ARIS SUMMARY SHEET

District Geologist, Smithers Off Confidential: 90.02.10

ASSESSMENT REPORT 18779 MINING DIVISION: Atlin

PROPERTY: LP
LOCATION: LAT 59 32 00 LONG 133 31 00
UTM 08 6600170 583898
NTS 104N12E

CAMP: 053 Atlin Camp

CLAIM(S): LP 1-3,Alexandra,Victoria
OPERATOR(S): Stetson Res. Management
AUTHOR(S): Freeze, J.C.;Dynes, W.J.;Wetherill, J.F.
REPORT YEAR: 1989, 50 Pages
COMMODITIES
SEARCHED FOR: Gold
KEYWORDS: Pennsylvanian,Cache Creek Group,Permian,Atlin Intrusions
Argillites,Chert pebble conglomerates,Schists,Peridotites
Listwanites,Quartz veins
WORK
DONE: Geological
GEOL 1000.0 ha
Map(s) - 1; Scale(s) - 1:10 000
PETR 6 sample(s)
RELATED
REPORTS: 09055
MINFILE: 104N 042

LOG NO: 0927	RD. 3
ACTION: Date received report back from amendments.	
FILE NO:	

LOG NO: 0525	RD.
ACTION:	
FILE NO:	

GEOLOGICAL ASSESSMENT REPORT

ON THE

LP CLAIM GROUP

LP 1-3 CLAIMS, ALEXANDRA AND VICTORIA R.C.G.

ATLIN MINING DIVISION

NTS 104N/12E

59°32' 133°31'

PREPARED FOR

WIND RIVER RESOURCES

214-475 HOWE STREET

VANCOUVER, BRITISH COLUMBIA

AUTHORS: J.C. FREEZE, F.G.A.C., STILLWATER ENTERPRISES LTD.
W.J. DYNES, PROSPECTOR, STETSON RESOURCE MANAGEMENT
J.F. WETHERILL, B.Sc., STETSON RESOURCE MANAGEMENT

MAY 11, 1989

SUMMARY

The LP claim group under option to Wind River Resources Ltd. is located in the Atlin mining division of northwestern B.C. The group comprises 50 claim units covering an area of 1200 hectares. Road access to the property is provided by gravel roads following Spruce Creek and Little Spruce Creek for a distance of 10.5 km from the village of Atlin. Supplies can be obtained, to a limited extent, from Atlin and otherwise they can be trucked in from the city of Whitehorse, Yukon.

The property covers moderate terrain, much of which is above the treeline. The climate is relatively dry but winter snow cover is moderate to heavy. Year around temperatures range from 11°C in June to -7°C in January.

The Union Mountain area has been prospected since the early 1900's to locate the source of placer gold found in Spruce Creek. Lode gold occurs in quartz veins in carbonatized ultramafic rocks identified as listwanites. Gold bearing listwanites in other parts of the world have similar structural, mineralogical and geochemical characteristics to those found in the Atlin area. A gold exploration model has been developed from studies of these listwanites. Additional exploration is recommended for the LP claim group.

TABLE OF CONTENTS

1. INTRODUCTION

This report discusses the geology, geochemistry and petrology of the LP Group of mineral claims in northwestern British Columbia. The claims cover altered meta-volcanics hosting gold bearing quartz veins. The data presented was collected by Stetson Resource Management Corp. under the direction of the writer during the period of August 1 to October 20, 1988. The claims are owned by Marvin Sherman and are under option to Wind River Resources Ltd.

1.1 Location and Access

The LP property is situated in the Atlin mining division in northwestern British Columbia, and lies approximately 8 km southeast of Atlin, B.C. The claims cover 1200 hectares (6 km^2) centered at $59^\circ32'$ latitude and $133^\circ31'$ longitude on NTS Map sheet 104N/12E. Access to the property is via an all weather road (Spruce Creek Road) from Atlin for 5.5 km, then south for 5 km along a four - wheel drive road which follows Little Spruce Creek to the center of the property.

Groceries, fuel, lumber and supplies are available to a limited extent in Atlin. A bi - weekly trucking service based in Atlin can supply a wider range of goods from Whitehorse, Yukon.

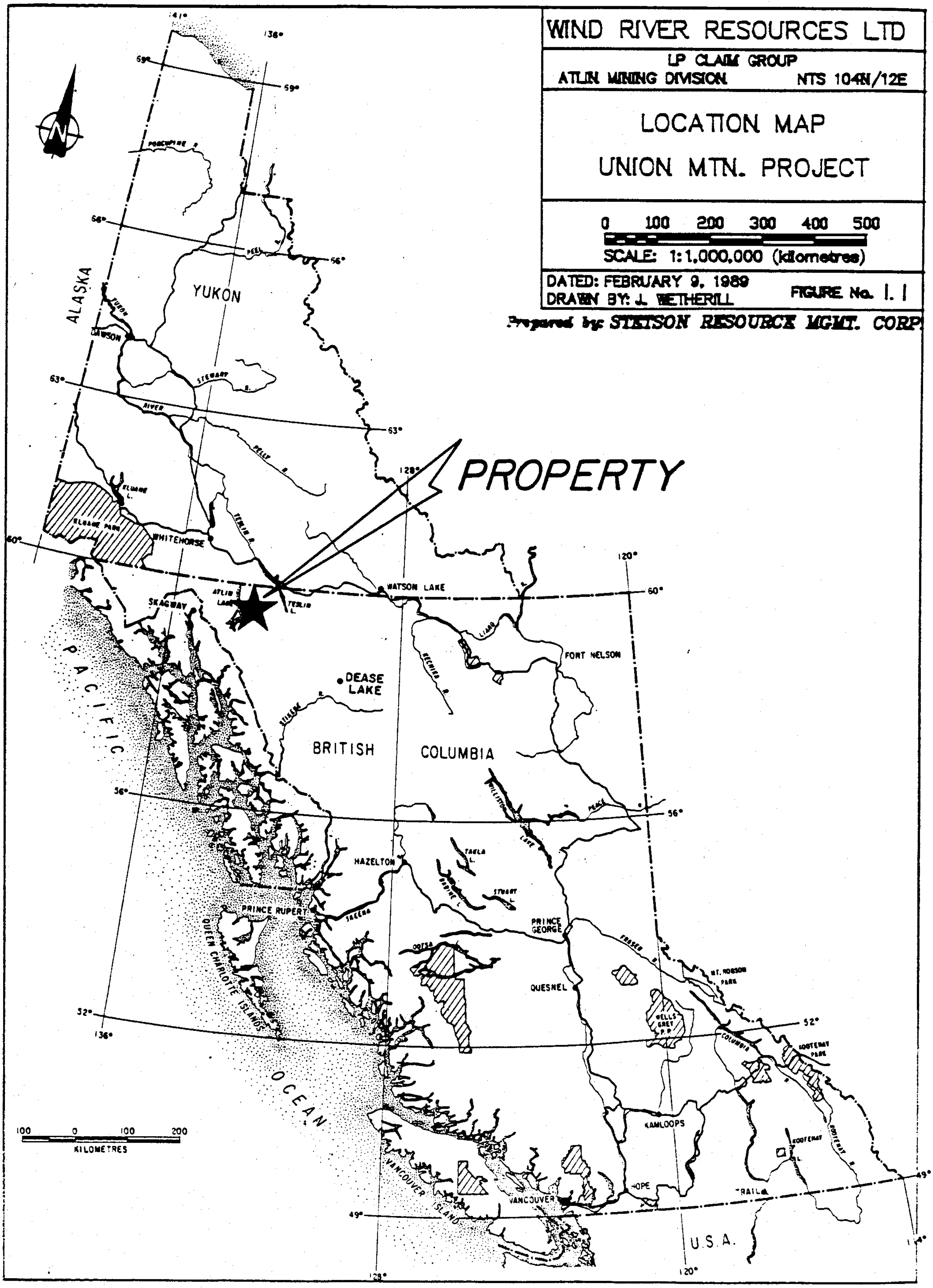
1.2 Property

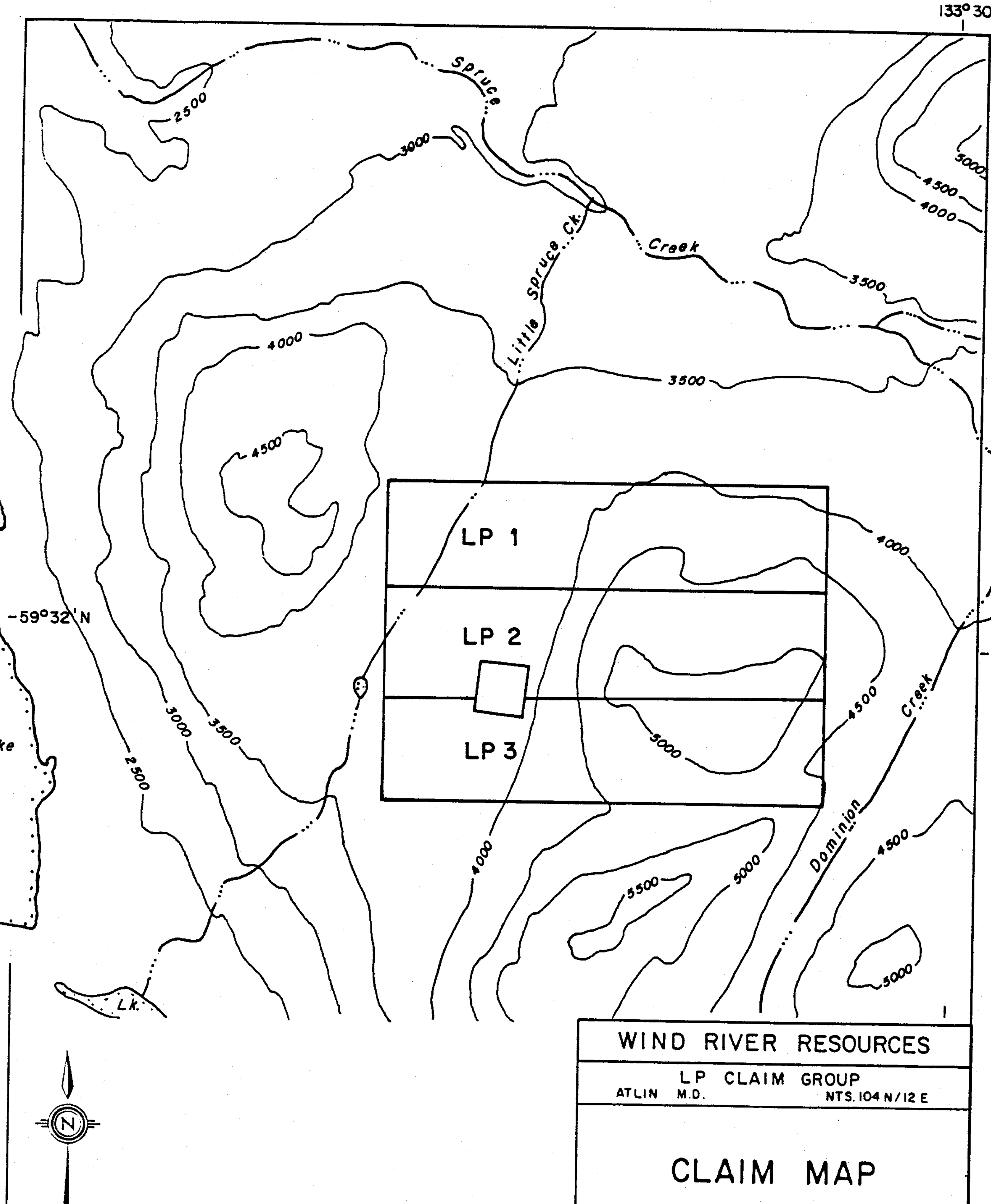
The LP property comprises three contiguous 16 unit modified grid claims which encompass two 1 unit Reverted Crown Grants totalling 50 claim units. The LP 1-3 claims were staked in 1980 by Marvin Sherman and optioned to Wind River Resources Ltd. in 1988.

