LOG NO: 911105 RD.
ACTION:

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NTS 94D/9
Lat 56°32'N
Long 126°09'W

# GEOLOGICAL and GEOCHEMICAL REPORT
on the
**DARB PROPERTY**
Johanson Lake area
Omineca Mining District
British Columbia



for

**SWANNELL MINERALS CORPORATION**
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by

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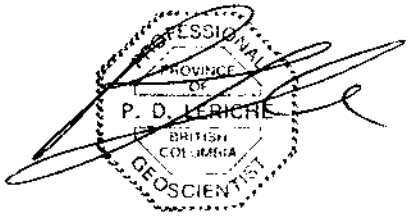


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26 October 1991

## 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 DARB property during July 1991.

The DARB property comprises eight contiguous mineral claims totalling 160 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 were defined, one of which corresponded to a monzonite stock with copper mineralization. Silts from streams draining the stock were reported to be highly anomalous in copper.

The claims are underlain by porphyritic andesite flow and tuffs and intruded by monzonite-diorite stocks and granite-granodiorite belonging to the Hogem Batholith. Mineralization consists of chalcopyrite and pyrite in quartz veins and shear zones, and disseminated in intrusive and volcanic rocks.

Based on anomalous samples from stream drainages and copper/gold mineralization in rocks, 1991 exploration identified five target areas. The most significant area was a diorite/volcanic contact in the northern part of the property. Fourteen rock samples had copper values over 1000 ppm, with a high of 21517 ppm. Fourteen samples in the same area assayed above 200 ppb gold, including a high of 1930 ppb (0.058 oz/ton).

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

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## 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 DARB claim group in the Johanson Lake area of the Omineca Mining District, British Columbia.

The field work was undertaken for the purpose of following up on copper anomalies in rocks and silts found in earlier exploration programs and evaluating the potential of the property to host porphyry copper/gold deposits.

Field work was carried out from July 24 to July 27, 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

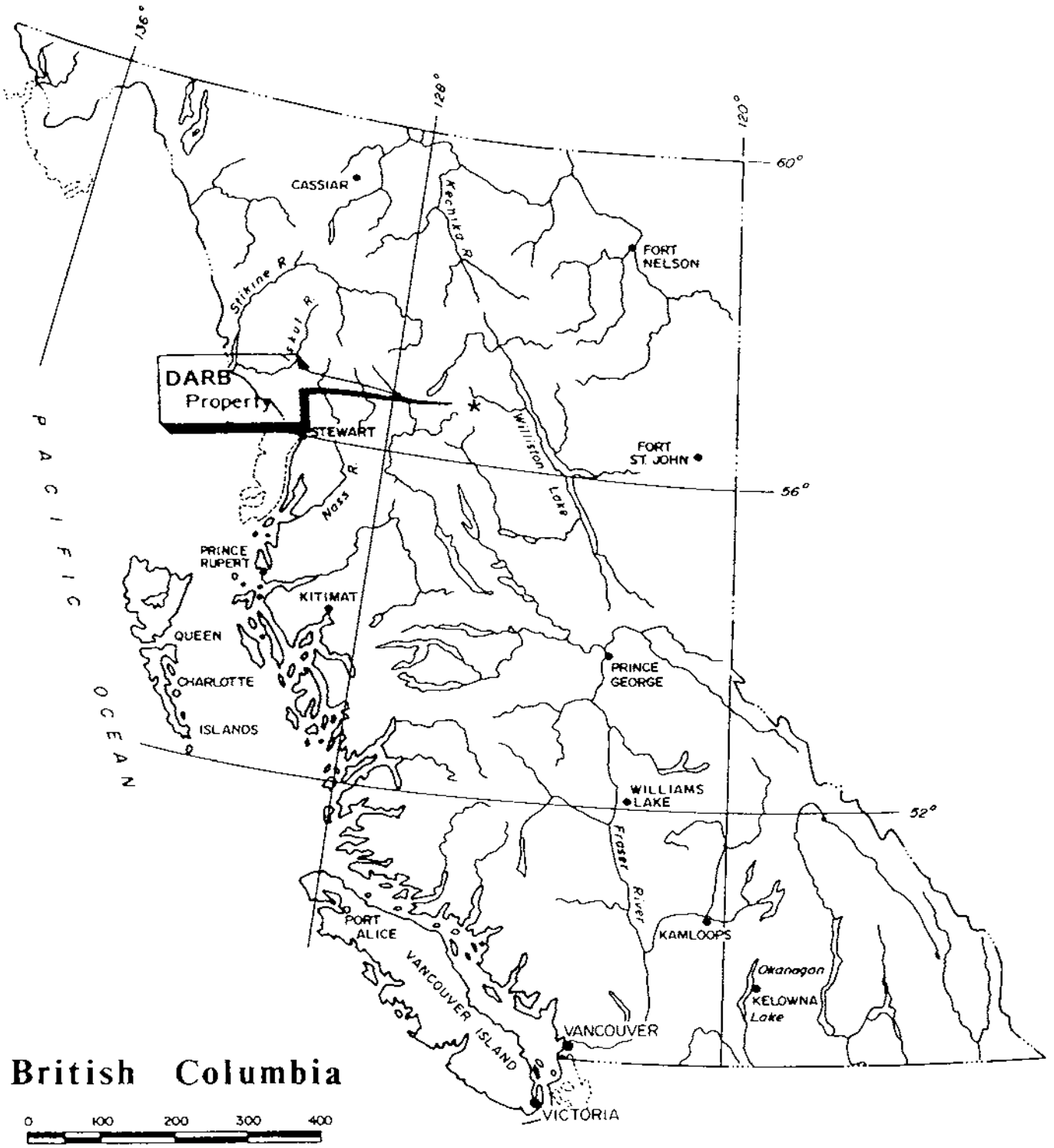
The DARB property is situated in the Omineca Mining Division in the Johanson Lake area, approximately 270 kilometers northwest of Fort St James (Figures 1 and 2).

The claims are located on Map Sheet NTS 94D/9, at latitude 56° 32' North, longitude 126° 09' West, and between UTM 6267000 m and 6273000 m North, and UTM 671500 m and 680000 m East.

Road access is via the Omineca Mining Road from Fort St James to Johanson Lake (approximately 450 km). The road crosses the northeast corner of the property. Alternative access is by helicopter from the base at Johanson Lake or via float plane to Darb Lake.

The property is on mountainous terrain with moderate to steep slopes rising from approximately 1480 meters to 2280 meters. The area is sparsely forested with spruce and pine. Scrub fir and alpine vegetation occur above tree-line (± 1600 meters).

Recommended work season is mid-June to early October.




# British Columbia

0 100 200 300 400

kilometres

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

SWANNELL MINERALS CORPORATION

## DARB 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.

## 3. PROPERTY STATUS

The property consists of 8 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.

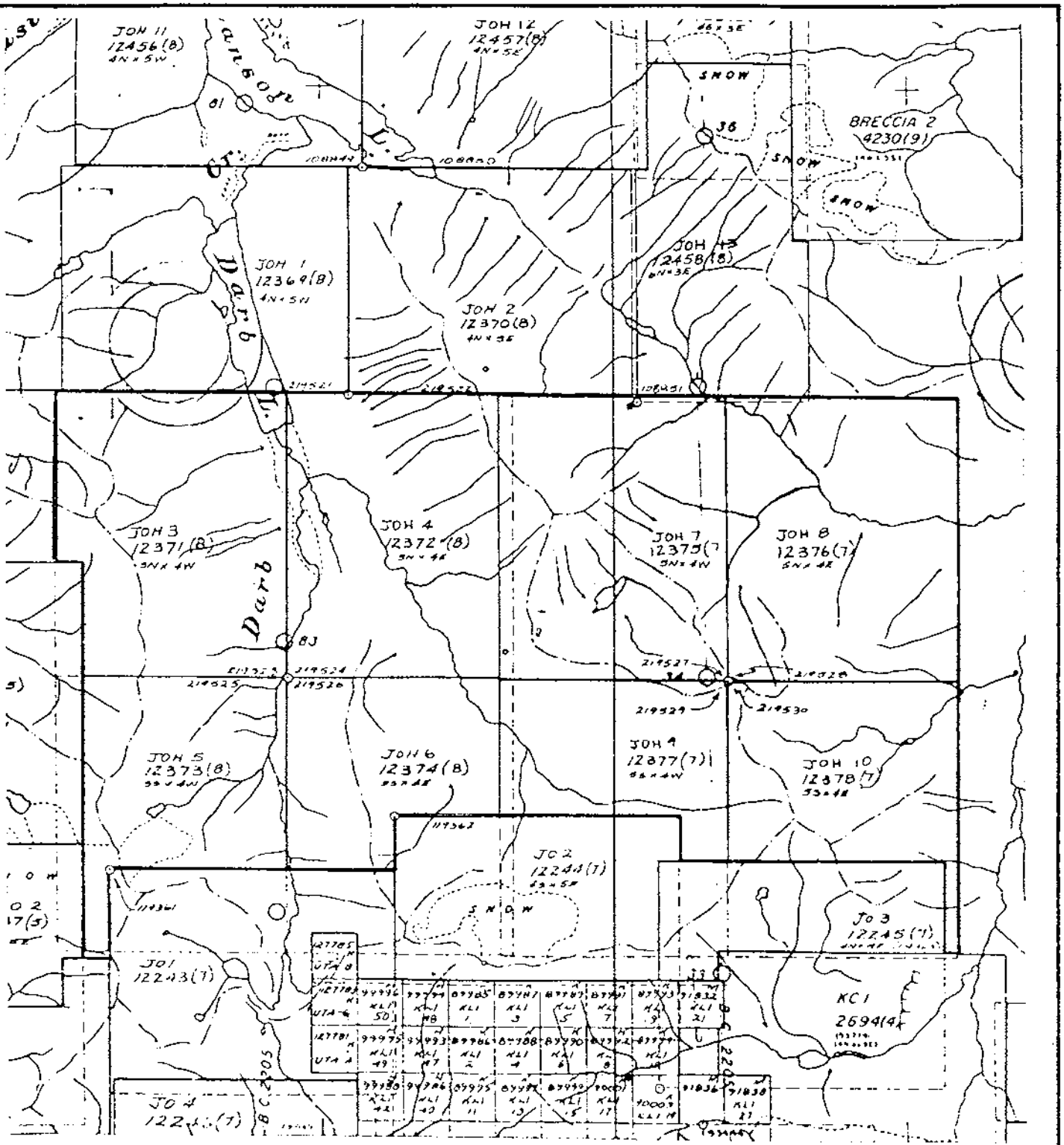
Details of the claims, including grouping, are as follows:

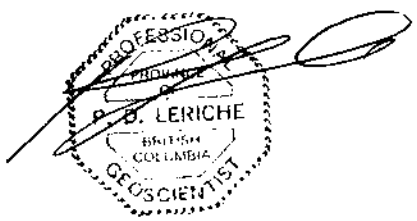
| Claim | Record Number | Units | Record Date | Expiry Date |
|---|---|---|---|---|
| DARB 1 Claim Group - NTS 94D/9 | | | | |
| JOH 3 | 12371 | 20 | 1 Aug 1990 | 1 Aug 1992 |
| JOH 4 | 12372 | 20 | 1 Aug 1990 | 1 Aug 1992 |
| JOH 5 | 12373 | 20 | 1 Aug 1990 | 1 Aug 1992 |
| JOH 6 | 12374 | 20 | 1 Aug 1990 | 1 Aug 1992 |
| Sub-total | | 80 | | |
| DARB 2 Claim Group - NTS 94D/9 | | | | |
| JOH 7 | 12375 | 20 | 31 Jul 1990 | 31 Jul 1992 |
| JOH 8 | 12376 | 20 | 31 Jul 1990 | 31 Jul 1992 |
| JOH 9 | 12377 | 20 | 31 Jul 1990 | 31 Jul 1992 |
| JOH 10 | 12378 | 20 | 31 Jul 1990 | 31 Jul 1992 |
| Sub-total | | 80 | | |
| Total | | 160 units | | |

Major General Resources Ltd has filed a complaint pursuant to Section 35 of the Mineral Tenure Act contending that the JO 1, 2, and 3 which overlap approximately 525 hectares of the southern parts of the JOH 5, 6, 9, and 10 claims were staked improperly. No results of the investigation have been released.

The total area covered by the claims is 3450 hectares, or 8521 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 DARB property.




SWANNELL MINERALS CORPORATION

# DARB PROPERTY

OMINECA M.D.

# CLAIM MAP

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

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## 4. REGIONAL GEOLOGY

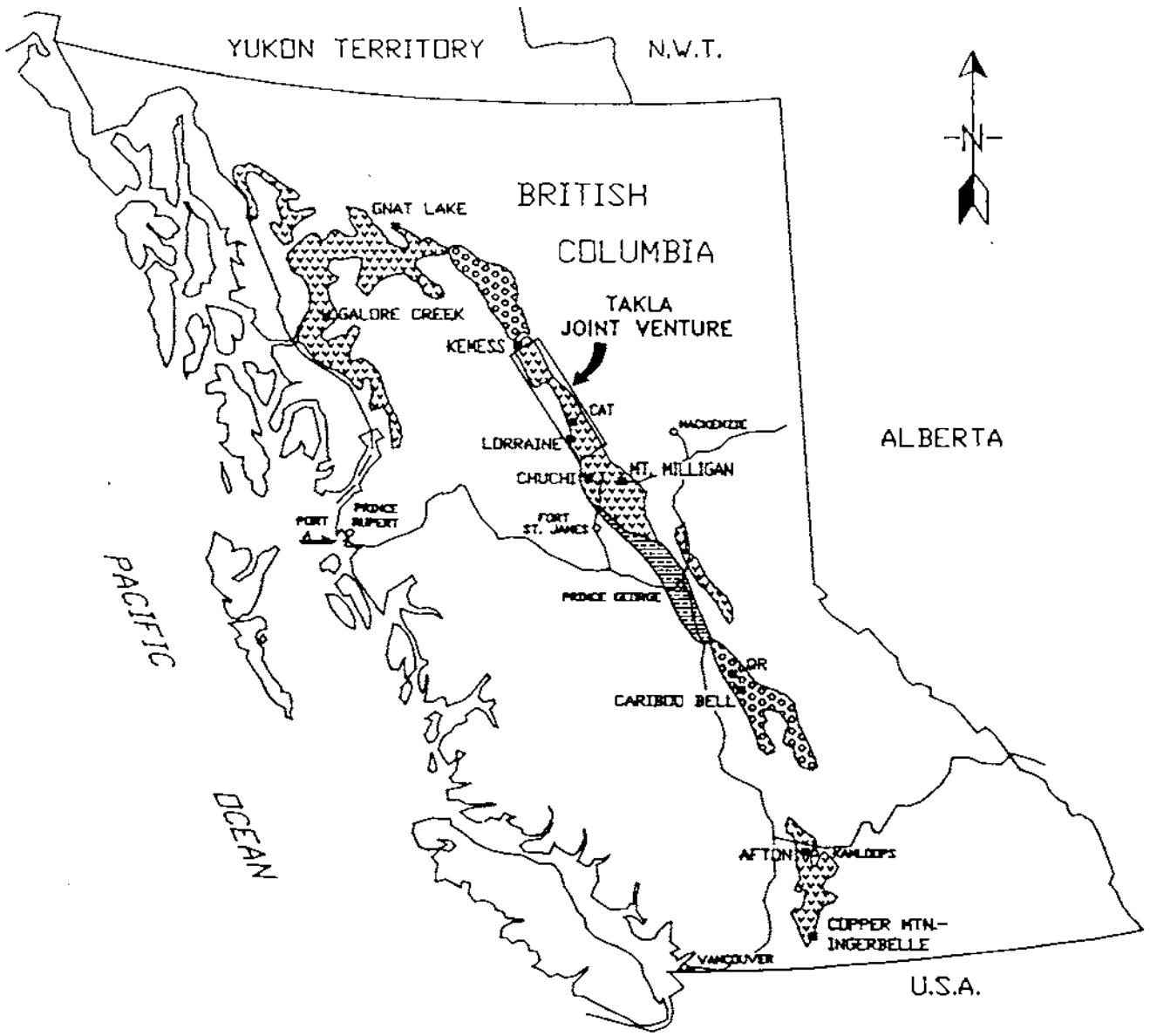
(from Rebagliati, 1991)

The DARB 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.

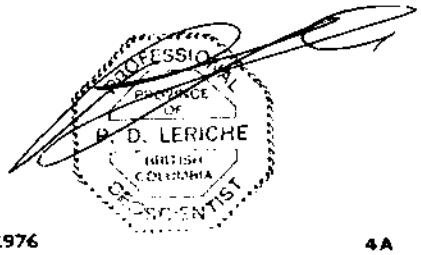
The volcanic-sedimentary strata of the Quesnel Belt are locally intruded by alkaline syenite, monzonite, and diorite batholiths, stocks and dykes. In the Quesnel Belt, most intrusions are considered coeval and comagmatic with late Triassic-early Jurassic volcanism. Many of the stocks lie along linear 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




