ſ	LOG NO:	APR 2 7	1992	RD.
	ACTION:			
CUEN	CAL STERO	DT.		с. <sup>1</sup> . т. т. <b>г</b> .

GEOLOGICAL AND GEOCHEMICAL REPORT

FILE NO:

on the

# **BORG PROPERTY**

# GREEN, ORANGE, BLACK AND RED MINERAL CLAIMS

(Record #'s 4495, 4496, 4497 and 4498)

SUB-RECORDER RECEIVED APR 1 6 1992 M.R. #

VANCOUVER, B.C.

Trapper Lake Area, British Columbia

Atlin Mining Division

N.T.S. 104K/7E

Latitude: 58° 23'N; Longitude: 132° 43'W

for

International Suneva Resources Ltd. 1100 - 808 W. Hastings St. Vancouver, B.C.

by

Azimuth Geological Incorporated 205 - 470 Granville St. Vancouver B.C.

GEOLOGICAL BRANCH ASSESSMENT REPORT

April 1992

Gregory G. Crowe, M.Sc., P.Geol.

1.0

# TABLE OF CONTENTS

# Page

i.

SUMMARY	1
INTRODUCTION	2
LOCATION, ACCESS AND PHYSIOGRAPHY	2
CLAIM STATUS	4
HISTORY	6
REGIONAL GEOLOGY	7
1991 WORK PROGRAM	11
PROPERTY GEOLOGY	11
MINERALIZATION AND ROCK GEOCHEMISTRY	12
SOIL GEOCHEMISTRY	16
CONCLUSIONS	18
REFERENCES	19
CERTIFICATES	21

# **APPENDICES**

A. COSIS INCURRED	A.	COSTS	<b>INCURRED</b>
-------------------	----	-------	-----------------

.

- B. ROCK SAMPLE DESCRIPTIONS
- C. ROCK ANALYTICAL RESULTS
- D. SOIL ANALYTICAL RESULTS
- E. ANALYTICAL TECHNIQUES

i

# LIST OF FIGURES

L

.

.

\*

٠

# Page

FIGURE 1	Location Map	3
FIGURE 2	Claim Map	5
FIGURE 3	Regional Geology Map	8
FIGURE 4	Geology, Soil and Rock Geochemistry	in pocket

# LIST OF TABLES

# Page

TABLE 1	Claim Information	4
TABLE 2	Significant rock sample results	13

## **SUMMARY**

The Borg Property comprises four contiguous claims totalling 80 units and is located in northwestern British Columbia, approximately 100 km northwest of Telegraph Creek and 30 km northwest of the Golden Bear gold mine. Access is by float plane and/or helicopter.

Claims overlie Lower or Middle Triassic, weakly foliated diorite - quartz monzonite and Cretaceous-Tertiary monzonite. Felsic dykes, possibly coeval with Cretaceous-Tertiary Sloco Group volcanics and Tertiary mafic dykes, cut older assemblages along a northwesterly - north-northeasterly trend.

The Borg property was staked because of renewed interest in the area, brought about by the evaluation of the Metla property 2.5 km to the east. Several other mineralized showings evaluated in the 1980's occur within 2 km of the Borg claims.

Current work consisted of contour and ridge-top soil/talus-fine sampling (85 samples), rock sampling (47 samples), reconnaissance geological mapping at 1:5,000 scale and prospecting.

Several highly anomalous rock samples in both base and precious metal values are associated with four types of mineralization. These include: silicified and locally pyritized Cretaceous-Tertiary monzonite; northwest - north-northeasterly trending, narrow quartz veins developed predominantly within the older diorite - quartz monzonite proximal to the younger monzonite; quartz veins developed along-side mafic dykes; and quartz veins, quartz stockworks and quartz breccias developed marginal to felsic dykes. Values to 0.680 oz/t Au, 191.8 ppm Ag, 5040 ppm Cu, 17340 ppm Pb and 26215 ppm Zn have been returned from mineralized grab samples.

Soil/talus-fine sampling outlined several anomalous areas, some of which could not be explained by observed mineralization. These require further definition.

## INTRODUCTION

At the request of Prime Equities Inc. (on behalf of International Suneva Resources Ltd.) Azimuth Geological Incorporated was contracted to evaluate the Borg property using geological and geochemical techniques. The property is located in northwestern British Columbia, 30 km northwest of the Golden Bear mine, in an under-explored but geologically attractive area.

No previous exploration has been recorded on the Borg property, although in 1988, Cathedral Gold evaluated the ground adjacent to the southern boundary of the Borg and uncovered numerous gold, copper and silver rock and soil anomalies. Interest in the area also stems from the discovery of the Metla property by Cominco in 1957 and the discovery of the currently operating Golden Bear Mine. The Metla is located 2.5 km to the east.

Current work was aimed at developing an understanding of the geological setting, of the distribution and tenor of the mineralization and at developing potential drill targets.

### LOCATION, ACCESS and PHYSIOGRAPHY

The Borg claim group is located in the extreme northwest corner of British Columbia (Figure 1), 1200 km northwest of Vancouver and 270 km south-southeast of Whitehorse, Yukon Territory (NTS: 104K/7 - Latitude: 58°23'N; Longitude: 132°43'W). Closest supply towns are Telegraph Creek, 100 km to the southeast; Dease Lake, 150 km to the east; and Juneau, Alaska, 100 km to the west-southwest.

Access to the claim area is possible by float-equipped aircraft to Trapper Lake (5 km northnorthwest) or to Tatsamenie Lake (20 km east). Airstrips for conventional aircraft are located at Tatsamenie Lake, Muddy Lake (30 km southeast) and Tulsequah (60 km westnorthwest). Final access would be by helicopter. A private road provides access from Telegraph Creek to the Golden Bear mine-site at Muddy Lake and is available for public use by prior arrangement with Golden Bear Operating Company.

Physiographically, the claims are located in the Tahltan Highland, a moderately rugged transitional zone between the Stikine Plateau and the eastern ranges of the Coast Mountains. Elevations on the Borg property vary from approximately 900 m in the northwest corner of the property to 2115 m near the centre of the claims. Most of the property is alpine in nature with the exception of the northwest corner of the claims. Here a creek valley trends east-northeasterly and drains into the southern end of Trapper Lake.



## **CLAIM STATUS**

1

The Borg property consists of four modified grid claims totalling 80 units (Figure 2) located in the Atlin Mining Division. Legal Corner Posts could not be found in the field, probably due to snow cover and snow and rock slides. Public records indicate all claims are owned by International Suneva Resources Ltd.

Current claim data as shown in public records is compiled below.

.

## Table 1. Claim data.

Claim Name	Record Number	Units	Expiry Date <sup>1</sup>		
Green	4495	20	March 19, 1993		
Orange	4496	20	March 19, 1993		
Black	4497	20	March 19, 1993		
Rec	4498	20	March 19, 1993		
			·····		

1: Assuming acceptance of current submission.



## HISTORY

ı

.

Although no record remains, it is likely that the general area of the Borg property was prospected in the 1920's and 1930's following discovery of the Tulsequah Chief and Polaris Taku deposits, 61 km to the northwest.

No previous work is recorded on the claims. However, the immediate area surrounding the Borg claims has been evaluated by several major and junior companies.

In 1981, Noranda Exploration conducted an evaluation of the Fool #1 mineral claim (Minfile #26) located 3 km south of the Borg. This property was staked to cover an intrusive hosted molybdenum occurrence. Mafeking Minerals explored the Jony claim group (Minfile #27), 1.5 km west of the Borg. A shear at the contact of rhyolite dykes and quartz monzonite reportedly contained values to 73 oz/t Ag, 0.01 oz/t Au, 10% zinc and 10% copper. Diamond drilling could not reproduce surface results.

A regional geochemical silt survey was conducted over most of map sheet 104K in 1988 by the B.C.D.M. and the Geological Survey of Canada. Several samples draining the Borg claims returned elevated values in zinc, copper, lead, silver, gold and molybdenum.

In 1988 Cathedral Gold staked the ground adjacent to the southern boundary of the Borg property. Several samples returned highly anomalous values in gold, copper and silver. One sample located within 1 km of the Borg property analyzed 99,999 ppm Cu and 5940 ppb Au from a rusty, pyritized and silicified diorite.

Gulf International evaluated the Daisy 8 mineral claim, 1 km southeast of the Borg, in 1988. This ground was also staked in response to the government silt sampling program. Quartz, pyrite mineralization was discovered along the margins of mafic dykes, but values returned were low.