The following table summarizes pertinent claim data:

Claim Information

Group	Claim Name	Units	Record No.	Exp. Date
LP	LP 1	16	974	02/12/90
	LP 2	16	975	02/12/90
	LP 3	16	976	02/12/90
	Alexander	1	1890	05/06/90
	Victoria	1	1889	05/06/90


WIND RIVER RESOURCES LTD
LP CLAIM GROUP
ATLIN MINING DIVISION
NTS 104N/12E
LOCATION MAP
UNION MTN. PROJECT
0 100 200 300 400 500
SCALE: 1:1,000,000 (kilometres)
DATED: FEBRUARY 9, 1989
DRAWN BY: J. WETHERILL
FIGURE No. 1.1
Prepared by: STETSON RESOURCE MGMT. CORP.
PROPERTY
ALASKA
YUKON
DAWSON
WHITEHORSE
SKAGWAY
WATSON LAKE
FORT NELSON
DEASE LAKE
BRITISH
COLUMBIA
PACIFIC
OCEAN
HAZELTON
PRINCE RUPERT
QUEEN CHARLOTTE ISLANDS
PRINCE GEORGE
QUESNEL
KAMLOOPS
VANCOUVER ISLAND
VANCOUVER
HOPE
TRAIL
U.S.A.
100 0 100 200
KILOMETRES


133° 30'
Spruce
Creek
Little Spruce Ck.
Dominion
Creek
Lake
Lk.
59°32'N
2500
3000
3500
4000
4500
5000
5500
LP 1
LP 2
LP 3
N
WIND RIVER RESOURCES
LP CLAIM GROUP
ATLIN M.D.
NTS. 104 N/12 E
CLAIM MAP
SCALE 1: 50,000
METRES
0 500 1000 2000 3000
DATE: MAY 2, 1989
DRAWN: G.T.
FIGURE: 1.2

1.3 Physiography, Vegetation, Climate

The property covers moderate terrain with an elevation range of 550 m to 1650 m at the peak of Union Mountain. A small lake on the property is fed by two main drainages which appear to be of suitable flow rates for drilling and camp requirements.

Most of the property lies above the tree line where sporadic patches of alpine willow brush grow. Below treeline, sparce lodge pole pine and spruce trees grow. The region has a relatively dry climate but winter snow cover is moderate to heavy. Wind storms are also common year round. Mean annual temperatures are 11 degrees Celcius in June and -7 degrees Celsius in January.

1.4 History

Prospecting in the Union Mountain area began in approximately 1912 to locate the source of placer gold found in Spruce Creek. Development work on the property, in the form of hand trenching and driving of an exploration adit, was conducted during this initial exploration period.

Trans Continental Resources staked the ground and implemented a trenching and sampling program during the 1949 to 1951 field seasons. Quartz veins were found to carry gold values of up to 0.52 oz/ton across a 9" width and 0.76 oz/ton across a 2" width. The area remained relatively inactive until 1970 when Rio Alto Explorations optioned the property from Marvin Sherman and conducted soil sampling surveys.

In 1984, Del Norte Crome Corp. optioned the property from Sherman and commissioned Pamicon Developments to conduct a reconnaissance geochemical and geophysical survey over the property. The following year the claims were returned to Marvin Sherman, despite encouraging results.

1.5 1988 Exploration Program

In 1988 an exploration program was undertaken by geologists employed by Stetson Resource Management Corp. under the direction of J.C. Freeze. Approximately $7,500.00 was spent on the following programs which were carried out between August 21 and October 24, 1988.

1) Geological mapping was conducted over the existing trenches and around the exploration adit at a scale of 1:10,000 to locate and sample the various alteration types on the property.

2) Rock chip sampling of quartz - carbonate veins and hydrothermal alteration zones was carried out in areas previously known to host precious metal mineralization.

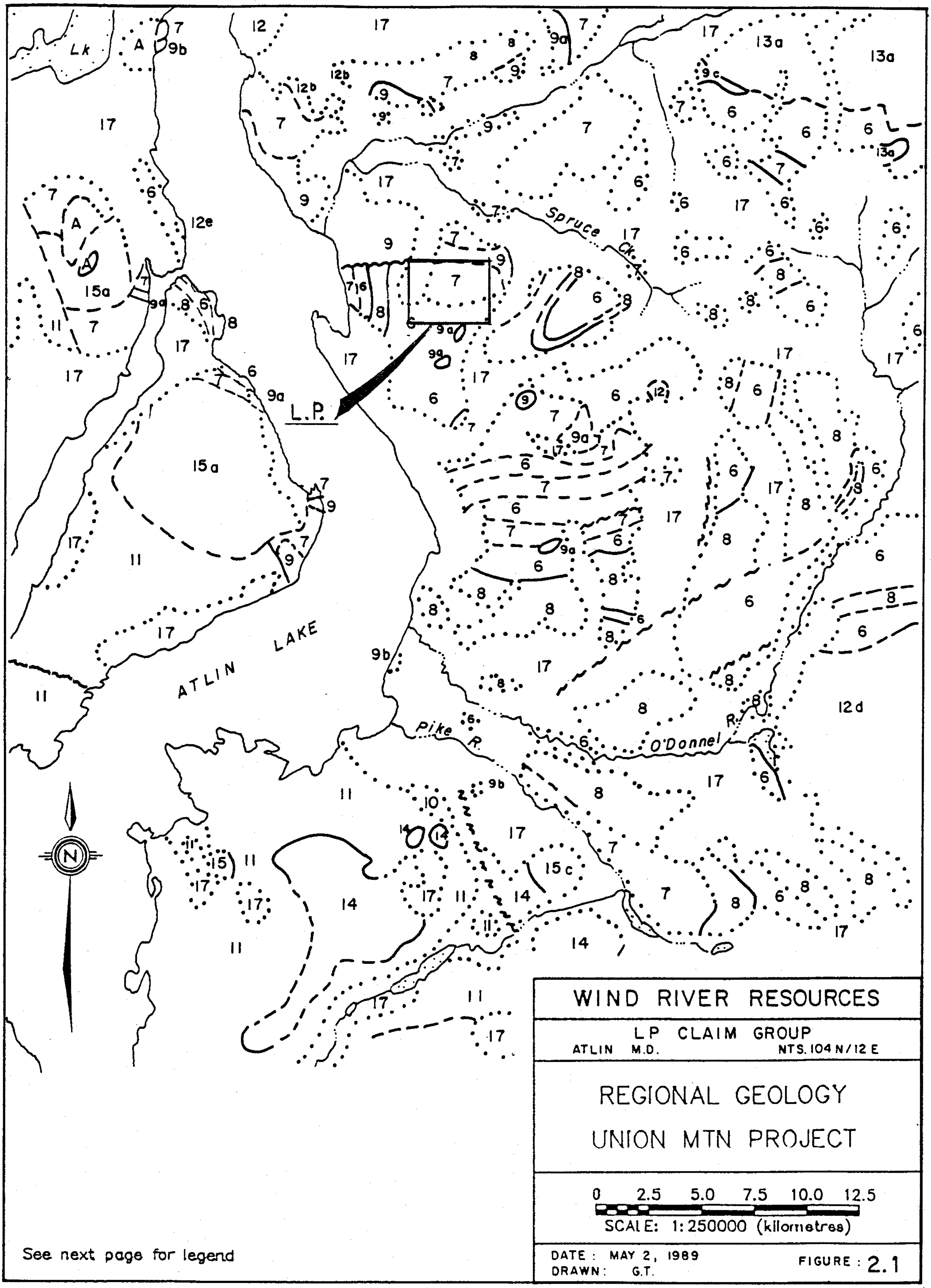
3) Approximately 52 rock chips samples were collected: 6 of these were selected for petrographic, mineralogical, geochemical gold and multi-element ICP analysis. An additional 3 samples were also analyzed for gold by geochemistry and for multi-elements by ICP analysis.

2. GEOLOGY

2.1 Regional Geology

Regional mapping in the Atlin area was conducted by J.D. Aitken and published in his Geological Survey of Canada, Memoir 307, 1959.

Aitken's (1959) mapping shows that the Union Mountain area is underlain predominantly the Pennsylvanian Cache Creek Group which is intruded by Permian Atlin intrusions. The Cache Creek Group comprises chert, argillite, chert pebble conglomerate and breccia, quartzite and schist, limestone and limestone breccia, greenstone and volcanic greywacke, and amphibolite. On the property the Cache Creek group is represented by altered and unaltered basic volcanics (greenstones). The Atlin intrusions comprise peridotite, meta - diorite, meta - gabbro, serpentinite, carbonatized sepentinite, and steatizd (talc bearing) ultramafics. On the property the Atlin intrusives are represented by peridotites showing various intensities of alteration, from partial to complete serpentinization, carbonatization and steatization. The basic rocks associated with the Atlin intrusions are indistinguishable from Cache Creek equivalents as both have similar alteration and are associated with ultramafic rocks.



