

# **Assessment Report**

# Rock Geochemical Sampling Report on the Holy Cross Property

# Holy 1 Mineral Claim

Omineca Mining Division British Columbia NTS 93F15 53<sup>0</sup> 47.5' North Latitude 124<sup>0</sup> 58' West Longitude

Owner and Operator: Geoffrey Goodall

October 8, 2002

by

Global Geological Services Inc. Geoffrey Goodall, B.Sc., P.Geo. 1315 Arborlynn Drive North Vancouver, BC



### Table of Contents

ary	i
Introduction and Terms of Reference	1
Property Description and Location	1
Access and Physiography	1
Exploration History	4
Geological Setting	4
Regional Geology	4
Property Geology	6
Deposit Types and Styles of Mineralization	6
Data Corroboration	7
2001 Work Program	7
Results	7
Interpretations and Conclusions	8
Recommendations	8
Cost Estimate	10
Disbursements	10
Bibliography	11
Certificate of Qualified Person	12
	Introduction and Terms of Reference Property Description and Location Access and Physiography Exploration History Geological Setting Regional Geology Property Geology Deposit Types and Styles of Mineralization Data Corroboration 2001 Work Program Results Interpretations and Conclusions Recommendations Cost Estimate Disbursements Bibliography Certificate of Qualified Person

# List of Figures

Figure 1	Property Location Map	2
Figure 2	Claim Map	3
Figure 3	Regional Geology Map	5
Figure 4	Sample Location Map	9

# List of Appendices

Appendix I Sample Descriptions	13
Appendix II Geochemical Analyses	14

#### SUMMARY

The Holy Cross Gold Property consists of a single 20 unit, 500 hectare claim, located in the Omineca Mining Division of north central British Columbia. It is located approximately 145 kilometres west of Prince George and is readily accessed by a network of forest service and secondary logging roads from the village of Fraser Lake, 33 kilometres to the north. A rock geochemical sampling program was undertaken on the property between October 18 and 21, 2001. A total of 60 samples were collected and submitted for geochemical analyses.

The claim area is underlain by andesite flows of the middle Jurassic Hazelton Group which are overlain by upper Cretaceous Kasalka Group rhyolite, rhyodacite and tuff. The rhyolite occurs in a series of three northwesterly trending domes that outcrop between Bentzi Lake and the peak of Holy Cross Mountain. Minor sedimentary rocks of the Cretaceous Skeena Group and Eocene Endako Group basalts locally cap the older units.

Gold mineralization on the Holy Cross prospect was discovered in 1987 by Noranda Exploration. They identified several areas of silicificied quartz veined rhyolite with gold concentrations up to 1.0 g/t over 8.5 metres. Other companies, including Kennecott Canada, Cogema Resources and Phelps Dodge Canada, have subsequently conducted limited exploration in the vicinity of the prospect. The identification of additional areas of gold mineralization has resulted from increased exploration of the Holy Cross prospect. The 2001 rock sampling program confirmed the distribution of gold mineralization on the property and identified two new anomalous areas.

It is recommended herein to conduct a detailed evaluation of the Holy Cross property to evaluate the extent of gold mineralization. A thorough compilation of the existing geological database is needed to identify areas requiring additional infill surveys. Detailed geophysical and geochemical surveys would then be required to identify drill targets. A budget of \$25,000 is required to support the initial investigation.

# 1.0 Introduction

This report provides a review of the geological setting and history of mineral exploration of the Holy Cross epithermal gold prospect and a summary of the results of a rock geochemical sampling program conducted on the Holy Cross property between October 18 and 21, 2001. A total of 60 rock samples were collected from throughout the property and submitted for geochemical analyses. The Holy Cross property is located in north central British Columbia and is accessed by a series of logging roads and trails leading south from Fraser Lake.

# 2.0 **Property Description and Location**

The Holy Cross property consists of the 20 unit, 500 hectare Holy 1 mineral claim located on NTS map sheet 93F/15W within the Omineca Mining Division of north central British Columbia (Figure 1). The Holy Cross property is located approximately 145 kilometres west of Prince George, BC and 33 kilometres south of the village of Fraser Lake. The claim is centered over a small hill at 53<sup>o</sup> 47.5' north latitude, 124<sup>o</sup> 58' west longitude, between Bentzi Lake and Holy Cross Mountain (Figure 2).

CLAIM NAME	<b>TENURE NUMBER</b>	EXPIRY DATE	UNITS
Holy 1	374497	February 24, 2005	20

The Holy Cross property is located within a resource development designated area and there are no known Native Land Claims issues. There are logging operations active throughout the region. Disturbance from previous exploration activities on the property has been reclaimed and there are no known environmental concerns. Prior to conducting exploration, a Mineral Exploration permit must be granted by the Ministry of Energy and Mines. A Free Use permit will be required from the Ministry of Forests should disturbance of timbered areas exceed the allowance in the MinEx permit.

