructure is in place. The Whipsaw Property is within easy commuting distance of Princeton where an experienced labour force lives. There is good transportation to the Port of Vancouver. All these factors are very favourable to the economics of a new mine in the area.



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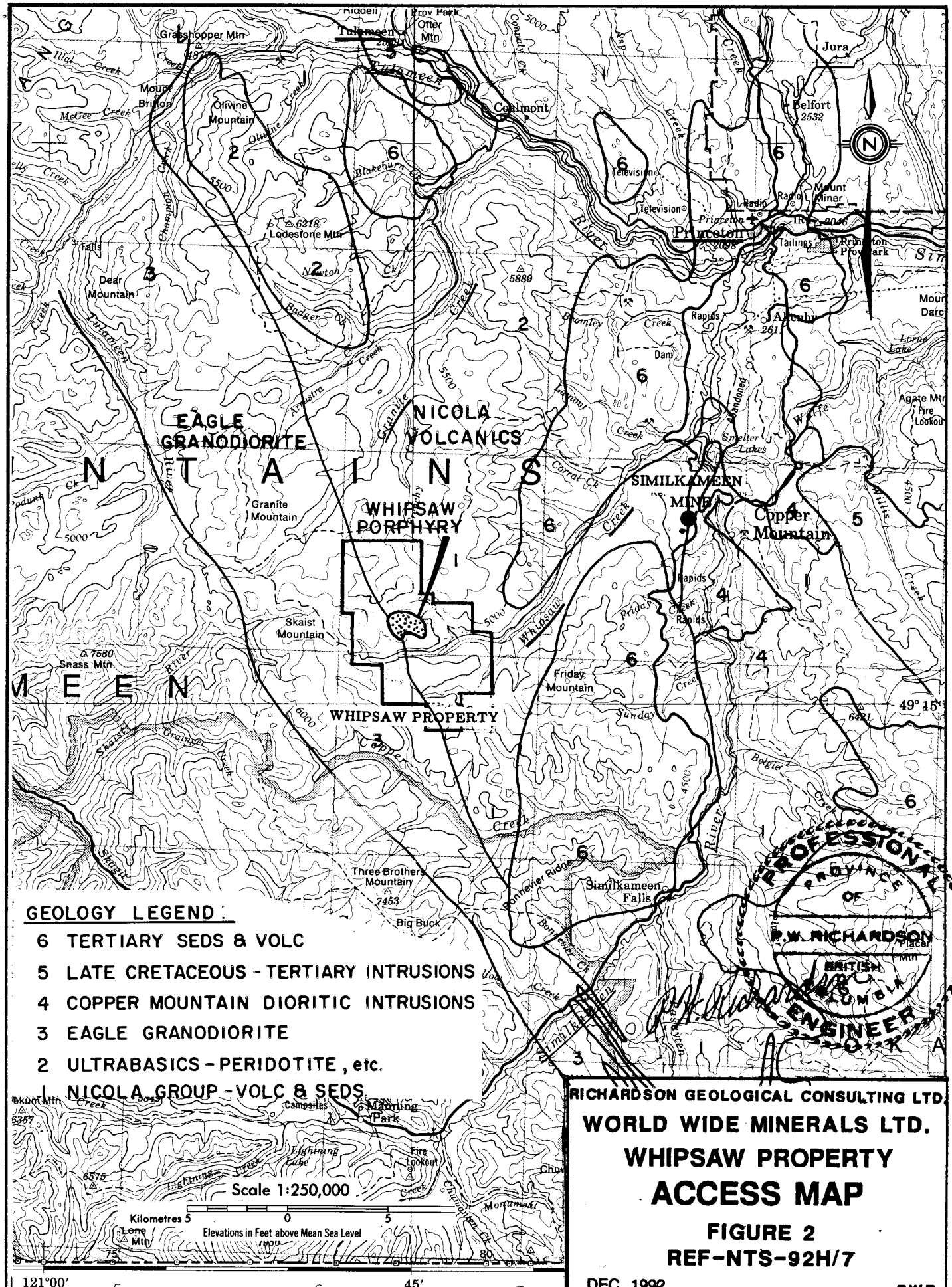
WHIPSAW PROPERTY

LOCATION MAP

DATE: DEC., 1992

BY: P.W.R.

FIGURE No. 1



GEOLOGY LEGEND

6 TERTIARY SEDS & VOLC

5 LATE CRETACEOUS - TERTIARY INTRUSIONS

4 COPPER MOUNTAIN DIORITIC INTRUSIONS

3 EAGLE GRANODIORITE

2 ULTRABASICS - PERIDOTITE, etc.

1 NICOLA GROUP - VOLC & SEDS.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
P.W. RICHARDSON

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ACCESS MAP

FIGURE 2

REF-NTS-92H/7

DEC., 1992 PWR

CLAIMS

The Whipsaw Property consists of one Group of mineral claims plus twenty ungrouped claims totaling 207 units. The pertinent claim data are as follows:

