NTS 94C/5E,5W
Lat 56°21'N
Long 125°48'W

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

for

SWANNELL MINERALS CORPORATION
200 - 890 West Pender Street
Vancouver, B.C., V6C 1K4
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by

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20 November 1991

SUMMARY

At the request of the Swannell Minerals Corporation, Reliance Geological Services carried out an exploration program consisting of rock and stream sediment surveys and reconnaissance geological mapping on the ABE property during October 1991.

The ABE property comprises eight contiguous mineral claims totalling 136 units in the Johanson Lake area of the Omineca Mining Division. The property is situated approximately 95 kilometers northwest of Germansen Landing, B.C., and is accessible by helicopter.

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.

Early work included one short diamond drill hole on the ABE 4 to test a narrow quartz vein, first sampled by the G.S.C. in the 1950's, which was mineralized with pyrite, chalcopyrite, galena and tetrahedrite.

In the early 1970's, regional aeromagnetic, soil and silt sampling surveys completed. Four magnetic anomalies were outlined, three on the margins of a diorite stock and one in Takla volcanics near a contact with the Hogem Batholith. The soil survey defined a molybdenum anomaly on ABE 7 and 8. Copper-molybdenum silt anomalies were found in three streams on the property.

The ABE claims are underlain by porphyritic andesite flow and tuff units, and are intruded by monzonite and diorite belonging to the Hogem Batholith and by a pyroxene-rich mafic intrusion. Mineralization consists of chalcopyrite, bornite and malachite in quartz veins, disseminated pyrite and chalcopyrite in tuffs, and molybdenite in quartz syenite.

Based on anomalous results from samples from stream drainages and copper/gold and molybdenum mineralization in rocks, 1991 exploration identified five target areas.

The most significant sample was from a quartz vein near a contact between monzonite and volcanics on ABE 8, which ran 1.28% copper and 0.365 oz/ton Au. Samples from mineralization in the monzonite ran up to 0.14% molybdenum.

Further work consisting of grid establishment, geological mapping, and rock, soil and talus fine sampling has been recommended to test target areas for follow-up work.

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ABE 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 ABE claim group 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 on October 10 and 11, 1991, by George King (geologist), Tom Hannon (geotechnician), Brian Chore (geotechnician), and Nigel Luckman (geological engineer), under the supervision of Peter Leriche, B.Sc., P.Geo.

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

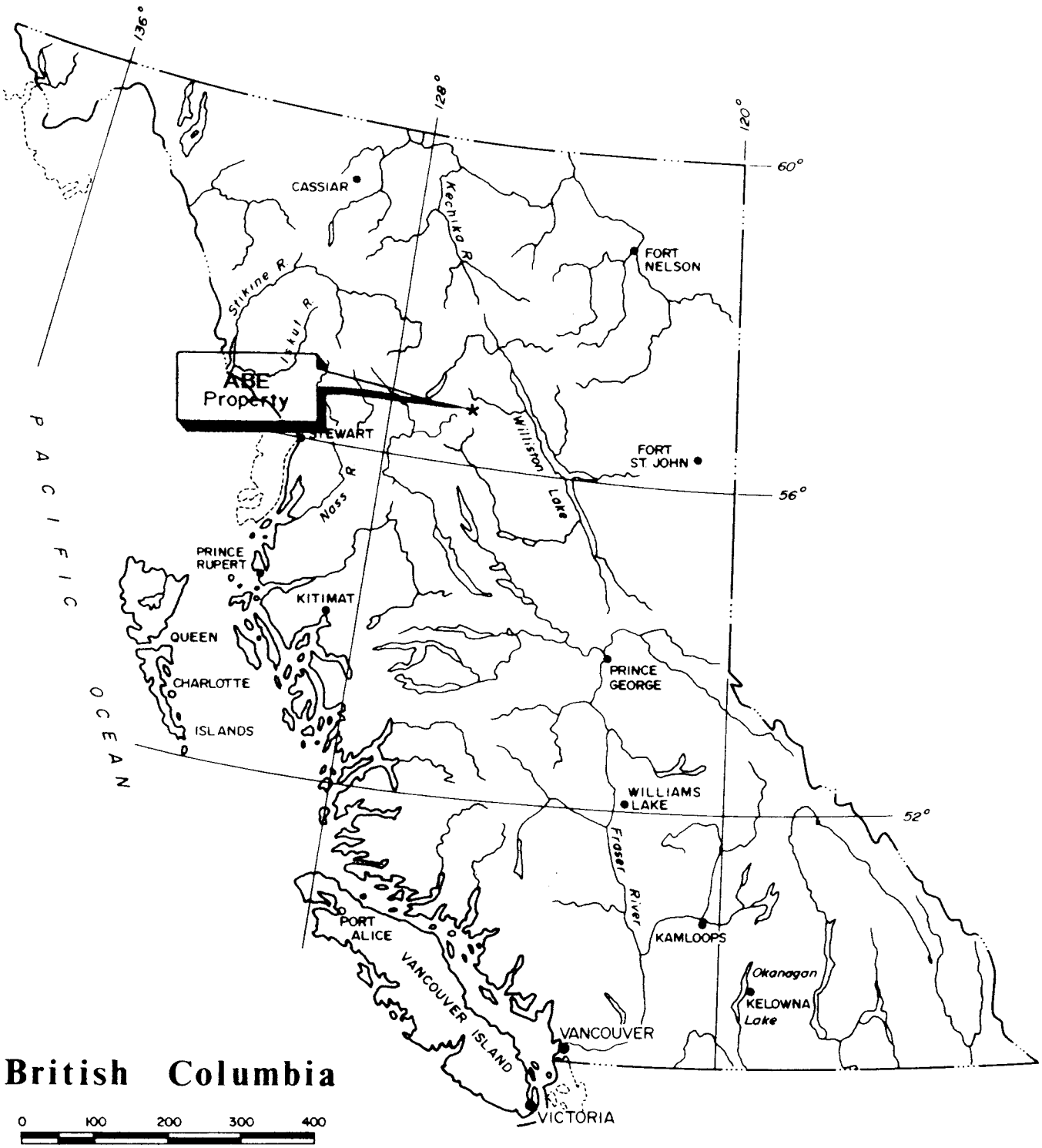
The ABE property is situated in the Omineca Mining Division in the Johanson Lake area, approximately 250 kilometers northwest of Fort St James (Figures 1 and 2).

The claims are located on Map Sheet NTS 94C/5E & 5W, at latitude 56° 21' North, longitude 125° 48' West, and between UTM 6251000 m and 6245500 m North, and UTM 325000 m and 333000 m East.

Road access is via the Omineca Mining Road from Fort St James to Germansen Landing (approximately 155 km), then by helicopter from the base at Germansen Landing (approximately 95 km).

The property is on mountainous terrain with moderate to steep slopes rising from approximately 1320 meters to 2000 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.



SWANNELL MINERALS CORPORATION		
ABE PROPERTY		
General Location Map		
Scale noted above	N.T.S	Drawn by
Date NOV.91	Geologist	Figure 1
RELIANCE GEOLOGICAL SERVICES INC.		