WIND RIVER RESOURCES

LP CLAIM GROUP
ATLIN M.D. NTS. 104 N/12 E

REGIONAL GEOLOGY
UNION MTN PROJECT

0 2.5 5.0 7.5 10.0 12.5
SCALE: 1:250000 (kilometres)

DATE: MAY 2, 1989
DRAWN: G.T.
FIGURE: 2.1

Prepared by: STETSON RESOURCE MGMT. CORP.

LEGEND

CENOZOIC

QUATERNARY
PLEISTOCENE AND RECENT

17 — *Glacial drift; alluvium*

TERTIARY AND QUATERNARY

16 — *Olivine basalt and scoria;* 16a, *Tertiary;* 16b, *Pleistocene*

TERTIARY (?)

15 — 15a, *quartz monzonite;* 15b, *granophyre;* 15c, *gabbro and diorite*

CRETACEOUS OR TERTIARY
SLOKO GROUP

14 — *Andesite, basalt; albite trachyte, albite rhyolite, dacite, and related pyroclastic rocks; conglomerate, sandstone*

CRETACEOUS

13 — 13a, *alaskite,* 13b, *quartz monzonite*

JURASSIC *(May be in part older and younger)*
COAST INTRUSIONS

12 — *Undifferentiated granitic rocks;* 12a, *Black Mountain body,* 12b, *Fourth of July Creek body;* 12c, *pink granite;* 12d, *Mount McMaster body;* 12e, *diorite;* 12f, *alkaline granite*

JURASSIC
LABERGE GROUP

11 — *Volcanic greywacke, siltstone, mudstone, shale, conglomerate; minor concretionary sandy limestone*

TRIASSIC (?)

10 — *Greywacke, chert, argillite, conglomerate, tuff, slate, greenstone, impure limestone, jasper*

PALÆOZOIC

PENNSYLVANIAN AND PERMIAN
ATLIN INTRUSIONS

9 — *Peridotite; meta-diorite and meta-gabbro;* 9a, *serpentinite;* 9b, *carbonitized serpentinite;* 9c, *talc-bearing (steatitized) ultramafic rocks*

CACHE CREEK GROUP

6, 7, 8 — 6. *Chert, argillite, chert-pebble conglomerate and chert breccia; derived quartzite and schist; minor 7 and 8*
7. *Greenstone and volcanic greywacke; derived amphibolite; minor 6 and 8*
8. *Limestone and limestone breccia*

PENNSYLVANIAN AND/OR PERMIAN

4, 5 — 4. *Andesite, basalt, and related pyroclastic rocks; conglomerate, sandstone, shale*
5. *Limestone*
May be in part or wholly equivalent to 6, 7, 8

MISSISSIPPIAN AND/OR EARLIER
SYLVESTER GROUP

3 — 3a, *greenstone, chlorite schist, greywacke, quartzite, quartz-biotite schist;* 3b, *impure crystalline limestone*

PRECAMBRIAN OR PALÆOZOIC

PRE-PERMIAN

2 — *Quartz monzonite*

YUKON GROUP

1 — *Hornblende-quartz-feldspar schist and gneiss; quartzite, crystalline limestone. May be in part equivalent to 3*

A — *Undifferentiated, mainly volcanic rocks of uncertain, possibly several, ages. Andesite, basalt, agglomerate, tuff, breccia; diorite and quartz diorite porphyries; rhyolite. In part probably Triassic, probably equivalent to 10*

Bedding (horizontal, inclined, vertical, overturned)
Bedding (direction of dip known, upper side of bed unknown)
Schistosity or slaty cleavage (inclined, vertical)
Fault (defined, approximate, assumed)
Anticline (arrow indicates direction of plunge)
Syncline (arrow indicates direction of plunge)
Fossil locality
Fossil locality (referred to in Table III)
Mineral occurrence

Geology by J. D. Aitken, 1951, 1952, 1953, 1954, 1955

To accompany G.S.C. Memoir 307, by J. D. Aitken

Cartography by the Geological Survey of Canada, 1959

Air photographs covering this map-area may be obtained through the National Air Photographic Library, Topographical Survey, Ottawa, Ontario

Approximate magnetic declination 31°31′ East

2.2 Regional Mineralization

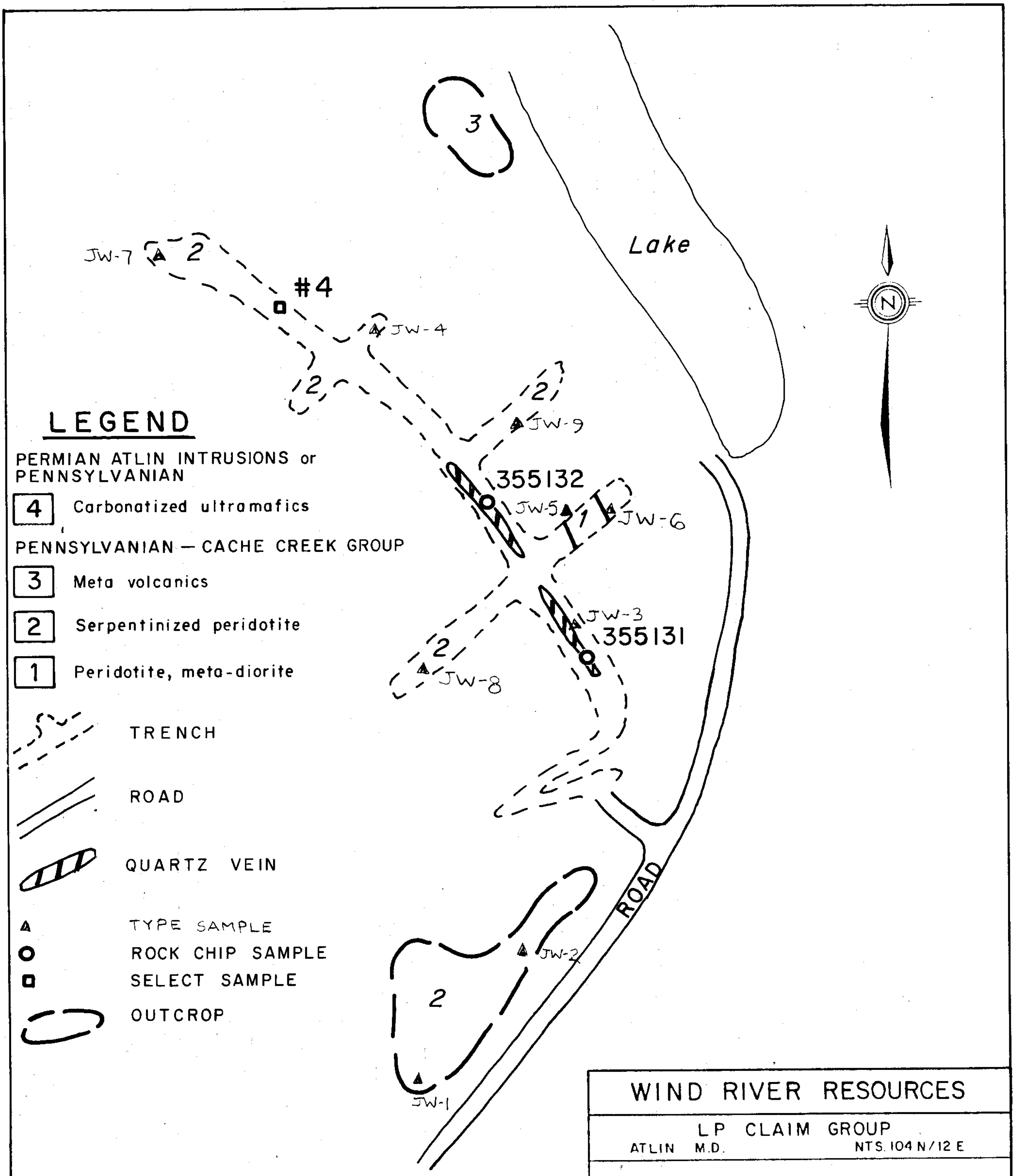
Exploration Model

Listwanites, (carbonatized ultramafic rocks derived from ophiolite complexes) constitute a new and exciting target for gold exploration in Northern British Columbia. Studies of gold mineralization associated with listwanites in Liguria, Morocco and Saudi Arabia by Buisson and Leblanc (1985) have produced a hydrothermal model with structural, mineralogical and geochemical characteristics similar to the listwanites found along a major ultramafic belt in northwestern B.C.. This belt (known as the Nahlin Belt) extends 400 kilometres in length running southeast from Atlin B.C. paralleling the Nahlin Fault.

Gold levels in the listwanites studied by Buisson and Leblanc are on average 5 to 20 times greater than those associated with ultramafic rocks (5 ppb). In addition gold-rich zones (1-10 ppm) are found in sulphide or cobalt arsenide mineralization or late quartz veining containing pyrite or arsenopyrite.

According to Buisson and Leblanc, both carbonatization (to form listwanite) and serpentinization are caused by hydrothermal alteration at moderate temperatures (150-300 ^{o}C) by sodium-chlorine brines derived from mantle material and sea water interaction. Gold is leached from the opaque minerals of serpentinized ultramafic rocks and is transported by CO2-S-As-Cl-Na-K-B rich (hydrothermal) fluids along tectonic contracts. The gold is precipitated with quartz, sulphides and arsenides when the fluid enters the reducing and alkaline environment of the carbonatized rocks.

Listwanites are identified by Buisson and Leblanc as carbonate rocks occuring on the borders of Alpine-type ultramafic massifs and are considered to be the result of carbonatization of the surrounding ultramafic rocks. These rocks consist of magnesium-iron-calcium carbonates and quartz with accessory serpentine, talc, and magnesium-chlorite. Fuchsite (crome-muscovite) and minerals such as: hematite, magnetite, iron-nickel or iron-copper sulphides and relict chrome-spinel. The listwanite lenses occur along tectonic contacts and grade laterally into serpentinized ultramafic rocks through a talc-carbonate zone. The carbonatization process removes silica and magnesium and adds carbon-dioxide, calcium and potassium in fuchsitic listwanites.



WIND RIVER RESOURCES

LP CLAIM GROUP
ATLIN M.D. NTS 104 N/12 E

TRENCH GEOLOGY

SCALE : 1: 1250 METRES
0 10 20 40 60

DATE : MAY 2, 1989
DRAWN : G.T.

FIGURE : 2.3.A

Prepared by : STETSON RESOURCE MGMT. CORP.

Listwanites are differentiated from other carbonate rocks by increased levels of cromium (500-3,000 ppm), nickel (500-1,000 ppm) and cobalt (50-100 ppm). A cobalt depletion halo often occurs in the serpentinites surrounding gold bearing listwanites.