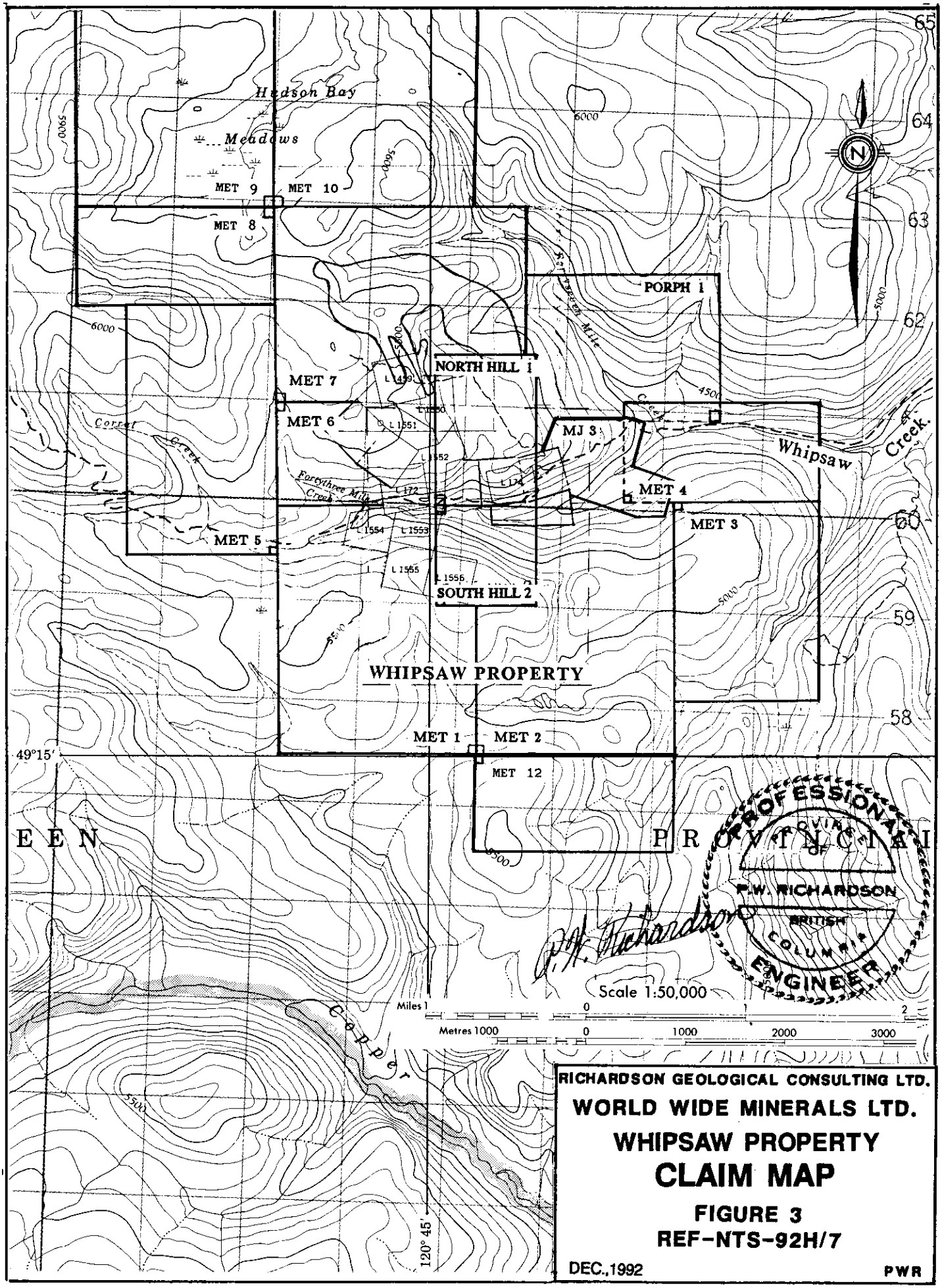
WHIPSAW GROUP (45 units; grouping date July 23,1993)

Name	Title No.	No. of Units	Record Date	Expiry Date
Mineral Lease #336	250138 (lots 172 & 1549-1556)	1	Jan 13/64	Jan 13/94
NORTH HILL #1	302359	9	July 19/91	July 19/96
SOUTH HILL #2	302360	9	July 22/91	July 22/94
MJ3	248611	6	July 26/77	July 26/94*
MET 3	249277	12	Nov 24/87	Nov 24/94*
MET 4	249278	8	Nov 24/87	Nov 24/94*
		45		

UNGROUPED CLAIMS

Name	Title No.	No. of Units	Record Date	Expiry Date
OK#3 Fr.	250237	1	Mar 18/66	Mar 18/94
OK#4 Fr.	250238	1	Mar 18/66	Mar 18/94
OK#5 Fr.	250239	1	Mar 18/66	Mar 18/94
MET 8	249294	8	Apr 26/88	Apr 26/95
MET 9	249295	20	Apr 26/88	Apr 26/95
MET 10	249296	20	Apr 26/88	Apr 26/95
MET 12	249298	8	Apr 26/88	Apr 26/94
MET 1	249225	20	May 13/87	May 13/94
MET 2	249226	20	May 13/87	May 13/94
PORPH 1	301858	12	June 21/91	June 21/95
Silvertip No.1	250241	1	June 28/66	June 28/95
Silvertip No. 2	250242	1	June 28/66	June 28/95
OK#1	250180	1	June 29/64	June 29/95
OK#2	250181	1	June 29/64	June 29/95
OK#6 Fr.	250326	1	June 25/71	June 25/95
OK#7 Fr	250327	1	June 25/71	June 25/95

** Expiry date when the work applied for, supported by the present report, has been approved.*



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WHIPSAW PROPERTY

CLAIM MAP

FIGURE 3

REF-NTS-92H/7

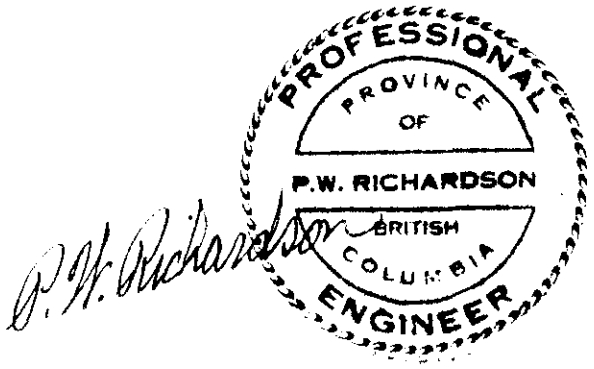
DEC.,1992 PWR

Name	Title No.	No. of Units	Record Date	Expiry Date
OK#8	250328	1	July 09/71	July 09/95
MET 5	249279	15	Nov 24/87	Nov 24/95
MET 6	249280	9	Nov 24/87	Nov 24/95
MET 7	249281	20	Nov 24/87	Nov 24/95

The above data conform with the records in the Princeton and Vancouver recording offices of the British Columbia Ministry of Energy, Mines and Petroleum Resources.

All claims are owned by World Wide Minerals Ltd.