3. PROPERTY STATUS

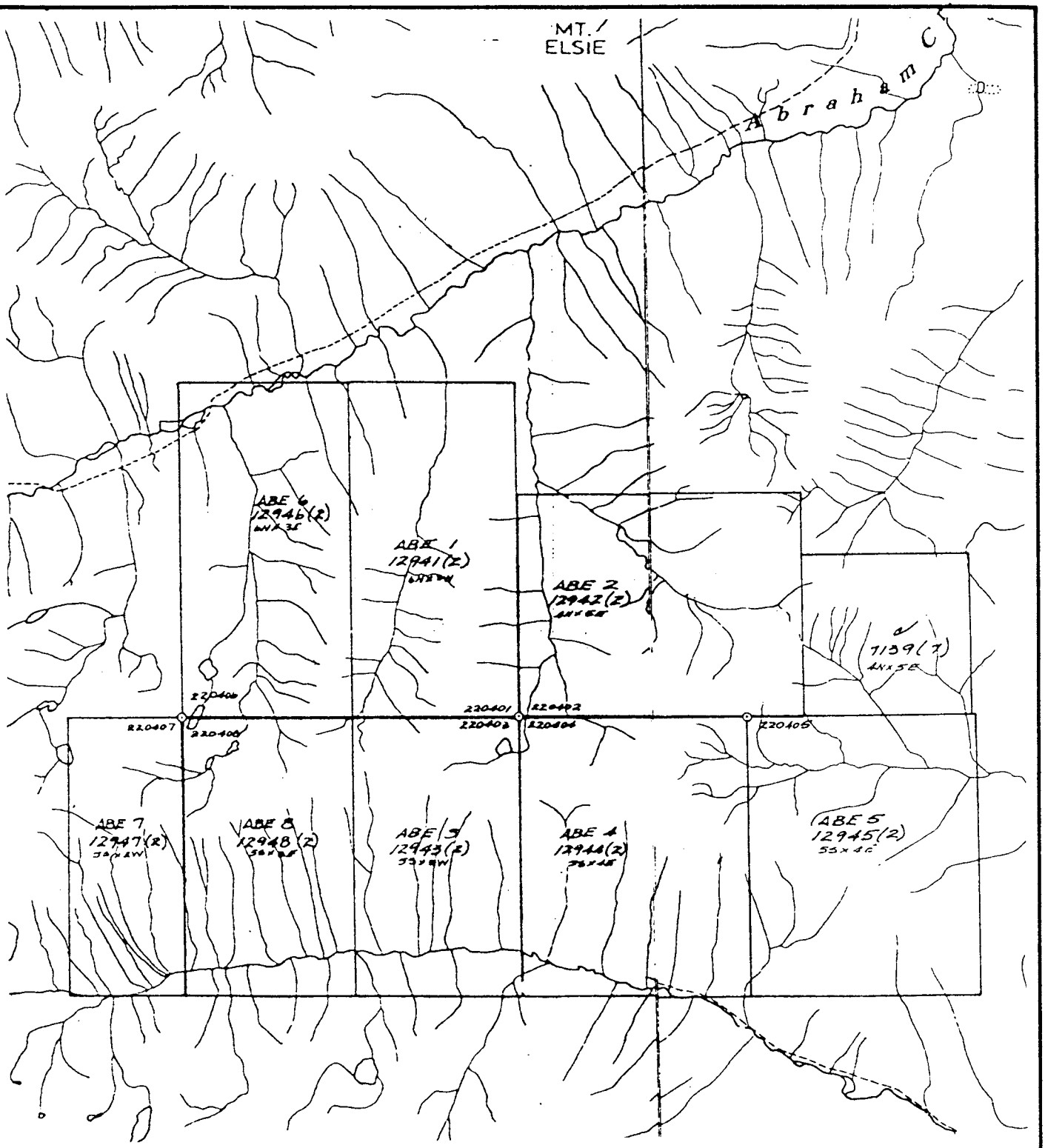
The property consists of 8 contiguous mineral claims (Figure 2) in the Omineca Mining Division. The claims are registered in the name of Major General Resources Ltd, and have been optioned to Swannell Minerals Corporation.

Details of the claims are as follows:

Claim	Record Number	Units	Record Date	Expiry Date
Abe 1	12941	18	9 Feb 1991	9 Feb 1992
Abe 2	12942	20	9 Feb 1991	9 Feb 1992
Abe 3	12943	15	10 Feb 1991	10 Feb 1992
Abe 4	12944	20	10 Feb 1991	10 Feb 1992
Abe 5	12945	20	9 Feb 1991	9 Feb 1992
Abe 6	12946	18	9 Feb 1991	9 Feb 1992
Abe 7	12947	10	10 Feb 1991	10 Feb 1992
Abe 8	12948	15	10 Feb 1991	10 Feb 1992
Total		136 units		

The total area covered by the claims is 3400 hectares, or 8440 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 ABE property.



SWANNELL MINERALS CORPORATION

ABE PROPERTY

CLAIM MAP

Scale 1:50,000	N.T.S. 94C/5W,5E	Drawn by
Date NOV.91	Geologist	Figure 2

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4. REGIONAL GEOLOGY

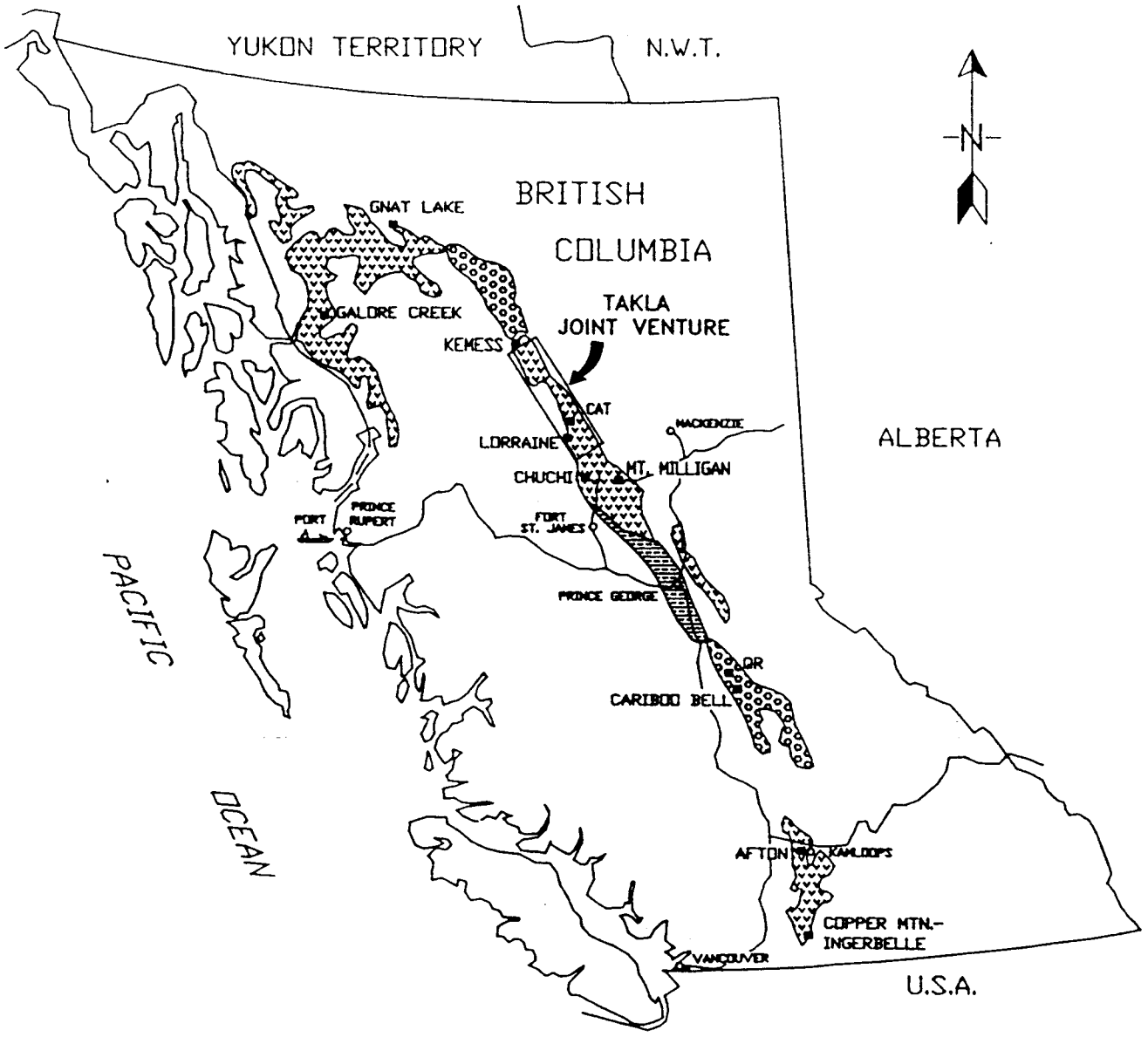
(from Rebagliati, 1991)

"The ABE 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 Palaeozoic 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 coloured 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 satolithic 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