2.3 Property Geology

The Union Mountain property is underlain predominately by the Cache Creek basic volcanics. These rocks flank the Atlin intrusions as partially to completely altered peridotite. Rocks on the property belonging to the Atlin intrusions are almost completely carbonatized and bear little resemblance to the original rock types.

Serpentinization of the Cache Creek peridotites is evident across the property but intensifies near the contact with the carbonatized ultramafic Atlin Intrusion. The ultramafics near this zone are highly altered. Carbonatization and steatization have layered the original textures of the rocks.

Outcrops of carbonatized basic volcanics and ultramafics of the Cache Creek Group and the Atlin intrusions are highly visible due to the bright orange weathering of ankerite, an iron - rich carbonate. Fuchsite in this carbonatized zone forms emerald green bands 0.5 to 1.0 metres wide.

2.4 Property Mineralization

Quartz veining which followed carbonatization on the property has resulted in several significant quartz vein and breccia systems mineralized with pyrite, minor chalcopyrite and at one trench location, visible gold. The quartz is generally fine grained, milky and visually indistinguishable from late stage dolomite veining. Sulphides rimmed by limonite are commonly found in the larger milky white quartz veins.

Quartz veins on the property vary in width from 1 to 2 centimetres up to 60 centimetres. Veins near the small lake in the center of the LP 2 claim strike approximately 130° while the vein exposed in the road cut near the adit strikes of 40° and dips of 45° to the east. Exposures of the veins along the strike vary in length from 1 or 2 metres to 35 metres.

A 20 cm chip sample of limonitic and vuggy sections of the vein exposed in the road cut near the adit contained 0.053 oz/ton gold.

2.5 Rock Chip Sampling

Sampling on the property was confined to the Alexander workings and bedrock exposed by previous trenching. Fifty - two rock chip and selected samples were taken across alteration zones, quartz veins and breccias in order to best represent alteration types and mineralization found on the property.

Of these samples, five were selected for petrographic and ICP geochemical analysis as representatives for alteration on the property. Three rock chip samples from mineralized quartz veins were sent for 31 - element ICP analysis and fire assayed for gold geochemical analysis. The alteration samples were placed in numbered plastic bags and sent to Coots Petrographics in Vancouver for thin section and slab work. Half of each alteration sample was sent to CDN Laboratories in Vancouver for geochemical analysis and the other half was sent to Jenny Getsinger for thin section analysis and hand sample description.

The rock chip samples were bagged and sent to CDN Laboratories in Vancouver for fire assay gold and 31 element ICP analysis. In the laboratory, samples were put through primary and secondary crushers. A sub sample of approximately 250 grams was then screened to -100, or -150 mesh and the pulp fire assayed for gold plus 31 element ICP.

2.6 Petrographics

Six select samples collected from the property in 1988 by Stetson Resource Management Corp. were submitted to Jennifer Getsinger, Ph.D. for petrographic analysis (samples #1 to #4, ES-1 and ES-2). A summary of petrography follows, the complete petrographic report can be found written by Dr. Getsinger in Appendix II.

Of the six samples collected, three (samples #1 to #3) could be classified as listwanites, that is, iron-bearing carbonate-altered, silicified ultramafics(?) with bright green fuchsitic mica (Cr-muscovite). No original textures have been preserved, but a protolith of serpentinized ultramafic is consistent with the present mineral assemblage of ankeritic carbonate, quartz (including chalcedony), and fuchsite, assuming typical listwanite-forming processes. Hydrothermal alteration accompanied by carbonate metasomatism, silicification, devlopment of fuchsite, and leaching of mafic constituents occurs at temperatures between about 150 and 300 degrees Celsius (Buisson and Leblanc, 1985).

Of the remaining samples, two are examples of ankeritic carbonate altered, brecciated white quartz veins (samples #4 and ES-2). Both show evidence for multiple stages of quartz veining, brittle deformation (fracturing), and carbonate veining. The latest episodes of veining introduced chalcedonic quartz and calcitic carbonate. Minor pyrite(?) mineralization was noted, associated with the ankeritic carbonate vein breccia. Sample 4 also contains carbonatized lithic fragments with relict textures suggesting an altered mafic volcanic protolith, a possible host rock for the quartz vein material.

Finally, sample ES-1, although it does not resemble a typical listwanite, is extensively altered to ankeritic carbonate. Relict textures visible in hand specimen suggest an ultramafic intrusive protolith, but no original constituents could be identified. Minor chloritic shear zones occur, with some associated opaque minerals. White quartz veins and bluish-grey chalcedonic veinlets crosscut the carbonate-altered rock.

Opaque minerals in most of the samples occur as sparsely disseminated, rounded, fractured grains which are black to brownish-black in hand specimen, and non-magnetic, suggesting relict chromite. In some places they are altered to hematite or limonite. Altered squarish sulphides were also observed, interpreted as pyrite. Pyrite mineralization is associated with carbonate vein breccia in the brecciated quartz vein rocks. Mineralization was minor, as observed opaque minerals did not exceed 1-2% of any rock sample.

In conclusion, six rock samples from the Union mountain property are interpreted as completely altered, serpentinized(?) mafic to ultramafic rocks, now listwanites and carbonate-altered quartz vein breccias, with extensive ankeritic carbonate alteration, silicification, fuchsitic mica, and multiple stages of quartz and carbonate veining including late chalcedonic quartz and calcitic carbonate. Conditions of formation consisted of hydrothermal alteration in a brittle deformational environment with alteration, brecciation, and veining occurring at temperatures between 150 and 300 degrees C. Mineralization was minor, including possible relict chromite, as well as pyrite mineralization associated with carbonate-quartz vein breccia and local shear zones.

CONCLUSIONS

Rock samples #1, #2, and #3 contain anomalous levels of cronium (275 to 551 ppm), nickel (770 to 881 ppm) and cobalt (41 to 47 ppm), typical of listwanite geochemistry. Iron contents for these samples are roughly 3 times higher than for the quartz veins. Petrographic analysis by J. Getsinger confirmed that these samples are listwanites. Gold contents for these samples were all below detection limits.

Rock sample ES-1 contains anomalous levels of cromium (551 ppm), nickel (1049 ppm) and cobalt (59 ppm), but was not identified petrographically as a listwanite. The iron content of this sample is similar to the listwanites, but the gold content is much higher (60 ppb).

Rock samples #4 and ES-2, are quartz vein and breccia samples with later calcite and dolmite veining. Sample #4 contains a low gold level (10 ppb), but sample ES-2 contains anomalous levels in gold (2630 ppb) and silver (7.5 ppm)

Rock chip samples from quartz veins exposed in trenches contain gold values up to 0.058 oz/ton and silver values up to 3.3 ppm. Anomalous zinc levels were found in all three samples (154 to 253 ppm).

The precious metal and indicator element levels found on the LP claims offer encouragement for locating a listwanite hosted precious metal deposit. Visible gold has been found in at least one quartz vein on the property, and of the limited exposures of several major quartz vein systems, most have returned precious metal values.

RECOMMENDATIONS

Based on the conclusions stated, the following surveys are recommended:

1. A magnetometer survey should be carried out to identify any ultramafic bodies intruding the volcanics, and to outline a magnetite depleted talc zone typically found at the contact of listwanites and their associated ultramafics.

2. A VLF - electromagnetic survey should be carried out to identify faults and other structures that may host mineralization.

3. A soil sampling survey should be carried out to identify a possible arsenic halo and Co depletion halo for gold mineralization on the property.

4. Additional prospecting should be carried out on the property.

Respectfully submitted

GEOLOGICAL ASSOCIATION OF CANADA
J.C. FREEZE

J.C. Freeze FGAC

William Dynes

James Wetherill, B.Sc.

COST STATEMENT

Project Prep.		
Printing (reports, reproduction)		$ 25.00
Maps (rep./reports/airphotos)		120.00
Drafting (basemap)		100.00
Personnel		
J. Wetherill	1 day @ $250/day	250.00
J. Dupuis	2 days @ $350/day	700.00
		======
		$ 1,195.00
Field Personnel		
Geologists:		
J.C. Freeze	1 day @ $300/day	300.00
E.A. Schiller	1 day @ $400/day	400.00
J. Wetherill	2 days @ $250/day	500.00
Prospector's:		
W.J. Dynes	1 day @ $225/day	225.00
		======
		$ 1,425.00
Support		
Mob/Demob		
Truck rental		195.00
Freight		50.00
Flights		1,480.00
		========
		$ 1,725.00
Accomodation/Atlin		
Room	8 mandays @ $30/manday	240.00
Groceries	8 mandays	200.00
		======
		$ 440.00
Supplies		
Supplies (bag/tags etc.)		260.00
Analysis		
Petrographic ($100 x 6)		600.00
Thin section ($8 x 6)		48.00
Geochemical ($950 x 9)		95.50
ICP Analysis ($6.74 x 9)		60.75
		======
		$ 804.25

Report Prep.

Geologist	(J.F. Wetherill) 5 days @ $250	1,250.00
	(J.C. Freeze) 1 day @ $300	300.00
Photocopying/Binding		100.00
Drafting	1 day @ $200	200.00
		$ 1,850.00
	Total Costs	$ 7,699.00

REFERENCES

Aitken, J.D.
1959: Atlin Map-Area, British Columbia, NTS 104N. Geological Survey of Canada, Memoir 307, accompanied by Map 1082A.

Bloodgood, M.A., Rees, C.J., and Lefebure, D.V. 1989: Geology of the Atlin area, NTS 104N/11W, 12E. B.C. Ministry of Energy, Mines, and Petroleum Resources, Mineral Resources Division, Geological Survey Branch, Open File 1989-15a (1:50,000).

Buisson, G., and Leblanc, M. 1985: Gold-bearing listwaenites (carbonatized ultramafic rocks) from ophiolite complexes. In Gallagher, et al., Eds. Metallogeny of basic and ultrabasic rocks.

Penner, D.F., and Ikona, C.K. 1984: Assessment report of L.P. 1 to 3 claims, Atlin area, B.C. (NTS 104N/12E) for Del Norte Chrome Corp., by Pamicon Developments Ltd., August 10, 1984.