After Fox et. al 1976

4A

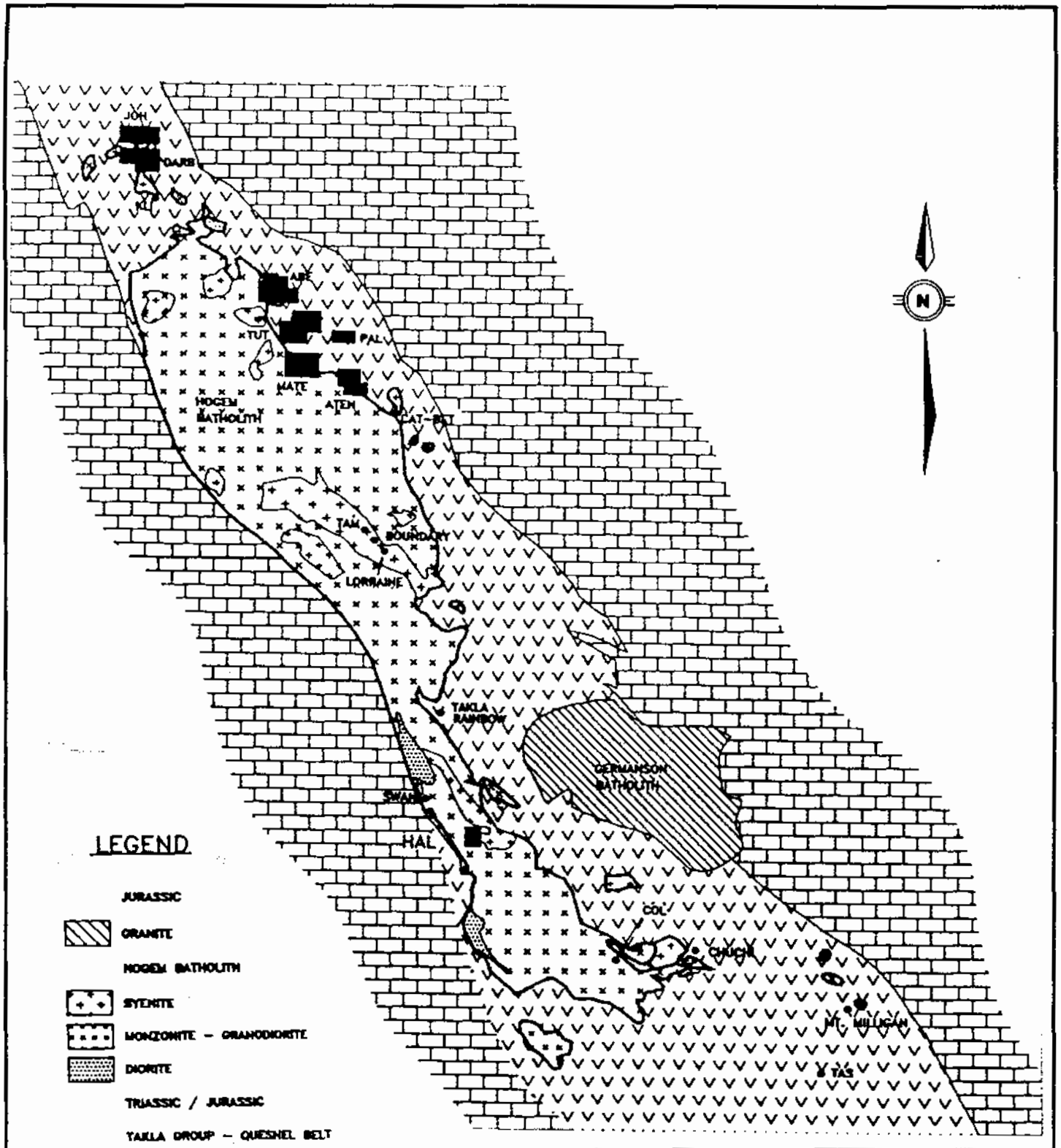
SWANNELL MINERALS CORPORATION

# DARB 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.




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

SWANNELL MINERALS CORPORATION

# DARB PROPERTY

## REGIONAL GEOLOGY

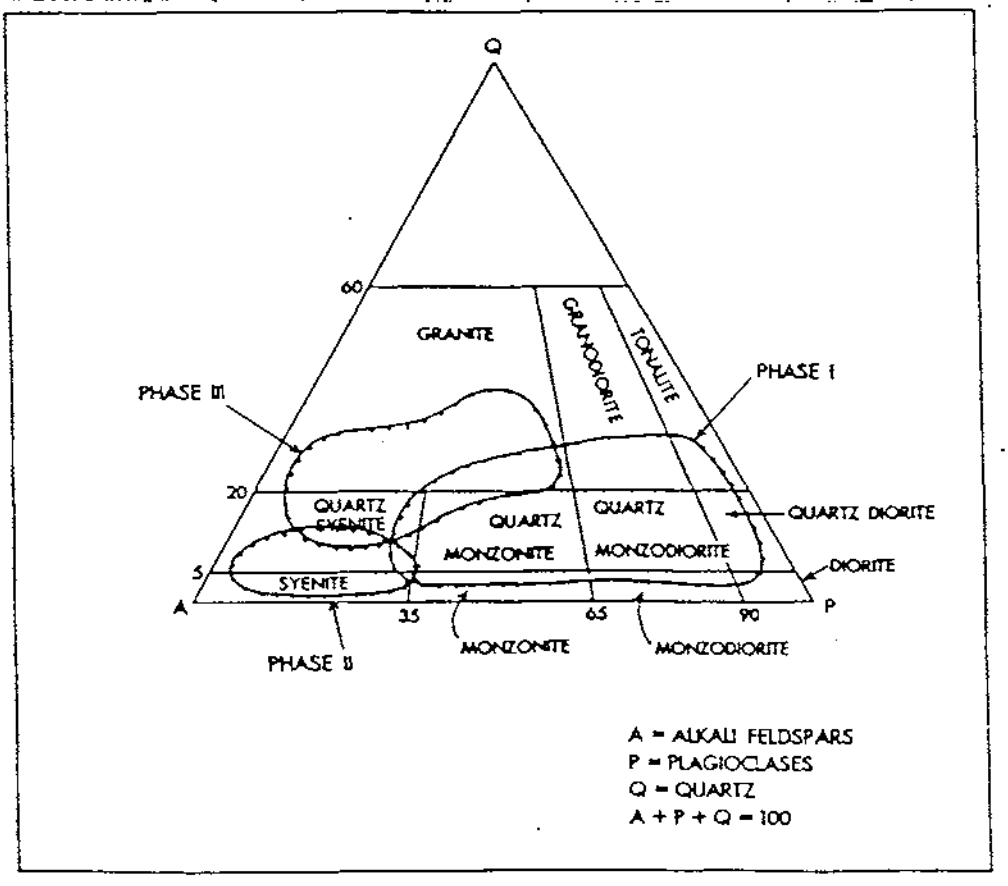
| | | |
|---|---|---|
| Scale as shown | N.T.S. | Drawn by |
| Date oct.91 | Geologist | Figure 4 |

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 DARB 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:

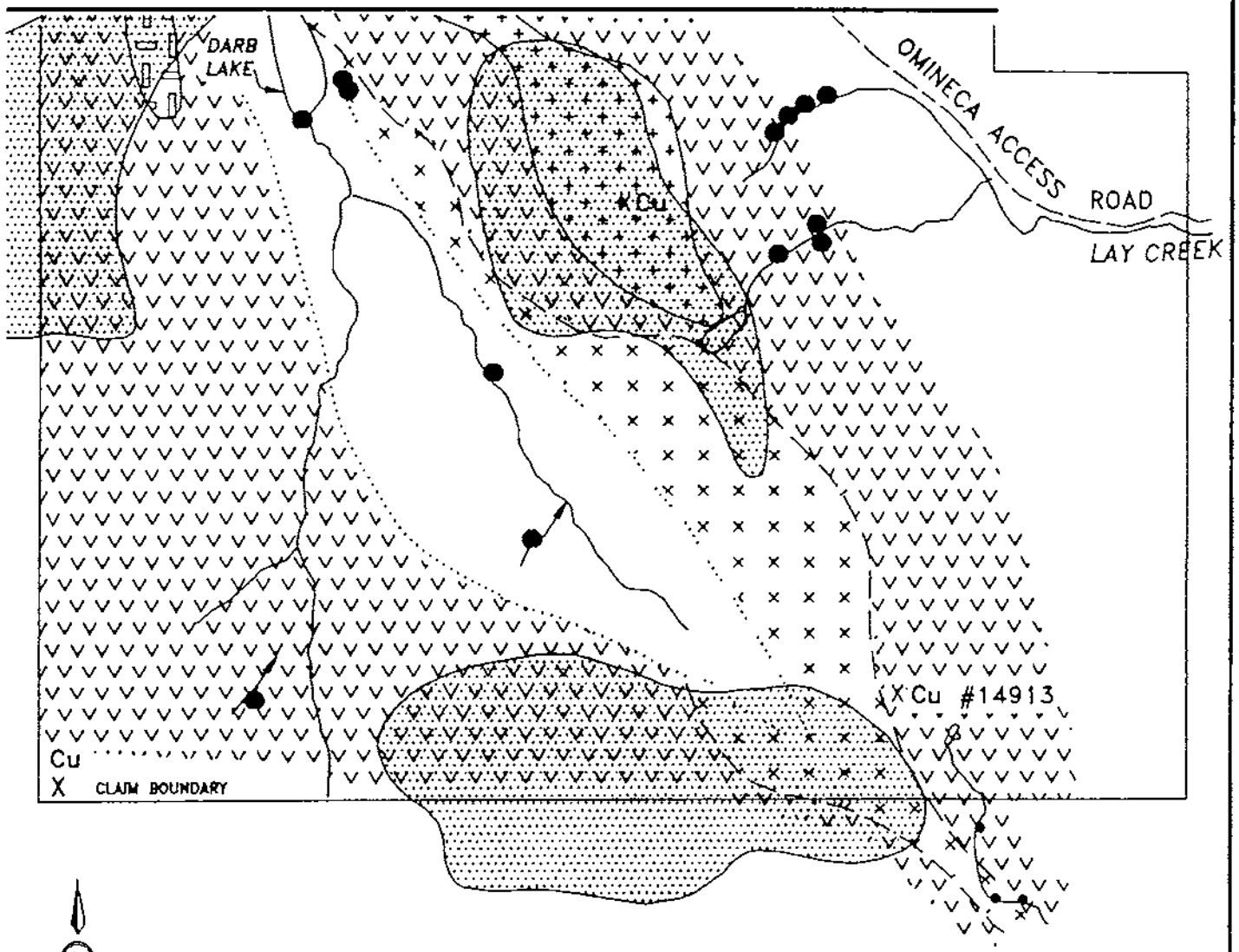
Gold-Copper Porphyry Deposits
Quesnel Belt
British Columbia

| 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

During the 1970's, the DARB claim area was explored by the UMEX-Wenner Gren Joint Venture. The property was covered by part of a large regional aeromagnetic survey and streams were silt sampled. A prominent magnetic anomaly, centered on the boundary between the JOH 4 and JOH 7 claims, corresponds to a monzonite stock reported to host copper mineralization (Figure 5). Highly anomalous concentrations of copper were reported from silt samples taken from streams draining the monzonite stock. No gold analyses were reported.

