NTS 94D/9
Lat 56°34'N
Long 126°09'W

GEOLOGICAL and GEOCHEMICAL REPORT
on the
JOH PROPERTY
Johanson Lake area
Omineca Mining District
British Columbia

for

SWANNELL MINERALS CORPORATION
200 - 890 West Pender Street
Vancouver, B.C., V6C 1K4
Tel: (604) 687-5257 Fax: (604) 685-6493

by

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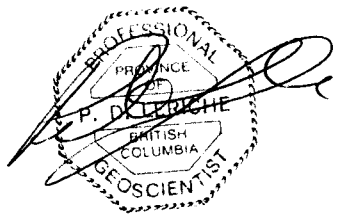
Nigel Luckman, B.A.Sc.



RELIANCE GEOLOGICAL SERVICES INC.
241 East 1st Street
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27 October 1991

SUMMARY

At the request of Swannell Minerals Corporation, Reliance Geological Services Inc carried out an exploration program consisting of rock, stream sediment and heavy mineral sampling surveys, and geological mapping on the JOH property during July 1991.

The JOH property comprises five contiguous mineral claims totalling 98 units in the Johanson Lake area of the Omineca Mining Division. The property is situated approximately 270 kilometers north northwest of Fort St James, B.C., and is accessible by road.

The claims lie in the regionally extensive Mesozoic Quesnel Belt. In the Johanson Lake district, Triassic Takla volcanic rocks are intruded by Triassic-Jurassic alkaline stocks and Cretaceous Hogem Batholith. The alkalic plutons of the Quesnel Belt commonly host porphyry copper-gold deposits.

Previous work consisted of regional aeromagnetic and silt sampling surveys completed in the early 1970's. Three magnetic highs corresponding with alkaline plutons were identified. Silt samples from several streams were anomalous in copper.

The property is underlain by a porphyritic andesite, andesitic tuff intruded by monzonite-diorite stocks and dykes. Pyrite and chalcopyrite mineralization is found in quartz veins, stringers, and dry fractures, and is disseminated in intrusive rocks.

1991 exploration identified copper/gold mineralization in rocks in three areas. Each area corresponds to a magnetic high and intrusive-volcanic contact zones. Assays returned values up to 0.128 oz/ton gold and 7425 ppm copper.

Silt samples from five streams were anomalous in copper. Results correlated well with 1971 sampling.

Further work consisting of grid establishment, geological mapping, rock and soil sampling, and magnetic VLF-EM surveys has been recommended to establish targets for followup work.

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JOH PROPERTY

1. INTRODUCTION

This report was prepared at the request of Swannell Minerals Corporation to describe and evaluate the results of a geological and geochemical program carried out by Reliance Geological Services Inc on the JOH property in the Johanson Lake area of the Omineca Mining District, British Columbia.

The field work was undertaken for the purpose of evaluating the potential of the property to host porphyry copper/gold deposits.

Field work was carried out from July 27 to July 29, 1991, by Roger Kidlark (geologist), George Sivertz (geologist), Nigel Luckman (geological engineer) and Andrew McIntosh, (geologist), under the supervision of Peter Leriche, B.Sc., P.Geo., and Mark Rebagliati, P.Eng.

This report is based on published and unpublished information and the maps, reports and field notes of the crew listed above.

2. LOCATION, ACCESS and PHYSIOGRAPHY

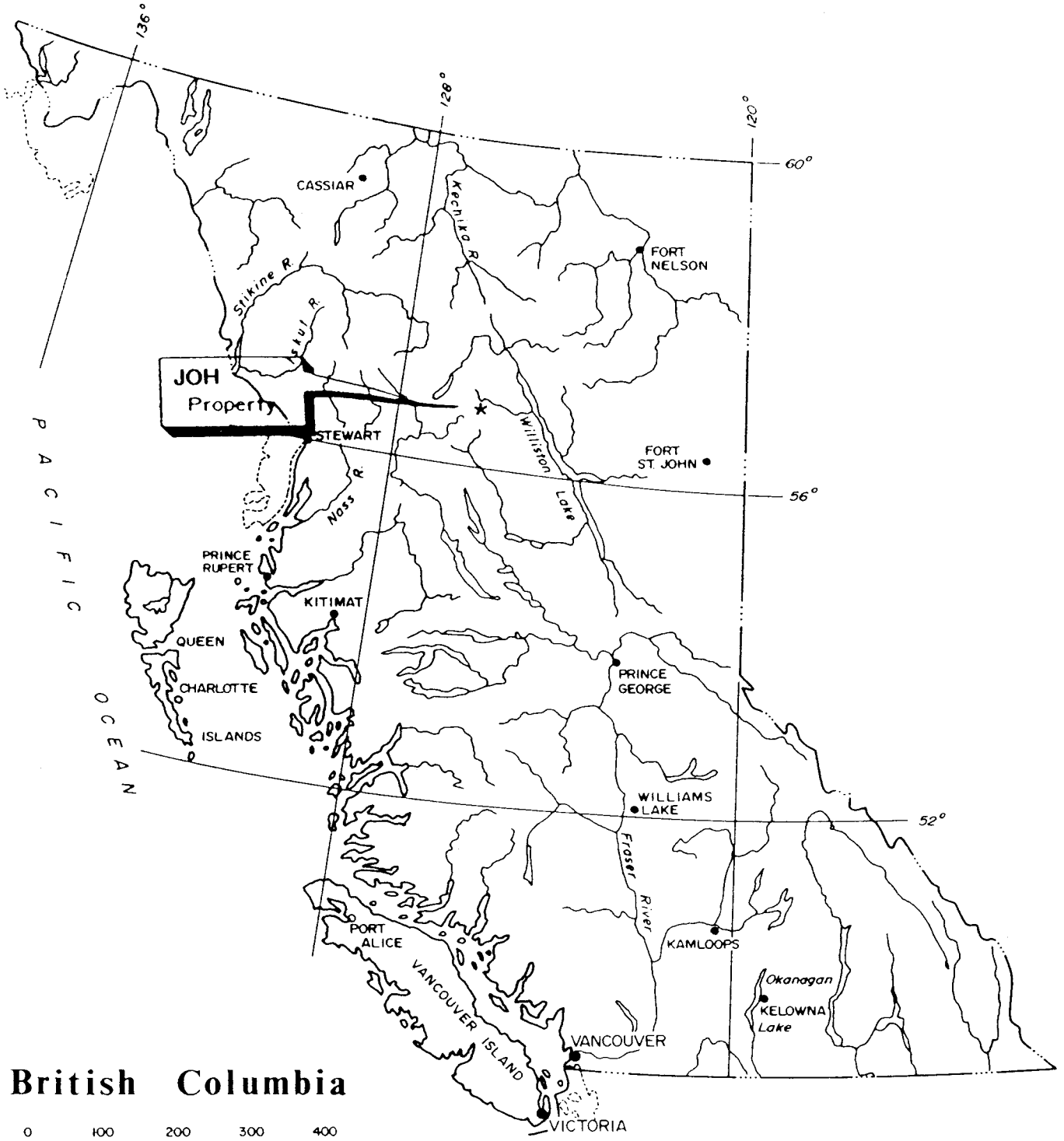
The JOH property is situated in the Omineca Mining Division in the Johanson Lake area, approximately 270 kilometers northwest of Fort St. James (Figures 1 and 2).

The claims are located on Map Sheet NTS 94D/9, at latitude 56° 34' North, longitude 126° 09' West, and between UTM 6271500 m and 6275500 m North, and UTM 302000 m and 309000 m East.

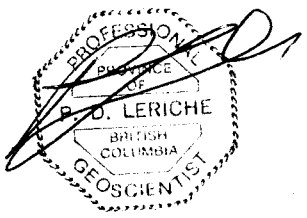
Road access is via the Omineca Mining Road from Fort St James to Johanson Lake (approximately 450 km). Alternative access is via float plane to Johanson Lake.

The property is on mountainous terrain with moderate to steep slopes rising from approximately 1444 meters to 2400 meters. The area is sparsely forested with spruce and pine at lower elevations, and scrub fir and alpine vegetation above approximately 1600 meters.

Recommended work season is mid-June to early October.



British Columbia



SWANNELL MINERALS CORPORATION		
JOH PROPERTY		
OMINECA M.D.		
General Location Map		
Scale as shown	N.T.S. 94D/9E	Drawn by
Date oct.91	Geologist	Figure 1
RELIANCE GEOLOGICAL SERVICES INC.		

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3. PROPERTY STATUS

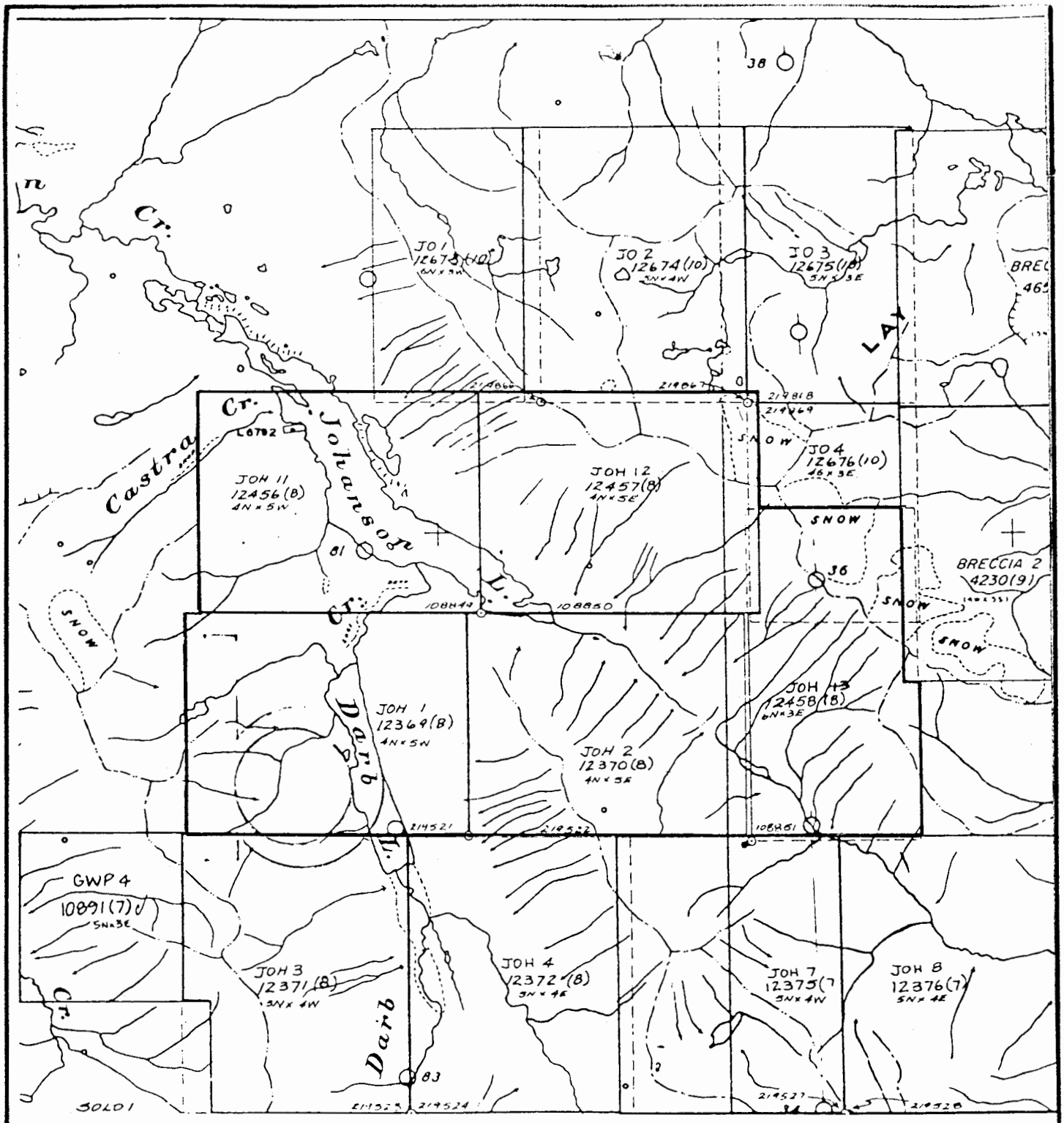
The property consists of 5 contiguous mineral claims (Figure 2) in the Omineca Mining Division. The claims are registered in the name of Major General Resources Ltd and have been optioned to Swannell Minerals Corporation.