The areas of the groups exist to distribute assessment work, which can be spread over a maximum of 100 units from work done on any one unit within the group. One unit equals approximately one claim of most other jurisdictions. These groups are only indirectly related to the "Porphyry Area" or the "Gold-Silver-Zinc Area", and the claims can be regrouped when convenient.



HISTORY

Although placer deposits in the Tulameen and Similkameen rivers and their tributaries have been known since the 1860's, it was not until 1885 that rich placer showings of gold and platinum were discovered near the town of Tulameen, especially in Granite Creek (Figure 2). The bonanza period of placer mining lasted for a decade. During this period, gold and platinum placer deposits were discovered in Whipsaw Creek downstream to the east of the present Whipsaw Property. Prospecting for bedrock deposits led to the staking of gold- and silver-bearing veins in the central part of the Property in 1908 (Figure 3). These veins were explored at the time by trenching and underground work. Additional adits were driven in the period from 1927 to 1930.

In 1959, reconnaissance stream sediment sampling by Texas Gulf Sulphur led to the discovery of major stream sediment Cu-Zn anomalies in 43, 45 and 47 Mile creeks, tributaries of Whipsaw Creek (Bacon, 1960). Follow-up work outlined soil geochemical, electromagnetic and induced polarization anomalies near the headwaters of 47 Mile Creek (Figure 3). The geochemical anomalies originated from the weathering of porphyry copper-molybdenum-gold mineralization in the northern part of the present Property. This anomalous area was worked on by Texas Gulf; by a syndicate composed of Dome Exploration (Canada) Ltd., Moneta Porcupine Mines Limited and Tennessee Corporation; by Amax Exploration and by Newmont Mining Corp. of Canada Ltd. Large tonnages of 0.1-0.3% Cu with accompanying Mo were outlined by the geochemical and geophysical surveys and by diamond drilling (Heim, 1987).

Although the first mineral claims were staked in 1908, the various claim groups covering different parts of the mineralized area have had separate ownerships since that time. From 1961, Whipsaw Mines Ltd. controlled the part of the ground near the valley bottom where the early prospects were located, and did several limited geochemical and drilling programmes, including, in 1968, two diamond drill holes under the Metestoffer Showing.

From 1970 to 1973, geological and geochemical surveying was done by Stokes Exploration Management Co. Ltd. for Whipsaw Mines Ltd. and for Skaist Minerals. In an extensive 1970 soil sampling programme, the samples were analyzed for copper only. This survey obtained anomalies over areas of known mineralization and, in addition, led to the discovery of the BZ Zone, which lies in the southern part of the Porphyry Copper Area. However, Au and Ag analyses were not done.

In 1974, Newconex Canadian Exploration Ltd. took 45 soil and rock samples near the known showings and near anomalies discovered by the 1970 survey. In addition, Newconex stream sediment sampling showed an increase in Au and Ag in Whipsaw Creek stream sediments where the showings occur.

In 1982 and 1983, R. R. Culbert and J. R. Poloni compiled available older data on part of the present property, and did trenching and drilling programmes at the Metestoffer and BZ showings. The programmes met with some success, and additional work was recommended, but not done.

In 1985, Dr. Robert Heim, on behalf of World Wide Minerals Ltd., did soil sampling in the area of the BZ Trenches to test the area for precious as well as

base metals. He found that the entire area of the BZ Trenches was within a large Cu-Zn soil anomaly accompanied by anomalous Au, Ag and As values. In 1986, he extended the trenches and cut rock samples assaying as high as 0.339 oz / ton Au and 5.40 oz / ton Ag across 0.61 m.

Also in 1985, Lone Jack Resources did a soil sampling programme on their claims, which are now in the western part of the Whipsaw Property. They collected 412 samples along a grid and along road cuts (Mitchell, 1985). That winter, Lone Jack drilled eight diamond drill holes from roads near the Spencer Showing, which is 800m NE across Whipsaw Creek from the Metestoffer Showing, and on a geochemical anomaly in the NW part of the Property (the last drill hole has not yet been relocated). The holes intersected an area of breccia at the Spencer Zone with several narrow widths of values. The drilling was confined to being done from available roads because of deep winter snow.

In 1987, World Wide Minerals Ltd. did a soil sampling programme over the central part of the Property, collecting a total of 5580 samples which were analyzed for gold and, separately, for 31 elements using the ICP method. The Company also carried out a combined magnetometer and very low frequency-electromagnetometer (VLF-EM) helicopter-borne survey over the southern part of the Property (Walker, 1987). In late 1987 and January 1988, the Company diamond drilled 30 holes totaling 3040.1 m (10,000 ft). In August 1988, additional soil sampling was done on claims staked to protect the NW and SE extensions of anomalies outlined by the 1987 soil sampling programme (Richardson, 1988c).

In 1991, the Whipsaw Property was optioned to Phelps Dodge Corporation of Canada, Limited. They confined their work to the part of the Property in the porphyry environment surrounding the Whipsaw Porphyry Stock. They conducted a diamond drilling and a percussion drilling programme in 1991 and a second, small diamond drilling programme in 1992 (Fox and Goodall, 1992 ; Fox, 1992). Our understanding is that the second diamond drilling programme was prematurely terminated and they dropped the Property not for lack of results but as a result of a corporate decision by the parent company to forgo further exploration of porphyry copper deposits in British Columbia at this time.

In 1990 and 1992 the Company began a programme of detail geochemical surveying to follow up the results of the extensive 1987 reconnaissance geochemical survey.

GEOLOGY

The Whipsaw Property covers 10 km of the regionally mineralized contact zone between the Upper Triassic Nicola Group and the Eagle Granodiorite (Figure 2). In the north-central part of the Property, the contact zone is intruded by the Whipsaw Porphyry. Dykes of feldspar porphyry extend north and south of the stock near and parallel to the Nicola-Eagle Granodiorite contact.

The Whipsaw Porphyry is the source of a large hydrothermal system with which at least two types of mineral deposits are related. Porphyry copper-molybdenum-gold mineralization occurs disseminated and in veinlets within the perimeter of the Whipsaw Porphyry and in Nicola rocks bordering the porphyry. To the south, the porphyry Cu-Mo-Au mineralization decreases and Au-Ag-Cu-Zn mineralization occurs in pyrite-bearing quartz veins and associated disseminated deposits. An area with scarn zones occurs just north of Whipsaw Creek near the Nicola-Eagle contact. This scarn area coincides with the area of the best soil gold geochemical anomalies on the Property, except for the not yet fully explained gold stream sediment anomaly which was detected in 45 Mile Creek where it crosses the Whipsaw Road (Figure 4).