To the west of the monzonite stock, an 8 kilometer long, northwesterly-trending tongue of the Hogem Batholith intrudes the Takla volcanic strata. At the 4 South identification post on the JOH 9 claim, on the eastern side of the batholith, a grab sample (#14913) of highly pyritic volcanic rock, collected by the claim staker, assayed 3000 ppm copper, 850 ppb gold and 6.4 ppm silver. The staker also reported a gossan coinciding with the magnetic high situated near the southern boundary of the JOH 6 claim.




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

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

SWANNELL MINERALS CORPORATION

# DARB 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.

7A

## 6. 1991 WORK PROGRAM

Done under B.C.M.E.M.P.R. Approval Number
PRG - 1991 - 1300201 - 4 - 5503

### 6.1 Methods and Procedures

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

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

Forty-six 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.

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

Thirty 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.

Takla Group Volcanic Rocks:
a) 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.

b) 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.

Intrusive Rocks:
The Hogem Batholith (Unit 4), which trends northwesterly across the central portion of the claim group, consists of medium to coarse grained hornblende granite to granodiorite. No contacts with Takla volcanics were noted.

A complex diorite (Unit 2) to monzonite stock (Darb Stock) intrudes Takla volcanics along a ridge due east of Darb Lake. The Darb Stock is a northwesterly trending elongate body which extends approximately 2,000 meters x 700 meters on the Darb property.

This stock consists of a diorite along the ridge top and a monzonite along the western flank of the ridge. Large xenoliths of partially assimilated chloritized Takla volcanics are common.

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

Small diorite plugs and dykes intrude the Takla volcanics along a northwest trending ridge due west of Darb Lake. The diorite is fine grained, quartz poor, and equigranular. Hornblende shows minor chloritic alteration. Epidote is common.

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

Four types of mineralization were observed:

a) Disseminated chalcopyrite/malachite, pyrite and/or molybdenite in quartz veins and stringers; (KR06, KR08, KR11, KR15, WR01, WR06, WR09, MR04, MR07).

b) Disseminated chalcopyrite/malachite and pyrite in intrusive rocks; (KR07, KR09, KR10, KR12 to 14, MR10, MR11).

c) Silicified shear zones containing chalcopyrite/malachite and pyrite; (KR05).

d) Disseminated chalcopyrite/malachite in Takla volcanics.

## 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 |
|---|---|---|---|---|---|
| DB91-KR03 | Chip | 32 | 3119 | 371 | JOH 7, south of Darb stock. Disseminated pyrite, chalcopyrite, malachite along dry fracture within aphanitic andesite. |
| KR04 | Select | 4 | 5285 | 333 | Same as KR03. Near contact with diorite. |
| KR05 | Chip | 32 | 6340 | 42 | Same as KR03. |
| KR06 | Float | - | 20034 | 815 + 30.9 ppm Ag | Same area as KR03. Rusty milky white quartz with malachite. |
| KR07 | Float | - | 1620 | 72 | Same area as KR03. Hornblende-biotite diorite with traces of malachite. |
| NR02 | Chip | 20 | 15108 | 748 + 9.7 ppm Ag | Same area as KR03. Gossanous, 1.5 m wide zone in andesite. Malachite in fractures. |
| NR03 | Chip | 30 | 2400 | 296 | Same as NR02. |
| NR04 | Select | 10 | 3487 | 234 | Same as NR02. |
| KR08 | Chip | 64 | 116 | 1100/ 0.036 | Southern JOH9 claim. Rusty milky quartz vein with traces of fine grained disseminated pyrite. Shear zone 64/80W. |

| Sample # | Type | Width (cm) | Cu (ppm) | Au (ppb/ oz/ton) | Description |
|---|---|---|---|---|---|
| KR09 | Chip | 30 | 9484 | 692 | Darb stock at JOH 4+7 claim boundary. Fine to medium grained hornblende diorite with fine grained disseminated chalcopyrite and pyrite. Epidote alteration. |
| KR10 | Chip | 30 | 4885 | 216 | Same as KR09. |
| KR11 | Chip | 10 | 73 | 396 | Same area as KR09. Rusty vuggy quartz vein with fine grained disseminated pyrite. |
| KR14 | Chip | 25 | 21517 | 1950/ 0.058 | Same as KR09. Also 13.8 ppm Ag. |
| MR09 | Float | - | 9645 | 258 | Same area as KR09. Diorite with malachite staining. Numerous epidote and K-spar stringers. |
| MR10 | Chip | 15 | 5413 | 665 | Same area as KR09. Malachite stained diorite with numerous epidote stringers. Chalcopyrite in stringers. |
| MR11 | Chip | 15 | 7644 | 207 | Same as MR10. |
| WR01 | Float | - | 359 | 315 | Northwest corner of property. Limonitic quartz vein with pyrite and minor chalcopyrite. |
| WR02 | Float | - | 1871 | 1370/ 0.041 | Northwest corner of property. Sheared crystal tuff with quartz/carbonate veining. Malachite stain. |
| MR04 | Chip | 30 | 34 | 410 | Northwest corner of property. Rusty quartz vein in crystal ash tuff with 1 - 2% pyrite. |

| Sample # | Type | Width (cm) | Cu (ppm) | Au (ppb/ oz/ton) | Description |
|---|---|---|---|---|---|
| WR05 | Chip | 100 | 1338 | 5900/ 0.190 | Southern JOH 3 claim. Foliated, chloritized diorite with disseminated pyrite from 3 meter wide shear zone. 150/vert. |
| MR07 | Chip | 40 | 2508 | 356 | Southern JOH 3 claim. Quartz vein, 1 - 2 meters thick and 100 meters long, in hornblende diorite. Pyrite and chalcopyrite blebs. |

Rock sampling has defined one main area with anomalous copper and gold. Two groups of samples occur at the JOH 4-7 claim boundary, within a diorite (Darb stock) and the contact zone with Takla volcanic rocks. Mineralization consists of disseminated chalcopyrite in host rock and in epidote-K-spar stringer zones. Fourteen copper values were over 1000 ppm, ranging from 1620 to 21517 (2.1%) ppm. Fourteen samples assayed higher than 200 ppb gold, including a high result of 1930 ppb (0.058 oz/t).

Sample KR08, a milky quartz vein, assayed 0.036 oz Au/t.

The highest gold result (0.190 oz/t) was from a quartz vein within a 3 meter wide shear zone (WR05).

### 6.3.2 Stream Sediment Geochemistry

Sampled streams are labelled Streams 1 to 5 (Figure 6).

Based on a visual examination of the values, 200 ppm Cu and 50 ppb Au are considered anomalous.

Copper results range up to 782 ppm. Samples from the upper part of Streams 1 and 2, plus Streams 3 and 4, are all anomalous. Stream 3 contains four anomalous samples ranging from 392 to 782 ppm.

Nine gold values were above 50 ppb, with a high of 124 ppb. Seven samples came from Stream 2 and two from Stream 1.

### 6.3.3 Heavy Mineral Geochemistry

The non magnetic heavy mineral portion was analyzed for Au by fire assay and by multi element ICP. Copper ranged from 15 to 198 ppm. Values are likely more representative in normal stream sediments, as copper ions tend to migrate to lighter gangue minerals. No copper results were significantly anomalous in heavy mineral samples.

Gold is anomalous above 100 ppb (7 samples). Five values came from Stream 2 and the highest value of 543 ppb came from Stream 5.

## 7. DISCUSSION OF RESULTS

The target deposit on the DARB 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.

Although no extensive propylitic or potassic alteration zones have been found on the Darb property to date, a large target area with porphyry-style copper/gold mineralization has been discovered (JOH 4 and 7 claims). This area is associated with a diorite and diorite-volcanic contact zone. Fourteen rocks yielded values over 1000 ppm Cu and above 200 ppb Au. Stream 3, which drains the zone to the east, contained 4 stream sediments with results between 392 and 782 ppm Cu.

Other target areas include:

a) Southern claim boundary, JOH 9 and 10:
Sample KR08 assayed 0.036 oz. Au/t, from a quartz vein, and sample 14913 (collected in 1990) assayed 3000 ppm Cu, 850 ppb Au, and 6.4 ppm Ag.

b) Southern JOH 3 claim, west of Darb creek:
Samples WR05 and MR07, from shear zone quartz veins, assayed 1338 ppm Cu, 5900 ppb (0.190 oz./t) Au, and 2508 ppm Cu, 356 ppb Au respectively.

c) Northwest corner of the property:
Float samples from quartz vein material assayed up to .041 oz Au/t.

d) Stream 2:
Silts and heavy mineral samples taken in 1991 were consistently anomalous in gold .