# LEGEND

ŧ

#### (to accompany Figure 3)

#### LATE TERTIARY TO RECENT

- 18 Basalt flows and breccias
- 17 Hearts Peak Fm. felsic flows, pyroclastics, intrusives

## LATE CRETACEOUS AND EARLY TERTIARY

- 16 Quartz monzonite
- 15 Felsite, quartz feldspar porphyry

#### Sloco Group

.

14 Felsic flows and pyroclastics

#### **UPPER JURASSIC AND/OR CRETACEOUS**

12 Diorite to granodiorite

#### LOWER AND MIDDLE JURASSIC

#### Laberge Group

11	Takwahoni Fm conglomerate, sandstone, shale
10	Inklin Fm greywacke, siltstone

#### UPPER TRIASSIC

9 Sinwa Fm. - limestone

#### Stuhini Group

King Salmon Fm. - greywacke, conglomerate, shale, minor volcanic
 Andesite, basalt flows and breccias

### LOWER OR MIDDLE TRIASSIC

6 Foliated diorite

## LOWER TRIASSIC AND EARLIER

4 Greenstone, phyllite, tuff

#### PERMIAN

3 Limestone, dolomitic limestone

#### AGE UNKNOWN

1 Ultramafics, serpentinite

After:Souther, 1971, Schroeter, 1986, Oliver and Hodgson, 1990

Mineralization in the Tulsequah area is dominated by volcanogenic(?) massive sulphide deposits in the Tulsequah district, 61 km west-northwest of the Borg properties, and by shear-hosted precious metal mineralization at and near the Golden Bear deposit. Copper-lead-zinc-gold-silver mineralization at Tulsequah Chief, Big Bull, and Ericksen-Ashby is associated with a contact between Permian felsic pyroclastic rocks and underlying massive andesitic flows (Gunning, 1988; Nelson and Payne, 1983). Most recent (1989) reserves for Tulsequah Chief are given as 5.8 Mt of 1.55% Cu, 1.22% Pb, 6.81% Zn, 2.74 g/t Au, 109.4 g/t Ag. Recent exploration by Cominco Ltd. and Redfern Resources Ltd. is expected to boost this reserve. Across the Tulsequah River at the nearby Polaris Taku property, Suntac Minerals Corporation report probable plus possible reserves of 803,765 tonnes grading 16.1 g/t Au (March 21, 1990 News Release). Mineralization occurs in an arsenopyrite-bearing quartz-carbonate shear zone cutting Permian(?) sediments and tuffs. Grade and geological setting suggest similarities with the Golden Bear deposit.

ı.

The Golden Bear deposit, located 28 km southeast of Borg (Figure 3), is being actively mined by Chevron Minerals Ltd. and North American Metals Corp. (Homestake Mining Company) who report (1990 Annual Report) proven plus probable reserves (before mining) of 569,453 tonnes grading 17.60 g/t gold. Mineralization at Golden Bear consists of pyrite-arsenopyrite-scorodite-native gold within a persistent quartz-carbonate altered shear cutting Permian to Lower Triassic(?) limestone and metasediments.

The Thorn property, located 17 km northwest of Borg (Figure 3), is underlain by Eocene Sloko felsic volcanics intruded by a small quartz-feldspar-porphyry stock (Woodcock, 1987). Gold and silver are associated with both linear, east-west trending, pyrite-arsenopyrite-tetrahedrite-bearing silicified zones and with pods and lenses of pyrite-tetrahedrite-enargite. The property was drilled in 1986 by American Reserve Mining Corporation.

## **1991 WORK PROGRAM**

ı

Current work was conducted between July 23 and August 1, 1991 by three geologists (L. Lyons, W. Taylor and M. Vaskovic), two junior geologists (P. McCarthy and S. Cormier) and two assistant (T. Muraro and H. Culbert). G. McArthur also visited the property and collected several rock samples. Field work was supported from common camp facilities at Trapper Lake (8 km north-northeast of Borg) where a contract Bell 206B helicopter supplied by Trans North Air was available for claim access.

Field work consisted of contour soil/talus-fine sampling at 25 m and 50 m intervals (approximately 4.2 km of line; 85 samples), 1: 5,000 scale mapping and prospecting. During mapping, samples of altered and mineralized float and outcrop were routinely taken (47 samples).

## **PROPERTY GEOLOGY**

Current reconnaissance mapping at 1:5,000 scale (Figure 4) was completed by G. McArthur, L. Lyons, W. Taylor and M. Vaskovic between July 23 and August 1st, 1991 using airphotos and topography for control. Mapping generally confirmed regional mapping by Souther (1971) and identified two major map units and two minor dyke assemblages as described below. Mapping on the property was locally hindered by the abundance of talus, snow cover and by steep topography.

## Lithologies

### 3. Foliated quartz diorite:

Much of the property is underlain by a weak to moderately foliated intrusive of quartz monzonite to quartz diorite composition. Mafic constituents are chloritized and together with patchy epidote impart a dark green colour to the intrusive. The intrusive is fine to medium grained. In general this older intrusive is well fractured and cut by chlorite-calcitequartz-hematite microveins. Narrow shears trending northwesterly to north-northeasterly are abundant.

Souther (1971) considered this intrusive to be Lower or Middle Triassic in age (Unit 6 on Figure 3).

### 11. Felsic dykes:

.

Massive, cream to pink coloured feldspar porphyry and feldspar quartz porphyry dykes crosscut the intrusives. These dykes are generally fresh and only rarely silicified and pyritic. Souther (1971) noted that these felsic dykes are often spatially associated with Sloko Group volcanics and considered them coeval and consanguineous with the Sloko Group (Unit 14 on Figure 3).

i.

Felsic dykes consistently trend northwesterly and north-northeasterly and dip steeply.

## 12. Monzonite:

Medium to coarse grained, pink to pink-grey monzonite outcrops in the northern portion of the property. Biotite and hornblende occur in equal proportions. Pyritic gossans are associated with this unit on the northern portion of the claims and the intrusive is locally silicified. This unit is probably equivalent to Souther's (1971) Late Cretaceous and Early Tertiary Unit 16.

## Mafic Dykes:

Basaltic and lesser andesitic dykes cut the older intrusives. These dykes are possibly related to the Late Tertiary and Pleistocene Level Mountain Group (Unit 18) as mapped by Souther (1971). Dykes generally follow a northwesterly to north-northeasterly trend, similar to that displayed by the felsic dykes.

## MINERALIZATION AND ROCK GEOCHEMISTRY

Rock samples were taken of all mineralized and altered float and outcrop encountered while prospecting or soil sampling. Several areas containing significant veining and/or base or precious metals were identified. Significant sample results are tabulated in Table 2 and results are discussed in more detail below. Rock descriptions for all samples are located in Appendix B and analytical results are given in Appendix C.

# Table 2Significant Sample Results

• • • • • •

•

Sample #	Description	ppb Au	ppm Ag	ppm Cu <sup>1</sup>	ppm Pb <sup>1</sup>	ppm Zn <sup>1</sup>
18080	Monzonite intrusive with trace chalcopyrite, pyrite and malachite	1	13.2	5040	508	358
18083	Basaltic dyke cutting pyritic monzonite, veins with sphalerite, tetrahedrite (?) and galena	191	11.2	1443	13959	14035
18084	Gossan, monzonite adjacent to basaltic dyke with veins of pyrite, sphalerite, tetrahedrite (?) and galena	3	12.4	605	17340	26215
18144	Quartz veining in a shear trending 320°	825	16.5	22	48	29
18145	Rusty quartz vein material, minor pyrite	21800 (0.680 oz/t)	191.8 )	59	208	18
18146	Quartz-eye porphyry dyke with disseminated pyrite in a 10 m wide shear at 360°/50°	292	2.7	5	18	28

# Table 2 cont'dSignificant Sample Results

•

•

-

•

Sample #	Description ppb Au ppn			ppm Cu <sup>1</sup>	ppm Pb <sup>i</sup>	ppmZn <sup>1</sup>	
18167	Fault at 358°/45° hosting 10-15 cm quartz on footwall side, 80 cm mafic dyke and 10 cm carbonate breccia, trace pyrite	10	14.1	114	506	583	
18169	Fault at 355%/90%, 2 m wide, cutting diorite,	104	5.3	37	31	24	
	hosts quartz stringering in clay alteration zone						
18170	Fault, 2-3 m wide, hosts quartz stockwork in felsic dyke, trends 345°/90°	223	6.4	44	131	141	
18173	Blocks at base of snowfield containing 10% combined pyrite and sphalerite in mafic dyke material	140	14.8	217	6010	4329	
18174	Rusty, silicified material	205	15.3	225	6142	4485	
18525	Pyritic monzonite, magnetite and pyrite along fractures	1800 (0.064 oz	15.8 /t)	38	6305	1497	
18920	Drusy, 10 cm quartz vein in fresh monzonite, minor carbonate	1	5.5	143	8353	8064	

# Table 2 cont'dSignificant Sample Results

,

τ.