An intense magnetic anomaly in the eastern part of the Property is probably caused by a body of ultrabasic rocks. If so, this is one of the possible sources of the platinum in the placer deposits in Whipsaw Creek downstream east of the Property. A second possible source of the platinum group elements (PGEs) is the mineralization associated with the Whipsaw Porphyry. At nearby Copper Mountain and elsewhere on the perimeter of the Copper Mountain Stock, PGEs have been reported as being associated with copper-gold mineralization.

GEOPHYSICS

Several geophysical surveys have been done on various areas of the present Property by the owners of the smaller properties that have now been consolidated. The Property lies within a region covered by an airborne magnetometer survey which was done jointly by the Geological Survey of Canada and the British Columbia Ministry of Energy, Mines and Petroleum Resources. The survey was flown with a helicopter, and was published on a scale of 1: 50,000 in 1973. This survey showed an intense magnetic anomaly just east of the area described in the present report.

In 1987, World Wide Minerals Ltd. did a combined magnetometer and very low frequency electromagnetometer (VLF / EM) helicopter-borne survey over the southern part of the Property (Walker, 1987). The intense magnetic anomaly in the eastern part of the Property on Claim MET 3 found by the government survey was mapped in more detail, and, in addition, a combined magnetometer-VLF / EM anomaly was found southwest of the intense magnetic anomaly. The latter anomaly has not been examined on the ground as yet. Several other VLF/EM anomalies occur south of Whipsaw Creek.

THE 1993 PROGRAMME

The 1993 Programme continued the investigation of the soil anomalies which lie south of Whipsaw Creek (Richardson, 1990b, 1991, 1993). These soils contain anomalous amounts of various combinations of Au, Ag, Cu, Zn and Pb. In 1992, compass and tape surveying showed that the 1987 reconnaissance soil sampling lines vary from the planned 50m spacing because of the distance from the baseline and local thick brush on the hillside. In the 1993 programme, additional soil and stream sediment samples were collected on auxiliary lines in the anomalous area in order to define the anomaly in more detail (Figure 4 ; Appendix I). All the above data are plotted on Figure 4, which also shows additional topography and the location of the Metestoffer and Silvertip showings as well as diamond drill locations near each showing. There is a measuring error on Line 3+00 S which has not been resolved as yet. The detail sampling was done at 25 m intervals and extra samples were collected where drainage channels crossed the lines (Sample 93-31, etc.). The 1987 Reconnaissance Survey data east and west of the present area of detail work are plotted on the extensions of the now precisely located lines in order to add to the picture.

The anomalies directly south of the Silvertip Adit are intense in places, and lead up to obscure, very old trenches on Line 4+00S at 11+00W, but continue up the hill from there. It can be concluded that the anomalies at the base of the hill are of transported as well as of local provenance, as is the case at the Metestoffer and BZ zones. Additional lines will have to be run uphill from the area already detailed in order to define targets more precisely because,

although the anomalies are quite intense, the data are still too indefinite to plan a backhoe trenching programme.

The forest in the area south of Line 5+00S has been clear cut, and the control lines have been lost. East of the area dealt with in this report there is an anomalous area between 7+00W and 9+00W that should be sampled in detail. This area lies south of the Metestoffer Zone, and may be related to the postulated N-S structure trending through the Metestoffer and BZ zones.

Although there are large areas of the Property in which outcrop is sparse or absent, the 1992 work demonstrated the presence of areas of outcrop at the bottom and near the top of the slope south of the Silvertip Zone. During the 1993 Programme, a beginning was made in mapping the location of the areas of outcrop.

The second major part of the 1993 Programme was sediment sampling along part of 45 Mile Creek in order to define the contained anomaly in more detail(Figure 5;Appendix I). Some years ago, a puzzling dropoff in the values of copper and zinc in 45 Mile Creek(Seraphim, 1963) was finally explained by the discovery of the BZ Zone(Anderson, 1973a). It was hoped that the 1990 gold-bearing sediment sample collected where 45 Mile Creek crosses the main road(Richardson, 1991) indicated a gold anomaly that could be traced upstream and be related to the gold-bearing BZ Zone. However, the 1993 samples did not contain regular, anomalous amounts of gold. Consequently, the positive result of the 1990 sample may be spurious, or a result of the much overused 'particle effect', or seasonal. The last can be tested by resampling in September.

Of great immediate importance is the better definition of the anomalous branch entering 45 Mile Creek from the north at Sample 93-21. This intense sediment anomaly containing approximately 1% Cu plus anomalous Mo was poorly defined in the past. The emergent area pf the anomaly is in a place near the south end of oneof the dykes lying south of the Whipsaw Porphyry. The combination of favourable geology, a very localized, intense geochemical anomaly and the presence of an IP anomaly along strike to the NNW has made it possible to propose Diamond Drill Hole 93T at 10,890N ; 9,175E.

The geochemical traverse along 45 Mile Creek was continued west to Sample 93-20 near the south end of the electromagnetic anomaly (vertical loop) found by Texas Gulf Sulphur (Bacon,1960). The geochemical stream anomaly continues west beyond Sample 93-20, and further work should be done to search for the source, which could be associated with inliers of Nicola rocks within the Eagle Granodiorite which were mapped by Amax(Mustard, 1969).

One sample, 93-26, was taken from a small, rusty spring emerging uphill from the BZ Zone and the drilling that partially tested the zone. In addition to containing anomalous copper and gold, the sample contained anomalous zinc, cadmium and arsenic (Appendix I). In the Phelps Dodge DDH 91-10, and elsewhere on the Property, anomalous gold was accompanied by anomalous arsenic.