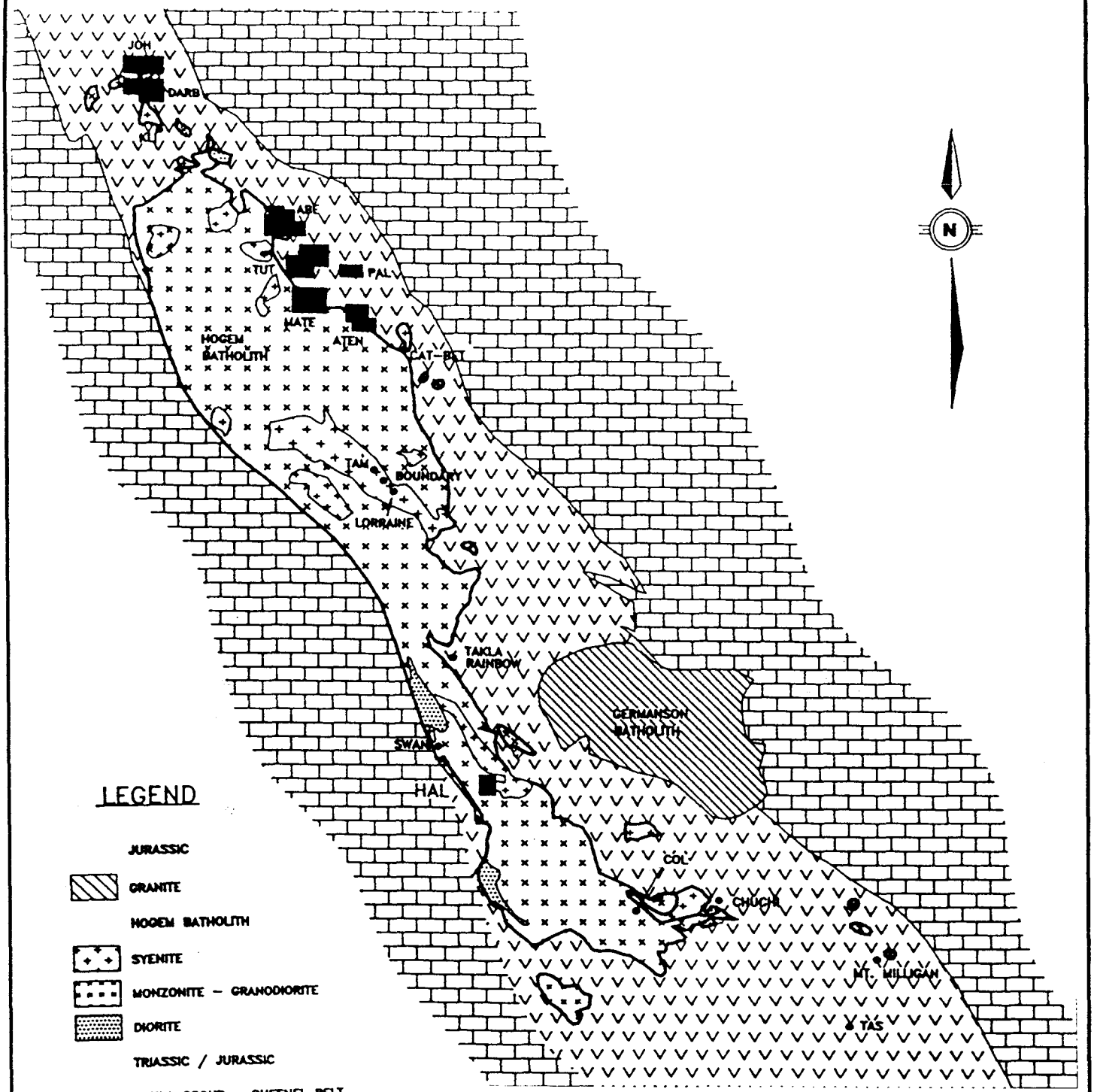
SWANNELL MINERALS CORPORATION

ABE 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 NOV.91	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

48

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ABE PROPERTY

REGIONAL GEOLOGY

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

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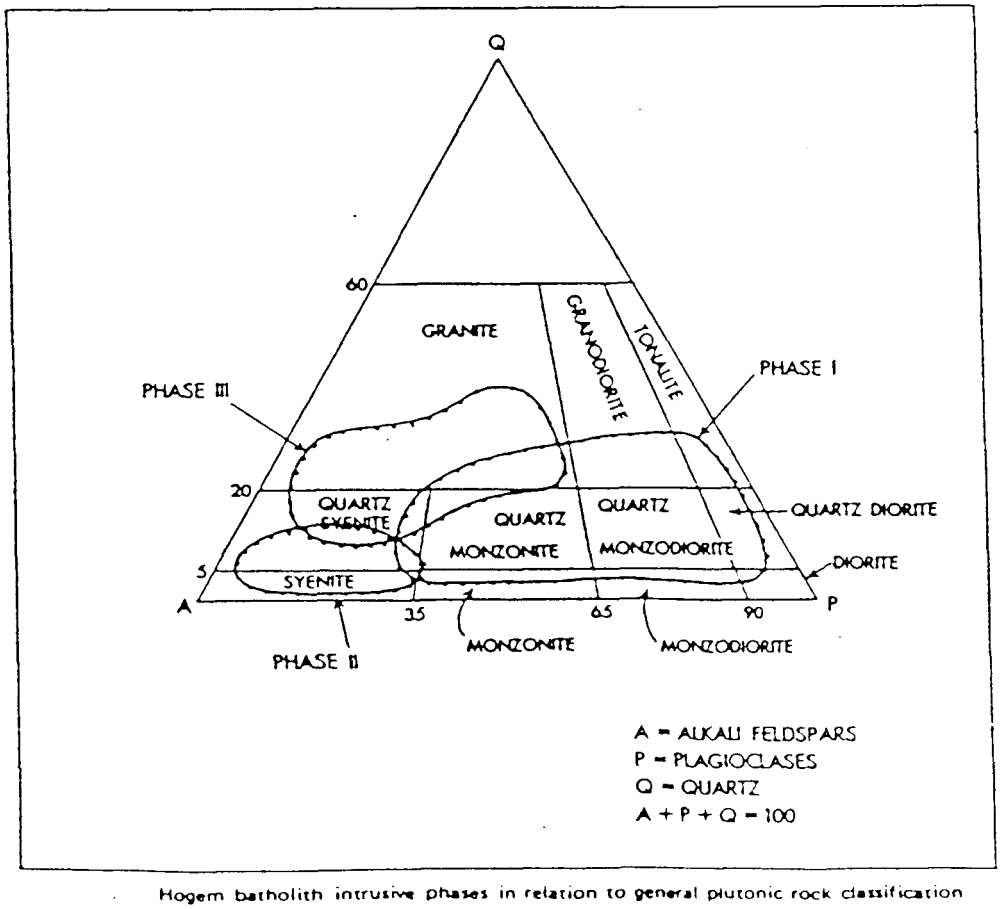
TABLE 1

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 ABE 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

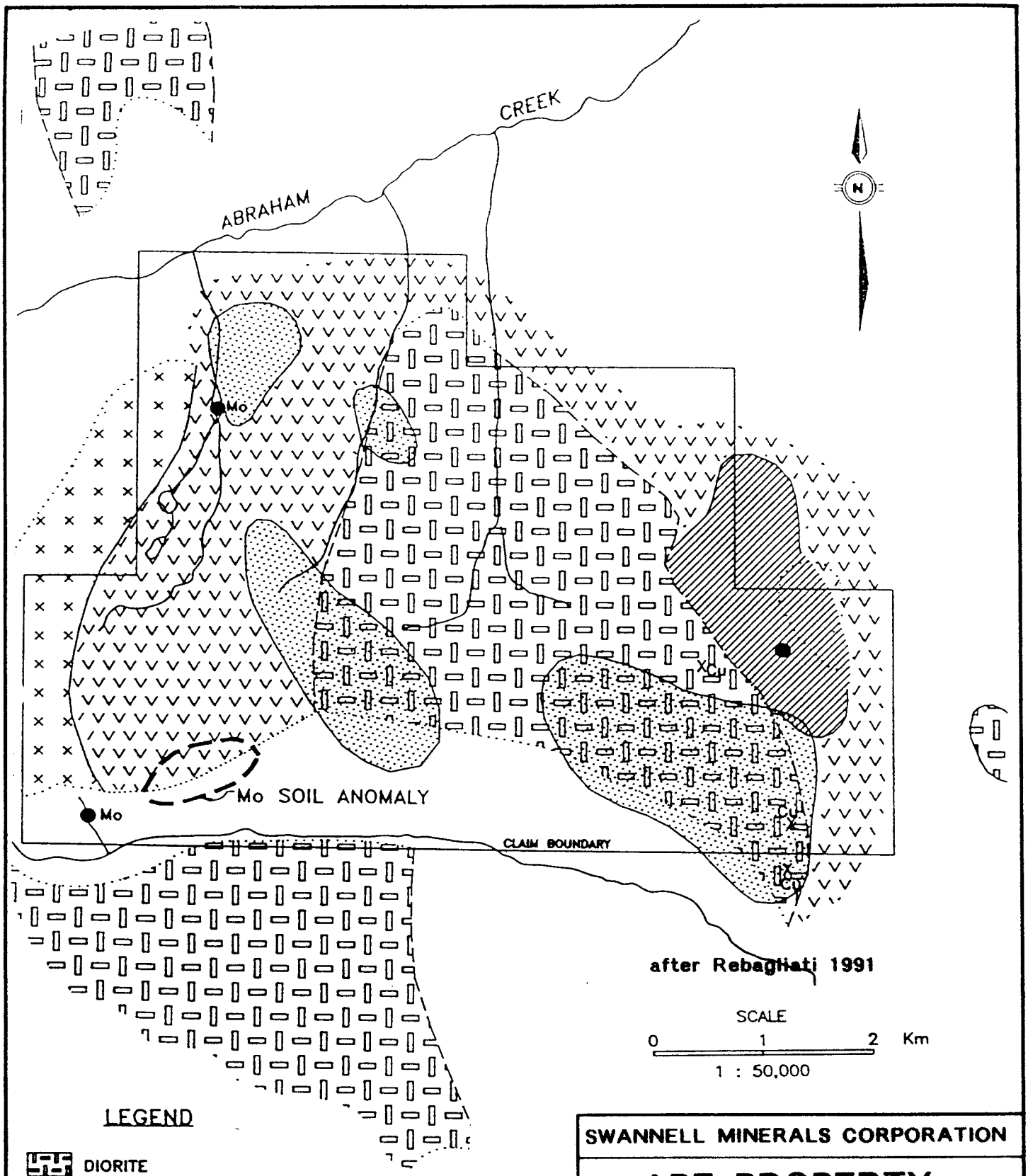
Early work included one short hole diamond drilled on the ABE 4 to test a narrow quartz vein mineralized with pyrite, chalcopyrite, galena and tetrahedrite. This vein had been first sampled during the 1950's by the Geological Survey of Canada during regional geologic mapping.