Details of the claims are as follows:

Claim	Record Number	Units	Record Date	Expiry Date
JOH 1	12369	20	1 Aug 1990	1 Aug 1992
JOH 2	12370	20	21 Aug 1990	21 Aug 1992
JOH 11	12456	20	21 Aug 1990	21 Aug 1992
JOH 12	12457	20	21 Aug 1990	21 Aug 1992
JOH 13	12458	18	21 Aug 1990	21 Aug 1992
Total		98		

The total area covered by the claims is 2450 hectares, or 6050 acres, allowing for overlap.

The writers are not aware of any particular environmental, political or regulatory problems that would adversely affect mineral exploration and development on the JOH property.



SWANNELL MINERALS CORPORATION

JOH PROPERTY

OMINECA M.D.

CLAIM MAP

Scale 1:50,000	N.T.S. 94D/9E	Drawn by	
Date oct.91	Geologist	Figure 2	

RELIANCE GEOLOGICAL SERVICES INC.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
P. D. LERICHE
GEOSCIENTIST

4. REGIONAL GEOLOGY

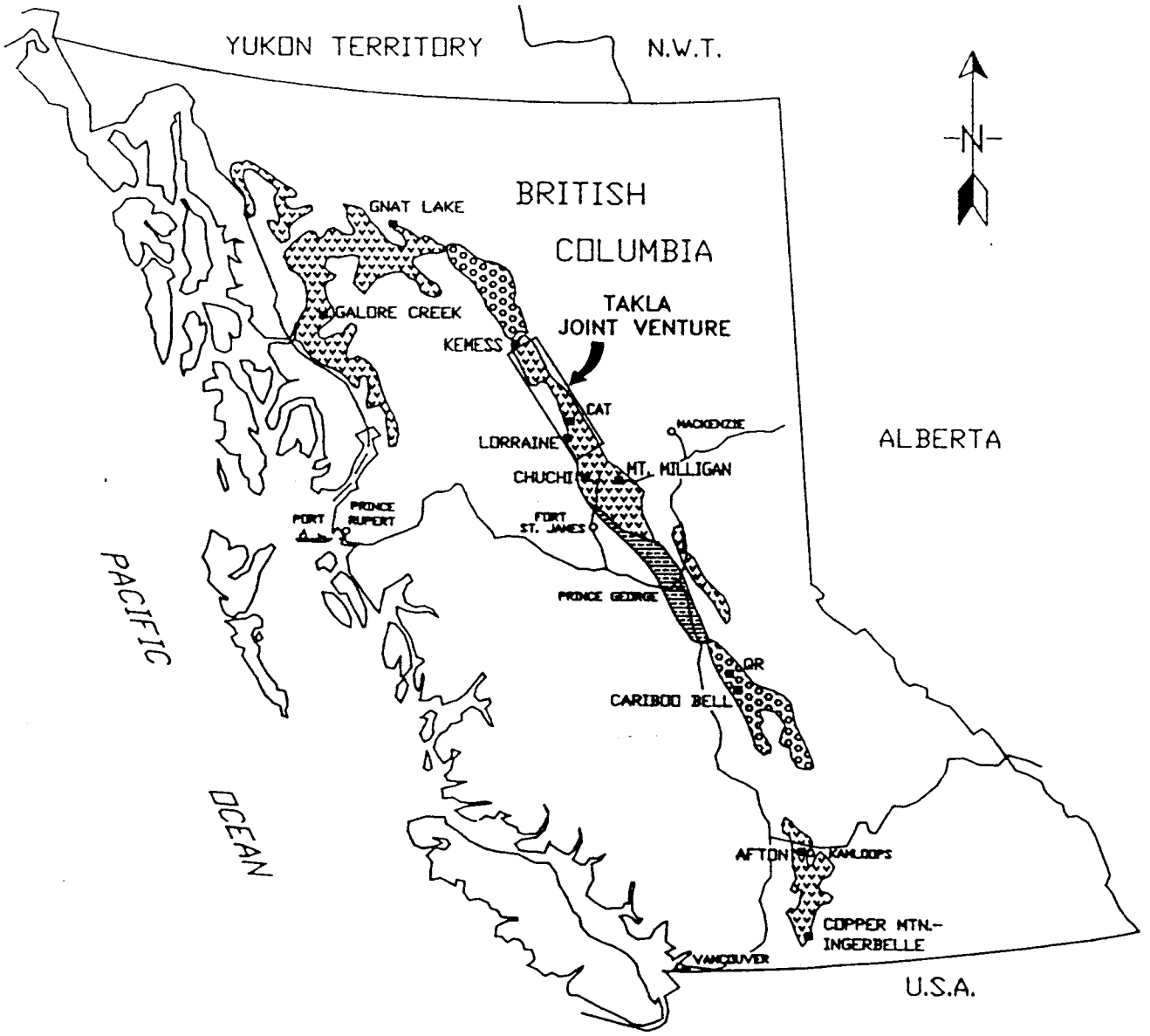
(from Rebagliati, 1991)

The JOH property lies within the regionally extensive early Mesozoic Quesnel Belt. This 35 km wide belt extends northwesterly for 1200 km and includes equivalent rocks of the Upper Triassic-Lower Jurassic Takla, Nicola, and Stuhini Groups (Mortimer, 1986) (Figures 3 and 4). To the west, deformed and uplifted Permian Cache Creek Group rocks are separated from the Quesnel Belt by the Pinchi Fault Zone. To the east, the Manson Fault Zone separates this belt from the uplifted Proterozoic/ early Paleozoic Wolverine Metamorphic Complex, and the Mississippian-Permian Slide Mountain and Cache Creek Groups (Garnet, 1978).

In the Mt Milligan - Johanson Lake district, the Takla Group volcanics are dominated by subaqueous alkalic to subalkalic dark green tuffs and volcanic breccias of andesitic and basaltic composition, interbedded with pyroxene porphyritic flow rocks of similar composition. Intercalated bedded tuffs and argillites are subordinate. Black argillites interfinger with volcanic rocks to the east and west of the central volcanic core. Locally, thick successions of maroon colored lahars suggest the presence of emergent subaerial volcanic centres.

The volcanic-sedimentary strata of the Quesnel Belt are locally intruded by alkaline syenite, monzonite, and diorite batholiths, stocks and dykes. In the Quesnel Belt, most intrusions are considered coeval and comagmatic with late Triassic-early Jurassic volcanism. Many of the stocks lie along linear trends which are interpreted to reflect fault zones which have localized volcanism and associated stock emplacement.

The Hogem Batholith of Early Jurassic to Cretaceous age is the largest body of intrusive rock within the Omineca Mountains (Armstrong and Garnett 1973) (Figure 4). Takla Group volcanic and sedimentary strata are intruded by the north-south elongate batholith which is, in part, truncated along its western margin by the Pinchi Fault. Numerous satellitic plutons flank the eastern margins of the batholith.



LEGEND

- ALKALINE VOLCANIC ROCKS
- SUBALKALINE VOLCANIC ROCKS
- MAINLY SEDIMENTARY ROCKS
- GOLD AND / OR COPPER DEPOSIT

PROFESSIONAL ENGINEER
PROVINCE OF
P. D. LERICHE
BRITISH
COLUMBIA
GEOSCIENTIST

After Fox et. al. 1976

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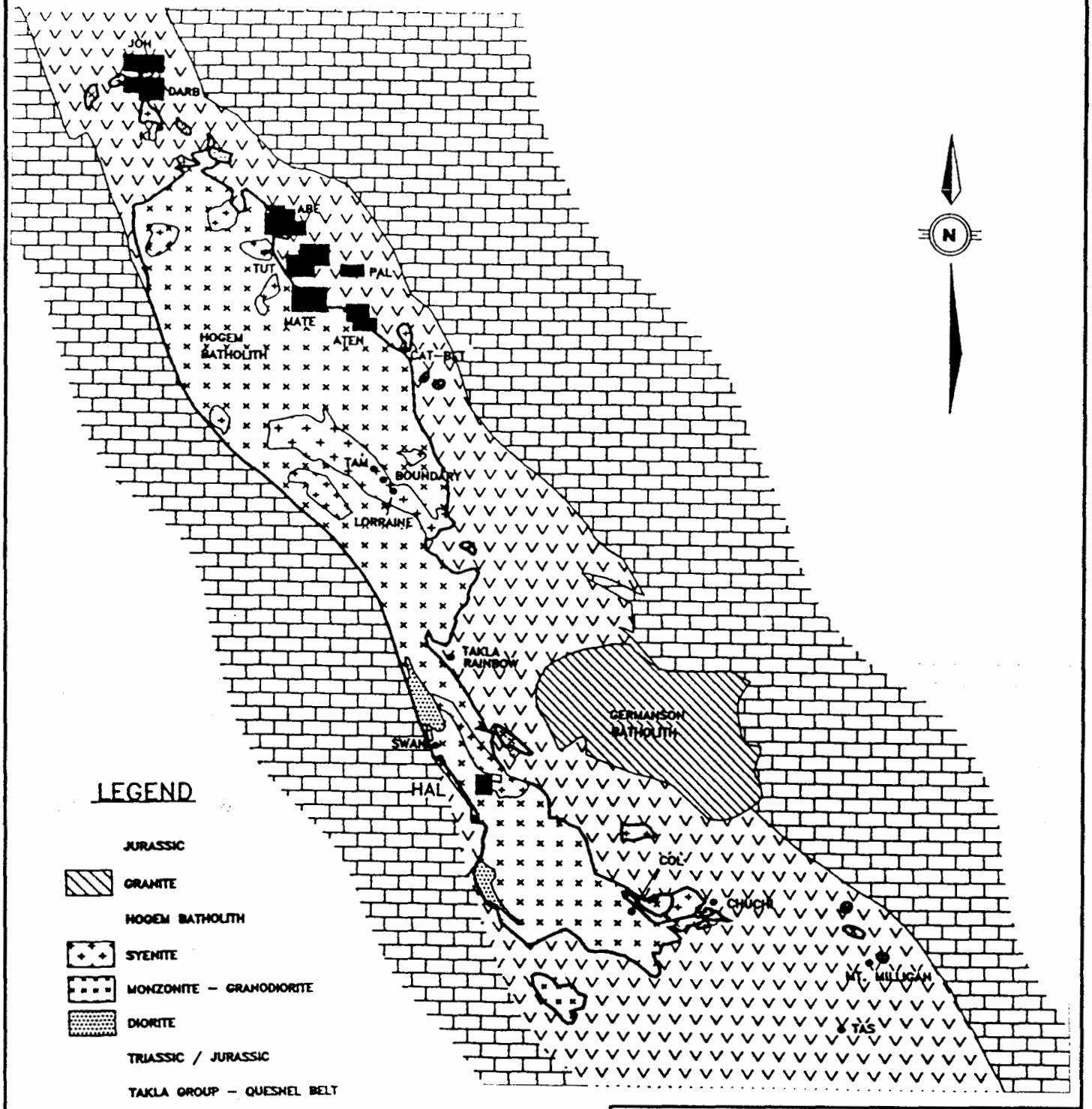
SWANNELL MINERALS CORPORATION