In 1992, in order to test the reported presence of platinum in the placer deposits in Whipsaw Creek downstream to the east of the Whipsaw Property, a traverse was made down Whipsaw Creek east of where it crosses under the Hope-Princeton Highway bridge (Figure 2). Both along the creek and at an old placer working, panned concentrates were made and platinum particles were found with the gold, thus confirming the presence of platinum in Whipsaw

Creek. Micromounts were made of the gold and platinum particles for examination under the binocular microscope. The platinum particles are finer-grained than specimens from Granite Creek, but are similar in colour and texture (Figure 2).

In 1993, additional panning was done in Whipsaw Creek to continue the investigation of the distribution of gold and platinum. One sample from the mouth of the creek where it enters the Similkameen River yielded several particles of platinum. One sample from Whipsaw Creek near the mouth of 47 Mile Creek yielded several fairly rough particles of gold, possibly from the Metestoffer and Silvertip veins(Figures 3 & 4). Additional detail work will have to be done to sort out these metal distributions.

CONCLUSIONS

(1) The soil geochemical anomalies lying south of and upslope from the Silvertip Prospect contain anomalous Au, Ag, Cu and Zn, and are probably derived from mineralization similar to that intersected by the Silvertip drill holes.

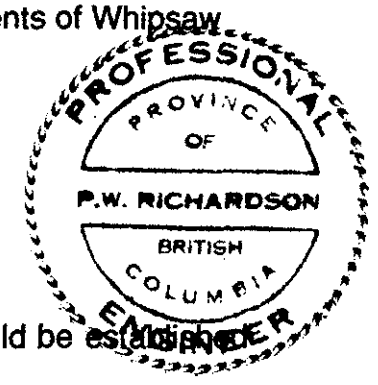
(2) Additional geochemical anomalies lying east of the area investigated in 1992 have not been confirmed and detailed.

(3) There is sufficient outcrop in the area investigated in 1992 and 1993 for a reasonably detailed geological map to be made.

(4) Sediment sampling in 45 Mile Creek located precisely an intense copper-molybdenum emergent area 100m south of the Texas Gulf Trench.

(5) Sediments from a spring uphill from the BZ Zone contain anomalous Cu, Au, Zn, Cd and As.

(6) The distribution of gold and platinum in the sediments of Whipsaw Creek is complex and will require detail sampling to sort out.



RECOMMENDATIONS

(1) Additional detail geochemical sampling lines should be established uphill from the lines sampled in 1993.

(2) The area of detail sampling should be extended eastward to cover the anomaly uphill from the Metestoffer Zone.

(3) The geology of the area covered by the detail soil sampling should be mapped.

(4) A diamond drill hole should be drilled at site 93-T(10,890N; 9,175E).

(5) A diamond drill hole should be drilled at site 93-V(10,345N; 9115E).

STATEMENT OF EXPENSES

PERSONNEL			
P.W.. Richardson	2 days @ $500 = $1000		
K. Martin	2 days @ 150 = 300		$1300.00
ROOM AND BOARD			
Motel		101.20	
Meals		99.73	200.93
VEHICLE EXPENSES (4-wheel drive)			
2.5 days @ $75		187.50	
Gasoline		48.40	235.90
SOIL SAMPLE ANALYSES			
63 Samples			909.18
SUPPLIES			
Sample bags, flagging, markers			20.00
REPORT			
P. W. Richardson	3 days @ $500	500	
Typing, photocopying, printing maps		100	1600.00

Total = **$4266.01**

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
P.W. RICHARDSON

P. W. Richardson

REFERENCES

Copies of these reports and maps are available to be studied in the World Wide Minerals Ltd. office.

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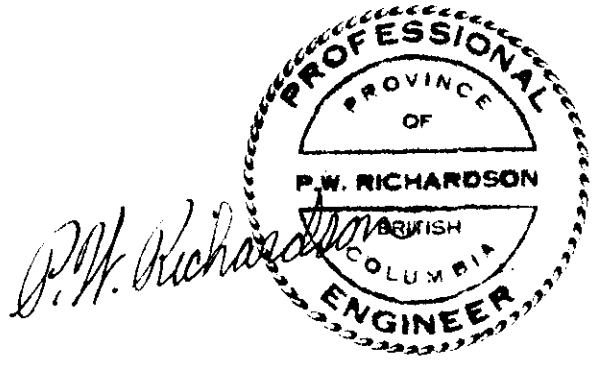
RICHARDSON GEOLOGICAL CONSULTING LTD.
4569 WEST 13TH AVENUE, VANCOUVER, B.C. V6R 2V5
TELEPHONE: (604) 224-4272

STATEMENT OF QUALIFICATIONS

The writer is a graduate of the University of British Columbia with B.A.Sc. (1949) and M.A.Sc.(1950) degrees in Geological Engineering and a Ph.D.(1955) degree from the Massachusetts Institute of Technology in Economic Geology and Geochemistry.

The writer has done fieldwork in mines and on exploration programmes, except in periods at university, since 1945, and has participated in numerous programmes which included geochemistry since 1953. He has a working knowledge of the major types of geophysics based on fieldwork in the Maritimes, Northern Ontario and Quebec and British Columbia. He has carried out or supervised many diamond drilling programmes since 1950.

The writer has been a Member of the Association of Professional Engineers and Geoscientists of the Province of British Columbia since returning in 1966 to live in British Columbia



APPENDIX I

GEOCHEMICAL ANALYSIS CERTIFICATES

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Richardson Geological Consulting File # 93-1392