STATEMENT OF QUALIFICATIONS

NAME:	Freeze, J.C., (nee Ridley), F.G.A.C.
PROFESSION:	Consulting Geologist
EDUCATION:	1981 B. Sc. Geology - University of British Columbia 1978 B.A. Geography - University of Western Ontario
PROFESSIONAL ASSOCIATIONS:	Fellow of the Geological Association of Canada
EXPERIENCE:	1987 - Present: Consulting Geologist with Stillwater Enterprises Ltd. Directing exploration programs and reviewing properties in Canada and U.S.A. 1985 - 1986: Project Coordinator - Geologist with White Geophysical Inc. Coordinating mineral exploration projects involving geology, geochemistry, geophysics and diamond drilling in B.C. and Yukon. 1981 - 1985: Project Geologist with Mark Management Ltd. Hughes-Lang Group. Responsible for precious metals exploration programs involving geology, geochmistry, geophysics and diamond drilling in Western Canada. 1979 - 1981: Summer and part-time Geologist involved with coal exploration in N.E. B.C. with Utah Mines Ltd.

STATEMENT OF QUALIFICATIONS

NAME:	Dynes, W. J.
PROFESSION:	Prospector
TRAINING:	1985 Exploration Geochemistry U.B.C. 1983 B.C.D.M. Mineral Exploration Course 1982 B.C. Yukon Chamber of Mines Prospectors Mining School
PROFESSIONAL ASSOCIATIONS:	Member of the Geological Association of Canada - Cordilleran Division
EXPERIENCE:	1987 - Present: Prospector with Stetson Resource Management Corp. Field Supervisor for exploration programs involving geology, geochemistry, and geophysics in B.C. and Yukon. 1984 - 1987: Prospector and Manager of Geo P.C. Services Inc. Prospector involved with geological geochemical and geophysical aspects of exploration programs in B.C. 1975 - 1978: Analytical Chemist with Noranda Mines Ltd., Boss Mountain Division

STATEMENT OF QUALIFICATIONS

NAME:	Wetherill, J. F.
PROFESSION:	Geologist - Engineer in Training
EDUCATION:	1987 B.A.Sc. Geology - University of British Columbia
EXPERIENCE:	1987 - Present: Geologist with Stetson Resource Management Corp. Field Supervisor for exploration programs involving geology, geochemistry, and geophysics in B.C. and Yukon.
	1986, June - August: Field Assistant - Geologist involved with geological, geochemical and geophysical aspects of exploration programs in B.C.

STILLWATER ENTERPRISES LTD.
2891 W. 14th Avenue, Vancouver, B.C. V6K 2X3 (604) 732-9130

September 20, 1989

Mr T.E. Kalnins
Mineral Resources Division
Ministry of Energy, Mines and Petroleum Resources
Parliament Buildings
Victoria, B.C., V8V 1X4

Dear Mr. Kalnins:

Re: LP1-3, Alexandra, Victoria Mineral Claim(s) worked on
Statement Numbers(s) 000123
Assessment Report Number 18779

We have amended the report mentioned above as per your comments regarding the inset map labeling and the location of the 52 rock samples. The referenced report by Penner and Ikona on the L.P. 1 to 3 claims was an internal company report titled as an assessment report by the authors but obviously was not submitted to the ministry for assessment credit.

With respect to the comparison between the detail of mapping carried during the recent exploration program by Stetson Resource Management Corp. and that submitted in Report Number 9055, it was not the intention of Stetson to carry out extensively detailed mapping on the property. In view of the fact that mapping has been carried by more than one geological party and has not been successful in extending the known showings beyond the outcrop extents, it was our opinion that a new exploration model should be sought for the property.

LOG NO: 0927 RD. 3
ACTION: Date received report back from amendments.
FILE NO:

For this reason we investigated the property with the listwanite model in mind and carried out our geological mapping and sampling program in an effort to either prove or disprove the applicability of this model to the L.P. property. The results of current program support this model and therefor we are recommending further exploration methods based on this model. The conclusions stated in Assessment Report Number 9055 suggest that the gold mineralization is a result of mobilization and reconcentration by Atlin Intrusions which have intruded the auriferous Cache Creek greenstone rocks. While this is a significant theory it only guides exploration to the volcanic-intrusive contact and does not indicate any structural controls, mineralogical signature or geochemical pathfinder elements. The listwanite theory provides a hydrothermal exploration model which is characterized by structural controls as well as mineralogical and geochemical signatures. The structures which acted as conduits for the mineralizing hydrothermal fluids spatially control the mineralization and the mineralogical and geochemical signatures allow delineation of the alteration zones by petrography and geochemistry.

Based on the significance of the listwanite exploration model we consider the results of the recent program which support this model to have enhanced the value of the L.P. property and to have allowed us to recommend a well directed future exploration program for the property.

Please contact the undersigned if you would like to discuss this further.

Yours truly,
STILLWATER ENTERPRISES LTD.

J.C. Freeze

Joanne C. Freeze, F.G.A.C.

CDN RESOURCE LABORATORIES LTD.

6329 BERESFORD STREET, BURNABY, B.C. V5E 1B3 / PH: 435-8376 / FAX: 435-9746

** ASSAY REPORT **

To: Stetson Resource Management Corp.
13 - 1155 Melville Street
Vancouver, B.C.
V6E 4C4

Number: 89143
Date: May 1, 1989
Proj.: Wind River - LP

Attn: Bill Dynes

	Au oz/ton
355130	0.058
355131	0.004
355132	0.016

Duncan Sanderson
Licensed Assayer of British Columbia

CDN RESOURCE LABORATORIES LTD.

6329 BERESFORD STREET, BURNABY, B.C. V5E 1B3 / PH: 435-8376 / FAX: 435-9746

** GEOCHEMICAL REPORT **

To: Stetson Resource Management Corp.
13 - 1155 Melville Street
Vancouver, B.C.
V6E 4C4

Number: 89143
Date: May 1, 1989
Proj.: Union

Attn: James Wetherill

	Au ppb
ES-1	60
ES-2	2630
# 1	< 5
# 2	< 5
# 3	< 5
# 4	10

Duncan Sanderson

CDN RESOURCE LABORATORIES LTD.
6329 BERESFORD STREET, BURNABY, B.C. V5E 1B3 / PH: 435-8376 / FAX: 435-9746

CERTIFICATE OF ANALYSIS

To: Stetson Resource Management Corp.
13 - 1155 Melville Street
Vancouver, B.C.
V6E 4C4

Number: 89143I
Date: May 5, 1989
Proj.:

Type of Analysis: ICP

Attn: Bill Dynes

	Al %	Ag ppm	As ppm	Au ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm
STDS	1.30	17.5	255	50	279	261	50	393	0.38	160
355129	0.64	0.4	2479	15	455	161	1	2	0.35	14
355130 ✓	0.05	1.9	94	6	5	17	1	2	0.03	1
355131 ✓	0.17	2.2	94	ND	5	48	1	5	1.67	1
355132 ✓	0.09	3.3	76	ND	5	34	1	2	3.04	1
355763	0.13	2.4	141	ND	89	263	1	2	7.91	2
355768	0.19	0.6	2	ND	5	909	1	2	8.91	1
355829	0.19	1.3	61	ND	229	33	2	2	9.92	2
355830	0.42	0.4	2	ND	145	64	1	2	0.33	4
355832	0.36	1.8	5	ND	30	64	1	2	0.20	1
355833	1.01	0.8	13	ND	738	39	2	6	0.52	1
355834	1.07	9.1	249	ND	122	38	1	51	0.25	1
355835	0.65	3.9	13	ND	10	98	2	5	2.24	1
355836	0.19	2.2	405	ND	59	194	1	3	0.10	1
355837	0.16	5.8	567	ND	43	72	1	9	0.02	1
355838	0.17	6.3	1068	ND	299	67	1	10	0.02	1
355839	0.17	6.8	870	ND	66	182	1	4	0.03	1
355841	0.72	5.8	319	ND	128	49	1	2	0.58	1
#1 ✓	0.16	0.1	54	ND	5	12	1	2	1.44	1
#2 ✓	0.07	0.1	80	ND	5	56	1	2	10.68	1
#3 ✓	0.14	0.1	65	ND	5	13	1	2	0.86	1
#4 ✓	0.11	0.8	42	ND	5	105	1	2	1.51	1
ES-1 ✓	0.18	0.1	154	ND	5	19	1	2	0.17	1
ES-2 ✓	0.08	7.5	79	5	5	25	1	4	3.13	2
STDD	0.17	4.9	13	ND	59	236	1	3	0.12	3
stdcamg	0.01	0.1	5	ND	5	3	1	2	3.03	1

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CDN RESOURCE LABORATORIES LTD.

6329 BERESFORD STREET, BURNABY, B.C. V5E 1B3 / PH: 435-8376 / FAX: 435-9746

CERTIFICATE OF ANALYSIS

To: Stetson Resource Management Corp.
13 - 1155 Melville Street
Vancouver, B.C.
V6E 4C4

Attn: Bill Dynes

Number: 89143I
Date: May 5, 1989
Proj.:

Type of Analysis: ICP

	Co ppm	Cr ppm	Cu ppm	Fe %	Hg ppm	La ppm	Mg %	Mn ppm	Mo ppm	Na %
STDS	272	75	751	3.05	560	1132	0.41	888	20	0.27
355129	52	71	34	3.75	12	17	0.07	46	10	0.07
355130	30	181	103	2.92	ND	1	0.01	91	14	0.01
355131	13	200	103	1.78	ND	2	0.74	327	12	0.01
355132	6	162	54	1.46	ND	1	1.51	292	9	0.02
355763	4	94	1413	1.62	ND	7	0.71	979	16	0.01
355768	8	80	38	1.68	ND	11	0.92	1490	36	0.01
355829	68	44	219	4.75	ND	17	3.29	2301	6	0.02
355830	16	162	78	1.29	ND	6	0.23	185	22025	0.08
355832	4	89	660	2.08	ND	17	0.12	90	389	0.05
355833	6	112	57	7.12	ND	6	0.60	197	43	0.11
355834	4	96	550	6.22	ND	3	0.54	241	35	0.06
355835	3	88	1149	1.88	ND	13	0.48	655	11	0.05
355836	6	207	151	3.05	ND	2	0.03	96	22	0.02
355837	7	135	110	3.36	ND	1	0.02	119	15	0.01
355838	22	212	411	6.77	ND	2	0.03	217	111	0.01
355839	14	272	184	3.45	ND	2	0.02	178	33	0.01
355841	28	217	2225	3.28	ND	3	0.38	491	21	0.01
#1	46	551	23	3.49	ND	1	10.90	691	9	0.02
#2	41	274	13	2.88	ND	1	7.50	499	3	0.03
#3	47	525	16	3.44	ND	1	10.46	608	9	0.02
#4	9	344	38	1.34	ND	3	0.78	240	22	0.01
ES-1	59	551	23	3.13	ND	1	11.08	752	1	0.02
ES-2	6	187	142	1.44	ND	2	1.53	259	11	0.01
STDD	2	8	126	0.82	ND	8	0.03	69	3	0.06
stdcamg	1	1	2	0.01	ND	2	1.89	1	1	0.01

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CDN RESOURCE LABORATORIES LTD.