•

-

Sample #	Description	ppb Au	ppm Ag	ppm Cu <sup>ı</sup>	ppm Pb <sup>1</sup>	ppmZn <sup>ı</sup>
	· · ·					
18570	Bleached, silicified monzonite with 10-15% galena and pyrite, trace to 1% sphalerite	1	3.4	182	6505	5509
18571	Silicified monzonite, 5-7% galena and pyrite, trace sphalerite	5	8.7	453	10079	5138
18945	As 18944, but more strongly silicified, pyrite and possible sphalerite	2	1.6	73	121	6386
18946	Same as 18945	18	7.5	180	394	12077
18947	Drusy quartz vein to 30 cm, botryoidal textures, blebs of pyrite, near feldspar porphyry dyke contact at 135°/48°W	3300	5.9	52	32	386

1: Samples with <200 ppb Au and/or 5.0 ppm Ag and >200ppm Cu or 250 ppm Pb or 1000 ppm Zn are also shown

Four types of mineralization were noted on the claims. These include: altered monzonite hosting disseminated pyrite, chalcopyrite, malachite, sphalerite +/- galena; quartz veining developed marginal to northwest - north-northeasterly trending mafic dykes; quartz veins cutting fresh to altered diorite; and quartz veining/stockwork quartz breccia associated with felsic dykes.

.

Spatially, the bulk of the intrusive hosted mineralization that was sampled is associated with the younger monzonite (Unit 12? on Figure 4) in the northern portion of the claims (Green and Black claims). Here the monzonite is locally silicified and pyritized. Mineralization consists locally of up to 10% galena + pyrite with lesser sphalerite and chalcopyrite. Samples of this type of mineralization returned analyses to 0.064 oz/t Au and 15.8 ppm Ag (# 18525 - Table 2), 5040 ppm Cu (#18080), 10079 ppm Pb (#18571) and 12077 ppm Zn (#18946).

Quartz veining that returned significant results occurs predominantly in the central and southern portions of the property and appears to lie within the older, less altered diorite - quartz monzonite (Unit 3 on Figure 4), peripheral to the younger, locally mineralized monzonite. These veins are northwesterly to north-northeasterly trending and are often contained within like oriented shears. Veins are generally narrow (10's of centimetres), and comprise drusy quartz +/- carbonate and may host minor pyrite. Associated shears may be clay altered. Values to 0.680 oz/t Au and 191.8 ppm Ag (# 18145 on Table 2) have been returned from these types of veins. Base metal values are generally low, but one sampled analyzed 8353 ppm Pb and 8064 ppm Zn (# 18920).

Locally, quartz veining, quartz stockwork and quartz breccia occur marginal to mafic and/or felsic dyking. Those associated with felsic dykes have returned values to 3300 ppb Au (# 18947) and 6.4 ppm Ag (# 18170) with low base metals. Veining developed marginal to mafic dykes contains lower precious metal values (191 ppb Au - # 18083 and 14.1 ppm Ag - # 18167), but higher base metals (1443 ppm Cu - # 18083, 17340 ppm Pb -# 18040 and 26215 ppm Zn - # 18084).

#### SOIL GEOCHEMISTRY

The 85 soil samples were taken along two contour lines and one ridge-top line. Most samples were taken at a 50 m spacing, except where rock and talus prevented sampling. Because of the steep slopes there is no soil development on the grid and all samples were of talus-fine material. Samples were taken at depths between 5 and 35 cm, placed in Kraft bags and shipped to Min-En Labs in Vancouver (Line 1530) for 30 element ICP and geochemical gold analysis. Analytical results are included in Appendix D and analytical procedures are located in Appendix E.

Gold and silver results are plotted on Figure 4 while all results are compiled in Appendix D.

Gold values vary from 5 ppb to 95 ppb while silver values vary from 0.1 ppm to 3.6 ppm. Copper values range from 16 ppm to 345 ppm, lead values range from 9 ppm to 450 ppm and zinc values range from 34 ppm to 1023 ppm.

Two areas containing elevated base and/or precious metal values occur along the lines sampled. Several other isolated anomalies are also present.

One anomalous area, on the northern portion of the Black claim, occurs along line 1240, between stations 2+10W and 7+00W. Here, weakly to moderately elevated gold (>25 ppb Au), silver (>1.0 ppm Ag) and spot Cu (>100 ppm Cu) values occur. Up-slope from this, several rock samples returned values that were highly elevated in Au, Ag, Cu, Pb and Zn (samples 18083-84 and 18570-71).

On the western margin of the Green/Red claims and in the central portion of the Green claim, weakly to moderately elevated Au, Ag, Cu, Pb, Zn and As values define two sub-areas separated by a wide stretch (700m) of no sampling. To the south, values to 95 ppb Au, 1.7 ppm Ag, 154 ppm Cu, 321 ppm Pb and 553 ppm Zn occur marginal to rock samples that returned up to 3300 ppb Au (# 18947) and 12077 ppm Zn (# 18946). In the central portion of the Green claim talus-fines analyzed up to 50 ppb Au, 3.6 ppm Ag, 345 ppm Cu, 450 ppm Pb, 390 ppm Zn and 38 ppm As. No obvious mineralization was found in this area and, as such, no rock samples were collected.

Not enough samples were collected to provide a statistical basis for detecting anomalous thresholds. The magnitude of some of the anomalies however, combined with the spatial association between weakly elevated areas and in-situ mineralization suggests any cluster of weakly anomalous values be investigated.

## CONCLUSIONS

1

The claims are underlain by two ages of intrusive; Lower to Middle Triassic foliated diorite quartz monzonite and Cretaceous-Tertiary monzonite. The younger monzonite is locally silicified and/or pyritized. Feldspar +/- quartz porphyry dykes, possibly coeval with the Cretaceous-Tertiary Sloco Group, cut both intrusives in a northwesterly - north-northeasterly trend. Late (Tertiary) mafic dykes follow the same structural orientation as the felsic assemblages.

High grade base and precious metal values are associated with four types of mineralization on the property. These include; silicified and locally pyritized Cretaceous-Tertiary monzonite, northwest - north-northeasterly trending narrow quartz veins developed marginal to the monzonite, quartz veins developed along-side mafic dykes and quartz veins, quartz stockworks and quartz breccias developed marginal to felsic dykes. Values to 0.680 oz/t Au, 191.8 ppm Ag, 5040 ppm Cu, 17340 ppm Pb and 26215 ppm Zn have been returned from mineralized grab samples.

Reconnaissance soil/talus-fine sampling along two contour lines and one ridge line returned weakly to moderately elevated precious and base metal values. Clustered anomalies were noted marginal to areas with mineralized rock in-situ. Several spot anomalies and one cluster anomaly on the Green Claim require further investigation.

Soil sampling was not sufficient in order to treat the data statistically, however, the magnitude of some of the elevated values suggests these anomalous zones are significant and are locally documented to reflect the down-slope dispersion from areas of known mineralization. Further talus fine sampling needs to be conducted across the claims at several elevations.

Rock samples have returned highly anomalous values in both base and precious metals. Although some of the mineralization is associated with narrow quartz veining, significant base and precious metal values have been returned from potentially large areas of altered intrusive. Geological mapping and more extensive prospecting and sampling are required in order to more fully understand the nature and extent of these systems.

#### BIBLIOGRAPHY

ı

- Gunning, M.H., 1988, Tulsequah Chief; in Exploration in British Columbia 1987, B.C. Ministry of Energy, Mines and Petroleum Resources, pp. B78 - B83.
- Monger, J.W.H., 1980, Upper Triassic Stratigraphy, Dease Lake and Tulsequah Map Areas, Northwestern British Columbia; in Current Research, Part B, Geological Survey of Canada, Paper 80-1B, pp. 1-9.
- Nelson, J. and Payne, J.G., 1983, Palaeozoic Volcanic Assemblages and Volcanogenic Massive Sulphide Deposits near Tulsequah, British Columbia, Canadian Journal of Earth Sciences, V. 21, pp. 379-381.
- Oliver, J.L. and Hodgson C.J., 1988, Geology and Mineralization, Bearskin (Muddy) and Tatsamenie Lake District (South Half), Northwestern British Columbia, geological Fieldwork 1988, Ministry of Energy, Mines and Petroleum Resources, Paper 1989-1, pp. 443-453.
- Schroeter, T.G., 1986, Muddy Lake Project, Geological Fieldwork 1985, Ministry of Energy, Mines and Petroleum Resources.
- Schroeter, T.G., 1987, Golden Bear Project, Geological Fieldwork 1986, Ministry of Energy, Mines and Petroleum Resources, Paper 1987-1, pp. 103-109.
- Souther, J.G., 1971, Geology and mineral deposits of Tulsequah map-area, British Columbia (104K), Geol. Surv. Canada Memoir 362.
- Walton, G., 1983, Geological and Geochemical Survey of Rod Group, Atlin Mining Division, November 1983, B.C.D.M. Assessment Report 11819.