At least 50% of the claim area has yet to be investigated. Follow-up work on 1991 targets and the remainder of the property is warranted.

## 8. CONCLUSIONS

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

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

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

c) The 1991 survey outlined 5 target areas, including a large zone with copper/gold mineralization in rocks.

## 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 main mineralized zone (JOH 4 and 7 claims), southern JOH 9 - JOH 10 area and the JOH 3 - JOH 5 claim boundary area.

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 favorable 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.

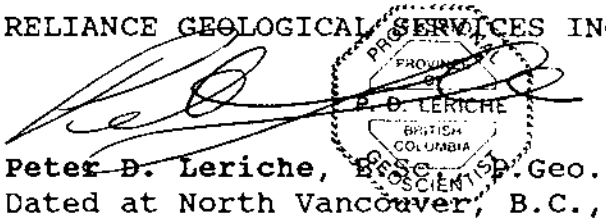
4. I have actively pursued my career as a geologist for twelve years in British Columbia, Ontario, the Yukon and Northwest Territories, Montana, Oregon, Alaska, Arizona, Nevada and California.

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 26th 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, Vancouver, B.C. with a Bachelor of Applied Science Degree in Geological Engineering, 1988.

2. I have actively pursued my career as a geologist for four years in British Columbia, the Yukon, California, 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 on July 20, 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.

N. Luckman

**Nigel Luckman**, B.A.Sc.

Dated at North Vancouver, B.C., this 26th day of October 1991.

**REFERENCES**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## ITEMIZED COST STATEMENT
## DARB PROJECT

| | | | |
|---|---|---|---|
| Project Preparation | | | $ 175 |
| Mobilization & demobilization | | | $ 1,720 |
| Consulting | | | $ 990 |
| Field Crew: | | | |
| Project Geologist | $ 325/day x 3.5 days | $1,137 | |
| (R. Kidlark, July 24,25,26,27) | | | |
| Field Geologists (3) | $ 275/day x 10.5 days | $2,888 | $ 4,025 |
| (G.Sivertz, N.Luckman, A.McIntosh, July 24,25,26,27) | | | |
| Field Costs: | | | |
| Helicopter | 2.1 hrs @ $ 670/hr | $1,407 | |
| Communications | $ 50/day x 2.5 days | $ 175 | |
| Expediting | | $ 100 | |
| Food & Accommodation | $ 70/day x 14 days | $ 980 | |
| Supplies | $ 18/day x 14 days | $ 252 | |
| Freight | | $ 155 | |
| Vehicles (1) | $ 70/day x 3.5 days | $ 245 | $ 3,314 |
| Assays & Analysis: | | | |
| 30 heavy mineral samples @ $47/sample (heavy mineral separation, FA/AA for Au and multi-ICP of non magnetic portion) | | $1,410 | |
| 31 silt samples @ $16/sample (rocks & silts, FA/AA for Au and multi ICP) | | $ 496 | |
| 46 rock samples @ $17/sample | | $ 782 | $ 2,688 |
| Report Costs: | | | $ 1,800 |
| Administration incl. Overheads & Profit | | | $ 1,460 |
| Sub-total | | | $ 16,172 |
| plus 7% G.S.T. | | | $ 1,132 |
| Total | | | $ 17,304 |

| | | |
|---|---|---|
| Apportioned to: | Darb 1 Claim Group | $ 8,652 |
| | Darb 2 Claim Group | $ 8,652 |
| | Total | $ 17,304 |

# APPENDIX A

## ROCK SAMPLE DESCRIPTIONS

APPENDIX A

ROCK SAMPLE DESCRIPTIONS

JOH PROPERTY

| SAMPLE NO. | DESCRIPTION | WIDTH (cm) |
|---|---|---|
| J091 KR01 | Float boulder of a porphyritic medium grained monzonite. K-spar phenocrysts range up to 1 cm in length. Disseminated pyrite, chalcopyrite and molybdenite occur along a dry fracture. | |
| KR02 | Chip sample from an orange-brown colored quartz-pyrite-carbonate alteration zone within Takla andesite. | 5 m |
| KR03 | Chip sample from a limonitic hornfelsed Takla andesite. Volcanic contains massive pods of pyrite and band of amphibolite. | 32 |
| KR04 | Chip sample from a limonitic hornfelsed Takla andesite. Volcanic contains bands of amphibolite and stringers of pyrite. | 30 |

| SAMPLE NO. | DESCRIPTION | WIDTH (cm) |
|---|---|---|
| JO91 WR01 | Strongly pyritized (5-8%) limonitic Takla volcanic. | 50 |
| WR02 | Strongly sheared Takla volcanic from fault zone trending 070°/80°S. Crystal tuff host. 5% pyrite | 20 |
| WR03 | Fractured Takla pyroxene flow rock in fault zone. 5% pyrite, heavy limonite staining. Fault zone trends north, subparallel to ridge. | 1.0 m |
| WR04 | Similar to WR03, 75 m to north in subparallel shear/fault zone, trending 010°/V. 5% pyrite. | 1.5 m |
| WR05 | Traces of disseminated chalcopyrite with fracture coatings of malachite, in monzonite dyke crosscutting ridgeline. Dyke is 2-3 meters wide, trends 080°/V. Est. 0.1-0.2% Cu. | 0.5 m contact zone |
| WR06 | Chalcopyrite disseminated in hornblende-epidote band in monzonite felsenmeer (subcrop) Est. 1-2% chalcopyrite. | float |

| SAMPLE NO. | DESCRIPTION | WIDTH (cm) |
|---|---|---|
| JO91 NR01 | A select sample of malachite in fractures from a 10 m wide zone of chloritic alteration in monzonite. Potassium feldspar, quartz and epidote alteration is also present. | 10 |
| NR02 | A select sample of malachite in fractures in monzonite. Epidote and potassium feldspar are visible in the fractures. | 10 |
| NR03 | A select sample of malachite in fractures in monzonite. Chlorite, epidote, quartz and potassium feldspar are present along fractures. | 10 |
| NR04 | A select sample from a 20 m wide gossanous zone in Takla volcanics. Fine-grained disseminated pyrite occurs in the volcanic. | 15 |
| NR05 | A select sample of chalcopyrite and malachite in a fracture with chlorite in monzonite. | 15 |
| JO91 MR01 | Limonite and malachite stained quartz vein. Minor blebs of chalcopyrite. Hosted in diorite. | 60 |
| MR02 | Rusty outcrop of diorite. Minor limonite stain. Minor blebs of pyrite. | |
| MR03 | Rusty sheared Takla augite porphyry. 1% blebs of coarse pyrite. | |
| MR04 | Rusty fault gouge approximately 2 m wide. Sample taken over a 1 m width across gouge. | |
| MR05 | Rusty quartz carbonate vein. Less than 1% pyrite. Host rock is diorite. | |
| MR06 | Malachite stained pyrite stringer in hornblende diorite. Moderate limonite stain. Trace chalcopyrite. | |

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-0771-RA1

Company: REBAGLIATI GEOLOGICAL
Project: 727-JOH
Attn: M.REBAGLIATI/R.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 2 ROCK samples submitted AUG-01-91 by PETER LERICHE.

| Sample Number | AU g/tonne | AU oz/ton |
|---|---|---|
| 3091 WR06 | 1.01 | .029 |
| 091 MR01 | 4.40 | .128 |