During the 1970's, the ABE claim area was explored by the UMEX-Wenner Gren Joint Venture. The property was covered by regional aeromagnetic, soil and stream sampling surveys.

Four magnetic anomalies were defined (Figure 5): three on the margin of a diorite stock, and one in Takla volcanics near a contact with the Hogem Batholith.

Soil sampling outlined a 550 by 1550 meter molybdenum anomaly on the ABE 7 and 8 claims.

Copper-molybdenum silt anomalies were discovered on three of the streams that drain the property. No samples were analyzed for gold.



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

ABE PROPERTY

COMPOSITE PLAN
AEROMAGNETICS AND GEOLOGY

Scale 1 : 50,000	N.T.S. 94C/5W,5E	Drawn by
Date NOV.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 - 1300199 - 4 - 5643

6.1 Methods and Procedures

A program of silt and rock sampling and reconnaissance geological mapping was carried out on the ABE 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.

Thirty-seven 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.

6.2 Property Geology (Figure 6)

The general geology of the property consists of Takla Group volcanics that have been intruded by a diorite stock in the central region of the property, by a mafic intrusion in the northeast corner, and by the Hogem Batholith along the western margin of the property. Narrow aplite dykes cut the Takla volcanics where they are in proximity to the diorite and the Hogem Batholith.

6.2.1 Lithologies

Takla Group (Unit 1) Volcanic Rocks:
The Takla Volcanics that were examined were black-grey-green andesitic ash and crystal ash tuffs. Augite phenocrysts in the crystal tuff were up to 2 mm in length, in an aphanitic groundmass.

Intrusive Rocks:
Composition of the Hogem Batholith (Unit 4) on the property is that of a monzonite with minor biotite. It is typically coarse grained and equigranular, and locally it has undergone potassic alteration and has the composition of a quartz syenite.

The diorite (Unit 2) is medium grained and contains minor biotite and hornblende.

The mafic intrusion (Unit 5) is pyroxenite, locally chloritized.

A feldspar porphyry found to the west of the mafic intrusion consists of white potassium feldspar phenocrysts up to 1 cm in length in a fine grained, light to dark grey groundmass.

6.2.2 Alteration

Consists of localized potassic alteration of monzonite and epidote chloritic alteration along fractures in intrusives. Takla volcanics are locally silicified and altered to epidote-chlorite near fracture zones. The pyroxenite on ABE 4 has undergone moderate to intense chloritic alteration.

6.2.3 Mineralization

Mineralization on the property was found as:

a) Disseminated pyrite in quartz veins and stringers, occasionally with malachite;

b) Disseminated molybdenite (± pyrite) in quartz stringers in quartz syenite;

c) Disseminated pyrite and/or malachite, chalcopyrite and bornite in Takla volcanics;

d) Disseminated pyrite and/or malachite in chloritized mafic intrusions.

6.3 Geochemistry (Figure 6)

6.3.1 Rock Geochemistry

The following samples contain significant values in copper (above 1000 ppm) and/or molybdenum (above 500 ppm) and/or gold (above 300 ppb). Complete rock sample descriptions are given in Appendix A.

Sample #	Type	Cu (ppm/ %)	Au (ppb/ oz/ton)	Description & Location
AB91-GKR01	Float	12584 /1.28	>10000 /0.365	At head of Stream 1, northwest corner of ABE 8. Angular talus. Greenish white quartz vein material with intense malachite staining. 5% disseminated chalcopyrite and 2% bornite. 28 ppm silver.
AB91-NR03	Select	3406	70	At head of Stream 4, north-east corner ABE 4. Black, fine-grained ash tuff containing 5 mm wide clear to translucent quartz stringers and 4% fine-grained disseminated pyrite.
		Mo(ppm)		
AB91-NR04	Float	528	<5	Northern portion of ABE 7. Sample of biotite quartz syenite containing quartz veins up to 5 mm wide that contain 1% medium-grained disseminated molybdenite and <1% medium grained pyrite.
AB91-NR05	Float	>1000 /0.14%	5	Northern portion of ABE 7. Sample of biotite quartz syenite containing two cross-cutting quartz veins (5 mm and 1 cm wide) containing medium-grained molybdenite (1%) and pyrite (<1%).

Rock sampling has identified two areas of anomalous copper and gold.

Sample NR03, collected from the northeast corner of ABE 4 in an area where diorite and ultramafic intrusions have been emplaced in Takla volcanics, contains anomalous copper (3406 ppm).

Sample GKR01, from a talus slope in the northwest corner of ABE 8, contains anomalous copper, gold and silver (12,584 ppm Cu; 0.365 oz/ton Au; 28 ppm Ag). It was collected near the contact between the Hogem Batholith and Takla volcanics, and is east of a molybdenite showing on ABE 7.

Two samples from angular float boulders on the ABE 7 claim contain anomalous molybdenum (528 ppm and 0.14% ppm Mo) from a zone of biotite quartz syenite within a quartz monzonite phase of the Hogem Batholith.

6.3.2 Stream Sediment Geochemistry (Figure 6)

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

Based on a visual examination of the values, 200 ppm Cu and 20 ppb Au are considered anomalous.

Three samples from the headwaters of Streams 2, 3 and 4 were anomalous in copper. Results range up to 549 ppm.

A sample from midway down Stream 2 was anomalous in gold (45 ppb).

7. DISCUSSION OF RESULTS

The target deposit on the ABE property is a porphyry copper/gold deposit similar to the Mt Milligan deposit 200 km to the south, and to 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, and is surrounded by an asymmetric propylitic alteration zone.

To date, no extensive propylitic or potassic alteration zones have been identified on the ABE property. Copper mineralization was found in two areas (ABE 4, 8), one of which had anomalous gold values. Molybdenum mineralization was found on the ABE 7 claim.

Other targets include:

a) The headwaters of Streams 2 and 3 where anomalous copper assays were obtained from stream sediment samples;

b) Midway down Stream 2, an anomalous gold value was obtained from a stream sediment sample;

c) A previously identified copper showing in the southern half of ABE 5 that was not investigated during the 1991 work program.

More than half of the property remains to be investigated.

Follow-up work on 1991 targets and on the remainder of the property is warranted.

8. CONCLUSIONS

The writers conclude that the ABE 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 and monzonite stocks intruding Takla volcanics, is favorable;

c) The 1991 work program outlined five target areas with copper, copper/gold and molybdenum mineralization in rocks and stream sediments.

9. RECOMMENDATIONS

Phase I

a) Locate the source of GKR01 on the ABE 8 claim. Establish grids and perform detailed geological mapping and rock sampling of the source area and the area of copper mineralization on the ABE 4 claim and molybdenum mineralization on the ABE 7 claim.

b) Locate the sources of the copper stream sediment anomalies at the headwaters of Streams 2 and 3.

c) Locate the source of the gold stream sediment anomaly midway down Stream 2.

d) Systematically map and rock sample the unexplored areas of the property.

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

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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.

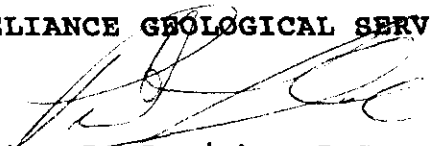
4. I have actively pursued my career as a geologist for twelve years in British Columbia, Ontario, the Yukon and Northwest Territories, Montana, Oregon, Alaska, Arizona, Nevada and California.

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 Corp or any other company which has an interest in the subject claims.

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 20th day of November 1991.

CERTIFICATE

I, **NIGEL B. LUCKMAN**, of 11500 Granville Avenue, Richmond, B.C., do hereby state that:

1. I am a graduate of the University of British Columbia, Vancouver, British Columbia, with a Bachelor of Applied Science Degree in Geology, 1988.

2. I have actively pursued my career as a geological engineer for three years in British Columbia, the Yukon, Montana and California.

3. The information, opinions, and recommendations in this report are based on published and unpublished literature, and my research of and field experience in the general area of the claims. I visited the subject property during the month of October, 1991.

4. I have no interest, direct or indirect, in the subject claims or the securities of any company which has an interest in the subject claims.