Walton, G., 1984a, Geological, Geochemical and Physical work, Outlaw 1-4 Claims, June, 1984, B.C.D.M., Assessment Report 12654.

L

- Walton, G., 1984b, Geological, Geochemical Surveys, Inlaw Claim, October, 1984, B.C.D.M., Assessment Report 12654.
- Walton, G., 1985a, Compilation Report, Geology and Geochemistry, Outlaw 1-4, Inlaw 1 Claims, February, 1985, unpublished report.
- Walton, G., 1985b, Physical Work, Outlaw 1-2 Claims, November, 1985, B.C.D.M. Assessment Report.
- Woodcock, J.R., 1987, Drilling Report on the Thorn Property, B.C.D.M. Assessment Report 15,897.

# CERTIFICATE

t.

I, Gregory G. Crowe, of Bowen Island, British Columbia hereby certify that:

- 1) I am a geologist residing on Bowen Bay Road, Bowen Island, B.C.
- 2) I hold a degree of Bachelor of Science in Geology from the Carleton University, 1977.
- 3) I hold a degree of Master of Science in Structural Geology from the University of Calgary, 1981.
- 4) I have practised my profession since 1975.
- 5) I am a member of the Association of Professional Engineers, Geophysicists and Geologists of Alberta (Membership #35569) and am a Fellow of the Geological Association of Canada (#F3859).
- 6) This report is base on work done under my direct supervision.

Dated on this 16th day of April, 1992 at Vancouver, B.C.

Gregory G Crowe, M.Sc., P.Geol., F.G.A.C.

Appendix A

•

-

4

# COSTS INCURRED

.

# COSTS INCURRED - JULY 23 TO AUGUST 1, 1992

i

Mobilization		\$ 500.00
Supervision - R. M. Cann/G. Crowe	2.3 @ \$400/day	920.00
Field superv L. Haynes/J. Lehtinen	1.9 @ \$375/day	712.50
Sr. geol L. Lyons/W. Taylor/M. Vaskovic	3.0 @ \$350/day	1,050.00
Jr. geol P. McCarthy/S. Cormier	0.3 @ \$250/day	75.00
Ass't - T. Muraro/H. Culbert	2.6 @ \$225/day	585.00
Consultant - G. McArthur	-	455.00
Food and accom. at Trapper Lk. camp	11.1 @ \$120/manday	1,332.00
Consumable supplies & equip. rental	11.1 @ \$25/manday	277.50
Portable radio rentals		50.00
Helicopter (Trans North)	0.9 @ \$750/hr	675.00
Analytical		
Soils (Au+30 element ICP)	85 @ \$12	1,020.00
Rocks (Au+30 element ICP)	47 @ \$17	799.00
Assays	2 @ \$18.5	37.00
Camp Construction - Jempland (proportional	l share)	2,668.00
Report		
Drafting		500.00
Copying/Reproductions		232.42
Writing		 1,000.00
TOTAL		\$ 12,888.42

Appendix B

.

٣

ı

# **ROCK SAMPLE DESCRIPTIONS**

# Sample # Location - UTM Type

# Description

18080	634560E 6474210N	grab	Monzonite intrusive with trace chalcopyrite, pyrite and malachite
18081	634750E 6475050N	grab	Gossanous, pyritic monzonite
18082	634700E 6475030N	grab	Gossanous, pyritic monzonite
18083	634650E 6475060N	grab	Basaltic dyke cutting pyritic monzonite, veins with sphalerite, tetrahedrite (?) and galena
18084	634640E 6475080N	grab	Gossan, monzonite adjacent to basaltic dyke with veins of pyrite, sphalerite, tetrahedrite (?) and galena
18085	634820E 6475110N	grab	Gossan, pyritic monzonite adjacent to basaltic dyke
18086	634830E 6475150N	grab	Gossan, pyritic monzonite
18141	632950E 6472300N	grab	1 m shear with rusty quartz veins cutting diorite at 320°, minor pyrite
18142	633075E 6472450N	grab	Quartz veins in 340°/steep 6 m rusty shear, note mafic dyke
18143	633320E 6472550N	grab	Quartz vein with breccia, trending 040°
18144	633565E 6472960N	grab	Quartz veining in a shear trending 320°
18145	634425E 6473455N	float	Rusty quartz vein material, minor pyrite

Sample #	Location - UTM	Туре	Description
18146	635290E 6473460N	grab	Quartz-eye porphyry dyke with disseminated pyrite in a 10 m wide shear at 360°/50°
18166	632960E 6472090N	grab	Quartz stringer zone in shear with clay altered margins, cutting diorite, trace pyrite
18167	633050E 6472120N	grab	Fault at 358°/45° hosting 10-15 cm quartz on footwall side, 80 cm mafic dyke and 10 cm carbonate breccia, trace pyrite
18168	633130E 6472110N	float	Rusty, andesite dyke cutting diorite, 1-3% pyrite
18169	633230E 6472220N	grab	Fault at 355°/90°, 2 m wide, cutting diorite, hosts quartz stringering in clay alteration zone
18170	633280E 6472300N	grab	Fault, 2-3 m wide, hosts quartz stockwork in felsic dyke, trends 345% 90%
18171	633600E 6472580N	grab	Fault, 3-4 m wide, quartz stockwork, mafic dyke in fault, minor chalcopyrite
18172	633640E 6472600N	float	Diorite with pyrite filled fractures
18173	633750E 6472550N	float	Blocks at base of snowfield containing 10% combined pyrite and sphalerite in mafic dyke material
18174	633900E 6472750N	float	Rusty, silicified material
18525	635260E 6473840N	grab	Pyritic monzonite, magnetite and pyrite along fractures

and the second second

# Sample # Location - UTM Type

Description

18526	635150E 6474350N	grab	Monzonite, some silica flooding, veins and lenses of pyrite
18527	635170E 6474430N	grab	Bleached and altered monzonite, 5-7% finely disseminated pyrite
18528	634720E 6475010N	grab	Narrow quartz vein in altered (sericite and clay) monzonite and pyrite
18920	636060E 6474410N	grab	Drusy, 10 cm quartz vein in fresh monzonite, minor carbonate
18921	636000E 6474420N	rubble	Drusy, chalcedonic quartz vein material
18922	635020E 6473560N	grab	Altered monzonite, pyrite, sericite, limonite in fractures near felsic dyke
18233	634785E 6475215N	grab	Gossanous, monzonite with pyrite in fractures
18234	634770E 6475230N	grab	Gossanous zone to 1 m, quartz vein material cutting monzonite, pyritic and chloritic
18235	634745E 6475200N	grab	Gossanous monzonite, pyritic and quartz rich
18236	634690E 6475215N	grab	Gossanous, pyritic monzonite, fracturing at 188°/vertical
18237	634055E 6475065N	float	Vuggy quartz vein material, limonite and disseminated pyrite
18568	635100E 6475220N	grab	Moderately altered monzonite, bleached, mafics to chlorite, weakly silicified, sericite, chlorite-pyrite veinlets and disseminated pyrite to 2-3%

Sample #	Location - UTM	Туре	Description
1856 <b>9</b>	635065E 6475300N	grab	Rusty, narrow (5-10 cm) quartz vein in moderately silicified monzonite, 20-30% pyrite in vein
18570	634710E 6475120N	float	Bleached, silicified monzonite with 10-15% galena and pyrite, trace to 1% sphalerite
18571	634710E 6475120N	float	Silicified monzonite, 5-7% galena and pyrite, trace sphalerite
18572	634770E 6475140N	chip	1.0 m wide quartz vein and silicified monzonite, 5-10% pyrite
18573	634540E 6475110N	grab	Weakly silicified monzonite, mafics to chlorite, 2-3% disseminated pyrite
18574	634290E 6474640N	grab	Intensely silicified monzonite, trace sericite, 2-3% disseminated pyrite, strongly fractured with pyrite along fractures
18575	634290E 6474690N	chip	Discontinuous chip over 12 m from same site as 18574
18944	632320E 6473280N	float	Altered intrusive, pyrite in blebs, epidote
18945	632330E 6473210N	float	As 18944, but more strongly silicified, pyrite and possible sphalerite
18946	632320E 6473170N	float	Same as 18945
18947	632600E 6472970N	grab	Drusy quartz vein to 30 cm, botryoidal textures, blebs of pyrite, near feldspar porphyry dyke contact at 135°/48°W
18948	632590E 6472920N	grab	Quartz-eye, K-feldspar porphyry dyke, 2-4 m wide, locally sericite altered with trace specks of pyrite, dyke trends 136°/57°SW

Appendix C

.