4569 W. 13th Ave, Vancouver BC V6R 2V5 Submitted by: Paul W. Richardson

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
A2+00S 12+25W	1	54	10	183	1.2	37	16	540	4.02	12	<5	<2	<2	26	.6	<2	<2	72	.31	.052	3	80	1.66	79	.12	<2	2.70	.04	.06	2	3
A2+00S 12+00W	<1	60	12	187	.9	46	18	796	4.28	13	<5	<2	<2	26	.7	<2	<2	76	.30	.065	3	98	1.89	92	.12	2	3.01	.03	.08	1	3
A2+00S 11+75W	2	181	19	2694	1.8	44	18	775	4.54	22	<5	<2	<2	28	4.4	<2	<2	76	.47	.051	10	88	1.69	121	.13	<2	3.04	.03	.08	<1	14
A2+00S 11+50W	2	107	20	824	1.0	29	11	336	3.07	17	<5	<2	<2	28	2.2	<2	<2	58	.56	.034	4	66	1.10	78	.12	<2	2.03	.04	.06	<1	6
A2+00S 11+25W	2	192	36	4624	2.5	31	13	609	3.41	10	<5	<2	<2	37	15.2	<2	<2	60	1.01	.050	7	52	1.15	104	.11	2	2.01	.04	.11	1	20
A2+00S 10+75W	2	135	23	597	1.0	37	16	1165	3.59	14	<5	<2	<2	36	3.7	<2	<2	64	.79	.038	6	76	1.38	136	.12	<2	2.51	.04	.09	1	5
A2+00S 10+50W	1	159	25	945	2.7	33	10	850	3.14	7	<5	<2	<2	28	4.8	<2	<2	52	.56	.052	8	41	.67	144	.17	2	2.83	.05	.08	1	3
A2+00S 10+25W	1	51	19	501	1.0	23	11	253	2.96	11	<5	<2	<2	18	1.0	<2	<2	54	.26	.052	3	46	.81	52	.13	2	2.29	.03	.05	1	14
A2+00S 10+00W	<1	66	21	822	.7	27	11	521	3.09	6	<5	<2	<2	24	5.4	<2	<2	55	.40	.052	3	51	.93	90	.16	<2	2.26	.04	.06	<1	1
A2+00S 9+75W	1	87	20	890	.5	41	16	531	3.66	11	<5	<2	<2	31	2.3	<2	<2	65	.55	.028	4	81	1.63	64	.16	2	2.33	.03	.08	<1	17
RE A2+00S 9+75W	2	92	19	915	.5	42	17	548	3.83	11	<5	<2	<2	32	2.1	<2	<2	67	.57	.028	4	86	1.69	66	.16	2	2.41	.03	.09	<1	8
A3+50S 13+00W	2	72	19	371	.8	55	22	771	4.79	20	<5	<2	<2	38	.8	<2	<2	77	.58	.046	6	103	2.10	136	.13	<2	2.91	.03	.10	2	4
A3+50S 12+75W	2	99	25	1247	1.6	49	19	737	4.37	<2	<5	<2	<2	39	2.7	<2	<2	69	.55	.030	6	77	1.63	167	.17	<2	3.05	.04	.08	<1	4
A3+50S 12+50W	<1	127	31	874	6.4	37	16	638	3.99	26	<5	<2	<2	41	2.0	<2	2	66	.64	.030	12	60	1.15	172	.13	<2	2.79	.04	.06	<1	8
A3+50S 12+25W	1	47	20	524	.6	21	17	839	4.78	16	<5	<2	<2	23	.8	<2	<2	86	.41	.065	3	40	1.56	132	.20	<2	2.98	.03	.13	1	2
A3+50S 12+00W	1	70	29	906	.6	26	12	340	3.27	13	<5	<2	<2	21	1.1	<2	<2	61	.33	.035	5	47	.98	61	.18	<2	2.35	.03	.06	1	3
A3+50S 11+75W	1	33	23	471	.6	22	13	1994	3.17	7	<5	<2	<2	27	3.8	<2	<2	61	.61	.036	3	46	1.01	173	.17	2	2.05	.03	.11	<1	1
A3+50S 11+50W	2	85	25	1967	2.3	33	15	741	3.74	17	<5	<2	<2	33	4.1	<2	<2	63	.63	.033	10	62	1.27	135	.17	2	2.63	.03	.08	<1	4
A3+50S 11+25W	2	170	34	2055	2.6	45	19	1098	3.99	23	<5	<2	<2	38	12.1	<2	<2	69	.95	.054	6	82	1.61	141	.12	<2	2.33	.03	.14	<1	26
A3+50S 11+00W	1	60	20	566	1.1	21	11	262	2.99	16	<5	<2	<2	19	1.4	<2	<2	59	.31	.036	3	41	.86	59	.13	<2	1.95	.04	.05	<1	9
A3+50S 10+75W	1	63	23	1509	1.7	22	11	293	3.34	20	<5	<2	<2	18	1.2	<2	<2	66	.35	.054	2	45	.91	50	.14	<2	2.15	.04	.06	<1	9
A3+50S 10+50W	1	40	22	490	.8	19	12	334	3.03	12	<5	<2	<2	19	1.5	<2	<2	57	.29	.047	2	38	.75	58	.13	2	2.00	.03	.07	<1	3
A3+50S 10+25W	1	46	59	1279	3.0	14	11	1025	3.09	6	<5	<2	<2	16	2.1	<2	<2	56	.32	.050	4	24	.62	81	.18	<2	2.06	.04	.07	1	14
B3+50S 13+00W	1	51	17	373	1.2	42	17	876	4.05	9	<5	<2	<2	34	.9	<2	<2	64	.47	.032	7	70	1.44	154	.14	<2	2.86	.03	.07	1	1
B3+50S 12+75W	1	101	22	1072	1.8	44	16	815	3.81	4	<5	<2	<2	50	4.1	<2	<2	62	.82	.029	8	69	1.41	164	.16	<2	2.82	.04	.09	<1	4
B3+50S 12+50W	1	50	24	722	.9	32	14	530	3.27	17	<5	<2	<2	36	2.3	<2	<2	58	.53	.027	4	61	1.19	104	.13	<2	2.27	.04	.06	<1	23
B3+50S 12+25W	1	53	23	800	1.5	25	12	438	3.16	7	<5	<2	<2	29	1.3	<2	<2	56	.42	.026	4	47	.96	92	.16	2	2.16	.04	.06	<1	25
B3+50S 12+00W	2	24	18	299	.5	18	9	426	3.20	10	<5	<2	<2	21	.6	<2	<2	61	.30	.055	3	41	.86	61	.17	<2	1.99	.04	.06	1	3
B3+50S 11+75W	2	18	11	296	.3	9	10	1899	3.44	2	<5	<2	<2	19	1.3	<2	<2	55	.31	.067	3	18	.73	88	.20	<2	1.97	.04	.14	<1	<1
B3+50S 11+50W	2	43	21	1529	.6	25	14	942	3.31	9	<5	<2	<2	29	3.4	<2	<2	57	.53	.027	4	48	1.11	112	.17	2	2.24	.03	.07	<1	4
B3+50S 11+25W	1	43	29	747	3.3	18	9	240	2.68	23	<5	<2	<2	18	1.3	<2	<2	52	.31	.038	3	38	.76	58	.13	<2	1.72	.03	.04	<1	32
B3+50S 11+00W	2	168	38	1454	1.4	32	15	428	4.32	32	<5	<2	<2	22	1.3	<2	<2	73	.35	.038	3	66	1.50	55	.13	<2	2.55	.02	.08	<1	25
B3+50S 10+75W	1	53	24	577	2.6	23	15	625	3.89	18	<5	<2	<2	19	.8	<2	<2	77	.43	.035	2	44	1.06	62	.19	<2	2.49	.04	.13	<1	46
STANDARD C/AU-S	18	58	37	128	6.7	68	29	1006	3.96	38	17	7	39	48	17.5	14	21	55	.51	.086	36	59	.88	179	.09	38	1.88	.06	.14	11	53