JOH PROPERTY

QUESNEL BELT
UPPER TRIASSIC & LOWER JURASSIC VOLCANIC ROCKS, SIGNIFICANT GOLD AND / OR COPPER DEPOSITS, ASSOCIATED WITH ALKALIC PLUTONS

Scale AS SHOWN	N.T.S.	Drawn by
Date oct.1991	Geologist	Figure 3

RELIANCE GEOLOGICAL SERVICES INC.



LEGEND

- JURASSIC
- GRANITE
- HOGEM BATHOLITH
- SYENITE
- MONZONITE – GRANODIORITE
- DIORITE
- TRIASSIC / JURASSIC
- TAKLA GROUP – QUESNEL BELT
- BASALT – ANDESITE
- PERMIAN
- LIMESTONE – SHALE
- TAKLA JOINT VENTURE PROPERTY
- PORPHYRY DEPOSITS

SCALE

0 25 50

KILOMETRES

PROFESSIONAL ENGINEERS PROVINCE OF BRITISH COLUMBIA D. LERICHE GEOSCIENTIST

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SWANNELL MINERALS CORPORATION

JOH PROPERTY

REGIONAL GEOLOGY

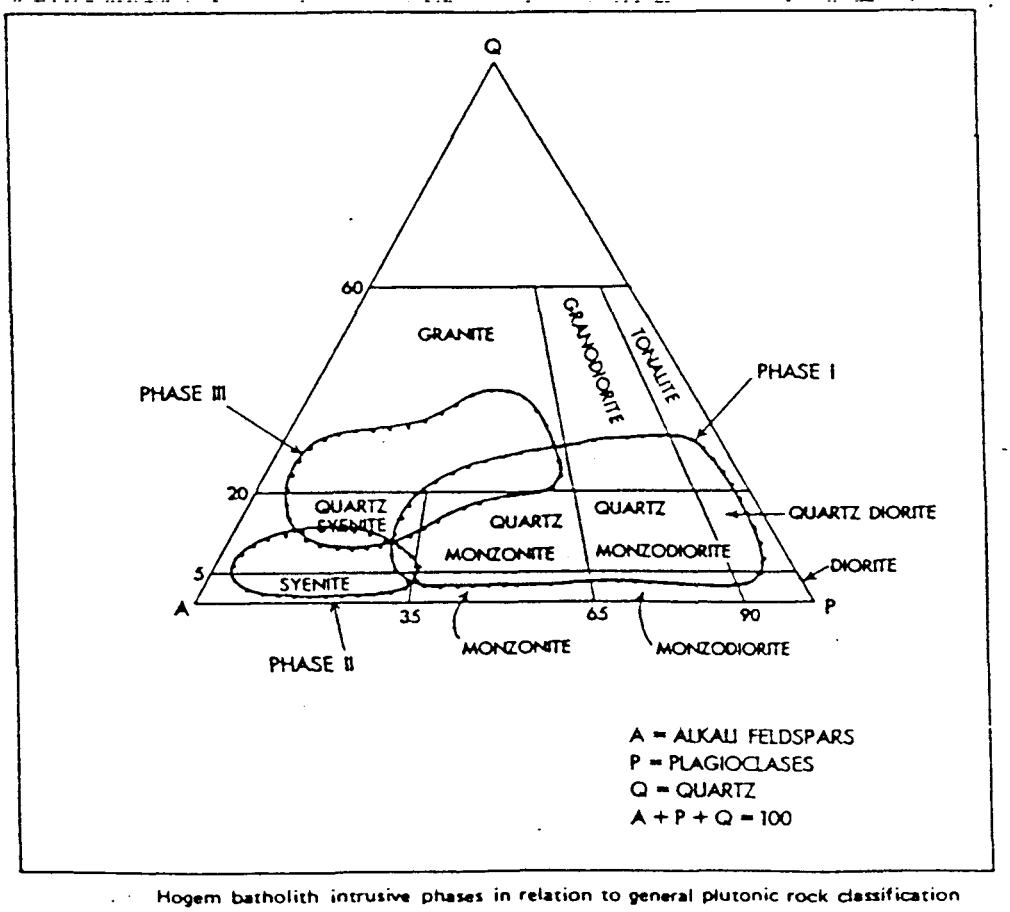
Scale as shown	N.T.S.	Drawn by
Date oct.91	Geologist	Figure 4

RELIANCE GEOLOGICAL SERVICES INC.

TABLE 1

SOUTHERN HOGEM BATHOLITH: INTRUSIVE ROCK DIVISIONS

INTRUSIVE PHASES	PHASE DIVISIONS	UNIT	ROCK VARIETIES
PHASE III LOWER CRETACEOUS		9	LEUCOCRATIC GRANITE, Alaskite
PHASE II MIDDLE JURASSIC TO LOWER JURASSIC	CHUCHI SYENITE	8	LEUCOCRATIC SYENITE, Quartz Syenite
	DUCKLING CREEK SYENITE COMPLEX	7	LEUCOCRATIC SYENITE
		6	FOLIATED SYENITE
PHASE I LOWER JURASSIC TO UPPER TRIASSIC	HOGEM GRANODIORITE	5	GRANODIORITE, QUARTZ MONZONITE, minor Tonalite, Quartz Diorite, Quartz Monzonite, Granite
	HOGEM BASIC SUITE	4	MONZONITE to Quartz Monzonite
		3	MONZODIORITE to Quartz Monzodiorite
		2	NATION LAKES PLAGIOCLASE PORPHYRY (a) Monzonite (b) Monzodiorite
		1	DIORITE, minor Gabbro, Pyroxenite, Hornblendite



Hogem batholith intrusive phases in relation to general plutonic rock classification (after I.U.G.S., 1973).

The complexity of the Hogem Batholith is characterized by rock units ranging in composition from diorite to granite. Lithologic changes are rapid to gradational at all scales of mapping.

Garnett, who used the I.U.G.S. classification of 1973 as shown in Table 1 on the following page, described three phases within the Hogem Batholith.

The earliest, Phase I, contains the more basic phases, including pyroxenite, gabbro, diorite, monzodiorite, monzonite, and the "Hogem Granodiorite", and accounts for two-thirds of all rock types mapped. The Hogem Granodiorite is a distinctive leucocratic felsic division, predominantly quartz diorite in composition, but also comprising quartz monzodiorite, quartz monzonite and, more rarely, quartz diorite, tonalite and granite.

The Phase II syenites, such as the Duckling Creek complex, (with migmatitic, compositionally banded, and intrusive varieties) and the leucocratic Chuchi (quartz) syenite, are reported to be intrusive into Phase I rocks.

Phase III rocks include leucocratic varieties (including aplites, pegmatite, varieties of granite, quartz syenite and alaskite). These rocks may be represented by leucocratic late-stage dykes cutting units of Phases I and II.

Numerous porphyry copper prospects occur throughout the Hogem Batholith.

The alkalic plutons of the Quesnel Belt commonly host porphyry copper deposits, which are increasingly being recognized as an important source of gold. It has also been recently recognized that related failed porphyry systems (those that did not form copper deposits) also have the potential to generate disseminated gold deposits (eg: QR and the 66 Zone at Mt Milligan).

The volcanic strata on all of the JOH property claims are intruded by alkalic plutons. Some of these plutons are reported to display some of the geological characteristics which are related to the formation of gold-rich porphyry copper deposits in the Quesnel Belt.

Many auriferous porphyry copper prospects are under active exploration within the Quesnel Belt, and the following deposits have been identified:

Gold-Copper Porphyry Deposits
Quesnel Belt
British Columbia

Property	No. of Deposits	Reserves/Mineral Inventory Copper($x10^6$lbs)	Gold ($x10^6$oz)
In Production:			
Copper Mountain (Cassiar)	5	1,600	.910
Afton (Teck)	2	680	.970
Exploration/Development Stage			
Mt. Polley (Imperial Metals)	2	875	2.000
Galore Creek (Hudsons Bay et al)	8	3,000	1.750
Red Chris (Noranda)	2	550	.450
QR (QPX)	4	-0-	.200
Lorraine (Kennco)	2	150	.100
Mt. Milligan (Continental Gold/Placer Dome)	2	1,680	6.376
Kemess (El Condor)	2	770	2.445