•

.

í

# ROCK ANALYTICAL RESULTS

COMP: AZIMUTH GEOLOGICAL INC.

PROJ: BORG GDZBO

#### MIN-EN LABS --- ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2

FILE NO: 1S-0264-RJ1

•

ATTN: GREG CROWE/JERRY BLACKWELL

(604)980-5814 OR (604)988-4524

	DAT	E: 91/08/06
*	ROCK *	(ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B BA PPM PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO NA PPM PPI	A NI M PPM	P PPM	Р <b>В</b> РРМ	SB PPM	SR TH PPM PPN	I TI PPM	V PPM	ZN PPM	GA PPM F	SN PPM F	W CR PPM PPM	AU-FIRE PPB
18080 18081 18082 18083 18084	13.2 .2 .2 11.2 12.4	7900 6740 6000 18550 7850	16 1 1 16	11 111 8 436 7 458 11 77 9 61	.3 .9 .6 .1	1 1 12 5	10430 9540 11010 12310 10100	4.2 .1 .1 226.6 467.4	22 6 5 23 10	5040 67 20 1443 605	28470 18030 15720 60400 34660	1040 3900 3360 1120 640	12 4 3 34 10	7160 1650 1560 21570 6630	330 134 158 2888 827	15 36 2 90 1 420 57 240 14 380	0     1       0     1       0     11       0     1       0     1	1480 900 750 3170 560	508 26 19 13959 17340	15 1 12 20	40 2 20 2 18 2 46 1 36 2	862 12 20 2753 532	47.7 8.3 10.8 80.0 21.2	358 18 24 14035 26215	2 1 1 2	1 1 3 2	4 61 3 79 3 67 1 102 1 65	1 1 2 191 3
18085 18086 18141 18142 18143	.5 .2 .2 5.5 .3	13020 6220 8200 5270 6550	6 2 32 25 14	6 489 3 622 3 133 5 204 2 17	.5 .2 .5 .6 .7	2 1 1 1	12260 990 2020 3100 300	.8 .1 .1 .1	63553	24 9 55 18 13	20670 8800 15510 10060 7710	6030 3080 1610 2390 2720	7 3 14 3 6	4900 2350 4430 1440 2340	157 52 155 638 117	3 500 1 550 21 30 249 20 17 10	0 1 0 1 0 1 0 5 0 12	740 300 490 530 210	224 97 39 94 36	1 1 5 1	23 3 13 2 9 1 9 1 4 1	109 46 20 13	13.0 8.3 17.6 48.1 27.8	270 102 70 51 47	32222	1 1 1 1	5 117 3 68 6 148 8 193 8 197	1 2 16 80 2
18144 18145 18146 18166 18167	16.5 191.8 2.7 1.4 14.1	2430 1590 3880 9440 13600	58 16 5 18 15	16 42 3 48 1 45 3 569 5 303	.3 .1 .3 .8 .4	1 21 1 1 21	10670 3480 8550 3980 4260	.1 .1 .1 5.9	3 3 2 8 15	22 59 52 114	9020 19140 7220 13950 37290	1450 460 2800 2970 3550	1 1 3 9 14	390 140 390 3510 7090	597 156 137 382 2232	1312 20 116 20 10 230 24 40 55 60	) 3 ) 4 ) 1 ) 2 ) 1	160 140 380 850 1200	48 208 18 20 506	9 3 1 1	13 2 17 1 19 8 12 2 27 1	8 167 11 16 33	76.4 8.9 5.6 19.5 28.4	29 18 28 31 583	3 1 1 2 1	1 1 1 1	8 188 11 278 4 87 5 126 5 113	825 21800 292 37 10
18168 18169 18170 18171 18172	1.1 5.3 6.4 2.3 3.4	13490 4880 6660 8060 14580	1 28 27 34 1	5 130 4 114 4 111 2 78 3 93	.3 .5 .6 .9 .1	6 1 1 7	4130 1710 2930 8360 14390	.1 .4 .1 .1	13 5 4 5 56	15 37 44 180 19	45950 9850 9690 11280 57290	4440 2080 4330 4220 610	10 4 2 4 8	6410 1850 970 1820 7840	555 169 195 339 235	3 260 261 30 201 20 17 20 10 200	1       3       4       1       1       1	1440 340 730 720 1060	56 31 131 29 123	1 3 3 1	24 1 7 1 9 1 17 2 306 1	796 20 21 23 1381	50.9 20.3 36.3 22.6 91.8	58 24 141 40 81	32223	1 1 1 1	3 48 8 206 7 171 5 124 8 171	1 104 223 42 44
18173 18174 18525 18526 18527	14.8 15.3 15.8 1.9 .6	16230 16820 12140 12560 10210	55 53 41 1 4	3 167 3 172 3 40 2 72 1 286	.7 .6 .8 .1 .1	3 3 3 14 4	4250 4290 15060 11910 6390	211.8 221.3 24.3 .1 .1	22 23 12 9 7	217 225 38 90 7	37790 38840 23990 30040 20160	3700 3960 2190 830 2180	14 15 8 7 8	10640 10990 8090 6350 5050	625 644 1063 439 269	1 120 1 130 6 190 1 440 8 450	) 1 ) 2 ) 2 ) 1 ) 1	1200 1210 530 630 770	6010 6142 6305 137 55	5 5 1 1	30 4 31 4 37 7 74 1 35 1	335 345 359 1306 839	52.8 54.8 34.7 35.5 26.6	4329 4485 1497 71 50	3 3 3 3 3 3 3	1 1 1 1	2 83 2 86 4 113 5 106 5 112	140 205 1800 2 1
18528 18920 18921 18922	1.7 5.5 .6 .5	12990 2010 3920 6740	1 23 10 5	2 213 5 26 1 599 1 120	.3 .1 .3 .3	7 5 1 1	8640 111950 34590 6160	.1 178.4 .1 .1	12 14 4 7	8 143 15 14	39020 68710 16440 22510	3480 1260 1290 2650	13 1 4	6970 980 2690 3100	232 1137 1189 190	9 310 5 10 4 20 13 180	0 1 0 1 0 3 0 1	1650 150 250 740	82 8353 75 113	1 17 1 1	38 7 228 1 27 1 27 1	7 1076 12 14 56	23.1 6.6 19.3 13.5	50 8064 128 73	3 6 1 1	1 1 1	4 73 1 79 5 109 3 72	3 1 2 1
						·										<u> </u>			- <u> </u>									
																			<u>.</u>									
																•												