5. 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 B. Luckman, B.A.Sc.

Dated at North Vancouver, B.C., this 20th day of November, 1991.

RELIANCE GEOLOGICAL SERVICES INC.

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NORTH VANCOUVER, B.C.
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ITEMIZED COST STATEMENT

ABE PROJECT

Project preparation			$ 250
Mobilization and demobilization (includes transportation, and wages)			$ 2,340
Field Crew:			
Project Geologist	$ 325/day x 2 days	$ 650	
(N Luckman: Oct 10,11/91)			
Field Geologists	$ 275/day x 6 days	$1,650	$ 2,300
(G King, B Chore, T Hannon: Oct 10,11/91)			
Field Costs:			
Helicopter	$ 706/hr x 5.8 hrs	$4,069	
Communications	$ 40/day x 2 days	$ 80	
Food & accommodation	$ 75/day x 8 days	$ 600	
Supplies		$ 120	
Vehicles	$ 80/day x 2 days	$ 160	$ 5,029
Assays & Analysis:			
37 silt samples @ $14/sample		$ 518	
(Aqua regia/AA for Au + 30 element ICP)			
21 rock samples @ $17/sample		$ 357	$ 875
(FA/AA for Au and 30 element ICP)			
Report:			
Drafting and map preparation		$ 600	
Report writing and editing		$1,000	
Word processing, copying, binding		$ 350	$ 1,950
Administration, incl overhead and profit			$ 1,912
Sub-total			$ 14,656
plus 7% G.S.T.			$ 1,026
TOTAL			$ 15,682

APPENDIX A

ROCK SAMPLE DESCRIPTIONS

APPENDIX A

ROCK SAMPLE DESCRIPTIONS

ABE PROPERTY

SAMPLE NO.	DESCRIPTION	WIDTH (cm)
AB 91 BR01	A select sample of a rusty, 2.5 cm wide milky-white quartz vein in diorite containing 4% medium-grained disseminated pyrite.	-
AB 91 BR02	A select sample of rusty weathering pyroxenite, moderately chloritized. 3% medium-grained pyrite, disseminated and in fractures.	-
AB 91 TR01	A select sample of an iron-stained, moderately chloritized pyroxenite with 1 mm wide quartz stringers and <1% disseminated malachite.	-
AB 91 TR02	A select sample of a highly chloritized pyroxenite containing 1 mm wide quartz stringers in fractures and <1% disseminated medium-grained pyrite.	-
AB 91 TR03	A select sample of a slightly rust-stained, highly chloritized pyroxenite with minor quartz infillings in fractures.	-
AB 91 TR04	A select sample of a feldspar porphyry. White potassium feldspar phenocrysts up to 1 cm in length in an aphanitic to fine-grained light to dark grey groundmass.	-
AB 91 TR05	A select sample from a moderately chloritized pyroxenite.	-
AB 91 TR06	A select sample of a rust-stained diorite containing quartz stringers up to 1 cm wide. Slight propylitic alteration.	-
AB 91 TR07	A select sample of a rust-stained diorite containing quartz stringers up to 1 cm wide and 1% disseminated fine- to medium-grained pyrite. Slight propylitic alteration.	-

SAMPLE NO.	DESCRIPTION	WIDTH (cm)
AB 91 NR01	A select float sample of milky-white fine-grained quartz ± clear, coarse-grained calcite as infillings (up to 1 cm wide) in shears in a diorite.	-
AB 91 NR02	A sample from a float boulder of intensely chloritized crystal ash tuff diorite containing 5 mm wide stringers of translucent smoky quartz and 5 mm stringers of pyrite (3%). Malachite present on margins of quartz stringers.	-
AB 91 NR03	A select sample of black fine-grained ash tuff containing 5 mm wide clear to translucent quartz stringers and fine-grained disseminated pyrite (4% in blebs.	-
AB 91 NR04	A select sample from a biotite quartz syenite float boulder containing quartz veins up to 5 mm wide with medium-grained molybdenite (1%) and some fine- to medium-grained pyrite (<1%).	-
AB 91 NR05	A select sample from a biotite quartz syenite float boulder containing two cross-cutting quartz veins (1 cm and 5 mm wide). Larger vein contains disseminated medium-grained molybdenite (1%) and rusted out pyrite (<1%). Smaller vein contains rusted out pyrite (<1%).	-
AB 91 NR06	A select sample of float quartz vein. The vein is milky-white to translucent, contains <1% coarse-grained disseminated pyrite and is hosted in a biotite quartz syenite.	-
AB 91 NR07	A select sample of quartz syenite (potassic-altered monzonite) with 2% disseminated pyrite in fractures and quartz veins up to 1 cm wide.	-
AB 91 GKR01	Greenish white quartz vein material with intense malachite staining. Contains 5% chalcopyrite and 2% bornite occurring in blebs and disseminations.	from 15 x 10 cm talus block

SAMPLE NO.	DESCRIPTION	WIDTH (cm)
AB 91 GKR02	Pyritic, silicified andesite, blue-grey in colour; rusty brown weathered surface. Intense, pervasive silicification. 3-5% disseminated pyrite.	-
AB 91 GKR03	Pyritic andesitic crystal tuff. Dark grey fresh surface; rusty brown weathered surface. Minor epidote veining. Contains 3-5% disseminated and fracture filling pyrite.	-
AB 91 GKR04	Pyritic andesitic crystal tuff. Grey-green to dark grey in colour. Weak to moderate, patchy silicification. Contains 8 to 10% disseminated pyrite.	-

APPENDIX B

ANALYTICAL RESULTS and PROCEDURES

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R E P O R T S U M M A R Y Report:[9100494 R]

A N A L Y T I C A L R E P O R T

Origin Inception Date:[Nov 05, 1991]

Client:[	200	Reliance Geological Services Ltd.]
Contact:[		Peter Leriche]
Project:[	0	748-ABE]
Amount/Type:[	58	Rock -Rock Reject Stored 3 Mon]
[		-Soil Reject Discarded]

Analytical Requisition

Geochemical:[	Au ICP(AqR)30]	
Assay:[	Au(FA/AAS 20g) Cu Mo]	ICP:[30]
Comments:[	FA/Grav for any Au > 1000 ppb	]

Delivery Information Reporting Date:[Nov 13, 1991]

Principal Destination (Hardcopy,Fascimile,Invoice)

Company:[	Reliance Geological Services Ltd.]
Address:[	241 East 1st Street]
City/Province:[	North Vancouver, BC]
Country/Postal:[	V7L 1B4]
Attention:[	Peter Leriche]
Fascimile:[	(604)988-4653]

Secondary Destination (Hardcopy)

Company:[	]
Address:[	]
City/Province:[	]
Country/Postal:[	]
Attention:[	]
Fascimile:[	]

2 data pages in this report. Approved by: _____

B.C. Certified Assayers

iPL CODE: 911119-16:02:03

Report: 9100494 R Reliance Geological Services Ltd. Project: 748-ABE Page 1 of 2 Section 1 of 3