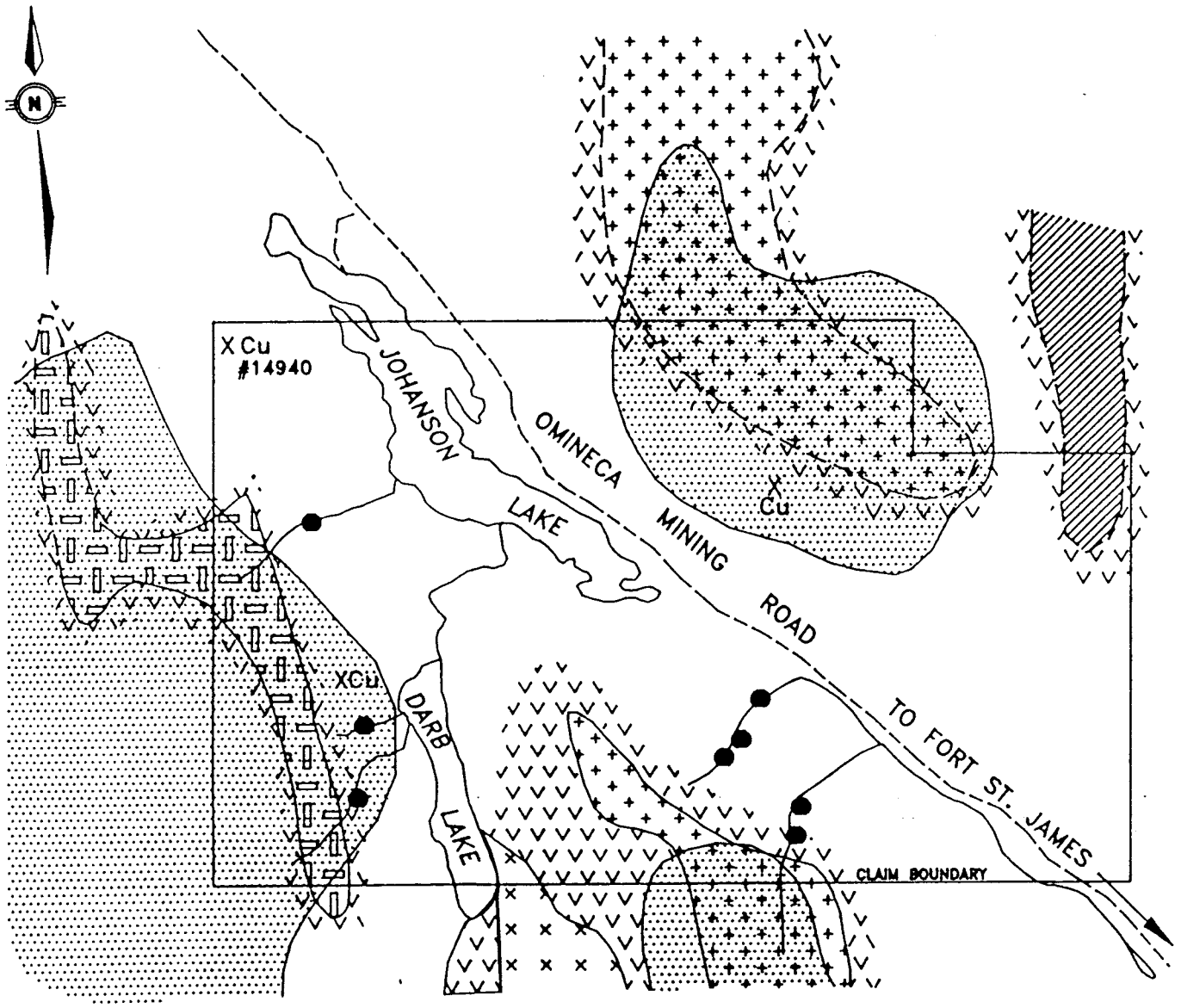
5. PREVIOUS WORK (Figure 5)

During the early 1970's, the claim area was explored by the UMEX-Wenner Gren Joint Venture. Stream drainages were silt sampled and the property was covered by part of a large regional aeromagnetic survey.

The aeromagnetic survey identified anomalies correlating with three alkaline plutons intruding Takla Group volcanic strata. Two of the intrusions are mapped as monzonites and the other is mapped as a diorite.

Copper stream sediment geochemical anomalies are associated with the dyke-like diorite intrusion on the west side of the property and with the southern monzonite stock.

Copper mineralization is reported in volcanic rocks near the diorite intrusion west of Darb Lake and just south of the monzonite stock on the JOH 12 claim. A grab sample (#14940) of hornfelsed volcanic rock collected by the claim staker from a site near the northwest corner of the JOH 11 claim contained 2288 ppm copper, 1200 ppb gold, 8.3 ppm silver and 161 ppm arsenic.



after Rebagliati et,al.

SCALE

0 1 2 Km

1 : 50,000

LEGEND

- DIORITE
- MONZONITE
- MAFIC INTRUSION
- HOGEM BATHOLITH (UNDIFF.)
- TAKLA VOLCANICS
- AEROMAGNETIC ANOMOLY
- COPPER SILT ANOMALY
- Mo COPPER–MOLYBDENUM SILT ANOMALY
- XCu COPPER OCCURRENCE

7A

SWANNELL MINERALS CORPORATION

JOH PROPERTY

COMPOSITE PLAN
AEROMAGNETICS, GEOLOGY AND
ANOMALOUS Cu STREAM SILT SITES

Scale 1 : 50,000	N.T.S. 94D/9E	Drawn by
Date oct.91	Geologist	Figure 5

RELIANCE GEOLOGICAL SERVICES INC.

6. 1991 WORK PROGRAM

Done under B.C.M.E.M.P.R. Approval Number
PRG - 1991 - 1300202 - 4 - 5502

6.1 Methods and Procedures

A program of heavy mineral sampling, silt sampling, rock sampling and reconnaissance geological mapping was carried out on the JOH property.

Reconnaissance geological mapping was performed over the property at a scale of 1:10,000 (Figure 6).

Twenty-one rock samples were collected, sent to Min-En Laboratories (Min-En) of North Vancouver and analyzed for gold and thirty elements, using fire assay and ICP techniques. See Appendix A for rock sample descriptions, and Appendix B for analytical reports and methods.

Twenty-three silt samples were collected from streams that drain the property, and were sent to Min-En for gold and thirty element analysis using fire assay and ICP techniques.

Twenty-three heavy mineral samples were collected from streams on the property. These samples, 12 to 15 pounds of -¼" stream sediments, were sent to Min-En for heavy mineral concentration and separation. The non magnetic portion of the concentrate was analyzed for gold and thirty elements, using fire assay and ICP techniques.

6.2 Property Geology (Figure 6)

6.2.1 Lithologies

The majority of the property is underlain by Takla volcanics which consist of a sequence of porphyritic andesite and banded tuff. The time stratigraphic sequence of the volcanics is not known.

Andesite (Unit 1A) - Generally a dark green to grey colored pyroxene porphyry unit. Phenocrysts of pyroxene up to 0.3 cm in length occur within a fine grained to aphanitic groundmass. Lenses and nodules of pyrite are common.

Tuff (Unit 1B) - Generally a light to dark grey colored, banded, very fine grained to aphanitic rock unit. Fine grained pyrite and malachite occur along flow bands.

A monzonite stock intrudes Takla volcanics northeast of the south end of Johanson Lake.

A complex diorite to monzonite stock (Darb Stock) intrudes Takla volcanics along a ridge west of Darb Lake.

Diorite dykes crosscut Takla volcanics at the southwestern corner of the claim group.

Monzonite (Unit 3) - The porphyritic hornblende monzonite is quartz poor, medium grained, equigranular, and contains phenocrysts of K-spar up to 10 mm in length.

Within 300 meters of the contact, the Takla volcanics have been hornfelsed and contain bands of amphibolite.

The Darb Stock (Unit 2) is a northwest trending elongate body located on a ridge due east of Darb Lake. The stock consists of a diorite along the ridge top and a monzonite along the western flank of the ridge.

The diorite is fine grained, quartz poor, and equigranular. Hornblende shows minor chloritic alteration, plagioclase crystals show traces of quartz alteration and epidote is common.

The monzonite is quartz poor, fine grained, salmon colored, and may be a differentiate of the diorite.

Large xenoliths of partially assimilated chloritized Takla volcanics are common within the stock.

The northwest trending ridge west of Darb Lake is extensively intruded by diorite plugs and dykes.

The Takla volcanics are strongly altered to coarse grained amphibolites in the area of the intrusive rocks. The diorite bodies are locally chloritized and carbonatized, and commonly average 3 to 4% fine grained disseminated pyrite.

6.2.2 Mineralization

Three types of mineralization were observed:

a) Disseminated chalcopyrite (malachite), pyrite and/or molybdenite in quartz veins and stringers (example, MR01);

b) Chalcopyrite and pyrite along dry fractures (examples, KR01, NR01 to 05);

c) Disseminated chalcopyrite (malachite) and pyrite in intrusive rocks (examples, WR05, WR06, MR06).

6.3 Geochemistry (Figure 6)

6.3.1 Rock Geochemistry

The following rock samples contain potential economic grade values in copper (above 1000 ppm) and/or gold (above 300 ppb). Complete rock sample descriptions are shown in Appendix A.

Sample #	Type	Width (cm)	Cu (ppm)	Au (ppb/ oz/ton)	Description
JO91-KR01	Float	-	1011	3	Boulder along Stream 6, east of Johanson Lake. Chalcopyrite, pyrite, molybdenite along dry fracture.
KR04	Chip	30	1762	1	Northeast corner of JOH 12; headwaters of Stream 6. Limonitic hornfelsed andesite with stringers of pyrite.

Sample #	Type	Width (cm)	Cu (ppm)	Au (ppb/ oz/ton)	Description
NR01	Select	10	3329	47	Same area as KR04. From malachite infilled fractures within chloritic, potassically altered monzonite.
NR02	Select	10	2726	18	Same area as KR04. Same description as NR01.
NR03	Select	10	1527	3	Same area as KR04. Same description as NR01.
NR05	Select	10	1761	43	Same area as KR04. Chalcopyrite, malachite in fracture with a chlorite altered monzonite.
WR01	Chip	50	430	498	Along Stream 2. Strongly pyritized (5-8%) Takla volcanic.
WR05	Chip	50	1939	150	Southern JOH 2 claim. Disseminated chalcopyrite with fracture coating malachite in monzonite dyke.
WR06	Float	-	3953	1340/ 0.029	Southern JOH 2 claim. Disseminated chalcopyrite (1-2%) in hornblende-epidote band in monzonite subcrop.
MR06	Select	-	7425	192	Southern JOH 2 claim. Pyrite stringer and trace chalcopyrite in malachite and limonite-stained hornblende diorite.
MR01	Chip	60	3479	4200/ 0.128	Headwaters of Stream 3. Limonite and malachite stained quartz vein in diorite.

Anomalous values in copper and/or gold from rocks have defined three areas. The first area is in the northeast corner of the JOH 12 claim at the headwaters of Stream 6. Five samples (NR01, 02, 03, 05, KR04) were anomalous in copper, ranging from 1527 to 3329 ppm Cu. Mineralization consists of malachite and minor chalcopyrite in fractures within monzonite.

The second area is in the southern part of the JOH 2 claim, near the southern claim boundary. A complex contact zone between a monzonite and an andesite contains mineralized shear zones associated with monzonite-diorite dykes. Disseminated chalcopyrite is also found within hornblende diorite. Samples WR05, WR06, MR06 yielded copper values of 1939, 3953 and 7425 respectively. WR06 assayed 0.029 oz Au/t.

Sample MR01, from a 60 cm quartz vein at a lake at the headwaters of Stream 3, assayed 3479 ppm Cu and 0.128 oz Au/t.

6.3.2 Stream Sediment Geochemistry

Sampled streams were labelled Streams 1 to 8 (Figure 6).

Based on a visual examination of the values, above 200 ppm Cu and above 50 ppb Au is considered anomalous. Copper results range up to 377 ppm. Samples collected from Streams 3, 4, 5, 6 and 7 are all anomalous. The above streams drain roughly 50% of the property area.

Gold values range up to 162 ppb. Four samples were anomalous, three of which came from Stream 4 and correlate with high copper numbers.

6.3.3 Heavy Mineral Geochemistry

The non magnetic heavy mineral portion was analyzed for Au by fire assay and by multi element ICP.