SAMPLE NUMBER         AG PPM         AL AS         B PPM         BA PPM         BE PPM         BI PPM         CA PPM         CD PPM         CD PPM <thcd PPM         <thcd PPM         CD P</thcd </thcd 	SN         W         CF           PPM         PPM         PPM           1         3         87           1         3         77           1         4         92           1         4         102           1         5         120           1         5         114           1         6         166           1         4         133           1         4         133           1         4         133           1         5         112 <th>R         AU-FIRE           M         PPB           7         1           1         1           3         1           5         2           0         1           4         1           6         3</th>	R         AU-FIRE           M         PPB           7         1           1         1           3         1           5         2           0         1           4         1           6         3
18233       .2       5430       11       19       217       .2       2       10640       .1       6       16       18440       2650       11       2950       147       8       380       1       490       13       2       20       4       24       6.5       17       1         18234       .1       7090       7       8       336       .2       3       10600       .1       8       14       20790       2160       12       6120       392       4       310       1       810       16       1       19       2       29       17.7       26       3         18235       .1       9230       5       6       195       .1       4       5960       .1       8       13       24080       2520       12       6690       526       5       580       1       990       14       1       14       2       638       32.2       53       3         18236       .1       7170       8       5       361       .2       7       10400       2909       2       14       410       19       9       1       70       9.5       14       2	1 3 8 1 3 7 1 4 9 1 4 10 1 5 120 1 5 114 1 6 166 1 4 133 1 4 133 1 5 112	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
18568       .4       17560       11       4       78       .2       6       10750       .1       8       11       2670       1310       10       6020       281       5       1680       1       750       32       1       87       2       708       35.1       38       3         18569       .1       11440       5       5       169       .1       5       12570       .1       20       8       4210       1390       4       2290       342       8       50       1       330       19       1       93       1       487       20.5       19       3         18570       3.4       6930       16       5       253       .1       3       5490       89.8       8       182       27680       2120       8       5330       405       10       560       1       700       6505       9       17       2       31       20.3       5509       3         18571       8.7       7830       31       5       225       .1       5       5270       81.4       8       453       30820       1990       10       6420       501       9       520 <td>1 5 114 1 6 166 1 4 132 1 4 132 1 5 113</td> <td>4 1 6 3</td>	1 5 114 1 6 166 1 4 132 1 4 132 1 5 113	4 1 6 3
18573 .1 6380 8 11 140 .1 3 4100 .1 4 8 16190 1480 8 5020 338 5 420 1 840 57 1 13 2 257 20.8 47 3 18574 2 5470 10 2 130 1 2 1950 1 4 6 16000 3090 4 1890 91 7 440 1 720 43 1 10 1 156 7 3 17 1		2 1 2 5 3 2
18575         .1         6700         6         2         203         .1         4         3220         .1         5         7         18990         2140         8         450         302         5         540         1         820         13         2         527         27.8         26         2           18944         .7         3070         16         2         80         .1         4         4470         .1         5         13         26820         2010         1         880         76         6         80         1         440         21         1         23         1         292         12.2         18         1           18945         1.6         13340         21         4         36         .1         9         6980         97.2         12         73         37900         1280         15         10430         1068         5         350         1         1510         121         1         19         1         1122         64.5         6386         4           18945         1.6         13340         21         4         36         .1         9         6980         97.2         12	1 3 73 1 5 132 1 4 92 1 4 112 1 2 65	3 1 2 2 3 6 5 2
18946       7.5       5210       32       3       42       .1       9       10150       169.5       5       180       25810       1070       5       2730       670       6       20       1       510       394       2       25       1       53       9.2       12077       1         18947       5.9       1460       1525       4       56       .1       1       460       .8       6       52       71680       1480       1       200       3       28       10       1       70       42       4       4       1       10       4.1       386       1         18948       3.0       3650       18       1       33       .3       7       720       9.4       1       83       4580       2470       1       170       36       6       210       1       40       85       1       3       18       34       .9       610       1         18948       .3       .3       .3       .7       .720       9.4       1       83       4580       2470       1       170       36       6       210       1       40       85       1	1 2 115 1 4 115 1 4 111	5 18 5 3300 1 10
	-	
	<u></u>	
	<u> </u>	

MIN-EN LABS - ICP REPORT

COMP: AZIMUTH GEOLOGICAL

FILE NO: 18-0345-RJ1

		Assay	( Certa	ficate		TELEPHONE/	FAX (604) 647-300 1S-026	4 4-RA1
Company Project Attn:	;	AZIMUTH G BORG GDZE GREG CROWE	EOLOGICAL	INC.	Сору :	I. PRIME EXPLORATI	Date: AUG- DN, VANCOVUER,	06-91 1.C.
He h subm	ere it	eby certif ed JUL-29	y the foll -91 by TEI	owing Assay MURARO.	of 2 ROCK	samples		
Samp Numbe	e : i		AU g/tonne	AU oz/ton	р. Ф. — М.			
18145 18525	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		23.33 2.18	.680 √ .064 √			n na hanna an taong an taon an	an a
	. :							1 4 . 5 .
		· <b></b>					440 440	
-		-						2 
	· · ·	Ň						1 1 2 2
		ž					•	
								1 1 1 1 1
		÷					· .	; ; ;
90-10 10 <b>10 10</b> 10 10 10		<b>v</b> :						
ترميله السويلين المس	•							
	)   							
						R	1	

•

٣

•\*

Appendix D

i

.

.

**p**-

.

.

# SOIL ANALYTICAL RESULTS

COMP: AZIMUTH GEOLOGICAL

#### MIN-EN LABS - ICP REPORT

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

FILE NO: 18-0265-SJ1

ATTN: G.CROWE/J.BLACKWELL

• PROJ: BORG P.O. GDZBO

DATE: 91/08/08 \* SOIL \* (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 N PPM PP	A N M PP	I P M PPM	PB PPM	SB PPM	SR PPM P	TH	TI PPM	V PPM	ZN PPM	GA PPM F	SN PPM F	W PPM	CR AL	J-WET PPR
SSMI GB #1 GB #2 GB #3 GB #4	1.3 .2 .3 .1 .1	12600 18260 16940 22580 13830	4 5 1 1	4 4 3 7 4	50 247 234 299 264	.9 1.5 1.3 1.9 1.5	6 4 6 7 3	8630 8960 9150 7060 3820	.1 .1 .1 .1 .1	16 19 21 68 16	86 67 63 119 68	32720 40240 43380 78210 55030	840 2130 1700 1740 2080	18 17 18 23 16	9720 8030 9090 9060 6960	599 1486 1405 2318 602	15 11 4 10 11 14 88 21 53 25	0 0 0 0 0	5 1450 2 1650 1 1560 1 3770 1 2020	44 74 32 64 56	1 1 1 1	59 47 52 62 32	1 1 1 9	965 569 1162 1424 400	48.7 50.5 61.3 52.4 34.3	47 92 80 84 66	2 1 2 1	1 1 1 1	2 2 2 2 1	21 16 10 12 8	5 50 5 5 5
GB #5 L2022 #1 L2022 #2 L2022 #3 L2022 #4	1.0 .3 .1 .6 1.4	13090 13210 8010 11890 6950	2 91 1 5 34	2 1 1 1	102 198 665 228 306	.9 1.5 1.6 1.7 1.7	4 1 2 2	8650 7180 6890 7330 6120	.1 .1 .1 .1 .1	14 12 11 9 11	102 135 23 28 33	31840 30020 25030 20250 27990	1030 1170 2010 1520 2760	16 11 4 6 3	9280 5140 1610 2640 630	656 800 1232 986 1626	5 20 1 2 1 2 1 3 9 2	0 0 0 0	1 1500 1 1350 3 1140 2 1290 2 1300	29 18 17 13 25	1 2 1 1	47 14 17 12 13	1 2 1 1	895 24 12 10 5	55.4 40.1 26.3 24.3 19.3	60 78 78 62 82	3 2 1 2 1	1 1 1 1	2 2 1 1	12 8 5 3 2	5 70 5 10 20
L2022 #5 L2022 #6 L2022 #7 L2022 #8 L2022 #9	.1 .1 .1 .2	7200 17910 23200 17040 18510	11 2 1 3 5	2 2 2 1 1	153 130 258 141 240	2.4 1.0 1.5 1.1 1.6	22332	4520 3970 4320 3640 6230	.1 .1 .1 .1	18 10 15 11 9	33 29 51 49 38	45870 33530 41990 26160 23140	3790 2920 1560 1980 1480	5 14 16 13	840 5590 8550 4510 5540	1782 1118 1338 1473 1137	1 2 1 43 1 53 5 8 2 7	0 0 0 0	1 1970 1 1450 1 2420 1 850 2 1110	23 26 23 104 54	1 2 1 1	10 19 40 20 49	1 1 1 1	7 84 86 110 115	18.9 70.3 60.7 40.8 37.1	74 72 82 75 69	1 3 2 3	1 1 1 1	1 2 2 1	2 11 11 10 10	5 5 10 5
L2022 #10 L2022 #11 L2022 #12 L2022 #13 L2022 #14	.1 .1 .7 .1	13230 13970 17620 14780 20050	531 1 7	1 1 2 1 1	186 187 134 154 83	1.7 1.1 1.7 1.2 1.2	22112	4420 4120 4840 4550 4370	.1 .1 .1 .1	12 8 13 6 10	58 58 40 33 46	28790 24990 35080 14800 27920	2170 1960 2000 3820 1900	9 11 18 10 19	3620 5340 6210 4130 6700	1822 1263 1496 553 896	7 35 3 36 2 40 2 50 6 39	0 0 0 0	4 1250 2 1270 4 1130 2 1390 3 1480	55 31 33 30 39	1 1 2 1	22 20 23 19 21	1 1 1 1	119 72 137 64 123	31.6 41.8 61.9 22.0 40.7	86 69 79 61 67	1 3 2 3	1 1 1 1	1 1 2 1 2	9 10 13 6 13	5 5 10 20 5
L2022 #15 L2022 #16 L2022 #17 L2022 #18 L2022 #19	.9 .1 .1 .1	15560 27410 21330 20210 19010	6 2 12 1 14	2 2 1 1	235 194 94 423 142	2.7 2.0 1.4 2.7 1.4	3 3 2 3 3	7790 4490 5420 5280 3510	.1 .1 .1 .1	20 17 12 11 11	180 56 96 127 43	47870 45170 33420 27400 34060	1720 1160 1600 2510 1870	19 35 22 20 22	8050 13250 8100 6910 7990	2308 1787 1203 2157 860	8 39 2 64 3 34 1 32 1 58	0 0 1 0 4 0	1 1690 0 2520 4 1800 1 1220 4 1150	240 32 33 26 19	1 1 1	37 31 24 20 15	11111	92 96 121 22 100	40.1 84.2 44.3 31.7 42.4	176 113 69 62 53	1 4 2 1 2	1 1 1 1	2 3 1 2	12 29 13 3 12	20 10 40 5 5
L2022 #20	.1	22880	12	2	89	1.4	3	5280	.1	12	65	36630	1480	24	8320	1037	1 85	0	3 1360	28	1	26	1	226	60.6	69	2	1	2	14	5
																								·							
																								·						•	
						···· •, ···																									
																												_			