6329 BERESFORD STREET, BURNABY, B.C. V5E 1B3 / PH: 435-8376 / FAX: 435-9746

CERTIFICATE OF ANALYSIS

To: Stetson Resource Management Corp.
13 - 1155 Melville Street
Vancouver, B.C.
V6E 4C4

Number: 89143I
Date: May 5, 1989
Proj.:

Type of Analysis: ICP

Attn: Bill Dynes

	Ni ppm	P %	Pb ppm	Sb ppm	Si %	Sr ppm	Ti %	V ppm	W ppm	Zn ppm
STDS	211	0.02	467	803	0.01	678	0.12	118	292	403
355129	13	0.03	871	127	0.21	46	0.03	28	8	5564
355130	49	0.01	18	5	0.09	2	0.01	5	6	253
355131	31	0.01	20	17	0.08	45	0.01	20	7	154
355132	20	0.01	19	14	0.05	80	0.01	12	8	181
355763	3	0.01	20	7	0.04	287	0.01	13	6	319
355768	5	0.01	7	4	0.04	291	0.01	17	1	30
355829	6	0.01	34	7	0.02	188	0.01	48	1	75
355830	7	0.02	12	na	0.10	16	0.06	25	68	25
355832	5	0.01	17	3	0.06	21	0.01	12	1	30
355833	7	0.01	13	2	0.05	37	0.07	82	1	38
355834	3	0.01	28	6	0.04	16	0.02	55	1	48
355835	5	0.01	11	7	0.06	51	0.01	63	1	44
355836	4	0.01	55	5	0.04	16	0.01	21	1	32
355837	3	0.01	196	8	0.04	7	0.01	25	1	29
355838	6	0.01	136	16	0.05	9	0.01	32	1	60
355839	5	0.01	111	20	0.05	7	0.01	19	1	46
355841	8	0.01	45	10	0.06	16	0.02	30	1	150
#1	800	0.01	1	3	0.02	35	0.01	16	1	23
#2	770	0.01	3	31	0.01	441	0.01	17	1	15
#3	881	0.01	3	3	0.03	22	0.01	14	1	19
#4	28	0.01	13	14	0.08	41	0.01	14	3	25
ES-1	1049	0.01	2	2	0.06	6	0.01	12	1	36
ES-2	20	0.01	84	30	0.06	67	0.01	12	5	65
STDD	4	0.01	109	10	0.03	11	0.01	3	17	506
stdcamg	2	0.01	9	6	0.01	1	0.01	1	3	2

Duncan Sanderson

SUMMARY OF PETROGRAPHY

UNION PROJECT, ATLIN, B.C.

59°32' N. LAT., 133°34' W. LONG.

NTS 104N/12E

by

J.S. GETSINGER, Ph.D.

for

STETSON RESOURCE MANAGEMENT CORP.

MAY 2, 1989

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SUMMARY OF PETROGRAPHY, UNION PROJECT, B.C.

The Union property is located about 8 km southeast of Atlin, B.C. on NTS mapsheet 104N/12E, and includes the area around Union Mountain and the Golden View Au showing (Minfile 042; Bloodgood et al., 1989) at approximately 59°32' N. Lat., 133°34' W. Long. Details on claim location and ownership as well as previous assessment work can be found in an assessment report by Penner and Ikona of Pamicon Developments Ltd. (1984).

Six grab samples were selected from the area around the Golden View showing in 1988 by Stetson Resource Management Corp. for petrographic analysis (samples 1 to 4, ES-1 and ES-2). A brief outline of property geology and summary of petrography are included here, followed by detailed petrographic descriptions.

Bedrock underlying the property area consists mainly of Carboniferous to Permian Cache Creek Group mafic volcanics, metasedimentary rocks, and ultramafic intrusives (Aitken, 1959; Bloodgood et al., 1989). Near the Golden View showing, the east-west trending Union Mountain fault and the north-south trending Golden View fault intersect in an area of intense alteration near the contact of mafic volcanics and serpentinized ultramafics (Bloodgood et al., 1989). This area has been investigated as a possible bedrock source of the well-known placer gold deposits along Spruce Creek, approximately 3 km north of the Union Mountain area (Penner and Ikona, 1984). The presence of ultramafic bodies may be related to regional fault zones along which they have been tectonically emplaced. Carbonate-altered and metasomatized serpentinized ultramafic rocks (listwanites) are known to host gold in higher concentrations than surrounding unaltered rocks (Buisson and Leblanc, 1985).

Of the six samples collected, three (samples 1 to 3) could be classified as listwanites, that is, iron-bearing carbonate-altered, silicified ultramafics(?) with bright green fuchsitic mica (Cr-muscovite). No original textures have been preserved, but a protolith of serpentinized ultramafic is consistent with the present mineral assemblage of ankeritic carbonate, quartz (including chalcedony), and fuchsite, assuming typical listwanite-forming processes. Hydrothermal alteration accompanied by carbonate metasomatism, silicification, devlopment of fuchsite, and leaching of mafic constituents occurs at temperatures between about 150 and 300 degrees C (Buisson and Leblanc, 1985).

Of the remaining samples, two are examples of ankeritic carbonate altered, brecciated white quartz veins (samples 4 and ES-2). Both show evidence for multiple stages of quartz veining, brittle deformation (fracturing), and carbonate veining. The latest episodes of veining introduced chalcedonic quartz and calcitic carbonate. Minor pyrite(?) mineralization was noted, associated with the ankeritic carbonate vein breccia. Sample 4 also contains carbonatized lithic fragments with relict textures suggesting an altered mafic volcanic protolith, a possible host rock for the quartz vein material.

Finally, sample ES-1, although it does not resemble a typical listwanite, is extensively altered to ankeritic carbonate. Relict textures visible in hand specimen suggest an ultramafic intrusive protolith, but no original constituents could be identified. Minor chloritic shear zones occur, with some associated opaque minerals. White quartz veins and bluish-grey chalcedonic veinlets crosscut the carbonate-altered rock.

Opaque minerals in most of the samples occur as sparsely disseminated, rounded, fractured grains which are black to brownish-black in hand specimen, and non-magnetic, suggesting relict chromite. In some places they are altered to hematite or limonite. Altered squarish sulphides were also observed, interpreted as pyrite. Pyrite mineralization is associated with carbonate vein breccia in the brecciated quartz vein rocks. Mineralization was minor, as observed opaque minerals did not exceed 1-2% of any rock sample.

In conclusion, six rock samples from the Union property are interpreted as completely altered, serpentinized(?) mafic to ultramafic rocks, now listwanites and carbonate-altered quartz vein breccias, with extensive ankeritic carbonate alteration, silicification, fuchsitic mica, and multiple stages of quartz and carbonate veining including late chalcedonic quartz and calcitic carbonate. Conditions of formation consisted of hydrothermal alteration in a brittle deformational environment with alteration, brecciation, and veining occurring at temperatures between 150 and 300 degrees C. Mineralization was minor, including possible relict chromite, as well as pyrite mineralization associated with carbonate-quartz vein breccia and local shear zones.

Multielement lithogeochemical (ICP) and gold analyses are recommended in order to correlate altered rock types with gold mineralization.

REFERENCES

- Aitken, J.D. 1959. Atlin Map-Area, British Columbia, NTS 104N. Geological Survey of Canada, Memoir 307, accompanied by Map 1082A.

- Bloodgood, M.A., Rees, C.J., and Lefebure, D.V. 1989. Geology of the Atlin area, NTS 104N/11W, 12E. B.C. Ministry of Energy, Mines, and Petroleum Resources, Mineral Resources Division, Geological Survey Branch, Open File 1989-15a (1:50,000).

- Buisson, G., and Leblanc, M. 1985. Gold-bearing listwaenites (carbonatized ultramafic rocks) from ophiolite complexes. In Gallagher, et al., Eds. Metallogeny of basic and ultrabasic rocks.

- Penner, D.F., and Ikona, C.K. 1984. Assessment report of L.P. 1 to 3 claims, Atlin area, B.C. (NTS 104N/12E) for Del Norte Chrome Corp., by Pamicon Developments Ltd., August 10, 1984.

PETROGRAPHIC DESCRIPTIONS

UNION PROJECT SAMPLES 1 TO 4, ES-1, ES-2

PETROGRAPHIC REPORT by J.S. Getsinger, PhD [signature]

For: WIND RIVER
Project: UNION
Sample: 1

Date: 89-05
Collector: STETSON RESOURCE MGMT CORP.
Date Collected: Fall 1988

LOCATION: Union Mountain area, 8 km SE of Atlin, B.C., NTS 104N/12E, approx. 59°32' N. Lat., 133°34' W. Long.

ROCK TYPE: Fuchsitic carbonate-altered rock (listwanite)

LITHOGEOCHEMISTRY:

HAND SPECIMEN: Grab sample 4 x 5 x 5 cm. Tan weathering white to buff and bright light green rock scratches easily but does not react in HCl. A network (40-50% of rock) of hard grey quartz and soft tan ankeritic(?) carbonate veinlets (< 1 mm) crosscuts an apparently aphanitic green host rock nearly completely altered to fuchsite(?) and quartz. Irregularly disseminated hard black metallic to submetallic grains (< 0.5 mm) make up about 1-2% (non-magnetic).

THIN SECTION:

% (Approx.)	MINERALS
50-60	Carbonate (Ankerite) - Cleavage is blocky; high biref.; uniaxial(-) with colour rings; relief mainly positive. Occurs in complex of crosscutting veins with comb structure.
30-35	Quartz (Chalcedony?) - Fine-grained aggregate (which may include other low biref., low relief minerals) of colourless, clear, grey biref., low relief, small equant grains in interlocking mosaic with ragged grain boundaries; somewhat radiating texture within grains suggests chalcedony.
5-10	Fuchsite(?) - Fine-grained mica occurring along grain boundaries of grey biref. material; biref. = 0.030; colourless to very pale bluish green.
1	Opaques - Subequant, rounded disseminated grains, somewhat broken
Trace	Hematite or limonite - Reddish-orange grains, high absorption, small

ROCK TEXTURES/STRUCTURES: Network vein texture and alteration minerals obscure any original textures. Present texture is random; no deformation is indicated.