## 3.0 Access and Physiography

Access to the Holy Cross property is provided by a network of logging roads that leave highway 16 east of Fraser Lake. At 38 Kilometre on the Holy Cross Forest Service Road, a branch road leads west onto the Holy 1 claim. Trails provide access to the various zones of mineralization on the property.

The Holy Cross property is located within the Interior Plateau region of central British Columbia. The claim covers an area of forested and logged hillsides ranging in elevation from 1150 to 1400 metres, with local ponds and streams draining the hills.









# 4.0 Exploration History

The Holy Cross prospect was discovered in 1987 by Noranda Exploration Company during a reconnaissance exploration program. The original claims were staked after rock samples collected from a rhyolite dome returned anomalous concentrations of gold. Noranda explored the property during 1988-89 with geological mapping, extensive soil sampling, trenching and geophysical surveys (IP, magnetometer). They identified several areas of pervasively silicificied, quartz veined rhyolite with anomalous gold concentrations. Trench 1, excavated on silicificied rhyolite breccia, returned 1.0 g/t gold over 8.5 metres.

The prospect area was simultaneously staked in 1994 by Kennecott Canada and Cogema Resources, resulting in a claim dispute. Prior to conceding the ground, Kennecott conducted geological mapping and geochemical surveys. During October 1994, Cogema Resources conducted reconnaissance rock and soil sampling. The property was optioned to Phelps Dodge Corporation of Canada in 1995 who conducted additional geological mapping and geochemical surveys.

The claims covering the key showings at the Holy Cross property lapsed in 1999. The Holy 1 claim was staked in February, 2000 to cover the main area of gold mineralization.

### 5.0 Geological Setting

## 5.1 Regional Geology

The Holy Cross property is situated in the Interior Plateau region of central British Columbia within the Intermontane Belt which locally consists of late Paleozoic to late Tertiary sedimentary and volcanic rocks belonging to the Stikinia, Cache Creek and Quesnellia Terranes. The Yalakom and Fraser fault systems bound the plateau to the northeast and southwest. A third, northerly fault has been inferred from oil exploration to bisect the plateau. The Anahim Volcanic Belt, which crosses the plateau in an east west direction, is composed of a series of alkaline and peralkiline volcanic centres of Miocene to Quaternary age which young from west to east.

The Holy 1 claim lies centrally in the Stikinia Terrane and hosts three groups of volcanicsedimentary rocks ranging in age from upper Cretaceous to Miocene. An extensional tectonic event resulted in basin and range style topography. Hydrothermal activities during this period resulted in several localized areas of volcanic- hosted epithermal gold mineralization.

Lane, 1994 describes the Holy Cross property to be underlain by middle Jurassic age Hazelton Group andesite and reworked crystal tuff (Figure 3). These rocks are conformably overlain by Cretaceous Skeena Group chert pebble conglomerate, minor argillite, conglomerate, sandstone, mudstone and Kasalka Group hornblende phyric andesite flows. Eocene to Late Cretaceous Ootsa Lake Group maroon flow banded rhyolite, rhyolite breccia and andesite unconformably overlie the older rocks in the area. Flat lying Eocene to Oligocene Endako Group andesite and basalt locally overlie the area. Immediately north of the property, biotite quartz monzonite has intruded and metamorphosed Hazelton Group rocks. Plugs of diorite and gabbro are locally associated with the Endako Group.



# 5.2 Property Geology

The Holy Cross property is underlain by Mesozoic and Cenozoic volcanic, sedimentary and intrusive rocks. Jurassic intermediate volcanic rocks are cut by middle Jurassic intrusions which are unconformably overlain by Cretaceous sedimentary rocks and intermediate volcanic flows. These underlying rocks are capped by intermediate to felsic volcanics of the Ootsa Lake and Endako Groups.

Banded rhyolite, rhyolite breccia, andesite and tuff outcrop on the Holy 1 claim. Previous work has described these rocks as belonging to the Eocene Ootsa Lake Group; however it is possible that they are older, upper Cretaceous Kasalka Group or Jurassic Hazelton Group. These rocks are overlain by Eocene Endako Group basalt.

The banded rhyolite is dark purple to maroon where unaltered, light purple, tan, buff or cream where argillically altered. They form thin, 1 to 2 mm wide bands, and commonly develop slaty cleavage.

Rhyolite breccias appear to be syn-depositional. They comprise 1 mm to 5 cm angular to subangular fractured fragments of light purple, buff, tan, and cream coloured banded rhyolite in a dark purple-maroon fine grained matrix. They are typically matrix supported where fragments are small and fragment supported where fragments are larger.

Interbedded with rhyolite and volumetrically less important are lapilli and ash tuffs, feldspar porphyritic andesite flows and andesitic tuffs. Lapilli tuffs are associated with the banded rhyolite, rhyolite breccia and feldspar phyric andesite. The lapilli tuffs exhibit a dark purple matrix usually with preferentially clay altered clasts. More significant clay or silica alteration results in a light purple, light green or light grey matrix and clasts.