Gold is anomalous above 100 ppb. Three isolated anomalies come from Streams 1, 7 and 8. The highest result of 1070 ppb (Stream 1) comes from downstream of an anomalous rock sample (#14940) which assayed 2288 ppm Cu, 1200 ppb gold, 8.3 ppm silver and 161 ppm arsenic.

Copper ranged from 13 to 197 ppm. Values are considered to be more representative in stream sediments than in heavy mineral samples because copper ions tend to migrate to lighter gangue minerals. No copper results from heavy minerals were considered significant.

7. DISCUSSION OF RESULTS

The target deposit on the JOH property is a porphyry copper/gold deposit similar to the Mt Milligan deposit, (200 km to the south) and other deposits in the Quesnel Belt. At Mt Milligan, monzonite porphyry stocks intrude Takla andesitic volcanic rocks. The stocks and enclosing volcanics are extensively potassium metasomatized. The potassic alteration zone hosts stockwork veins and disseminated chalcopyrite, pyrite and minor bornite. The potassic alteration zone is surrounded by an asymmetric propylitic alteration zone.

No well defined propylitic or potassic alteration zones have been located on the JOH property to date, although the 1991 survey defined copper and gold mineralization over a large area.

The three areas defined from rock sampling (Section 6.3.1) correspond to large magnetic highs and an alkaline intrusive - volcanic contact zone. The three areas could be part of a large copper/gold bearing porphyry system.

Copper anomalies in stream sediment samples correlate well with anomalous results from 1971 sampling. At least 50% of the property area drains into streams with high copper values.

The whole claim area warrants further geological mapping and geochemical sampling to determine the extent of alteration and copper/gold mineralization.

8. CONCLUSIONS

The writers conclude that the JOH property has potential to host a porphyry copper/gold deposit for the following reasons:

- The subject property lies within the Mesozoic Quesnel Belt, which hosts several porphyry copper/gold deposits;

- The geological environment, diorite-monzonite stocks intruding Takla volcanic rocks, is favorable;

- Copper/gold mineralization has been outlined in 3 areas;

- Anomalous copper/gold in stream sediments indicates that further mineralization may be present.

9. RECOMMENDATIONS

Phase I

a) The magnetic portion of the heavy mineral samples should be spot assayed for gold. If gold is found associated with magnetite, then all samples should be analyzed.

b) Establish grids over the northeast JOH 12 claim, southern area of the JOH 2 claim, and the west part of the JOH 1 claim. Line spacings should be 100 m, with station spacings at 50 m.

c) Perform geological mapping and rock sampling over the grid. Systematically map and sample the unexplored areas of the property.

d) Soil sample the grids in areas covered in overburden or talus.

e) Perform magnetic/VLF-EM surveys over the grid areas.

Contingent upon favourable results from Phase I, Phase II would consist of further gridwork, mapping, geochemical sampling and induced polarization surveys to establish drill targets.

CERTIFICATE

I, **PETER D. LERICHE**, of 3125 West 12th Avenue, Vancouver, B.C., V6K 2R6, do hereby state that:

1. I am a graduate of McMaster University, Hamilton, Ontario, with a Bachelor of Science Degree in Geology, 1980.

2. I am registered as a member in good standing with the Association of Professional Engineers and Geoscientists of British Columbia.

3. I am a Fellow in good standing with the Geological Association of Canada.

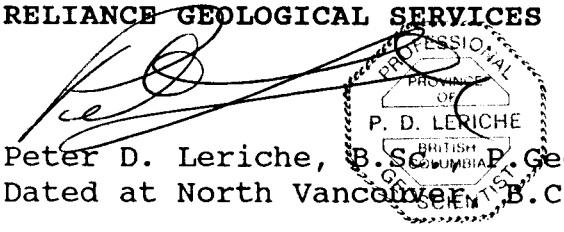
4. I have actively pursued my career as a geologist for twelve years in British Columbia, Ontario, the Yukon and Northwest Territories, Montana, Oregon, Alaska, Arizona, Nevada and California.

5. The information, opinions, and recommendations in this report are based on fieldwork carried out under my direction, and on published and unpublished literature. I have not visited the subject property.

6. I have no interest, direct or indirect, in the subject claims or the securities of Swannell Minerals Corporation or Major General Resources Ltd.

7. I consent to the use of this report in a Prospectus or Statement of Material Facts for the purpose of private or public financing.

RELIANCE GEOLOGICAL SERVICES INC.



Peter D. Leriche, B.Sc., P.Geo.
Dated at North Vancouver, B.C., this 25th day of October 1991.

CERTIFICATE

I, **NIGEL LUCKMAN**, of Vancouver, B.C., do hereby state that:

1. I am a graduate of the University of British Columbia with a Bachelor of Science (Honours) Degree in Geology, 1988.

2. I am an Associate in good standing with the Geological Association of Canada.

3. I have actively pursued my career as a geologist for four years in British Columbia, California, Nevada, Arizona, and Montana.

4. The information, opinions, and recommendations in this report are based on fieldwork carried out by me, and on published and unpublished literature. I visited the subject property during July 1991.

5. I have no interest, direct or indirect, in the subject claims or the securities of Swannell Minerals Corporation or Major General Resources Ltd.

6. I consent to the use of this report in a Prospectus or Statement of Material Facts for the purpose of private or public financing.

RELIANCE GEOLOGICAL SERVICES INC.

Nigel Luckman, B.A.Sc.

Dated at North Vancouver, B.C., this 21st day of October 1991.

REFERENCES

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ITEMIZED COST STATEMENT
JOH PROJECT

Project Preparation			$ 150
Mobilization & demobilization			$ 525
Consulting			$ 630
Field Crew:			
Project Geologist (R. Kidlark, July 27,28,29/91)	$ 325/day x 2.5 days	$ 812	
Field Geologists (3) (G.Sivertz, N.Luckman, A.McIntosh, July 27,28,29/91)	$ 275/day x 7.5 days	$2,062	$ 2,875
Field Costs:			
Helicopter	1.0 hrs @ $ 670/hr	$ 670	
Communications	$ 50/day x 2.5 days	$ 125	
Expediting		$ 100	
Food & Accommodation	$ 70/day x 10 days	$ 700	
Supplies	$ 18/day x 10 days	$ 180	
Freight		$ 100	
Vehicles (1)	$ 70/day x 2.5 days	$ 175	$ 2,050
Assays & Analysis:			
23 heavy mineral samples @ $47/sample (heavy mineral separation, FA/AA for Au and multi-ICP of non magnetic portion)		$1,081	
23 silt samples @ $16/sample (rocks & silts, FA/AA for Au and multi ICP)		$ 368	
21 rock samples @ $17/sample		$ 357	$ 1,806
Report Costs:			$ 1,800
Administration incl. Overheads & Profit			$ 985
Sub-total			$10,821
plus 7% G.S.T.			$ 757
Total			$11,578

APPENDIX A

ROCK SAMPLE DESCRIPTIONS

APPENDIX A

ROCK SAMPLE DESCRIPTIONS

DARB PROPERTY

SAMPLE NO.	DESCRIPTION	WIDTH (cm)
DB91 KR01	Chip sample from a hematitic, fine grained to aphanitic and well banded tuff unit. Averaging about 10% fine grained disseminated pyrite.	30
KR02	Chip sample from a 10 cm wide salmon colored aplite dyke. The dyke contains a 5 cm milky white colored quartz vein in its centre.	10
KR03	Chip sample from a dark green colored, and fine grained to aphanitic, Takla Andesite. Disseminated pyrite, chalcopyrite and malachite occur along dry fracture (locally up to 4%).	32
KR04	Chip sample from a dark green colored and fine grained to aphanitic Takla andesite. Disseminated pyrite, chalcopyrite and malachite occur on dry fracture near the contact with a diorite.	4
KR05	Chip sample from a hematitic shear zone in Takla andesite near the contact with a diorite. The shear strikes 54°, dips vertically and contains disseminated chalcopyrite and malachite.	32
KR06	Float. Rusty milky white quartz containing traces of disseminated malachite.	
KR07	Float. Equigranular, fine to medium grained Hornblende-biotite-diorite containing traces of disseminated malachite.	

SAMPLE NO.	DESCRIPTION	WIDTH (cm)
DB91 KR08	Chip sample from a rusty, milky white colored quartz vein containing traces of fine grained disseminated pyrite. The vein is situated in a shear zone and strikes at 64° and dips 80° West.	64
KR09	Chip sample from a fine to medium grained, dark grey colored and fine to medium grained hornblende diorite. the lithologic unit contains very fine grained disseminated pyrite and chalcopyrite. Dry fractures contain malachite. Intense epidote along dry fractures.	30
KR10	Same description as KR09.	
KR11	Chip sample from a rusty and vuggy quartz vein containing fine grained disseminated pyrite.	10
KR12	Same description as KR09, but also contains traces of molybdenite.	10
KR13	Same description as KR09.	15
KR14	Same description as KR09.	25
KR15	Chip sample from a rusty quartz vein containing traces of fine grained malachite. The vein strikes at 165° and dips 65° West.	32

SAMPLE NO.	DESCRIPTION	WIDTH (cm)
DB91 WR01	Quartz vein float, pyrite, limonite, minor chalcopyrite.	float
WR02	Sheared Takla crystal tuff, with quartz-carbonate veining, disseminated pyrite, malachite staining.	float
WR03	Sheared, carbonatized diorite dyke with disseminated pyrite. Strikes 035°/vertical and is 5 meters wide.	1 m chip
WR04	Fractured, foliated, pyritized chloritic andesite.	float
WR05	Diorite with disseminated pyrite. Foliated, chloritized. From 3 m wide shear zone trending 150°/V.	1 m chip
WR06	Quartz vein, limonite stain. Minor chalcopyrite, pyrite, malachite. Vein strikes 120°, dips 10°-50° to southwest.	2.5 m chip
WR07	Diorite foot wall rock from northwest end of quartz vein described above. Contains 3-4% pyrite, abundant chlorite.	30 chip
WR08	Sheared, pyritized diorite dyke. 3-4% pyrite. 150 meters south of southeast vein outcrop.	30 chip
WR09	Quartz vein containing limonite, 10% pyrite, magnetite, possible sphalerite. Vein strikes 112/82 S.	22 channel
WR10	Strongly sheared plagioclase porphyry (subvolcanic diorite?) from shear zone trending 146°. 5-8% pyrite, limonite.	2 m chip
WR11	Similar material to WR10, 25 m to southeast from same shear zone	1 m chip
WR12	Weakly foliated hornblende granite containing 2-3% pyrite, limonite on fractures.	1 m chip

SAMPLE NO.	DESCRIPTION	WIDTH (cm)
WR13	Sheared Takla pyroxene porphyry. 4-5% pyrite.	50
WR14	Subcropping Takla pyroxene crystal tuff with 10% pyrite, intense limonite.	1 m
DB91 MR01	Rusty silicified moderately sheared light green tuff. 2-5% pyrite. Trace chalcopyrite?	10 chip
MR02	Identical to MR01 but no chalco-pyrite was seen.	10 chip
MR03	Rusty quartz carbonate alteration in interbedded chloritic tuff and limestone. 2-5% pyrite.	10 chip
MR04	Rusty quartz vein in Takla crystal ash tuff. 1-2% pyrite.	30 chip
MR05	Fine grained felsic dyke. 2-5% pyrite. 2-5% epidote, trace magnetite. Weak limonite stain.	100 chip
MR06	Medium to light green pyritic ash tuff. Abundant moderate limonite stain.	chip
MR07	Large quartz vein 1-2 m thick, 100 m long. Strong limonite stain. <1% pyrite blebs with chalcopyrite. Hosted in hornblende diorite. Sample is biased towards sulphides.	40 chip
MR08	Rusty pyritic Takla augite porphyry. Approx. 5% pyrite. Close to contact with granodiorite.	chip
MR09	Malachite stained diorite in float. Diorite is strongly altered with abundant epidote and K-spar stringers.	