Sample Name	Type	Au ppb	Au ppb	Au oz/st	Cu %	Mo %	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm
AB91 BR 01	Rock	10	--	--	--	--	0.1	6	2	8	<5	6	<3	4	<10	<2
AB91 BR 02	Rock	15	--	--	--	--	0.2	173	2	12	5	14	<3	2	<10	<2
AB91 GKR 01	Rock	>10000	--	0.365	1.28	--	28.0	12584	8	38	<5	<5	<3	7	<10	39
AB91 GKR 02	Rock	5	--	--	--	--	0.2	22	4	9	9	13	<3	25	<10	<2
AB91 GKR 03	Rock	25	--	--	--	--	0.3	69	<2	50	7	<5	<3	2	<10	<2
AB91 GKR 04	Rock	10	--	--	--	--	0.3	24	<2	43	8	9	<3	4	<10	<2
AB91 GKR 05	Rock	10	--	--	--	--	0.2	60	<2	8	9	<5	<3	2	<10	<2
AB91 NR 01	Rock	<5	--	--	--	--	<0.1	10	5	2	<5	7	<3	4	<10	<2
AB91 NR 02	Rock	5	--	--	--	--	0.3	309	<2	9	<5	6	<3	10	<10	<2
AB91 NR 03	Rock	70	--	--	--	--	1.6	3406	<2	72	16	<5	<3	4	<10	<2
AB91 NR 04	Rock	<5	--	--	--	--	0.5	47	14	24	<5	12	<3	528	<10	<2
AB91 NR 05	Rock	5	--	--	--	0.14	0.3	44	12	26	<5	12	<3	>1000	<10	2
AB91 NR 06	Rock	5	--	--	--	--	0.9	12	12	12	<5	11	<3	362	<10	9
AB91 NR 07	Rock	<5	--	--	--	--	<0.1	26	11	30	<5	<5	<3	23	<10	<2
AB91 TR 01	Rock	5	--	--	--	--	1.5	791	6	14	<5	9	<3	8	<10	<2
AB91 TR 02	Rock	<5	--	--	--	--	<0.1	70	6	37	<5	8	<3	3	<10	<2
AB91 TR 03	Rock	<5	--	--	--	--	<0.1	32	<2	15	<5	15	<3	3	<10	<2
AB91 TR 04	Rock	<5	--	--	--	--	0.1	26	8	12	<5	<5	<3	2	<10	<2
AB91 TR 05	Rock	<5	--	--	--	--	0.2	5	33	3	<5	<5	<3	2	<10	<2
AB91 TR 06	Rock	5	--	--	--	--	1.0	100	205	82	<5	<5	<3	3	<10	<2
AB91 TR 07	Rock	25	--	--	--	--	0.2	55	67	61	<5	5	<3	5	<10	<2
AB91 BL 01	Silt	--	<5	--	--	--	0.2	5	6	29	<5	<5	<3	64	<10	<2
AB91 BL 02	Silt	--	<5	--	--	--	<0.1	23	13	54	5	<5	<3	30	<10	<2
AB91 BL 03	Silt	--	<5	--	--	--	0.2	8	9	44	5	<5	<3	54	<10	<2
AB91 BL 04	Silt	--	<5	--	--	--	<0.1	4	8	19	<5	<5	<3	16	<10	<2
AB91 BL 05	Silt	--	<5	--	--	--	0.2	20	6	19	<5	<5	<3	7	<10	2
AB91 BL 06	Silt	--	<5	--	--	--	<0.1	33	4	38	7	<5	<3	3	<10	<2
AB91 BL 07	Silt	--	<5	--	--	--	0.2	34	5	22	<5	<5	<3	6	<10	<2
AB91 BL 08	Silt	--	5	--	--	--	0.2	115	4	35	5	<5	<3	4	<10	<2
AB91 BL 09	Silt	--	<5	--	--	--	0.1	58	3	14	<5	<5	<3	3	<10	<2
AB91 BL 10	Silt	--	<5	--	--	--	0.3	130	40	29	<5	5	<3	3	<10	<2
AB91 BL 11	Silt	--	<5	--	--	--	0.2	249	2	30	7	5	<3	3	<10	<2
AB91 BL 12	Silt	--	10	--	--	--	0.1	163	<2	47	5	7	<3	1	<10	<2
AB91 BL 13	Silt	--	10	--	--	--	0.1	121	<2	31	6	7	<3	2	<10	<2
AB91 BL 14	Silt	--	5	--	--	--	0.2	75	<2	23	6	5	<3	3	<10	<2
AB91 BL 15	Silt	--	45	--	--	--	0.1	119	3	32	5	<5	<3	2	<10	<2
AB91 BL 16	Silt	--	<5	--	--	--	0.2	76	2	26	5	<5	<3	3	<10	<2
AB91 GKL 01	Silt	--	5	--	--	--	0.4	63	20	84	9	<5	<3	14	<10	<2
AB91 GKL 02	Silt	--	5	--	--	--	0.3	115	4	99	8	5	<3	3	<10	<2
Minimum Detection		5	5	0.005	0.01	0.01	0.1	1	2	1	5	5	3	1	10	2
Maximum Detection		10000	10000	1000.000	100.00	100.00	100.0	20000	20000	20000	10000	1000	10000	1000	1000	10000
Method		FA/AAS	GeoSp	FAGrav	Assay	Assay	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

-- = Not Analysed ReC = ReCheck in progress ins = Insufficient Sample

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Report: 9100494 R Reliance Geological Services Ltd. Project: 748-ABE Page 1 of 2 Section 2 of 3

Sample Name	Cd ppm	Co ppm	Ni ppm	W ppm	Ba ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %
AB91 BR 01	0.3	14	19	<5	11	149	22	97	2	18	6	1	0.02	0.43	0.15	4.19	0.24
AB91 BR 02	0.3	40	72	<5	43	377	62	198	<2	13	2	1	0.08	1.00	0.27	4.53	1.46
AB91 GKR 01	1.4	5	11	<5	11	206	19	193	2	59	2	1	0.05	0.52	0.84	1.50	0.18
AB91 GKR 02	0.2	15	30	<5	16	104	45	68	<2	36	2	2	0.14	0.40	0.34	3.58	0.19
AB91 GKR 03	<0.1	19	22	<5	40	85	112	486	3	231	2	4	0.19	2.38	0.96	4.62	1.31
AB91 GKR 04	<0.1	22	23	<5	20	92	100	429	6	150	4	6	0.19	1.65	0.58	>5.00	1.13
AB91 GKR 05	<0.1	29	66	<5	32	90	34	199	<2	143	2	2	0.15	2.35	1.83	2.86	0.38
AB91 NR 01	0.7	4	10	<5	9	89	9	691	<2	175	<1	1	0.01	0.23	>10.00	0.46	0.35
AB91 NR 02	0.2	42	133	<5	2	241	51	165	<2	7	1	8	0.07	0.70	1.64	3.14	1.66
AB91 NR 03	<0.1	108	40	<5	20	115	157	886	<2	3	2	6	0.09	3.09	0.21	>5.00	4.08
AB91 NR 04	0.1	2	5	<5	185	141	5	148	38	48	14	<1	0.03	0.47	0.08	1.47	0.10
AB91 NR 05	0.2	3	<1	<5	194	121	<2	239	46	50	17	<1	0.07	0.36	0.08	1.42	0.15
AB91 NR 06	0.3	1	7	<5	86	248	<2	30	<2	6	2	<1	<0.01	0.19	0.01	1.39	0.02
AB91 NR 07	<0.1	3	3	<5	164	147	15	386	69	52	16	1	0.06	0.48	0.15	1.48	0.19
AB91 TR 01	0.5	22	49	<5	28	289	40	286	<2	28	2	6	0.06	0.58	2.98	4.01	1.31
AB91 TR 02	<0.1	22	58	<5	25	259	64	484	<2	35	1	5	0.12	1.06	5.80	2.34	2.11
AB91 TR 03	0.3	46	172	<5	<2	742	71	389	<2	10	1	3	0.07	1.03	1.93	>5.00	3.48
AB91 TR 04	<0.1	10	13	<5	49	38	44	169	5	31	9	1	0.14	0.68	0.54	0.77	0.73
AB91 TR 05	<0.1	3	5	<5	11	53	13	364	<2	113	1	2	0.09	0.11	5.86	0.25	0.24
AB91 TR 06	1.3	7	8	<5	273	96	44	433	5	40	10	4	0.02	0.60	1.26	1.95	0.46
AB91 TR 07	0.8	20	62	<5	348	191	113	977	4	172	9	14	0.08	1.29	3.89	4.19	2.67
AB91 BL 01	0.1	3	1	<5	112	<1	15	970	45	66	1	<1	0.02	0.71	0.25	1.87	0.11
AB91 BL 02	0.2	3	3	<5	390	1	26	598	77	250	1	<1	0.02	1.02	0.51	2.10	0.23
AB91 BL 03	<0.1	3	2	<5	195	<1	15	607	62	122	<1	<1	0.02	1.05	0.41	1.21	0.17
AB91 BL 04	0.1	2	1	<5	85	<1	14	321	37	53	<1	<1	0.02	0.47	0.25	0.76	0.13
AB91 BL 05	<0.1	2	2	<5	57	<1	25	366	40	44	<1	<1	0.02	0.59	0.37	0.96	0.17
AB91 BL 06	<0.1	11	22	<5	111	37	44	250	18	92	1	2	0.06	1.51	0.57	1.87	0.83
AB91 BL 07	0.3	6	10	<5	75	31	35	290	33	43	1	1	0.02	0.60	0.61	2.50	0.42
AB91 BL 08	<0.1	12	14	<5	80	38	57	437	43	48	1	2	0.05	1.14	0.73	2.35	0.75
AB91 BL 09	0.1	4	5	<5	45	30	35	183	33	34	1	1	0.02	0.48	0.49	1.55	0.26
AB91 BL 10	0.4	18	45	<5	133	202	89	384	9	54	1	2	0.07	0.98	0.96	3.42	1.28
AB91 BL 11	<0.1	41	66	<5	165	183	45	470	2	45	<1	3	0.04	1.62	0.71	2.41	2.20
AB91 BL 12	<0.1	35	67	<5	86	265	109	952	<2	62	1	8	0.08	2.95	0.82	3.83	3.81
AB91 BL 13	0.1	38	87	<5	100	251	81	664	<2	45	1	5	0.06	1.85	0.65	3.64	2.89
AB91 BL 14	<0.1	23	53	<5	54	200	63	490	<2	50	<1	4	0.06	1.41	0.67	2.78	2.09
AB91 BL 15	0.1	27	61	<5	73	199	77	615	2	67	1	5	0.05	1.73	0.79	3.19	2.38
AB91 BL 16	<0.1	22	44	<5	76	151	74	531	2	61	1	4	0.06	1.38	0.59	3.02	1.91
AB91 GKL 01	0.2	15	33	<5	231	57	62	928	26	157	1	2	0.05	2.47	0.93	2.85	1.12
AB91 GKL 02	<0.1	29	59	<5	266	99	81	1076	3	231	1	4	0.11	3.80	1.34	3.66	2.16
Minimum Detection	0.1	1	1	5	2	1	2	1	2	1	1	1	0.01	0.01	0.01	0.01	0.01
Maximum Detection	10000.0	10000	10000	1000	10000	10000	10000	10000	10000	10000	10000	10000	1.00	5.00	10.00	5.00	10.00
Method	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