PROTOLITH: (?) Possibly serpentinized ultramafic

ALTERATION/MINERALIZATION: Extensive alteration to quartz, fuchsite, and carbonate. Insignificant mineralization.

CONDITIONS OF FORMATION: Hydrothermal alteration with influx of H_2O, then CO_2, leaching of mafic constituents. Typical carbonatization of serpentinized ultramafics takes place at $T < 300$ degrees C.

PETROGRAPHIC REPORT by J.S. Getsinger, PhD *J.S. Getsinger*

For: WIND RIVER
Project: UNION
Sample: 2

Date: 89-05
Collector: STETSON RESOURCE MGMT CORP.
Date Collected: Fall 1988

LOCATION: Union Mountain area, 8 km SE of Atlin, B.C., NTS 104N/12E, approx. 59°32' N. Lat., 133°34' W. Long.

ROCK TYPE: Carbonate-altered and veined fuchsitic rock (listwanite)

LITHOGEOCHEMISTRY:

HAND SPECIMEN: Grab sample 6 x 9 x 9 cm. Pale orange rusty-weathering rock with irregular drusy vugs up to 3 cm across lined with incrustations of randomly oriented tabular crystals (less than 0.5 mm by 2 mm) which scratch easily and react moderately in HCl, indicating calcitic or dolomitic carbonate. Clear grey quartz veinlets (up to 1 mm) are crosscut by soft, creamy-coloured veins (1 to 5 mm thick), most of which react poorly in HCl, indicating probable ankeritic to dolomitic carbonate as well as late calcite. A brownish submetallic mineral occurs in one vug. Host rock is completely altered, consisting of rusty carbonate(?) (60%) and bright light green and grey areas (fuchsite and quartz?; 40%) with finely disseminated black grains (< 0.5 mm; 1%). Non-magnetic. Overall texture is approaching a vein breccia.

THIN SECTION:

% (Approx.)	MINERALS
60	Carbonate - (1) Ankerite - High biref.; occurs in fine-grained aggregates with rusty, limonitic rims; high positive relief. (2) Calcite and/or dolomite - Occurs in veins with comb structure, and is not rusty; relief is variable to lower than quartz; uniaxial(-) with colour rings; some grains are associated with quartz veinlets.
25	Quartz - Extremely fine-grained, low relief, grey biref. material; colourless; occurring as veins in rusty, high-relief carbonate areas; lines selvages of calcite veins locally.
5	Fuchsite(?) - Colourless to very pale green mica, fine-grained
5	Limonite - Rusty staining along grain boundaries of high-relief carbonate
<1	Opaques - Broken-up, rounded disseminated grains, also smaller, squarish grains, possibly relict chromite.

ROCK TEXTURES/STRUCTURES: Crosscutting vein structures. Fine-grained quartz rims and crosscuts iron-bearing carbonate; calcite veins postdate quartz.

PROTOLITH: (?) Possibly serpentinized ultramafic

ALTERATION/MINERALIZATION: Carbonatization with ankeritic carbonate, followed by very fine-grained quartz and fuchsitic alteration, followed by coarse-grained calcite (+_ dolomite?) veins. Mineralization is insignificant.

CONDITIONS OF FORMATION: Hydrothermal alteration, probably typical listwanite formation from ultramafic rocks at low temperatures.

PETROGRAPHIC REPORT by J.S. Getsinger, PhD *J.S. Getsinger*

For: WIND RIVER
Project: UNION
Sample: 3

Date: 89-05
Collector: STETSON RESOURCE MGMT CORP.
Date Collected: Fall 1988

LOCATION: Union Mountain area, 8 km SE of Atlin, B.C., NTS 104N/12E, approx. 59°32' N. Lat., 133°34' W. Long.

ROCK TYPE: Carbonate-altered fuchsitic rock (listwanite)

LITHOGEOCHEMISTRY:

HAND SPECIMEN: Grab sample 4 x 4 x 7 cm. Tan, white to buff, and bright light green weathering rock similar to sample 1 is relatively soft. Extensive rusty to white network of veinlets (40-50 % of rock) consists of crystalline carbonate (ankeritic?) and lesser grey quartz, crosscutting an apparently fine-grained host rock nearly completely altered to green fuchsite and possibly quartz, with finely disseminated black grains (< 0.5 mm; 1%). Rock is non-magnetic, and does not react in HCl. Sparse occurrences of rusted-out angular areas up to 2 mm suggest weathered pyrite.

THIN SECTION:

% (Approx.)	MINERALS
50-55	Carbonate (Ankerite) - Blocky rhombic cleavage, high relief, with limonitic stain along cleavage and grain boundaries. Some with lower relief; uniaxial(-).
40-45	Quartz - Grey biref., fine-grained mosaic with somwhat irregular grain boundaries and internal radiating habit (chalcedony(?); may include other low relief, low biref. minerals); coarser-grained in small veins (uniaxial(+)), crosscut by later carbonate veins.
3-5	Fuchsite(?) - Very fine-grained mica at quartz grain boundaries
1	Opaques - Finely disseminated; irregular to rounded, cracked up brownish to black grains (0.1 to 0.5 mm). Possibly relict chromite. Somewhat associated with quartz.
Trace	Limonite - Brown patches, could be altered iron oxides

ROCK TEXTURES/STRUCTURES: Coarse carbonate in vein network and fine-grained quartz aggregate with fine-grained fuchsite. Carbonate appears to crosscut quartz-fuchsite rock; later quartz veins crosscut carbonate.

PROTOLITH: (?) Possibly serpentinized ultramafic

ALTERATION/MINERALIZATION: Carbonatization (ankeritic carbonate); silicification and fuchsite alteration; later carbonate alteration.

CONDITIONS OF FORMATION: Hydrothermal alteration, probably typical listwanite formation from ultramafic rocks at low temperature.

PETROGRAPHIC REPORT by J.S. Getsinger, PhD *J. S. Getsinger*

For: WIND RIVER
Project: UNION
Sample: 4

Date: 89-05
Collector: STETSON RESOURCE MGMT CORP.
Date Collected: Fall 1988

LOCATION: Union Mountain area, 8 km SE of Atlin, B.C., NTS 104N/12E, approx. 59°32' N. Lat., 133°34' W. Long.

ROCK TYPE: Carbonate-veined quartz-vein breccia

LITHOGEOCHEMISTRY:

HAND SPECIMEN: Grab sample 4.5 x 7 x 8 cm. Orange rusty-weathering breccia with subangular fragments of white quartz vein material (0.1 to 2.5 cm; 50%) in a finer-grained matrix of crushed quartz and rusty iron-bearing carbonate(?). A band approximately 2 cm wide contains a larger proportion of rusty-weathering, iron carbonate-altered lithic fragments as well as quartz vein material, but this area is not intersected by the thin section. Rusty matrix carbonate reacts moderately well in HCl indicating some calcite component. Calcite veinlets (< 1 mm) crosscut rusty matrix as well as quartz fragments. Rock is non-magnetic. Quartz is apparently barren, except for one grain of pyrite noted (0.5 mm). Matrix material contains very finely disseminated black and rusty specks (< 0.1 mm; << 1%), including some brassy metallic grains with black rims. These may represent weathered iron sulphides (pyrite) and iron oxides.

THIN SECTION:

% (Approx.)	MINERALS
25-30	Carbonate - Occurs in aggregates as brfeccia fragments, but also as veins crosscutting quartz fragments and as new alteration in the breccia matrix. Some positive and negative relief (calcite).
50-60	Quartz - In larger fragments, very coarse-grained, colourless, grey biref., clear of inclusions; sutured boundaries, uniaxial(+); also very fine-grained in matrix
5-10	Lithic fragments - Carbonatized, fine-grained aggregates. Contain fine-grained, lath-like opaques, ankeritic carbonate alteration, rusty square opaques (altered pyrite?). Possibly altered mafic volcanics.
2	Opaques - Reddish-brown rectangular grains, indicating altered pyrite, both in lithic fragments and breccia matrix.

ROCK TEXTURES/STRUCTURES: Breccia texture with angular fragments down to the smallest size, of quartz (up to 2.5 cm), carbonate, and carbonatized lithic fragments. Small quartz and carbonate veinlets crosscut quartz breccia fragments. Matrix is fine-grained brecciated carbonate and quartz.

PROTOLITH: Quartz vein in carbonatized mafic volcanic(?) rock

ALTERATION/MINERALIZATION: Quartz veining in carbonatized rock was followed by carbonate veining during brecciation of quartz vein and host rock, with later minor carbonate (including calcite) veining. Minor pyrite.

CONDITIONS OF FORMATION: Carbonatization, quartz veining, fracturing, brecciation, and carbonate veining all indicate local brittle deformation and low temperature hydrothermal alteration in various stages.

PETROGRAPHIC REPORT by J.S. Getsinger, PhD *J.S. Getsinger*

For: WIND RIVER
Project: UNION
Sample: ES-1

Date: 89-05
Collector: STETSON RESOURCE MGMT CORP.
Date Collected: Fall 1988

LOCATION: Union Mountain area, 8 km SE of Atlin, B.C., NTS 104N/12E, approx. 59°32' N. Lat., 133°34' W. Long.

ROCK TYPE: Carbonate-altered ultramafic(?) rock with quartz veins

LITHOGEOCHEMISTRY:

HAND SPECIMEN: Grab sample 10 x 15 x 17 cm. Rock has recessive, orange rusty-weathering hackly surface and more resistant quartz veins up to 3 cm thick (quartz veins 10% of rock). Cut surface reveals light greenish-grey, apparently aphanitic rock divided into subrounded areas (2 to 5 mm) (relict coarser-grained texture?) by irregular thin grey partings and veinlets (0.1 mm), which are crosscut by diffuse veins and areas of lighter coloured alteration consisting of mineral grains (0.5 mm) with cleavage (carbonate and/or phyllosilicate). Black grains (up to 1 mm; 3-5%) may be chlorite, graphite, and/or metallic minerals; they are soft and non-magnetic. The entire rock scratches easily except for the quartz veins. Quartz veins and carbonate(?) alteration appear to be related, with later grey quartz veinlets and crosscutting fractures which may contain minor calcite.