COMP AZIMUTH GEOLO PROJ: BORG P.O. GDZ ATTN: G.CROWE/J.BLA	GICAL BO CKWELL								₩ 705	<b>IIN-</b> West	-EN 15TH (604)	LAB ST., I )980-54	<b>8</b> – NORTH 814 O	— I VANC R (60	CP OUVER 4)988	REP( B.C. 4524	0 <b>RT</b> v7M	112											FILE * SI	NO: DAT LT *	1S-0 E: 9 (A	265-SJ 1/08/0 CT:F31
				B	BA	BE	BI		CD	CO DDM	CU	FE	K		MG		MO	NA	NI	Р	PB	SB	SR	TH		V	ZN	GA	SN	W DDM D	CR A	U-WET
GB 09 SILT A	.8	5650	1	4	63	.4	4	8720	.1	8	35	19140	620	7	4060	337	3	<del>9</del> 0	1	1220	23	1	33	1	594	27.5	40	1	1	1	8	10
			<u></u>	<u>.</u> ,						ā							-															<u> </u>
																				. <u> </u>										<del></del> ,		
															<u></u>																	
						<u> </u>									. <u></u>																	
											<u></u>											<u> </u>									·	
<u></u>							<u> </u>	<u>-</u>							<u></u>																	
			<u></u>	<u></u>				••••••••••••••••••••••••••••••••••••••																	<del></del>						<u> </u>	
								_ , ,																								
																										_,						

1 1 <del>7</del> 9 1 1 9 9

COMP: AZIMUTH GEOLOGI PROJ:\30RG GDZBO ATTN: GREG CROWE/JERF	CAL INC	:. WELL						<b>M</b> 705	<b>IIN-</b> WEST	<b>EN</b> 15th 9 (604)9	<b>LABS</b> ST., NG 980-581	5 DRTH V 14 OR	- <b>IC</b> /ANCO (604	<b>CP R</b> JVER, )988-4	<b>EPO</b> B.C. 524	0 <b>RT</b> V7M	172										•	FILE • SI	NO: DAT LT *	1S-0 E: 9 (A	358-SJ1 1/08/16 CT:F31)
	AG		AS	B	BA	BE	B1 C		CO	CU	FE	K		MG	MN	MO	NA	NI	P	PB	SB	SR	TH	TI	V	ZN	GA	SN	¥	CR A	U-WET
L 1465 6+53E L 1465 26+00E	.6 7 1.7 9	980 600	2 17	7 5	63 69	.2 .3	3 914 5 905	) .1	8 17	63 131	22170 44380	690 840	10 15	6550 9510	768 795	1 7	80 60	1	2170 2780	64 82	1	36 27	1 1	424 284	44.8	123 92	3	1 1 1	1 1 1	4 12	<u>ррв</u> 10 15
						_		<u> </u>																						~	
				·																											
						<u></u>																		• • •							
					<u> </u>																<u></u>										
																					<del></del>		<del></del>								
																<u> </u>															
			<u>.</u>																												
											_								-												

· · · · · · ·

COMP: AZIMUTH GEOLOGICAL INC. PROJ: BORG GDZBO

## MIN-EN LABS - ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2

FILE NO: 15-0358-SJ2+3

ATTN: GREG CROWE/JERRY BLACKWELL

(604)980-5814 OR (604)988-4524

DATE: 91/08/16 \* SOIL \* (ACT:F31)