Certified by _____

MIN-EN LABORATORIES

COMP: REBAGLIATI GEOLOGICAL
PROJ: 727-JOH
ATTN: M.REBAGLIATI/R.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-0771-RJ1
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JO91 KR01 | 1.2 | 6800 | 6 | 7 | 36 | .1 | 4 | 11960 | .1 | 11 | 1011 | 31430 | 810 | 4 | 3940 | 390 | 124 | 860 | 1 | 1430 | 16 | 1 | 67 | 1 | 1548 | 108.1 | 41 | 2 | 1 | 6 | 103 | 3 |
| JO91 KR02 | .5 | 9640 | 1 | 5 | 72 | .3 | 1 | 44670 | .1 | 20 | 68 | 48990 | 1240 | 3 | 25270 | 1334 | 1 | 270 | 21 | 440 | 16 | 1 | 48 | 1 | 40 | 164.9 | 80 | 1 | 1 | 4 | 77 | 2 |
| JO91 KR03 | 1.4 | 47720 | 1 | 7 | 63 | .1 | 7 | 38880 | .1 | 42 | 535 | 60730 | 700 | 14 | 7180 | 603 | 7 | 1760 | 1 | 730 | 2 | 1 | 79 | 1 | 1954 | 117.4 | 36 | 4 | 1 | 3 | 58 | 3 |
| JO91 KR04 | 1.6 | 75330 | 1 | 4 | 49 | .1 | 6 | 42370 | .1 | 50 | 1762 | 57290 | 850 | 8 | 3480 | 261 | 1 | 6610 | 12 | 860 | 1 | 1 | 234 | 1 | 2099 | 175.3 | 40 | 3 | 1 | 5 | 95 | 1 |
| JO91 WR01 | .1 | 16170 | 11 | 10 | 113 | .1 | 1 | 7230 | .1 | 101 | 430 | 186100 | 1930 | 4 | 11000 | 357 | 1 | 550 | 1 | 200 | 1 | 1 | 15 | 1 | 1466 | 148.6 | 44 | 1 | 1 | 3 | 70 | 498 |
| JO91 WR02 | 1.8 | 24580 | 1 | 4 | 35 | .1 | 12 | 17690 | .1 | 20 | 152 | 56620 | 750 | 4 | 16040 | 652 | 1 | 600 | 1 | 600 | 3 | 1 | 31 | 1 | 3628 | 128.7 | 40 | 1 | 1 | 7 | 138 | 2 |
| JO91 WR03 | 2.3 | 22620 | 1 | 3 | 103 | .1 | 15 | 13900 | .1 | 35 | 413 | 64830 | 3380 | 10 | 20560 | 543 | 1 | 1160 | 1 | 770 | 1 | 1 | 14 | 1 | 4500 | 203.6 | 54 | 1 | 1 | 5 | 64 | 1 |
| JO91 WR04 | 1.6 | 18720 | 13 | 3 | 66 | .1 | 10 | 15080 | .1 | 18 | 287 | 49170 | 2240 | 6 | 10710 | 275 | 1 | 750 | 2 | 1150 | 2 | 1 | 46 | 1 | 2905 | 118.9 | 28 | 1 | 1 | 4 | 62 | 25 |
| JO91 WR05 | 2.9 | 24270 | 1 | 2 | 26 | .1 | 8 | 16090 | .1 | 21 | 1939 | 38390 | 1600 | 11 | 15920 | 574 | 1 | 1720 | 2 | 520 | 3 | 1 | 37 | 1 | 3617 | 148.4 | 87 | 1 | 1 | 4 | 57 | 150 |
| JO91 WR06 | 4.6 | 17480 | 1 | 3 | 23 | .1 | 5 | 18760 | .1 | 33 | 3953 | 60590 | 1210 | 7 | 10070 | 379 | 1 | 380 | 43 | 1600 | 8 | 1 | 109 | 1 | 4237 | 156.8 | 37 | 1 | 1 | 12 | 240 | 1340 |
| JO91 MR01 | 3.3 | 1630 | 20 | 1 | 20 | .1 | 1 | 3850 | 1.9 | 5 | 3479 | 8800 | 120 | 1 | 1540 | 99 | 5 | 120 | 8 | 30 | 104 | 4 | 5 | 1 | 238 | 14.9 | 240 | 1 | 1 | 10 | 229 | 4200 |
| JO91 MR02 | 1.2 | 26030 | 1 | 4 | 40 | .1 | 8 | 22150 | .1 | 46 | 399 | 65820 | 1300 | 8 | 19920 | 556 | 1 | 1750 | 12 | 560 | 2 | 1 | 49 | 1 | 2556 | 263.6 | 47 | 1 | 1 | 7 | 92 | 1 |
| JO91 MR03 | 2.0 | 19440 | 1 | 2 | 61 | .1 | 11 | 12830 | .1 | 22 | 319 | 50140 | 1500 | 8 | 16050 | 463 | 1 | 1250 | 3 | 760 | 4 | 1 | 25 | 1 | 3415 | 138.0 | 36 | 1 | 2 | 6 | 95 | 2 |
| JO91 MR04 | .1 | 37710 | 1 | 5 | 67 | .5 | 1 | 6580 | .1 | 33 | 87 | 69130 | 2780 | 22 | 34610 | 1305 | 1 | 190 | 55 | 850 | 4 | 1 | 9 | 1 | 130 | 176.8 | 83 | 1 | 1 | 6 | 133 | 2 |
| JO91 MR05 | .7 | 13800 | 1 | 5 | 104 | .4 | 2 | 63250 | .1 | 24 | 44 | 56930 | 5660 | 5 | 27590 | 1059 | 1 | 170 | 1 | 1050 | 14 | 1 | 67 | 1 | 321 | 120.4 | 47 | 1 | 1 | 2 | 43 | 2 |
| JO91 MR06 | 3.2 | 32230 | 1 | 4 | 82 | .1 | 1 | 20430 | .1 | 33 | 7425 | 54830 | 1770 | 14 | 22920 | 496 | 1 | 340 | 1 | 2140 | 9 | 1 | 106 | 1 | 4219 | 231.7 | 52 | 1 | 1 | 5 | 38 | 192 |
| JO91 NR01 | .8 | 30490 | 1 | 5 | 45 | 1.2 | 1 | 33970 | .1 | 27 | 3329 | 54330 | 4200 | 38 | 17740 | 791 | 1 | 130 | 1 | 1640 | 24 | 1 | 78 | 1 | 73 | 133.5 | 100 | 3 | 1 | 2 | 22 | 47 |
| JO91 NR02 | 2.1 | 23820 | 1 | 5 | 39 | .1 | 5 | 22120 | .1 | 35 | 2726 | 92760 | 1660 | 23 | 17380 | 914 | 1 | 520 | 1 | 3420 | 18 | 1 | 261 | 1 | 3575 | 403.3 | 96 | 1 | 1 | 8 | 62 | 18 |
| JO91 NR03 | 2.0 | 13240 | 1 | 4 | 35 | .1 | 3 | 17670 | .1 | 21 | 1527 | 50320 | 2620 | 18 | 10510 | 759 | 1 | 880 | 1 | 2000 | 14 | 1 | 62 | 1 | 2198 | 187.0 | 58 | 1 | 1 | 4 | 41 | 3 |
| JO91 NR04 | 1.6 | 23520 | 1 | 1 | 44 | .1 | 7 | 18230 | .1 | 28 | 719 | 50200 | 780 | 5 | 5950 | 308 | 1 | 3440 | 32 | 1000 | 5 | 1 | 121 | 1 | 2414 | 76.2 | 28 | 1 | 1 | 4 | 69 | 1 |
| JO91 NR05 | 2.6 | 13450 | 1 | 2 | 77 | .1 | 5 | 13600 | .1 | 19 | 1761 | 46920 | 3260 | 9 | 8050 | 387 | 1 | 820 | 1 | 1870 | 16 | 1 | 111 | 1 | 2308 | 180.6 | 50 | 2 | 1 | 4 | 37 | 43 |