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Sample Name	K %	Na %	P %
AB91 BR 01	0.18	0.05	0.02
AB91 BR 02	0.09	0.05	0.04
AB91 GKR 01	0.05	0.03	0.06
AB91 GKR 02	0.09	0.07	0.06
AB91 GKR 03	0.83	0.20	0.13
AB91 GKR 04	0.66	0.10	0.12
AB91 GKR 05	0.03	0.25	0.07
AB91 NR 01	0.02	0.01	<0.01
AB91 NR 02	0.09	0.03	<0.01
AB91 NR 03	0.71	0.01	0.01
AB91 NR 04	0.19	0.08	0.02
AB91 NR 05	0.20	0.07	0.02
AB91 NR 06	0.14	0.01	0.01
AB91 NR 07	0.21	0.09	0.02
AB91 TR 01	0.43	0.05	0.01
AB91 TR 02	1.04	0.03	<0.01
AB91 TR 03	0.02	0.01	<0.01
AB91 TR 04	0.14	0.14	0.14
AB91 TR 05	0.05	0.04	<0.01
AB91 TR 06	0.18	0.09	0.07
AB91 TR 07	0.50	0.05	0.07
AB91 BL 01	0.04	0.02	0.04
AB91 BL 02	0.08	0.02	0.09
AB91 BL 03	0.05	0.02	0.07
AB91 BL 04	0.04	0.01	0.06
AB91 BL 05	0.04	0.02	0.05
AB91 BL 06	0.13	0.03	0.08
AB91 BL 07	0.05	0.02	0.07
AB91 BL 08	0.10	0.02	0.08
AB91 BL 09	0.04	0.01	0.08
AB91 BL 10	0.27	0.02	0.06
AB91 BL 11	0.08	0.02	0.11
AB91 BL 12	0.10	0.02	0.07
AB91 BL 13	0.08	0.02	0.08
AB91 BL 14	0.06	0.03	0.07
AB91 BL 15	0.07	0.02	0.08
AB91 BL 16	0.07	0.02	0.07
AB91 GKL 01	0.17	0.03	0.11
AB91 GKL 02	0.43	0.04	0.09
Minimum Detection	0.01	0.01	0.01
Maximum Detection	10.00	5.00	5.00
Method	ICP	ICP	ICP

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Sample Name	Type	Au ppb	Au ppb	Au oz/st	Cu %	Mo %	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm
AB91 GKL 03	Silt	--	10	--	--	--	0.3	98	2	69	5	<5	<3	9	<10	<2
AB91 GKL 04	Silt	--	5	--	--	--	0.2	76	2	68	5	<5	<3	5	<10	<2
AB91 GKL 05	Silt	--	15	--	--	--	0.3	150	<2	79	8	<5	<3	10	<10	<2
AB91 GKL 06	Silt	--	<5	--	--	--	0.3	18	15	42	<5	<5	<3	20	<10	<2
AB91 GKL 07	Silt	--	<5	--	--	--	0.2	18	16	42	<5	<5	<3	21	<10	<2
AB91 NL 01	Silt	--	<5	--	--	--	0.2	292	3	31	5	8	<3	8	<10	<2
AB91 NL 02	Silt	--	5	--	--	--	0.1	29	15	21	<5	10	<3	3	<10	<2
AB91 NL 03	Silt	--	<5	--	--	--	0.3	423	12	47	6	5	<3	26	<10	<2
AB91 NL 04	Silt	--	<5	--	--	--	0.1	82	17	27	<5	8	<3	3	<10	<2
AB91 NL 05	Silt	--	<5	--	--	--	0.1	31	32	32	6	12	<3	2	15	<2
AB91 NL 06	Silt	--	<5	--	--	--	0.1	50	22	31	<5	11	<3	4	<10	<2
AB91 NL 07	Silt	--	<5	--	--	--	0.2	154	6	30	<5	6	<3	8	<10	<2
AB91 NL 08	Silt	--	<5	--	--	--	0.1	116	5	28	5	5	<3	4	<10	<2
AB91 TL 01	Silt	--	15	--	--	--	0.2	549	<2	69	6	7	<3	10	<10	<2
AB91 TL 02	Silt	--	5	--	--	--	<0.1	140	9	47	5	<5	<3	3	<10	<2
AB91 TL 03	Silt	--	<5	--	--	--	0.2	66	50	48	7	10	<3	4	<10	<2
AB91 TL 04	Silt	--	<5	--	--	--	0.1	67	36	35	6	10	<3	4	<10	<2
AB91 TL 05	Silt	--	<5	--	--	--	0.1	79	6	26	<5	<5	<3	3	<10	<2
AB91 TL 06	Silt	--	10	--	--	--	0.1	126	<2	70	9	6	<3	3	<10	<2
Minimum Detection		5	5	0.005	0.01	0.01	0.1	1	2	1	5	5	3	1	10	2
Maximum Detection		10000	10000	1000.000	100.00	100.00	100.0	20000	20000	20000	10000	1000	10000	1000	1000	10000
Method		FA/AAS	GeoSp	FAGrav	Assay	Assay	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

-- = Not Analysed ReC = ReCheck in progress ins = Insufficient Sample

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Sample Name	Cd ppm	Co ppm	Ni ppm	W ppm	Ba ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %
AB91 GKL 03	0.3	21	33	<5	351	47	46	1651	11	118	1	4	0.01	2.08	0.78	3.84	0.93
AB91 GKL 04	<0.1	22	41	<5	142	80	73	789	4	78	1	4	0.09	1.82	0.68	3.32	1.70
AB91 GKL 05	<0.1	30	67	<5	313	126	86	608	6	195	1	5	0.09	2.85	0.95	3.93	2.18
AB91 GKL 06	0.3	7	10	<5	410	23	27	862	36	166	<1	1	0.03	0.98	0.38	1.67	0.37
AB91 GKL 07	0.3	7	9	<5	428	24	27	894	36	172	<1	1	0.03	0.99	0.38	1.69	0.37
AB91 NL 01	<0.1	36	67	<5	48	247	162	514	<2	49	2	8	0.17	1.35	0.99	>5.00	2.00
AB91 NL 02	0.5	26	78	<5	36	427	82	344	<2	9	1	3	0.06	0.75	0.46	4.74	1.59
AB91 NL 03	0.3	43	77	<5	48	201	119	587	<2	37	1	6	0.12	1.43	0.57	4.64	2.11
AB91 NL 04	0.4	34	81	<5	38	394	87	422	<2	11	1	4	0.07	0.99	0.44	4.94	1.94
AB91 NL 05	0.9	46	113	<5	33	882	113	519	<2	10	1	2	0.06	0.70	0.55	>5.00	1.63
AB91 NL 06	0.4	39	102	<5	32	649	95	459	<2	9	1	2	0.06	0.77	0.38	>5.00	1.64
AB91 NL 07	0.3	31	65	<5	48	222	113	410	<2	43	2	5	0.12	1.14	0.73	4.43	1.72
AB91 NL 08	0.1	30	74	<5	47	289	111	410	<2	41	2	5	0.12	1.16	0.75	4.47	1.83
AB91 TL 01	<0.1	43	56	<5	85	243	174	1977	3	68	1	8	0.08	3.57	1.04	>5.00	3.60
AB91 TL 02	0.2	27	27	<5	63	54	150	972	3	96	1	5	0.12	2.02	0.95	4.73	2.04
AB91 TL 03	0.4	37	97	<5	50	472	96	575	<2	20	1	5	0.09	1.41	0.61	4.89	2.92
AB91 TL 04	0.2	32	78	<5	41	414	110	459	<2	19	1	4	0.08	1.02	0.50	>5.00	1.96
AB91 TL 05	0.2	27	59	<5	25	224	149	380	<2	32	1	3	0.09	0.93	0.60	>5.00	1.49
AB91 TL 06	0.2	23	65	<5	72	142	128	753	<2	66	4	6	0.12	2.36	1.51	4.53	2.36
Minimum Detection	0.1	1	1	5	2	1	2	1	2	1	1	1	0.01	0.01	0.01	0.01	0.01
Maximum Detection	10000.0	10000	10000	1000	10000	10000	10000	10000	10000	10000	10000	10000	1.00	5.00	10.00	5.00	10.00
Method	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