THIN SECTION:

% (Approx.)	MINERALS
70-80	Carbonate (Ankerite?) - High relief, fine-grained carbonate makes up most of the greenish-grey part of the rock, divided by shear zones, and quartz and carbonate (calcite?) veinlets.
5-10	Chlorite (?) - Fine-grained, low biref., crudely aligned phyllosilicate occurs in local shear zones and between carbonatized patches; colourless to very pale green.
10-15	Quartz - In veinlets crosscutting carbonatized rock, but overgrown by calcitic carbonate. In larger veins, very fresh and clear and coarse-grained, sharing euhedral boundaries with calcite. Latest veinlets show fibrous texture, low birefringence, and may be chalcedonic quartz (very hard, bluish-white to grey, cryptocrystalline in hand specimen).
1-2	Opaques - Skeletal, broken and pulled-apart black grains are associated with chloritic shear zones; may be relict chromite(?).

ROCK TEXTURES/STRUCTURES: Crude alignment of platy minerals indicates some deformation, with local shear zones. Unsheared sections are totally carbonate-altered rock, although hand-specimen appears vaguely intrusive in texture. Coarse-grained quartz-carbonate veins are crosscutting.

PROTOLITH: Ultramafic intrusive(?)

ALTERATION/MINERALIZATION: Carbonate alteration of host rock, carbonate veining, chloritic shear zones with minor opaques; quartz-calcite (dolomite?) veins; chalcedonic quartz veins.

CONDITIONS OF FORMATION: Hydrothermal alteration, beginning with possible serpentinization of ultramafic rock, with metasomatism to carbonatized rock, with later quartz and carbonate veining as well as minor shearing, at low temperature conditions.

PETROGRAPHIC REPORT by J.S. Getsinger, PhD *J.S. Getsinger*

For: WIND RIVER
Project: UNION
Sample: ES-2

Date: 89-05
Collector: STETSON RESOURCE MGMT CORP.
Date Collected: Fall 1988

LOCATION: Union Mountain area, 8 km SE of Atlin, B.C., NTS 104N/12E, approx. 59°32' N. Lat., 133°34' W. Long.

ROCK TYPE: Carbonate-altered and veined complex quartz vein

LITHOGEOCHEMISTRY:

HAND SPECIMEN: Grab sample 6 x 9 x 13 cm. Hard, angular rock is white with orange rusty weathering. Quartz vein material is broken up into subparallel fragments resembling quartz veins up to 2 to 3 cm thick, with rusty carbonate(?) veins in between, which are thinner (< 1 mm) and occur as an angular network around brecciated quartz vein fragments. Fractures with calcite (reacts in HCl) crosscut quartz and rusty carbonate veins at a high angle. Rusty areas contain sparsely disseminated metallic grains (up to 0.5 mm; < 1%) which are silvery to brownish (possibly partially weathered sulphides). Square shape may indicate some pyrite. Non-magnetic.

THIN SECTION:

% (Approx.)	MINERALS
70-75	Quartz - Coarse-grained, colourless, clear, uniaxial(+), in vein areas. Some grains show growth zoning; some are crosscut by other quartz or carbonate veins; some are recrystallized into smaller grains; but most have straight grain boundaries; only minor undulose extinction.
15-20	Carbonate veins and vein breccia - Fine-grained breccia with angular fragments of quartz and carbonate in matrix of high relief, rusty, ankeritic carbonate and associated opaques; also coarser carbonate veins; carbonate is uniaxial(-).
<5	Calcite - Late veinlets crosscutting quartz veins and carbonate alteration at a high angle.
1	Opaques (including limonite) - Fine black grains associated with carbonate vein breccia; squarish shapes indicate pyrite(?).

ROCK TEXTURES/STRUCTURES: Broken areas of tabular quartz vein material are separated by carbonate vein breccia. Deformation textures are not seen within the quartz veins. Crosscutting relationships show various stages of quartz and carbonate veining.

PROTOLITH: Quartz vein (no evidence of host rock)

ALTERATION/MINERALIZATION: Quartz vein has been crosscut by carbonate veins and vein breccia with accompanying minor pyrite mineralization.

CONDITIONS OF FORMATION: Fracturing of quartz vein indicates brittle deformation with renewed hydrothermal alteration. Multiple stages of quartz and carbonate veining are indicated.

STATEMENT OF QUALIFICATIONS

I, Jennifer S. Getsinger, do hereby certify:

1. That I am a consulting geologist with offices at 2150 MacDonald Street, Vancouver, B.C. V6K 3Y4.

2. That I have studied geology at Harvard University (A.B. 1974), and have graduate degrees in geology from the University of Washington, Seattle (M.S. 1978), and from the University of British Columbia, Vancouver (Ph.D. 1985).

3. That I have practiced within the geological profession since 1974.

4. That I am a Fellow of the Geological Association of Canada and a member of the Geological Society of America.

5. That the opinions, conclusions, and recommendations contained herein are based on petrographic analysis and research done by me.

6. That I hold no direct, indirect, or contingent interest in the subject property, or in any shares or securities of the owner or operator of the property, or in any associated companies.

7. That this report may be utilized for inclusion in a Prospectus or Statement of Material Facts.

Signed

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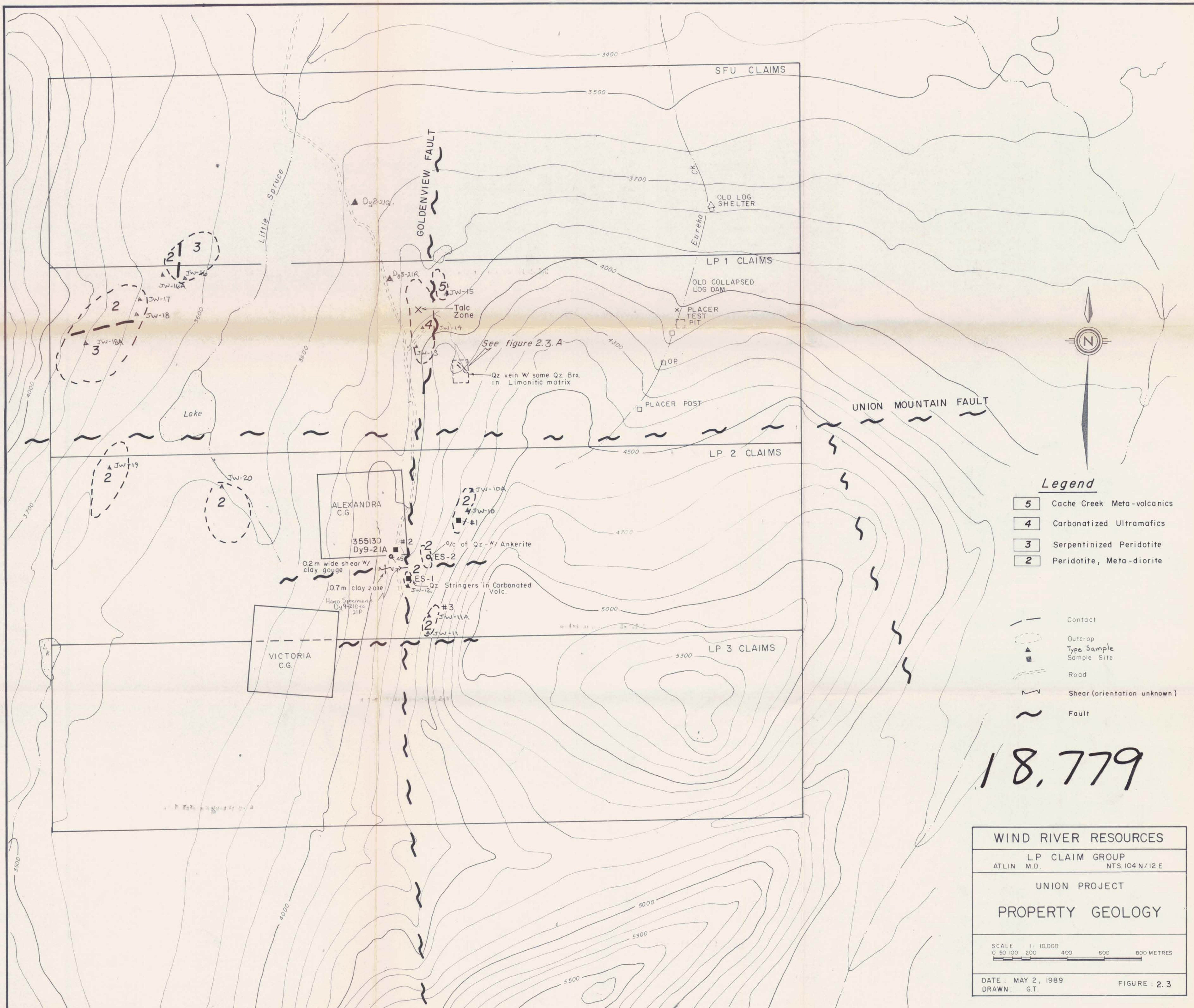
Jennifer S. Getsinger, Ph.D.

This 2nd day of May, 1989, in Vancouver, B.C.


SFU CLAIMS
LP 1 CLAIMS
LP 2 CLAIMS
LP 3 CLAIMS
GOLDENVIEW FAULT
UNION MOUNTAIN FAULT
Little Spruce
Eureka Ck.
OLD LOG SHELTER
OLD COLLAPSED LOG DAM
PLACER TEST PIT
PLACER POST
OP
Lake
Talc Zone
See figure 2.3.A
Qz vein w/ some Qz. Brx. in Limonitic matrix
ALEXANDRA C.G.
VICTORIA C.G.
355130 Dy9-21A
0.2 m wide shear w/ clay gouge
0.7 m clay zone
o/c of Qz-w/ Ankerite
Qz Stringers in Carbonated Volc.
ES-1
ES-2
JW-10A
JW-10
JW-11
JW-11A
JW-12
JW-13
JW-14
JW-15
JW-16
JW-16A
JW-17
JW-18
JW-18A
JW-19
JW-20
Dy8-21Q
Dy8-21R
3400
3500
3600
3700
4000
4300
4500
4700
5000
5300
5500
Legend
5 Cache Creek Meta-volcanics
4 Carbonatized Ultramafics
3 Serpentinized Peridotite
2 Peridotite, Meta-diorite
Contact
Outcrop
Type Sample
Sample Site
Road
Shear (orientation unknown)
Fault
N
18,779
WIND RIVER RESOURCES
LP CLAIM GROUP
ATLIN M.D.
NTS. 104 N/12 E
UNION PROJECT
PROPERTY GEOLOGY
SCALE 1: 10,000
0 50 100 200 400 600 800 METRES
DATE: MAY 2, 1989
DRAWN: G.T.
FIGURE: 2.3