SAMPLE NO.		DESCRIPTION	WIDTH (cm)
	MR10	Malachite stained diorite with numerous epidote stringers, minor chalcopyrite in stringers, and moderate limonite stain. - In outcrop approximately 5 m upslope from volcanic contact.	15 chip
	MR11	Same as MR10.	
DB91	NR01	A chip sample across a 1 cm wide quartz and potassium feldspar vein in Takla volcanics. Iron staining around margin of vein. Disseminated fine grained pyrite in volcanic at margins of vein.	4
	NR02	A chip sample from a gossanous zone 1.5 m wide in Takla Volcanics. Malachite staining present in fractures.	20
	NR03	A chip sample from a 30 cm wide gossanous zone in Takla volcanics. Malachite staining present in fractures.	30
	NR04	A select sample of malachite in Takla volcanics.	10
	NR05	A select sample from a monzonite intrusive. Malachite stain on a fracture in the intrusive. Epidote is also present in the fracture.	10

APPENDIX B

ANALYTICAL RESULTS and PROCEDURES

MIN-EN LABORATORIES
(DIVISION OF ASSAYERS CORP.)

SPECIALISTS IN MINERAL ENVIRONMENTS
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

VANCOUVER OFFICE:
705 WEST 15TH STREET
NORTH VANCOUVER, B.C. CANADA V7M 1T2
TELEPHONE (604) 980-5814 OR (604) 988-4524
FAX (604) 980-9621

SMITHERS LAB.:
3176 TATLOW ROAD
SMITHERS, B.C. CANADA V0J 2N0
TELEPHONE (604) 847-3004
FAX (604) 847-3005

Assay Certificate

1V-0773-RA1

Company: REBAGLIATI GEOLOGICAL
Project: 727 DARB
Attn: M.REBAGLIATI/P.LERICHE

Date: AUG-07-91
Copy 1. REBAGLIATI GEOLOGICAL, VANCOUVER, B.C.
2. RELIANCE GEOLOGICAL, VANCOUVER, B.C.

We hereby certify the following Assay of 4 ROCK samples submitted AUG-01-91 by PETER LERICHE.

Sample Number	AU g/tonne	AU oz/ton
391 KR08	1.22	.036
DB91 KR14	2.00	.058
DB91 WR02	1.39	.041
391 WR05	6.50	.190

Certified by _____

MIN-EN LABORATORIES

COMP: REBAGLIATI GEOLOGICAL
PROJ: 727 DARB
ATTN: M.REBAGLIATI/P.LERICHE

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 1V-0773-RJ1+2
DATE: 91/08/07
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	TI PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU-FIRE PPB
DB91 KR01	1.9	41540	1	5	15	.1	7	17470	.1	32	166	44950	320	15	22600	286	1	2650	19	200	1	1	27	1	1968	114.6	39	1	1	5	103	4
DB91 KR02	.4	3260	13	1	14	.1	1	5710	.1	2	16	4710	690	1	850	98	5	500	6	20	6	1	11	16	129	9.6	6	1	1	8	219	1
DB91 KR03	4.3	15550	1	1	30	.1	7	18850	.1	25	3119	36300	890	3	7980	324	7	740	1	740	10	1	54	1	3608	116.9	26	1	2	5	49	371
DB91 KR04	4.9	19670	1	2	25	.1	1	21180	.1	24	5285	49290	1570	4	8490	541	15	720	1	1560	6	1	96	1	3553	144.9	61	1	1	5	54	333
DB91 KR05	7.1	21430	1	1	21	.1	1	21120	.1	26	6340	46510	1070	9	16750	529	32	580	5	1010	11	1	119	1	3472	165.0	50	2	1	7	82	42
DB91 KR06	30.9	21050	1	1	33	.1	1	5380	.1	50	20034	72160	560	12	21920	451	25	200	12	420	35	11	15	1	219	153.0	90	1	1	10	184	815
DB91 KR07	2.9	14380	1	1	42	.1	5	15220	.1	17	1620	36770	1300	3	6590	272	2	460	1	1200	8	1	72	1	2457	112.3	30	2	1	4	53	72
DB91 KR08	2.6	2950	30	1	1435	.2	1	4410	.1	3	116	13270	1720	1	380	166	49	60	2	80	106	1	20	1	29	6.6	8	1	1	7	180	1100
DB91 KR09	6.8	18720	1	1	33	.1	1	16460	.1	19	9484	36330	1290	8	10080	383	24	440	1	950	11	1	85	1	2487	83.5	32	1	1	4	46	692
DB91 KR10	3.4	17120	1	1	31	.1	1	15310	.1	22	4885	35550	2220	6	8850	427	1	510	1	1180	8	1	57	1	2767	94.4	25	1	1	5	76	216
DB91 KR11	2.3	1490	17	3	107	.1	24	260	.1	6	73	27230	510	1	190	12	543	1490	1	260	87	1	11	1	70	9.6	5	1	1	8	203	396
DB91 KR12	1.4	11750	1	1	56	.1	10	13600	.1	12	37	34500	1790	4	5660	285	4	600	1	1410	9	1	59	1	2618	100.9	21	2	1	5	85	8
DB91 KR13	1.3	9800	1	1	68	.1	7	13310	.1	9	70	27840	1150	1	3500	225	6	570	1	980	10	1	45	1	2052	102.3	20	1	1	6	120	5
DB91 KR14	13.8	20290	1	1	47	.1	1	15890	.1	45	21517	39320	1390	8	5480	294	2	350	2	310	22	12	86	1	2028	78.3	43	1	1	7	75	1950
DB91 KR15	3.1	2270	21	1	20	.1	1	490	.1	4	747	8710	1170	1	380	46	31	60	41	50	64	1	4	1	21	5.1	5	1	1	14	361	274
DB91 WR01	4.3	510	31	1	9	.1	1	60	.1	2	359	7310	40	1	550	43	4	20	12	20	8	1	1	1	18	4.2	7	1	1	17	436	315
DB91 WR02	7.8	30540	3	1	45	.1	3	27570	.1	36	1871	65220	610	6	14700	829	1	910	35	560	1	1	89	1	2247	143.4	41	1	1	8	152	1370
DB91 WR03	1.3	30380	1	1	82	.1	8	16790	.1	32	100	58620	3080	19	25680	876	1	1120	1	600	1	1	12	1	2604	193.0	69	1	1	5	80	39
DB91 WR04	.1	45420	1	3	35	.1	1	6010	.1	79	669	142150	810	47	36070	945	1	200	1	160	1	1	8	1	2539	286.5	106	1	1	2	50	37
DB91 WR05	1.9	35730	1	6	35	.1	1	780	.1	46	1338	212590	1470	11	16260	668	1	90	1	230	1	1	1	1	392	84.6	87	1	1	1	70	5900
DB91 WR06	1.5	790	27	1	4	.1	1	320	.1	2	607	6070	60	1	330	31	13	60	3	10	5	1	1	1	36	5.2	6	1	1	12	314	290
DB91 WR07	.3	16440	3	1	50	.1	4	4890	.1	16	143	49730	1670	6	10640	573	1	550	1	760	6	1	11	1	1113	62.5	36	1	1	9	202	106
DB91 WR08	1.2	14000	1	1	159	.1	8	11290	.1	18	58	44530	2250	5	12310	466	1	1160	1	780	7	1	12	1	2481	105.9	31	1	1	6	98	16
DB91 WR09	.4	2320	52	1	28	.1	1	340	.1	94	238	126670	250	1	1750	57	1	40	1	40	5	1	1	1	153	23.2	22	1	1	11	313	80
DB91 WR10	.3	31000	1	3	25	.1	3	6090	.1	38	200	123940	1010	12	22780	851	20	300	1	620	1	1	16	1	2305	258.3	82	1	1	8	156	41
DB91 WR11	.1	30620	30	3	144	.1	1	1690	.1	28	178	153070	1460	15	23070	801	1	210	1	460	1	1	8	1	1808	177.3	99	1	1	7	175	26
DB91 WR12	1.5	27640	1	1	17	.1	8	24120	.1	15	101	48570	500	3	12580	614	5	650	1	530	4	1	73	1	2500	121.5	37	1	1	6	117	14
DB91 WR13	1.3	17570	1	1	40	.1	8	14070	.1	14	87	43900	930	4	11940	478	1	890	1	540	5	1	34	1	2359	81.6	33	2	1	4	72	17
DB91 WR14	.4	24950	1	1	8	.1	3	13070	.1	23	343	89720	240	8	21640	699	18	1110	3	470	3	1	32	1	1731	192.4	56	1	1	13	295	43
DB91 NR01	.1	7960	4	1	28	.1	1	4480	.1	20	51	75400	1090	1	2350	154	99	460	1	700	31	1	11	2	251	69.2	21	1	1	5	119	57
DB91 NR02	9.7	19740	1	9	65	.1	1	10840	.1	48	15108	62780	3390	13	17060	532	30	810	21	500	21	4	15	1	1676	148.5	83	1	1	7	97	748
DB91 NR03	3.3	14360	1	3	29	.1	2	12710	.1	27	2400	32730	1230	9	11650	376	62	930	9	1020	9	1	19	1	2157	90.6	39	1	1	4	51	296
DB91 NR04	4.2	13280	1	1	5	.1	1	18690	.1	28	3487	46510	230	1	3570	311	10	180	6	580	7	1	79	1	2078	90.5	19	1	1	5	93	234
DB91 NR05	1.4	10650	1	1	35	.1	5	15020	.1	12	443	35420	1090	2	3420	228	1	690	1	1480	7	1	48	1	2118	117.5	25	1	1	4	72	66
DB91 NR06	.2	3500	18	1	17	.1	20	1660	.1	7	47	22410	880	3	2100	236	12	320	1	300	8	1	4	1	43	16.9	11	1	1	11	276	80
DB91 MR01	1.1	26400	1	1	18	.1	8	7990	.1	15	66	72430	280	7	19340	553	1	850	1	760	3	1	11	1	2699	141.8	58	1	1	5	100	57
DB91 MR02	.8	44850	1	1	11	.1	6	15210	.1	25	83	60690	330	13	27040	376	1	2740	1	480	1	1	34	1	1851	121.6	39	1	1	3	78	1
DB91 MR03	.7	16160	20	1	22	.1	2	63480	.1	21	101	46050	570	8	10960	1135	17	440	36	730	14	1	67	1	112	103.4	58	4	1	4	74	5
DB91 MR04	1.0	2240	17	1	45	.1	1	8090	.1	6	34	7940	590	5	2200	140	8	160	12	60	6	1	5	1	243	26.5	9	1	1	10	248	410
DB91 MR05	.8	5720	1	1	19	.1	6	9730	.1	18	14	29020	390	1	1150	152	1	880	1	1040	6	1	25	1	1748	33.7	8	1	1	4	86	16
DB91 MR06	1.0	11110	1	1	77	.1	6	11670	.1	15	107	31600	670	1	5160	260	1	290	1	780	6	1	26	1	1906	48.7	24	1	1	5	111	2
DB91 MR07	5.4	1000	18	1	6	.1	1	1290	.1	2	2508	6760	150	23	220	32	6	120	6	10	9	4	1	1	26	5.0	17	1	1	9	220	356
DB91 MR08	1.1	23710	1	1	81	.1	5	15230	.1	21	190	29960	2250	4	8980	168	1	3330	9	780	4	1	45	1	1470	81.6	15	1	1	4	82	28
DB91 MR09	5.9	24550	1	1	11	.1	1	24420	.1	19	9645	32270	760	26	9670	444	8	500	1	1310	15	1	100	1	2263	107.5	41	2	1	5	53	258
DB91 MR10	7.6	15980	1	1	14	.1	1	19980	.1	14	5413	23290	590	1	2470	188	2	330	1	1330	7	1	149	1	2056	64.7	15	1	1	5	89	665
DB91 MR11	5.6	25050	1	1	18	.1	1	20740	.1	26	7644	41190	1150	13	16090	685	1	390	1	930	13	1	182	1	4438	150.5	50	1	1	5	59	207