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Sample Name	K %	Na %	P %
AB91 GKL 03	0.15	0.02	0.12
AB91 GKL 04	0.15	0.03	0.09
AB91 GKL 05	0.22	0.02	0.09
AB91 GKL 06	0.11	0.02	0.06
AB91 GKL 07	0.11	0.03	0.06
AB91 NL 01	0.32	0.04	0.03
AB91 NL 02	0.20	0.02	0.01
AB91 NL 03	0.36	0.03	0.04
AB91 NL 04	0.22	0.02	0.02
AB91 NL 05	0.25	0.02	0.01
AB91 NL 06	0.19	0.02	0.01
AB91 NL 07	0.28	0.04	0.05
AB91 NL 08	0.27	0.04	0.03
AB91 TL 01	0.16	0.02	0.14
AB91 TL 02	0.16	0.03	0.14
AB91 TL 03	0.25	0.02	0.03
AB91 TL 04	0.17	0.02	0.03
AB91 TL 05	0.10	0.03	0.06
AB91 TL 06	0.10	0.04	0.12
Minimum Detection	0.01	0.01	0.01
Maximum Detection	10.00	5.00	5.00
Method	ICP	ICP	ICP

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Method of ICP Multi-element Analyses

(a) 0.50 grams of sample is digested with diluted aqua regia solution by heating in a hot water bath for 90 minutes, then cooled, bulked up to a fixed volume with demineralized water, and thoroughly mixed.

(b) The specific elements are determined using an Inductively Coupled Argon Plasma spectrophotometer. All elements are corrected for inter-element interference. All data are subsequently stored onto computer diskette.

* Aqua regia leaching is partial for Al, Ba, Ca, Cr, Fe, K, Mg, Mn, Na, P, Sn, Sr and W.

QUALITY CONTROL

The machine is calibrated using six known standards and a blank. Another blank, which was digested with the samples, and a standard are tested before any samples to confirm the calibration. A maximum of 20 samples are analysed, and then a standard, also digested with the samples, is run. A known standard with characteristics best matching the samples is chosen and tested. Another 20 samples are analysed, with the last one being a random reweigh of one of the samples. The standard used at the beginning is rerun. This procedure is repeated for all of the samples.

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Method of Gold analysis by Fire Assay / AAS

(a) 20.0 to 30.0 grams of sample is mixed with a combination of fluxes in a fusion pot. The sample is then fused at high temperature to form a lead "button".

(b) The precious metals are extracted by cupellation. Any Silver is dissolved by nitric acid and decanted. The gold bead is then dissolved in boiling concentrated aqua regia solution heated by a hot water bath.

(c) The gold in solution is determined with an Atomic Absorption Spectrometer. The gold value, in parts per billion, is calculated by comparision with a set of known gold standards.

QUALITY CONTROL

Every fusion of 24 pots contains 22 samples, one internal standard or blank, and a random reweigh of one of the samples. Samples with anomalous gold values greater than 500 ppb are automatically checked by Fire Assay/AA methods. Samples with gold values greater than 10000 ppb are automatically checked by Fire Assay/Gravimetric methods.

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Method of Coppper assay by Titration Analysis

(a) 0.25 to 2.00 grams of sample was digested with multiple acids (HCl, HNO3, H2SO4 & HF) until dried. The sample was then boiled with Bromine water to dissolve any soluble matter.

(b) Ammonium acetate, sodium fluoride and potassium iodide were added to the sample solution as complexing reagents. The concentration of copper was determined by titrating against the sodium thiosulphate solution, using a starch solution as an indicator.

(c) The result, in percentage, was calculated by standardizing the normality of the sodium thiosulphate solution with a known copper standard.

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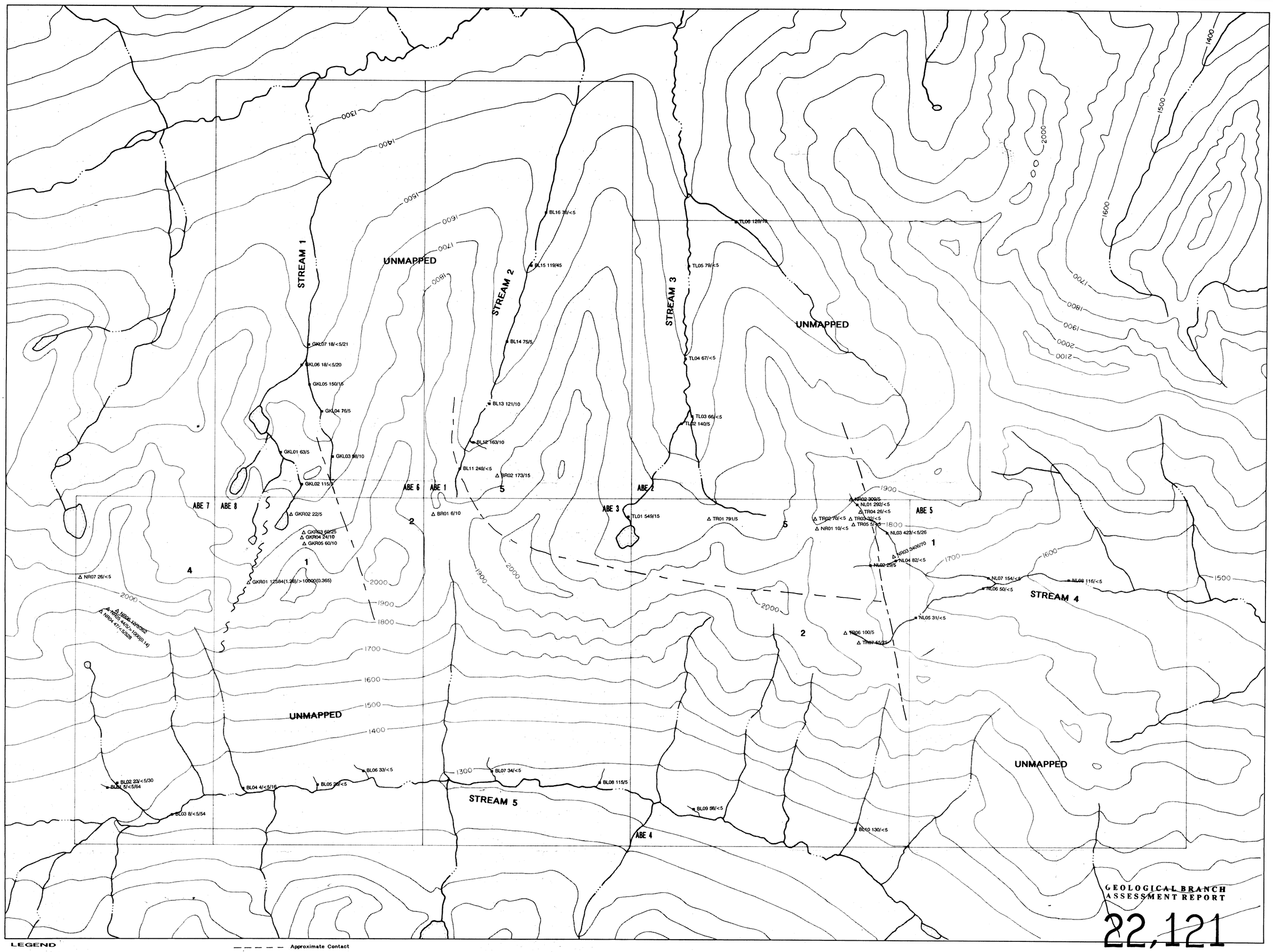
Method of Molybdenum Assay by Gravimetric Analysis

(a) 0.25 to 2.00 grams of sample was digested in a multi-acid solution of concentrated HCL, HNO3, HCLO4 and HF until HCLO4 fumes persisted. Iron and other interfering elements were removed by hydroxide precipitation and filtration.

(b) Ammonium acetate and acetic acid were added as buffer solutions. Lead acetate was added to the sample to form lead molybdate. The precipitate was then filtered, ignited and weighed.

(c) The result, in percentage, was calculated by comparsion between the weight of lead molybdate and the weight of sample.



GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,121

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 Pyroxenite

Approximate Contact
Assumed Contact
Fault/Shear Zone
Contour(100m Interval)
Lake
Creek
Road

△ Rock Sample Location
Cu ppm(%)/Au ppb(oz/ton)/Mo ppm(%)

■ Stream Sediment Sample Location
Cu ppm/Au ppb/Mo ppm

Mo given if >100ppm for rocks, >15ppm for stream sediments

0 100 200 500 750 1000 METRES

N

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GEOLOGY & GEOCHEMISTRY

Scale 1:10,000	N.T.S. 94·C/5E,5W	Drawn by	
Date November 1991	Geologist	Figure 6	

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