SAMPLE NUMBER	AG AL PPM PPM	AS B BA PPM PPM PPM	BE BI PPM PPM	CA CD PPM PPM	CO CU PPM PPM	FE PPM F	K LI PPM PPM	MG PPM	MN PPM P	MO NA PM PPM P	NI P Pm PPm	PB PPM P	SB SR TI PM PPM PPI	I TI I PPM	V PPM	ZN PPM	GA PPM	SN PPM PP	W CR M PPM	AU-WET PPB
L SSMV 1 L SSMV 2 L SSMV 3 L SSMV 4 L SSMV 5	.4 21070 1.0 30460 .6 13040 .6 12250 2.2 12860	7 16 67 14 12 100 1 10 218 1 8 261 1 6 195	.8 3 5 3.1 7 14 .1 5 5 .1 5 4 .1 7 5	580 .1 470 .1 040 .1 210 .1 650 .1	18         55           50         73           14         33           17         32           20         45	46890 7 48910 14 67110 16 67610 22 55980 21	720 22 50 23 590 16 210 16 160 17	7120 8130 7320 6530 6290	814 1710 554 801 1033	12 60 17 80 14 180 18 400 22 300	1 1290 1 1500 1 3220 1 2410 1 2360	41 49 110 81 449	1 31 1 136 1 62 1 60 1 62	443 2 742   865 2 836   670	43.0 40.3 46.7 40.9 38.3	60 68 57 57 81	1 2 1 1 2	1 1 1 1	1 10 2 9 1 8 1 7 1 8	25 20 5 5 15
L SSMV 6 09-1240 10+90W 09-1240 10+55W 09-1240 10+25W 09-1240 10+00W	1.3 15130 1.3 7810 .8 14140 .9 13330 1.5 30610	1 6 135 2 3 91 11 4 173 8 3 45 8 5 284	.1 5 4 .2 4 6 .7 5 5 .3 4 6 2.1 10 7	B20       .1         150       .1         440       .1         910       .1         610       44.4	12 45 10 45 22 84 12 72 96 158	71580 13 24020 6 42450 5 28640 8 45790 16	530 16 530 10 200 19 590 14 570 32 1	6920 6100 9820 7180 12350 1	437 457 875 855  2115	18 150 3 90 11 100 3 90 32 140	1 2520 3 1240 4 1680 4 1600 55 2050	396 51 89 73 165	1 91 1 25 1 38 1 28 1 48	440 411 324 488 360	46.0 36.6 42.4 59.0 61.0	105 51 100 121 1023	1 2 3 2 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 9 1 10 2 15 1 14 3 21	5 5 20 5 15
09-1240 09+80W 09-1240 09+00W 09-1240 08+10W 09-1240 07+65W 09-1240 07+00W	.5 22360 .8 20560 .7 21570 .9 15110 1.0 13170	6 2 64 7 3 143 8 2 122 13 2 67 1 2 108	.6 4 5 .6 4 8 .7 4 6 .4 4 5 .1 6 7	430 .1 020 .1 400 .1 100 .1 400 .1	12 81 15 77 18 52 13 44 12 101	32500 8 36480 10 38410 7 27660 8 30610 11	360 30 350 34 790 27 350 18 150 10	7540 8410 9240 7590 6070	599 755 1002 686 886	6 320 4 110 6 90 4 70 1 140	6 1300 10 1430 3 1410 3 1300 1 1700	88 41 57 31 39	1 31 1 38 1 42 1 30 1 30	322 439 439 267 723	52.7 73.0 61.9 40.1 77.9	131 243 124 83 99	33442	1 1 1 1	2 16 2 28 2 17 2 12 2 6	10 5 10 30 10
09-1240 06+50W 09-1240 06+00W 09-1240 05+50W 09-1240 05+00W 09-1240 04+75W	1.1 13960 .8 16030 .7 15040 1.6 10140 1.3 11840	10 2 70 1 2 42 4 2 40 1 2 96 2 2 139	.4 5 6 .1 4 5 .1 4 5 .1 6 9 .1 6 8	570 .1 790 .1 530 .1 570 .1 810 .1	17 67 11 57 9 57 11 108 13 111	33600 6 33090 6 34080 7 29900 9 36340 13	570 19 570 10 730 8 260 9 570 10	9450 5490 4450 5610 6230	853 556 489 813 933	9 70 1 90 1 410 1 200 1 210	2 1440 1 1280 1 1300 1 1680 1 1750	46 48 47 35 55	1 36 1 27 1 26 1 40 1 34	652 533 509 937 890	46.7 75.8 79.2 79.1 94.9	70 66 77 99 97	32233	1 1 1 1	2 15 1 11 1 7 2 6 2 6	40 10 15 5 5
09-1240 04+50W 09-1240 04+25W 09-1240 04+00W 09-1240 03+80W 09-1240 03+55W	1.9 8500 1.3 6880 1.6 5870 1.3 6230 1.3 5100	8 1 79 4 1 48 4 1 39 6 1 54 6 1 23	.1 5 7 .1 4 7 .1 4 6 .1 5 7 .1 4 5	340         .1           320         .1           580         .1           140         .1           550         .1	11 81 10 63 10 64 10 48 9 45	28130 5 26050 5 30530 3 27370 4 30340 3	30       11         20       9         50       8         60       8         60       7	7010 5720 5030 5100 4590	552 457 385 492 359	3 100 5 90 12 70 2 80 1 50	1 1600 1 1460 1 1700 1 1680 1 1110	47 32 35 37 20	1 30 1 26 1 23 1 25 1 18	510 448 355 453 466	49.4 50.4 50.1 52.9 60.1	64 74 62 34	32222	1 1 1	1 9 1 7 1 7 1 7 1 6	20 30 35 30 25
09-1240 03+30W 09-1240 03+05W 09-1240 02+60W 09-1240 02+35W 09-1240 02+10W	.8 13610 1.5 6290 .6 6220 .1 19140 1.3 7520	3 3 353 5 2 91 1 3 116 1 12 105 6 1 64	.1 5 6 .1 5 7 .1 5 6 .1 1 3 .1 4 7	240 .1 380 .1 330 .1 900 .1 950 .1	15 62 9 25 11 22 34 102 9 42	60110 28 45640 9 68920 11 222960 12 28060 6	320     13       950     6       10     7       220     8       350     9	8270 4350 4550 4210 5360	653 269 277 634 410	12 320 1 160 1 140 36 100 2 90	1 2360 1 2100 1 3020 1 3010 1 1600	72 59 30 9 25	1 57 1 39 1 35 1 18 1 31	626 852 848 379 667	57.0 64.5 71.0 36.4 59.7	75 58 35 153 57	2 2 1 1 3	1 1 1 1	2 10 2 6 1 5 1 1 2 8	15 35 20 20 10
09-1240 01+85W 09-1240 01+60W 09-1240 01+35W 09-1240 01+10W 09-1240 00+75W	.3 9250 .4 7980 .6 9260 .4 17900 .6 7660	1 3 90 4 1 78 2 1 100 6 1 84 1 1 82	.5 3 7 .3 4 9 .3 4 9 .7 3 8 .2 1 4	590         .1           070         .1           530         .1           230         .1           560         .1	10 57 9 42 9 46 10 89 2 16	27860 8 24740 7 26550 10 31520 11 7250 5	40         12           70         9           10         10           40         12           570         1	6800 5240 5850 6590 900	571 433 499 576 79	5 100 1 110 2 120 4 480 2 820	1 1550 1 1580 1 1610 1 1550 1 790	37 20 24 45 14	1 29 1 39 1 44 1 43 1 26	626 873 903 614 247	54.4 55.0 56.4 65.2 21.8	57 44 49 66 51	22232	1 1 1	2 10 1 8 2 9 2 15 1 5	5 5 5 10
09-1240 00+50W 09-1240 00+25W 09-1240 00+00W 09-1465 00+00E 09-1465 01+00E	.3 11940 .1 17480 .5 19960 .5 24690 .4 21150	5 1 31 5 1 49 5 1 64 3 1 138 4 1 226	.2 2 4 .5 4 7 .8 7 9 1.0 4 9 .9 3 9	670       .1         590       .1         130       .1         520       .1         270       .1	4 26 13 81 19 89 15 148 13 122	13720 6 32740 13 33990 11 40470 19 35010 22	40 6 10 16 70 20 1 200 21 1 260 20 1	2720 7830 10180 1540 10760	161 712 1006 1954 2067	2 740 3 100 4 120 1 80 1 50	2 850 1 1600 12 1560 1 2270 1 1700	24 46 24 225 106	1 26 1 41 1 40 1 55 1 45	341 790 1406 576 258	37.5 64.0 78.1 84.3 65.0	34 78 75 364 134	23334 4	1	1 10 2 14 3 27 2 -8 2 5	10 5 5 10 15
09-1465 01+50E 09-1465 02+00E 09-1465 02+50E 09-1465 03+50E 09 L1465 9+50E	.4 22110 .5 21400 1.2 18520 1.7 13830 1.1 15120	3 1 169 4 1 161 11 1 80 3 1 46 18 1 95	.9 3 10 1.0 3 11 .9 5 11 .5 4 11 .8 5 13	090       .1         500       .1         580       1.5         530       2.2         030       .1	14 125 13 154 13 145 11 113 16 131	40160 26 35260 17 33670 14 31050 14 36380 15	40 21 1 40 24 1 40 16 10 13 40 15 1	2150 10590 9010 8750 10140	2102 1771 1460 1202 950	1 60 1 460 1 70 1 70 1 100	1 2150 1 2030 1 2050 1 1890 1 2600	50 117 210 321 44	1 55 1 67 1 74 1 66 1 78	419 450 751 786 947	73.6 68.5 72.8 63.8 76.8	108 225 553 395 63	43434	1 1 1 1	2 7 2 8 2 11 1 5 2 14	60 20 55 95 45
09 L1465 10+00E 09 L1465 10+50E 09 L1465 11+00E 09 L1465 11+50E 09 L1465 12+00E	1.4 16060 1.8 20780 1.2 18500 .6 21400 .9 21690	10         1         69           21         1         117           27         1         181           13         1         189           14         1         80	.7 5 13 1.4 5 11 1.4 4 9 1.3 3 9 .9 3 8	550 .1 440 .1 560 .1 580 .1 700 .1	15 123 19 311 19 185 17 276 15 167	34750 14 38950 19 40410 27 40000 14 35990 15	70 15 1 280 20 1 790 21 1 10 21 520 18	0190 1300 2000 9900 8800	861 1576 1881 1124 1199	1 110 7 80 3 70 6 80 5 380	1 2500 4 2140 2 2160 1 1890 2 1790	76 450 213 223 356	1 92 1 70 1 45 1 59 1 53	1094 599 282 385 499	77.6 78.7 68.2 75.4 74.9	107 294 201 196 390	45443	1 1 1 1	2 14 2 15 2 12 2 14 2 15	30 50 45 15 5
09 L1465 13+00E 09 L1465 14+00E 09 L1465 15+00E 09 L1465 16+00E 09 L1465 17+00E	1.0 19220 3.6 20430 .8 20740 1.1 26960 1.0 19160	26         1         147           38         1         223           26         1         196           18         1         194           26         1         158	1.3     2     8       1.5     3     11       1.5     2     9       1.6     4     9       1.2     3     7	580         .1           570         .1           510         .1           710         .1           530         .1	20 184 28 345 18 190 21 268 19 152	43870 24 49970 30 43740 25 47940 27 40220 25	10 18 160 23 1 10 23 1 10 29 1 160 20 1	9710 2190 4200 3990 3600	1465 3356 1133 2133 1581	10 340 8 80 5 450 4 90 3 410	1 1750 3 2400 5 1850 1 1870 1 1570	166 353 86 125 83	1 50 1 60 1 44 1 71 1 32	212 334 252 453 284	67.0 68.6 76.6 88.8 67.5	123 293 113 164 115	43555	1 1 1 1	2 11 2 11 3 31 2 15 2 10	40 20 30 5 50
UY L1403 19+UUE	.4 19520	20 1 1/1	1.2 3 7	¥UU .1	17 104	40180 27	'SU 2U 1	12520	1249	2 70	1 1540	51	1 29 '	270	68.8	71	5	1	2 12	35

Appendix E

**,** . .

,

¥+

~

1

# ANALYTICAL PROCEDURES

Division of Assayers Corp. Ltd.



ANALYTICAL PRECEDURE REPORT FOR ASSESSMENT WORK: PROCEDURE FOR WET GOLD GEOCHEMICAL ANALYSIS

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.

5.00 grams of sample is weighed into porcelain crucibles and cindered @ 800 C for 3 hours. Samples are then transferred to beakers and digested using aqua regia, diluted to volume and mixed.

Further oxidation and treatment of 75% of the above solution is then extracted for gold by Methyl Iso-butyl Ketone.

The MIBK solutions are analyzed on an atomic absorption spectrometer using a suitable standard set.

Carlor and the second second

Division of Assayers Corp. Ltd.

ź



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.