COMP: REBAGLIATI GEOLOGICAL
PROJ: 727-JOH
ATTN: M.REBAGLIATI/R.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-0771-LJ1
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J091 KL01 | 2.1 | 42070 | 1 | 14 | 42 | .1 | 12 | 28550 | .1 | 27 | 97 | 46570 | 770 | 18 | 22480 | 764 | 1 | 480 | 30 | 650 | 4 | 1 | 77 | 1 | 3263 | 140.9 | 70 | 1 | 1 | 4 | 78 | 8 |
| J091 KL02 | 2.3 | 45200 | 1 | 13 | 37 | .1 | 13 | 28510 | .1 | 29 | 96 | 48660 | 700 | 17 | 23850 | 804 | 1 | 390 | 32 | 640 | 1 | 1 | 78 | 1 | 3372 | 145.0 | 74 | 1 | 1 | 5 | 83 | 12 |
| J091 KL03 | 2.0 | 44400 | 1 | 10 | 51 | .1 | 12 | 27860 | .1 | 29 | 107 | 46880 | 910 | 17 | 22530 | 808 | 1 | 440 | 31 | 620 | 1 | 1 | 86 | 1 | 3049 | 136.5 | 73 | 1 | 1 | 5 | 80 | 31 |
| J091 KL04 | 1.0 | 33150 | 1 | 7 | 69 | .1 | 6 | 20270 | .1 | 23 | 255 | 51040 | 1380 | 16 | 13540 | 637 | 1 | 880 | 18 | 1850 | 1 | 1 | 102 | 1 | 1955 | 188.7 | 51 | 2 | 1 | 4 | 54 | 6 |
| J091 KL05 | 1.0 | 32510 | 1 | 6 | 61 | .1 | 7 | 19200 | .1 | 23 | 285 | 42520 | 1450 | 15 | 13590 | 543 | 1 | 1160 | 28 | 1660 | 2 | 1 | 90 | 1 | 2096 | 148.4 | 45 | 2 | 1 | 4 | 58 | 7 |
| J091 KL06 | 1.2 | 31980 | 1 | 6 | 64 | .1 | 8 | 19400 | .1 | 25 | 321 | 49070 | 1320 | 15 | 13260 | 552 | 1 | 1080 | 27 | 1480 | 6 | 1 | 89 | 1 | 2169 | 172.1 | 47 | 2 | 1 | 5 | 66 | 2 |
| J091 KL07 | .7 | 18380 | 1 | 4 | 160 | .1 | 5 | 10930 | .1 | 25 | 128 | 43270 | 1840 | 7 | 16270 | 803 | 1 | 500 | 15 | 680 | 5 | 1 | 26 | 1 | 1277 | 128.3 | 52 | 1 | 1 | 4 | 72 | 27 |
| J091 KL08 | .7 | 15080 | 1 | 4 | 109 | .1 | 6 | 11110 | .1 | 24 | 95 | 49080 | 1350 | 6 | 13270 | 568 | 1 | 610 | 18 | 610 | 4 | 1 | 24 | 1 | 1540 | 164.3 | 40 | 1 | 1 | 7 | 134 | 5 |
| J091 KL09 | .6 | 18170 | 1 | 4 | 119 | .1 | 4 | 13390 | .1 | 24 | 94 | 52220 | 1310 | 6 | 14430 | 698 | 1 | 600 | 15 | 610 | 8 | 1 | 28 | 1 | 1079 | 167.3 | 58 | 1 | 1 | 6 | 114 | 3 |
| J091 KL10 | 1.2 | 39130 | 1 | 8 | 148 | .1 | 9 | 17900 | .1 | 43 | 377 | 72670 | 2440 | 17 | 27510 | 1075 | 1 | 1450 | 8 | 1030 | 1 | 1 | 59 | 1 | 2703 | 284.6 | 66 | 1 | 1 | 6 | 78 | 36 |
| J091 KL11 | 1.5 | 36340 | 1 | 5 | 126 | .1 | 8 | 18470 | .1 | 41 | 296 | 58790 | 1890 | 13 | 22610 | 922 | 1 | 1040 | 15 | 970 | 3 | 1 | 60 | 1 | 2338 | 195.9 | 74 | 1 | 1 | 5 | 75 | 41 |
| J091 KL12 | 1.5 | 31540 | 1 | 6 | 114 | .1 | 9 | 17000 | .1 | 39 | 283 | 57650 | 1840 | 47 | 19640 | 730 | 1 | 1160 | 11 | 930 | 3 | 1 | 56 | 1 | 2168 | 196.7 | 61 | 1 | 1 | 5 | 69 | 44 |
| J091 WL01 | 1.1 | 23810 | 1 | 4 | 59 | .1 | 5 | 13100 | .1 | 33 | 83 | 41750 | 680 | 14 | 30400 | 688 | 1 | 700 | 79 | 640 | 1 | 1 | 24 | 1 | 1499 | 147.8 | 57 | 1 | 1 | 10 | 227 | 6 |
| J091 WL02 | 1.1 | 21210 | 1 | 3 | 143 | .1 | 7 | 11410 | .1 | 32 | 165 | 42740 | 2490 | 11 | 20950 | 527 | 1 | 630 | 44 | 570 | 3 | 1 | 19 | 1 | 1780 | 134.4 | 58 | 1 | 1 | 6 | 116 | 162 |
| J091 WL03 | 1.2 | 19790 | 1 | 3 | 124 | .1 | 7 | 11310 | .1 | 28 | 151 | 39510 | 2090 | 15 | 18320 | 488 | 1 | 610 | 29 | 560 | 4 | 1 | 21 | 1 | 1706 | 123.8 | 55 | 1 | 1 | 5 | 93 | 15 |
| J091 WL04 | 1.2 | 21840 | 1 | 3 | 134 | .1 | 7 | 11650 | .1 | 29 | 152 | 41220 | 2160 | 13 | 19510 | 521 | 1 | 660 | 29 | 600 | 1 | 1 | 21 | 1 | 1889 | 132.8 | 57 | 1 | 1 | 5 | 95 | 9 |
| J091 WL05 | 1.1 | 35460 | 1 | 3 | 117 | .1 | 6 | 12950 | .1 | 35 | 294 | 46530 | 1780 | 17 | 20090 | 906 | 1 | 1000 | 12 | 720 | 5 | 1 | 31 | 1 | 1768 | 132.8 | 63 | 1 | 1 | 4 | 44 | 97 |
| J091 WL06 | 1.2 | 35860 | 1 | 4 | 147 | .1 | 7 | 13300 | .1 | 45 | 338 | 48860 | 2500 | 15 | 17500 | 907 | 1 | 1130 | 11 | 910 | 8 | 1 | 37 | 1 | 1910 | 132.1 | 77 | 1 | 1 | 4 | 40 | 54 |
| J091 WL07 | 1.1 | 32250 | 1 | 3 | 111 | .1 | 6 | 13220 | .1 | 61 | 331 | 50620 | 2220 | 13 | 18460 | 956 | 1 | 580 | 12 | 830 | 3 | 1 | 36 | 1 | 1839 | 134.3 | 80 | 1 | 1 | 4 | 48 | 60 |
| J091 ML01 | 1.1 | 27950 | 1 | 3 | 42 | .1 | 7 | 16570 | .1 | 26 | 245 | 45540 | 1280 | 8 | 14140 | 438 | 1 | 1330 | 40 | 890 | 5 | 1 | 68 | 1 | 1978 | 166.4 | 38 | 2 | 1 | 6 | 96 | 1 |
| J091 ML02 | 1.1 | 25750 | 1 | 3 | 41 | .1 | 7 | 16750 | .1 | 25 | 218 | 38480 | 1320 | 6 | 12750 | 383 | 1 | 1500 | 35 | 810 | 7 | 1 | 68 | 1 | 1819 | 138.1 | 37 | 2 | 1 | 5 | 84 | 2 |
| J091 ML03 | .9 | 25020 | 1 | 2 | 46 | .1 | 6 | 13930 | .1 | 26 | 235 | 43460 | 1340 | 6 | 12470 | 370 | 1 | 1400 | 37 | 710 | 2 | 1 | 58 | 1 | 1830 | 160.7 | 34 | 1 | 1 | 6 | 98 | 2 |
| J091 ML04 | 1.7 | 28820 | 1 | 3 | 74 | .1 | 10 | 15060 | .1 | 29 | 226 | 50210 | 1740 | 13 | 22690 | 845 | 1 | 300 | 15 | 1070 | 1 | 1 | 59 | 1 | 3097 | 162.6 | 64 | 1 | 1 | 4 | 65 | 16 |