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
- SAMPLE TYPE: SOIL AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE. Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: JUL 6 1993 **DATE REPORT MAILED:** July 13/93 **SIGNED BY** D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Richardson Geological Consulting File # 93-1391

4569 W. 13th Ave, Vancouver BC V6R 2V5 Submitted by: Paul W. Richardson

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb	Pt** ppb	Pd** ppb
93-1	6	727	19	530	.5	51	51	1277	3.29	14	<5	<2	<2	31	1.3	<2	<2	58	.51	.047	3	66	1.41	82	.09	3	1.80	.04	.13	<1	1	<3	3
93-2	11	1758	145	4229	1.6	74	80	2023	3.86	22	<5	<2	<2	52	30.7	<2	<2	60	1.00	.060	5	74	1.47	120	.09	4	2.65	.04	.14	<1	3	3	<3
93-3	19	1885	20	580	1.5	62	82	2418	4.52	23	<5	<2	<2	42	2.1	<2	<2	71	.55	.053	4	83	1.53	114	.10	3	2.46	.05	.21	<1	11	6	9
93-4	27	2057	24	659	.8	71	196	7208	4.77	16	<5	<2	3	50	4.9	<2	2	61	.60	.064	6	66	1.08	189	.08	3	3.56	.05	.13	<1	1	<3	<3
93-5	23	1872	23	1006	.7	88	241	2263	5.16	15	<5	<2	<2	48	7.8	<2	<2	61	.59	.081	7	63	1.04	341	.07	4	2.75	.05	.11	<1	6	<3	5
93-6	31	1730	10	538	.7	74	231	2144	4.14	10	<5	<2	<2	53	3.8	<2	2	52	.69	.067	7	58	.85	107	.06	4	2.33	.03	.10	<1	2	4	7
93-7	14	650	6	212	.5	37	40	798	3.51	10	<5	<2	<2	34	.6	<2	<2	59	.43	.045	3	65	1.24	101	.10	3	1.97	.03	.15	<1	<1	4	7
93-8	15	701	11	195	.7	44	41	1910	4.54	14	<5	<2	<2	33	.8	<2	2	75	.36	.046	3	85	1.49	114	.12	4	2.10	.03	.20	<1	2	12	6
93-9	17	660	8	156	.8	40	17	451	4.79	18	<5	<2	<2	32	<.2	<2	2	79	.31	.047	3	93	1.76	119	.14	3	2.52	.03	.24	<1	3	3	<3
93-10	9	628	5	173	.3	30	52	1685	3.05	7	<5	<2	<2	43	.9	<2	<2	46	.46	.050	3	49	.86	148	.07	5	1.90	.03	.10	<1	30	<3	4
93-11	10	561	7	147	.2	28	47	1176	2.98	5	<5	<2	<2	41	<.2	<2	<2	49	.42	.046	3	51	1.02	151	.07	2	1.97	.03	.12	<1	1	3	3
93-12	9	519	6	160	.3	26	50	1294	3.40	6	<5	<2	<2	45	.5	<2	<2	50	.49	.055	4	50	.88	128	.07	3	1.80	.03	.12	<1	<1	4	4
93-13	12	928	8	170	.5	38	139	4228	4.71	9	<5	<2	<2	56	1.4	<2	<2	58	.59	.076	5	51	.83	168	.06	3	2.01	.03	.12	<1	2	<3	<3
93-14	10	509	6	121	.4	33	112	1882	3.12	9	<5	<2	<2	37	.7	<2	<2	50	.48	.055	3	59	1.15	85	.07	3	1.71	.04	.11	<1	<1	3	4
93-15	14	859	8	166	.7	35	74	1497	4.96	9	<5	<2	<2	40	.7	<2	<2	62	.44	.059	4	54	1.05	111	.07	4	2.12	.04	.16	<1	6	<3	<3
93-16	14	793	8	159	.6	28	203	2847	3.75	10	<5	<2	<2	49	.9	<2	<2	56	.48	.057	5	54	.97	134	.07	3	2.21	.03	.12	<1	1	<3	<3
93-17	8	870	9	152	.7	25	36	788	3.84	7	<5	<2	<2	54	.3	<2	<2	51	.60	.096	6	45	.91	153	.06	3	2.81	.03	.13	<1	6	<3	<3
93-18	14	667	11	137	.7	21	58	1031	3.35	12	<5	<2	<2	37	<.2	<2	2	59	.40	.048	4	39	.78	100	.07	2	2.10	.03	.12	<1	13	<3	3
93-19	14	952	10	133	.7	19	42	710	3.16	10	<5	<2	<2	31	.3	<2	<2	56	.31	.055	5	35	.76	92	.07	3	2.57	.02	.10	<1	1	8	<3
93-20	13	907	8	140	.9	19	36	770	3.32	10	<5	<2	<2	37	.3	<2	<2	58	.37	.054	6	37	.79	94	.07	2	2.44	.03	.11	1	2	<3	<3
93-21	8	10948	<2	370	.5	58	15	154	.51	2	<5	<2	<2	63	3.9	<2	7	8	1.07	.050	8	2	.08	62	.01	3	.61	.05	.11	1	<1	<3	4
93-22	58	14722	5	90	3.8	27	277	2783	.43	6	<5	<2	<2	72	1.1	<2	<2	6	1.15	.107	51	15	.06	69	.01	6	2.11	.01	.03	1	<1	<3	<3
93-23	12	996	6	227	.3	29	53	579	2.41	7	<5	<2	<2	28	.5	<2	<2	44	.32	.040	2	31	.44	37	.13	3	1.73	.05	.04	<1	<1	<3	4
93-24	8	1068	4	91	1.2	12	27	406	2.25	5	<5	<2	<2	23	.3	<2	<2	45	.28	.040	6	21	.21	14	.11	3	1.58	.06	.02	<1	<1	<3	<3
93-25	87	11539	<2	66	9.5	20	452	3926	.37	4	<5	<2	<2	49	.8	<2	9	6	.77	.124	81	23	.04	39	.01	5	1.60	.01	.03	1	2	<3	4
RE 93-26	6	1405	262	5290	1.4	82	86	3923	8.74	623	<5	<2	2	25	31.3	<2	4	46	.53	.052	9	63	.83	87	.07	2	2.36	.02	.06	<1	107	6	9
93-26	4	1356	266	5249	1.3	82	80	3883	8.74	624	<5	<2	2	25	30.9	<2	2	46	.52	.051	7	63	.83	87	.07	3	2.34	.02	.06	<1	103	3	8
93-27	1	111	21	386	1.1	25	13	360	3.20	25	<5	<2	2	19	1.4	<2	<2	57	.25	.045	3	46	1.07	76	.10	4	2.23	.03	.04	<1	<1	<3	<3
93-28	2	228	38	3335	2.4	24	13	754	2.91	33	<5	<2	<2	35	9.5	<2	<2	49	.89	.045	6	36	1.02	110	.08	3	1.74	.03	.09	<1	16	3	5
93-29	1	290	23	1686	1.2	29	11	590	2.34	14	<5	<2	<2	39	7.0	<2	<2	42	1.08	.058	6	52	1.08	112	.06	3	1.35	.03	.15	<1	5	3	6
93-30	2	97	41	1536	1.4	23	12	500	3.10	21	<5	<2	<2	24	2.7	<2	<2	56	.48	.034	3	39	1.02	77	.11	3	1.89	.03	.06	<1	7	<3	3
93-31	1	172	50	2375	1.8	22	14	657	3.09	25	<5	<2	<2	27	2.7	2	<2	56	.63	.049	3	37	1.11	77	.09	2	1.63	.03	.09	<1	15	<3	<3
STANDARD C/FA-100S	18	59	39	124	6.8	66	30	1106	3.96	43	22	7	37	52	19.0	14	19	56	.49	.086	37	55	.88	182	.08	34	1.88	.06	.14	12	47	51	51