COMP: REBAGLIATI GEOLOGICAL
PROJ: 727 DARB
ATTN: M.REBAGLIATI/P.LERICHE

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 1V-0773-LJ1+2
DATE: 91/08/07
* SILT * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	TI PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU-FIRE PPB
DB91 KL01	.1	39520	1	14	89	.1	6	10940	.1	33	135	61800	1480	23	27600	1371	1	310	31	640	1	1	32	1	1530	129.3	111	1	1	4	81	18
DB91 KL02	.1	38020	1	11	99	.1	7	12580	.1	36	244	62230	1560	22	25720	1495	1	320	42	810	5	1	55	1	1955	123.3	112	1	1	5	89	37
DB91 KL03	.3	34710	1	9	80	.1	8	13000	.1	32	215	57000	1570	20	23530	1329	1	300	34	880	8	1	53	1	1966	117.5	105	1	1	5	83	25
DB91 KL04	.4	36740	1	9	96	.1	9	13560	.1	33	212	60700	1580	19	24720	1372	1	340	22	900	3	1	49	1	2424	135.5	98	1	1	4	70	43
DB91 KL05	.4	32030	1	6	111	.1	7	12640	.1	23	141	42280	2350	19	21000	954	1	830	18	660	9	1	40	1	1754	133.4	145	1	1	4	60	14
DB91 KL06	.2	29890	1	9	68	.1	8	10920	.1	26	126	49570	1030	16	22610	987	1	290	21	680	5	1	42	1	2049	116.1	94	1	1	4	59	8
DB91 KL07	.3	30880	1	6	79	.1	8	12390	.1	29	151	49940	1260	16	21940	1004	1	370	15	700	2	1	38	1	2077	121.6	91	1	1	4	54	124
DB91 KL08	.4	31210	1	6	81	.1	8	12410	.1	28	149	50250	1380	17	22600	1039	1	410	17	660	2	1	40	1	2059	123.9	100	1	1	4	59	36
DB91 KL09	.6	31920	1	5	116	.1	8	12880	.1	29	151	48930	2000	18	21970	938	1	580	20	690	5	1	42	1	2065	135.1	134	1	2	4	67	105
DB91 KL10	.4	33860	1	6	97	.1	8	13620	.1	28	152	51290	1570	18	23400	1062	1	490	18	750	1	1	45	1	2193	133.3	100	1	1	4	62	32
DB91 KL11	.5	28960	1	5	300	.1	7	10770	.1	23	116	43230	1790	14	17170	969	1	380	13	1210	8	1	53	1	1820	110.3	71	1	1	4	43	39
DB91 WL01	.3	28300	1	5	242	.2	5	9180	.1	16	167	32250	1010	17	13820	526	1	610	9	1090	7	1	60	1	1359	102.9	47	3	1	3	28	44
DB91 WL02	.2	11410	1	3	196	.3	3	8050	.1	6	14	20310	710	7	3760	582	2	640	11	1130	10	1	46	1	645	58.7	29	2	1	2	21	15
DB91 WL03	.1	24510	1	4	205	.3	5	8940	.1	12	87	31610	790	14	10830	372	1	600	7	1080	7	1	54	1	1081	94.1	40	3	1	3	24	23
DB91 WL04	.7	37670	1	5	299	.3	7	14170	.1	34	448	43420	2340	22	22050	888	1	820	18	1010	7	1	92	1	1976	136.4	61	1	1	4	45	78
DB91 WL05	.5	30590	1	4	326	.3	6	12360	.1	24	246	37690	1650	20	16150	907	1	640	17	1260	13	1	83	1	1435	112.0	61	3	1	3	41	60
DB91 WL06	.3	22850	1	4	188	.1	6	12380	.1	28	213	41640	2060	14	13250	968	1	470	10	1130	8	1	56	1	1703	102.8	64	1	1	3	29	1
DB91 WL07	.5	29050	1	4	250	.2	7	11770	.1	24	201	41630	1800	20	15560	920	1	870	9	1150	15	1	59	1	1769	113.5	111	3	1	3	26	48
DB91 WL08	.4	25320	1	4	226	.1	6	12270	.1	29	216	41210	2000	15	14340	954	1	490	10	1140	5	1	61	1	1759	105.7	66	1	1	3	30	81
DB91 WL09	.4	22820	1	3	213	.1	5	11850	.1	24	165	37800	1930	13	13140	822	1	480	16	1080	11	1	57	1	1570	98.0	61	1	1	3	37	65
DB91 WL10	.2	21660	1	3	243	.2	6	10790	.1	24	169	37590	1660	13	12670	798	1	430	9	1090	2	1	54	1	1437	94.6	59	2	1	3	28	62
DB91 WL11	.3	20110	1	4	265	.2	5	10650	.1	22	145	34570	1500	13	11930	625	2	420	10	1050	3	1	55	1	1365	88.5	57	1	1	3	26	60
DB91 WL12	.5	24370	1	5	319	.1	6	12180	.1	24	158	36230	1940	14	14120	779	1	490	13	1100	7	1	59	1	1484	94.2	64	2	2	3	29	75
DB91 WL13	.4	33280	1	4	87	.1	9	11750	.1	30	216	48210	1260	14	22490	1103	6	160	19	830	3	1	49	1	2218	137.2	67	1	1	4	58	43
DB91 WL14	.9	32140	1	5	118	.1	11	14310	.1	29	161	47250	2980	13	24440	899	1	190	15	870	1	1	60	1	2793	141.0	65	1	2	4	50	2
DB91 WL15	.5	36840	1	5	138	.1	11	14240	.1	42	271	59630	3280	15	31300	2033	1	190	36	1180	1	1	50	1	2897	165.2	89	1	1	6	113	18
DB91 WL16	.7	38870	1	5	117	.1	12	14250	.1	38	272	59210	2470	16	33650	1537	1	190	38	830	4	1	50	1	3229	182.2	87	1	2	7	117	16
DB91 WL17	.8	31600	1	4	134	.3	6	16150	.1	43	569	42190	2200	16	21920	906	3	340	38	1150	1	1	69	1	1737	123.2	50	1	2	5	78	19
DB91 WL18	.6	23810	1	3	120	.2	5	14160	.1	31	392	33860	1520	11	16630	742	2	340	30	990	7	1	58	1	1342	95.6	49	2	1	4	58	17
DB91 WL19	.5	32540	1	4	145	.5	3	16150	.1	50	782	39120	2170	17	21310	815	6	350	45	1250	3	1	59	1	1247	115.7	41	1	2	5	79	21
DB91 WL20	1.2	33390	1	5	105	.2	6	15700	.1	32	394	44750	1490	16	23040	647	2	540	27	1010	3	1	72	1	2019	131.8	56	1	1	4	73	25