COMP: REBAGLIATI GEOLOGICAL
PROJ: 727-JOH
ATTN: M.REBAGLIATI

# 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-0771-RJ1
DATE: 91/08/08
* M.M.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 % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J091 KHM01 | 2.0 | 25570 | 1 | 15 | 15 | .1 | 18 | 21690 | .1 | 29 | 116 | 49270 | 270 | 9 | 15410 | 553 | 1 | 250 | 24 | 680 | 21 | 1 | 86 | 1 | 3784 | 130.8 | 53 | 1 | 7 | 6 | 73 | 3 | 14.73 |
| J091 KHM02 | 2.2 | 27020 | 1 | 13 | 20 | .1 | 18 | 22180 | .1 | 31 | 126 | 57010 | 270 | 9 | 15910 | 582 | 1 | 250 | 19 | 830 | 118 | 1 | 104 | 1 | 3992 | 146.0 | 63 | 1 | 40 | 6 | 69 | 145 | 8.68 |
| J091 KHM03 | 2.3 | 32090 | 1 | 17 | 17 | .1 | 21 | 24120 | .1 | 29 | 113 | 53490 | 350 | 10 | 17810 | 670 | 1 | 330 | 22 | 750 | 9 | 1 | 112 | 1 | 4598 | 166.2 | 55 | 1 | 4 | 7 | 82 | 14 | 12.01 |
| J091 KHM04 | 1.6 | 14730 | 1 | 5 | 21 | .1 | 11 | 20360 | .1 | 17 | 112 | 26340 | 540 | 7 | 8790 | 505 | 1 | 670 | 15 | 3600 | 10 | 1 | 75 | 1 | 2007 | 79.0 | 34 | 2 | 2 | 3 | 25 | 10 | 19.53 |
| J091 KHM05 | 1.8 | 15230 | 1 | 6 | 23 | .1 | 10 | 20060 | .1 | 18 | 140 | 26910 | 540 | 7 | 9010 | 460 | 1 | 700 | 21 | 2950 | 11 | 2 | 69 | 1 | 1918 | 79.1 | 31 | 3 | 2 | 4 | 28 | 30 | 21.34 |
| J091 KHM06 | 1.6 | 15610 | 1 | 6 | 19 | .1 | 10 | 19090 | .1 | 20 | 197 | 29180 | 560 | 7 | 8820 | 421 | 2 | 690 | 18 | 2700 | 10 | 1 | 62 | 1 | 2084 | 81.8 | 32 | 2 | 2 | 3 | 27 | 2 | 23.63 |
| J091 KHM07 | .9 | 9210 | 1 | 4 | 152 | .1 | 7 | 12470 | .1 | 27 | 107 | 37080 | 610 | 3 | 11150 | 464 | 1 | 490 | 14 | 860 | 5 | 1 | 23 | 2 | 1263 | 81.2 | 52 | 1 | 1 | 3 | 37 | 32 | 18.56 |
| J091 KHM08 | 1.2 | 7530 | 1 | 3 | 87 | .1 | 5 | 9670 | .1 | 18 | 66 | 22260 | 450 | 2 | 8260 | 292 | 1 | 440 | 14 | 570 | 5 | 1 | 18 | 1 | 1089 | 56.2 | 25 | 2 | 1 | 4 | 54 | 1070 | 23.63 |
| J091 KHM09 | 1.1 | 7520 | 3 | 3 | 124 | .1 | 5 | 9690 | .1 | 23 | 97 | 26260 | 440 | 2 | 8110 | 302 | 1 | 400 | 13 | 480 | 8 | 1 | 19 | 1 | 951 | 53.9 | 32 | 1 | 1 | 4 | 55 | 54 | 22.19 |
| J091 KHM10 | 1.5 | 19000 | 1 | 4 | 34 | .1 | 11 | 17310 | .1 | 25 | 127 | 32370 | 850 | 6 | 15640 | 476 | 1 | 1230 | 10 | 790 | 4 | 1 | 43 | 1 | 2396 | 139.3 | 30 | 2 | 2 | 4 | 29 | 26 | 31.45 |
| J091 KHM11 | 1.5 | 17250 | 1 | 4 | 51 | .1 | 11 | 16580 | .1 | 27 | 129 | 34060 | 510 | 5 | 12300 | 447 | 1 | 780 | 9 | 970 | 6 | 1 | 44 | 1 | 2444 | 112.4 | 30 | 1 | 2 | 4 | 32 | 77 | 22.49 |
| J091 KHM12 | 1.4 | 14990 | 1 | 3 | 28 | .1 | 9 | 14530 | .1 | 22 | 126 | 29130 | 500 | 4 | 10410 | 378 | 1 | 730 | 7 | 870 | 8 | 1 | 37 | 1 | 2023 | 98.2 | 30 | 1 | 1 | 3 | 28 | 47 | 25.77 |
| J091 WHM01 | 1.0 | 5890 | 5 | 2 | 12 | .1 | 5 | 7900 | .1 | 10 | 16 | 12110 | 250 | 3 | 7700 | 233 | 1 | 410 | 18 | 320 | 36 | 1 | 12 | 1 | 785 | 42.6 | 14 | 2 | 1 | 5 | 92 | 12 | 30.77 |
| J091 WHM02 | 1.2 | 7770 | 3 | 2 | 35 | .1 | 6 | 9320 | .1 | 19 | 178 | 21590 | 680 | 3 | 8520 | 265 | 1 | 650 | 20 | 400 | 9 | 1 | 10 | 1 | 913 | 56.7 | 26 | 2 | 1 | 4 | 60 | 28 | 21.52 |
| J091 WHM03 | 1.2 | 8870 | 1 | 2 | 32 | .1 | 6 | 9800 | .1 | 17 | 82 | 21520 | 660 | 3 | 8550 | 303 | 1 | 670 | 15 | 410 | 5 | 1 | 13 | 1 | 1094 | 63.3 | 25 | 2 | 1 | 4 | 52 | 36 | 16.51 |
| J091 WHM04 | 1.2 | 8000 | 1 | 2 | 30 | .1 | 6 | 9470 | .1 | 15 | 72 | 19540 | 560 | 3 | 7800 | 278 | 1 | 590 | 17 | 430 | 11 | 1 | 11 | 1 | 1011 | 59.5 | 26 | 2 | 1 | 4 | 47 | 14 | 19.27 |
| J091 WHM05 | .9 | 10920 | 2 | 2 | 18 | .1 | 5 | 9460 | .1 | 19 | 70 | 23740 | 440 | 4 | 6760 | 335 | 2 | 460 | 4 | 900 | 8 | 1 | 14 | 1 | 897 | 57.1 | 26 | 2 | 1 | 7 | 14 | 96 | 18.44 |
| J091 WHM06 | 1.5 | 17290 | 1 | 4 | 23 | .1 | 11 | 15810 | .1 | 25 | 106 | 31390 | 400 | 5 | 10390 | 533 | 1 | 560 | 2 | 1130 | 13 | 1 | 29 | 1 | 2157 | 98.2 | 40 | 2 | 3 | 4 | 18 | 37 | 17.19 |
| J091 WHM07 | 1.7 | 22610 | 1 | 5 | 20 | .1 | 13 | 18880 | .1 | 33 | 137 | 41150 | 450 | 6 | 12520 | 661 | 1 | 360 | 7 | 940 | 9 | 1 | 51 | 1 | 2703 | 111.3 | 46 | 1 | 2 | 6 | 40 | 57 | 10.45 |
| J091 MHM01 | 1.4 | 10850 | 1 | 3 | 13 | .1 | 7 | 12550 | .1 | 15 | 96 | 18890 | 500 | 3 | 8260 | 285 | 5 | 680 | 22 | 1070 | 6 | 1 | 42 | 2 | 1359 | 57.3 | 23 | 2 | 2 | 3 | 35 | 16 | 26.09 |
| J091 MHM02 | 1.4 | 10670 | 1 | 3 | 13 | .1 | 7 | 12530 | .1 | 14 | 93 | 18460 | 470 | 3 | 8080 | 270 | 1 | 680 | 21 | 1000 | 7 | 1 | 40 | 1 | 1295 | 56.9 | 21 | 3 | 1 | 3 | 38 | 162 | 27.45 |
| J091 MHM03 | 1.3 | 9070 | 1 | 2 | 14 | .1 | 6 | 10290 | .1 | 12 | 81 | 15380 | 480 | 2 | 6600 | 207 | 1 | 670 | 19 | 800 | 8 | 1 | 29 | 1 | 995 | 45.6 | 15 | 2 | 1 | 2 | 28 | 6 | 33.61 |
| J091 MHM04 | 1.5 | 1900 | 8 | 1 | 3 | .1 | 3 | 2810 | .1 | 3 | 13 | 3820 | 120 | 2 | 1380 | 48 | 1 | 50 | 2 | 110 | 3 | 1 | 7 | 1 | 309 | 11.7 | 3 | 3 | 1 | 1 | 6 | 39 | 18.52 |

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:
)5 WEST FIFTEENTH STREET, NORTH VANCOUVER, B.C.
ANADA V7M 1T2

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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.

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MINERAL
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LABORATORIES

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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:
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CANADA V7M 1T2

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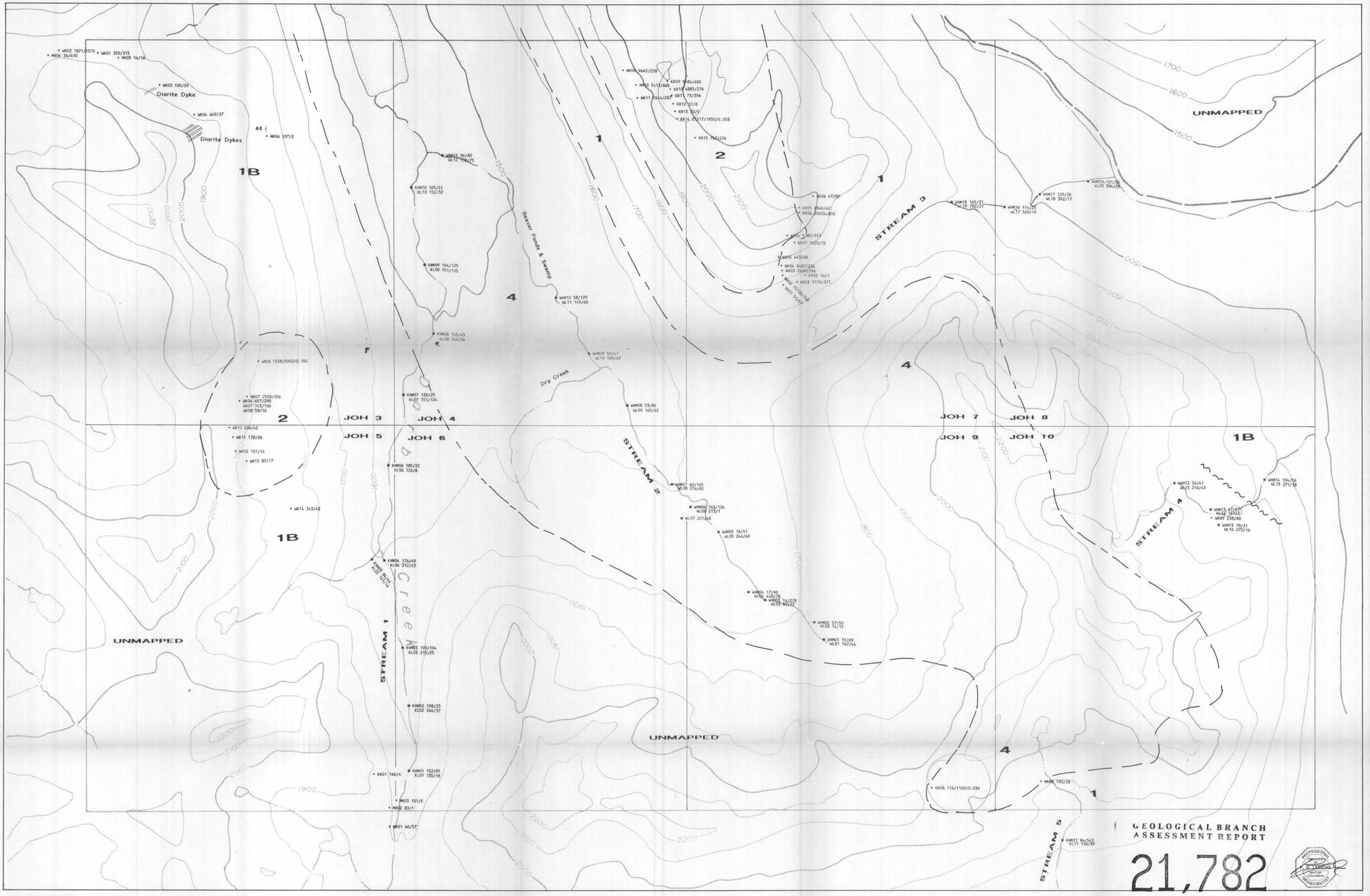


GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,782

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
P. D. LERICHE
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

# DARB 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.