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
- SAMPLE TYPE: SILT AU** PT** PD** BY FIRE ASSAY & ANALYSIS BY ICP/GRAPHITE FURNACE. – 40 # + pulverized
Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: JUL 6 1993 **DATE REPORT MAILED:** July 14/93 **SIGNED BY** C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS


LEGEND
GEOCHEMISTRY
Cu(ppm) Au(ppb)
Zn(ppm) Ag(ppm)
Slope down
GENERAL
Diamond Drill Hole
Adit
Trench
Claim Line
Elevation Contour
Road with Survey Station
Outline of Geochem Anomaly
1993 Stations
Area of Outcrop
To Hope Pass
Road to Princeton
Whipsaw Creek
BZ Creek (15 Mile Creek)
Metestopher Zone
Silvertip Zone
Adit
Nicola Eagle
Volcanics Granodiorite
(Approximate)
South Hill #2
To Whipsaw Creek logging road
Line A-2+00 S
Line A-3+50 S
Line B-3+50 S
Line 5+35 S
8,700 E
8,900 E
9,100 E
9,300 E
9,500 E
9800 N
9,600 N
9,400 N
GEOLOGICAL BRANCH ASSESSMENT REPORT
22,978
To Accompany Report Entitled "Geochemical Survey on Part of the Whipsaw Property" by Paul W. Richardson, Ph.D., P.Eng. Dated July 30, 1993.
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA P.W. RICHARDSON
RICHARDSON GEOLOGICAL CONSULTING LTD
WORLD WIDE MINERALS LTD.
WHIPSAW PROPERTY
METESTOFFER AND SILVERTIP ZONES
DATE: JUNE, 1989
Revised Dec., 1992
July, 1993
BY: P.W.R.
FIGURE 4
Scale: 1:1000

LEGEND

GEOLOGY

- 3 — Whipsaw Porphyry
- 2 — Eagle Granodiorite
- 1 — Nicola Group
- Δ — Breccia
- 1/3 — Geological Contact
- Fault

GEOPHYSICS

- IP Anomaly (dual freq.)
- EM Axis (vert. loop)

GEOCHEMISTRY

Cu(ppm) Au(ppb) 105 | 18 | 15 | 5-0
Mo(ppm) Ag(ppm) 93-12

Au < 10 ppb
Ag < 1.0 ppm
Cu < 50 ppm
Mo < 3 ppm
1993 Samples

GENERAL

- Diamond Drill Hole
- Proposed Drill Hole
- Claim Post and Line
- Road
- Trench
- Stream
- Slope
- 1700 Elevation Contour (m)
- Swampy Area

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PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — P.W. RICHARDSON

P. W. Richardson

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ASSESSMENT REPORT

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RICHARDSON GEOLOGICAL CONSULTING LTD.
WORLD WIDE MINERALS LTD.
WHIPSAW PROPERTY
SIMILKAMEEN MINING DIVISION, B.C.
SOUTH PORPHYRY AREA

Date: Sept. 1990	By: P.W.R.	Figure
Revised: July, 1993	Scale: 1:2500	5