COMP: REBAGLIATI GEOLOGICAL
PROJ: 727 DARB
ATTN: M.REBAGLIATI/P.LERICHE

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 1V-0773-HJ1
DATE: 91/08/13
* HM NON MAG * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	TI PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU-FIRE PPB	HM %
DR91 KHM01	1.1	24660	22	21	73	.1	12	14390	.1	47	152	67870	310	18	15830	708	1	160	17	560	27	1	31	1	2633	100.3	72	1	2	4	53	95	5.96
DR91 KHM02	1.8	34190	2	14	77	.1	18	21400	.1	49	198	76690	360	15	19610	846	1	160	11	1090	12	1	79	1	4156	137.1	74	1	3	4	49	23	5.89
DR91 KHM03	1.6	31280	1	9	133	.1	16	21140	.1	47	190	73600	330	11	18120	811	1	170	9	1230	19	1	75	1	4140	131.2	79	1	3	4	50	104	6.14
DR91 KHM04	1.8	33810	1	7	98	.1	19	23980	.1	40	176	66110	530	10	18920	852	1	250	5	1120	9	1	84	1	4873	160.2	63	1	4	5	49	49	8.78
DR91 KHM05	.9	16620	1	3	36	.1	10	14620	.1	25	84	36810	590	6	11250	688	1	860	11	910	10	1	29	1	2101	97.2	44	1	1	3	37	44	16.97
DR91 KHM06	2.0	32970	1	4	73	.1	21	23120	.1	39	185	63780	500	9	18700	845	1	260	5	1080	8	1	83	1	4678	157.2	59	1	4	5	49	32	8.83
DR91 KHM07	1.6	28950	1	3	95	.1	18	22220	.1	35	126	52860	430	8	16750	725	1	300	5	850	14	1	72	1	4184	145.7	54	1	3	4	45	25	14.91
DR91 KHM08	1.5	28230	1	3	119	.1	17	21580	.1	37	145	54230	420	7	15760	726	1	330	4	920	16	1	70	1	4254	146.9	52	1	3	5	44	43	13.75
DR91 KHM09	1.6	24060	1	2	89	.1	16	20130	.1	30	104	45320	420	6	13300	629	1	350	5	800	20	1	63	1	3848	130.5	44	1	2	4	41	125	16.84
DR91 KHM10	1.7	28430	1	3	63	.1	18	22300	.1	34	105	51350	410	7	16180	732	1	380	6	850	12	1	70	1	4207	149.0	43	2	3	5	48	51	13.65
DR91 KHM11	1.3	18690	1	2	83	.1	14	17860	.1	41	94	58360	730	6	9660	590	1	250	5	1730	14	1	73	1	3122	123.5	38	1	2	4	42	543	4.89
DB91 WHM01	1.7	9130	1	1	53	.1	15	21250	.1	13	15	25730	610	8	7680	610	1	820	1	7170	12	1	81	1	3292	71.9	41	3	3	3	13	69	4.77
DB91 WHM02	1.7	8950	1	1	76	.1	13	22640	.1	13	57	24900	710	9	7730	582	1	760	1	8040	32	1	80	1	3099	68.9	49	3	3	2	13	50	6.20
DB91 WHM03	1.6	9440	1	3	64	.1	12	22870	.1	12	14	24530	650	10	7470	589	1	450	1	8250	13	1	108	1	2738	66.4	41	3	2	2	13	278	4.70
DB91 WHM04	1.5	7040	1	1	87	.1	10	22950	.1	10	17	20390	640	8	6950	590	1	490	1	9340	11	1	72	5	2007	54.1	41	3	2	2	11	90	4.79
DB91 WHM05	1.6	7720	1	1	63	.1	11	21150	.1	10	16	20750	700	9	7050	555	1	430	1	7920	7	1	74	1	2464	56.8	39	4	2	4	12	51	5.35
DB91 WHM06	1.1	11280	3	1	77	.1	11	19560	.1	20	163	32170	620	5	5880	598	1	330	2	4310	18	1	64	1	2554	73.3	34	1	2	2	18	124	8.75
DB91 WHM07	1.5	9710	2	1	85	.1	14	20000	.1	14	60	26180	520	6	6190	530	1	370	1	5630	10	1	72	1	3001	69.2	36	2	3	2	15	165	6.98
DB91 WHM08	1.6	12540	1	1	70	.1	13	21190	.1	17	53	28690	530	7	7130	570	1	340	1	5610	11	1	77	1	2928	79.3	37	2	2	3	18	84	4.10
DB91 WHM09	1.7	16700	1	1	151	.1	15	23240	.1	19	50	33830	570	7	8730	627	1	460	1	4760	22	1	91	1	3552	101.6	52	3	3	3	26	47	5.76
DB91 WHM10	1.6	15480	1	1	127	.1	15	22830	.1	17	58	32910	580	5	6920	569	1	400	1	4040	17	1	88	1	3443	97.0	39	2	3	3	25	129	5.75
DB91 WHM11	1.7	14470	1	1	104	.1	16	24710	.1	15	36	32310	600	8	8330	708	1	440	1	6770	16	1	91	1	3582	96.4	56	3	3	3	21	80	6.16
DB91 WHM12	1.5	23230	1	1	38	.1	16	22640	.1	25	56	38140	660	5	11140	681	1	160	3	810	20	1	109	1	3651	145.5	29	3	3	4	34	41	17.45
DB91 WHM13	1.7	21800	1	1	81	.1	16	21220	.1	23	47	34840	830	4	9940	506	1	150	2	610	16	1	92	1	3453	136.4	31	3	3	4	26	87	21.03
DB91 WHM14	1.3	18670	1	1	156	.1	13	18890	.1	38	194	45660	1230	4	9190	774	3	190	5	1100	15	1	95	1	2863	112.1	38	1	2	3	36	16	16.19
DB91 WHM15	1.3	18720	1	1	63	.1	14	17620	.1	24	79	35120	880	4	10930	609	1	170	6	660	13	1	73	1	3268	125.1	28	2	2	4	41	31	13.26
DB91 WHM16	1.0	15750	1	1	54	.1	12	16390	.1	40	114	44630	980	5	10430	454	1	140	14	1710	10	1	127	1	3011	104.1	31	2	2	4	53	25	8.46
DB91 WHM17	.8	14110	1	1	69	.1	11	14160	.1	37	129	47620	710	4	9310	453	1	130	17	1440	18	1	83	1	2599	88.1	48	1	2	4	43	28	6.56
DB91 WHM18	.9	16200	1	1	46	.1	11	16010	.1	38	165	41580	540	6	11370	568	1	110	2	3220	14	1	68	1	2044	91.7	33	3	2	2	16	31	7.51
DB91 WHM19	.8	12890	2	1	44	.1	8	14210	.1	28	101	38330	470	4	8270	414	3	150	12	1860	16	1	65	1	1815	77.2	38	1	1	9	30	33	7.98

MINERAL
ENVIRONMENTS
LABORATORIES

Division of Assayers Corp. Ltd.

GOLD ASSAY PROCEDURE:

Samples are dried @ 95 C and when dry are crushed on a jaw crusher. The 1/4 inch output of the jaw crusher is put through a secondary roll crusher to reduce it to - 1/8 inch. The whole sample is then riffled on a Jones Riffle down to a statistically representative 300 - 400 gram sub-sample (in accordance with Gy's statistical rules). This sub-sample is then pulverized on a ring pulverizer to 95% minus 120 mesh, rolled and bagged for analysis. The remaining reject from the Jones Riffle is bagged and stored.

Samples are fire assayed using one assay ton sample weight. The samples are fluxed, a silver inquart added and mixed. The assays are fused in batches of 24 assays along with a natural standard and a blank. This batch of 26 assays is carried through the whole procedure as a set. After cupellation the precious metal beads are transferred into new glassware, dissolved, diluted to volume and mixed.

These aqua regia solutions are analyzed on an atomic absorption spectrometer using a suitable standard set. The natural standard fused along with this set must be within 3 standard deviations of its known or the whole set is re-assayed. Likewise the blank must be less than 0.015 g/tonne.

OFFICE AND LABORATORIES:
15 WEST FIFTEENTH STREET, NORTH VANCOUVER, B.C.
CANADA V7M 1T2

PHONE: (604) 980-5814 (604) 988-4524
TELEX: VIA USA 7601067
FAX: (604) 980-9621

MINERAL
•ENVIRONMENTS
LABORATORIES

Division of Assayers Corp. Ltd.

HEAVY MINERAL SAMPLING AND CONCENTRATION PROCEDURE

FOR ASSESSMENT FILING

In the field a large sample is collected from stream sediments or soils that will yield a minimum 0.5 kg of the desired mesh fraction to be concentrated.

Samples are processed by Min-En Laboratories at 705 West 15th St., North Vancouver, B. C., employing the following procedures.

After drying and sieving of the desired fraction, 0.4 kg is transferred into a centrifuge flask and mixed with tetrabromoethane (S.G. 2.97) to centrifuge down the heavy fraction. This heavy fraction is cleaned and dried.

The clean heavy mineral fraction is separated into magnetic and non-magnetic fractions and the percent of each is reported with the analytical data.

Both these magnetic and non-magnetic heavy mineral fractions can be analyzed using standard analytical techniques.

OFFICE AND LABORATORIES:
705 WEST FIFTEENTH STREET, NORTH VANCOUVER, B.C.
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MINERAL
• ENVIRONMENTS
LABORATORIES

Division of Assayers Corp. Ltd.

ANALYTICAL PROCEDURE REPORT FOR ASSESSMENT WORK:

PROCEDURE FOR TRACE ELEMENT ICP

Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cu,
Fe, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb,
Sr, Th, U, V, Zn, Ga, Sn, W, Cr

Samples are processed by Min-En Laboratories, at 705 West 15th Street, North Vancouver, employing the following procedures.

After drying the samples at 95 C, soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by a jaw crusher and pulverized on a ring mill pulverizer.

0.50 gram of the sample is digested for 2 hours with an aqua regia mixture. After cooling samples are diluted to standard volume.

The solutions are analyzed by computer operated Jarrall Ash 9000 ICAP or Jobin Yvon 70 Type II Inductively Coupled Plasma Spectrometers.

OFFICE AND LABORATORIES:
705 WEST FIFTEENTH STREET, NORTH VANCOUVER, B.C.
CANADA V7M 1T2

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TELEX: VIA USA 7601067
FAX: (604) 980-9621

UNMAPPED

JOH 11 JOH 12

JOH 1 JOH 2

UNMAPPED

JOH 13

UNMAPPED

UNMAPPED

HORNFELSED

STREAM 1

STREAM 2

STREAM 3

STREAM 4

STREAM 5

STREAM 6

STREAM 7

STREAM 8

Johanson Lake

Lake

Lake

Omineca Mining Road

GOSSAN

1444

KHM09 97/34
KL09 94/3

KHM08 66/1070
KL08 95/5

KHM07 107/32
KL07 126/27

KR02 68/2

WHM04 72/14
WL04 152/9

WHM03 82/36
WL03 151/15

WHM02 178/28
WL02 165/162

WR01 430/498

WHM01 16/12
WL01 83/6

KHM11 127/77
KL11 296/41

KHM12 126/47
KL12 283/44

KHM10 127/26
KL10 377/36

MR02 399/1

MR01 3479/4200/0.128

WHM07 137/57
WL07 331/60

WR02 152/2

WHM06 106/37
WL06 338/54

WHM05 70/96
WL05 294/97

WR02 2726/18

WR01 3329/47

WR03 1527/3

WR05 1761/43

KR03 535/3

KR04 7762/1

WR04 719/1

KHM06 197/2
KL06 321/2

KR01 1011/3

KHM05 140/30
KL05 285/7

MHM03 81/6
ML03 235/2

MHM02 93/162
ML02 218/2

KHM04 112/10
KL04 255/6

MHM01 96/16
ML01 245/1

KHM02 126/145
KL02 96/12

KHM01 116/3
KL01 97/8

MHM04 13/39
ML04 226/16

KHM03 113/14
KL03 107/31

MR04 87/2

MR05 1939/150

MR03 319/2

MR04 287/25

WR03 413/1

MR05 44/2

MR06 7425/192

MR06 3953/1340/0.029

GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,781

P. D. LERICHE
BRITISH COLUMBIA
GEOSCIENTIST

LEGEND

GEOLOGY

UPPER TRIASSIC-LOWER JURASSIC

- **1** TAKLA GROUP
- **1A** Andesite porphry & fine grained flows
- **1B** Andesite tuffs

INTRUSIVE ROCKS

- **2** Diorite
- **3** Monzonite

JURASSIC-CRETACROUS

HOGEM BATHOLITH

- **4** Granite,Granodiorite,Monzonite,Diorite

AGE UNKNOWN

- **5** Mafic Intrusions

- Approximate Contact
- Assumed Contact
- Fault/Shear Zone
- WR02 1338/5900/0.190 — Rock Sample Cu(ppm)/Au(ppb)/Au(oz/t)
- WL05 294/97 — Stream Sediment Sample Cu(ppm)/Au(ppb)
- KHM05 140/30 — Heavy Mineral Sample Cu(ppm)/Au(ppb)
- 500 — Contour(100m Interval)
- Lake
- Creek
- Road

0 100 200 500 750 1000 METRES

N

SWANNELL MINERALS CORPORATION

JOH PROPERTY

OMINECA M.D., B.C.

GEOLOGY & GEOCHEMISTRY

Scale 1:10,000	N.T.S. 94·D/9E	Drawn by
Date October 1991	Geologist	Figure 6

REBAGLIATI GEOLOGICAL CONSULTING LTD.

RELIANCE GEOLOGICAL SERVICES INC.