Andesite is the most common rock type on the Holy Cross property. It is dark purple to grey where unaltered and light purple, tan or cream where clay altered. Ash tuff comprises thin interbeds in the andesite sequence and are light green to light grey in colour, fine grained and locally foliated.

Endako Group basalts are dark grey, blocky and often form steep bluffs. They are locally vesicular olivine phyric with epidote infilling the vesicles. The lapilli tuff is light grey and contains angular lithic fragments up to 2 cm.

## 6.0 Deposit Types and Styles of Mineralization

Several styles and intensities of alteration have been observed on the Holy Cross property. Argillic alteration is widespread within the Ootsa Lake volcanic rocks and is locally overprinted by 1 cm to 10 metre wide zones of silicification. Areas of secondary brecciation, drusy quartz development in open cavities and quartz healed breccias occur locally within the altered areas. Banded quartz with jasper and chalcedony veins indicate several episodes of brecciation. Disseminated sulphides, primarily pyrite, vary from 1 to 5% throughout the argillic altered rocks. Minor arsenopyrite and pyrhotite have also been observed. Gold and silver mineralization is associated with banded, vuggy quartz veinlets and in silicified volcanic rocks. The area of

alteration has been mapped over a three km by four km area, and is centered on the resistant knoll in the middle of the Holy 1 claim.

The main mineralized showings are presented in Figure 4. At the Discovery showing, Trench 1, up to 10 cm wide veins of quartz banded with jasper contain 10 to 15% disseminated pyrite within the quartz. Massive grey chalcedony and intense silicification are immediately adjacent to the vein and form part of an argillic alteration haloe that extends for tens of metres.

Sampling of the epithermal alteration at Trench 1 by Noranda returned an average of 1.0 g/t gold over 8 metres and local grab samples to 12.4 g/t(Barber, 1989). These values have been confirmed by subsequent exploration programs. More recently, Phelps Dodge re-sampled Trench 1 which returned an average of 1.8 g/t gold over four metres from silicified rhyolite breccia.

Other samples collected from the within the large area of argillic and siliceous altered volcanic rocks have also returned significant concentrations of gold and pathfinder elements. Sampling by Phelps Dodge to the southwest of the main Holy Cross showing returned 9.6 g/t gold with elevated concentrations of silver (9.4 ppm), antimony (2.4 ppm) and mercury (23 ppb) within a banded grey and white quartz/chalcedony altered rhyolite. A large package of argillic and siliceous altered rhyolite tuff and breccia is mapped by Kennecott Canada (personal communication) along the access road north of the main showings.

# 7.0 Data Corroboration

This report relies on information collected from numerous sources including Geological Survey of Canada memoirs, BC Geological Survey bulletins, the BC Ministry of Mines database of annual reports, assessment reports and Minfile records and personal knowledge.

## 8.0 2001 Work Program

A rock geochemical sampling program was conducted on the Holy 1 claim by Geoffrey Goodall, P.Geo.; John Boutwell, Prospector; Rick Roe, Prospector and Chris Roe, Sampler between October 18 and 21, 2001. The work program consisted of traverses and rock geochemical sampling of areas peripheral to the known showings. Traverses totaled 28 kilometres. A total of 60 rock samples were collected and submitted to ALS Chemex in North Vancouver, BC for analyses of 35 elements by ICP techniques and for gold by FA/AA. Complete results are provided in Appendix II. Figure 4 outlines the traverses and rock sample locations.

## 9.0 Results

Inspection of the known areas of mineralization at Holy Cross confirmed the presence of a large system of hyrdrothermally altered rocks. Silicification and argillic alteration is most apparent in the felsic volcanic members that occur as prominent, resistant knolls and hilltops. Recent road construction on the north side of Holy Cross Mountain has exposed additional zones of strong epithermal altered rhyolite and dacite.

Samples descriptions are provided in Appendix I. Complete ICP analytical data is provided in Appendix II. Using a threshold of 10 ppb gold, 20 samples are considered anomalous and four

samples were highly anomalous in gold. One sample, RR19, returned 24.02 grams per tonne gold, the highest value obtained on the property to date. These samples were collected over a broad, moderately altered area beyond the known showings, as well as within the existing trenches. Elevated silver concentrations are associated with the anomalous gold samples, reaching a high value of 39.6 ppm Ag in sample GG11. Arsenic is weakly to moderately anomalous, reaching a high concentration of 318 ppm and roughly correlating with samples returning elevated gold. Other typical epithermal pathfinder elements such as antimony, barite and mercury were not elevated in any of the samples collected during the current program.

### **10.0** Interpretation and Conclusions

The Holy Cross prospect represents a high level, low sulphidation epithermal gold system hosted within Ootsa Lake Group rhyolite volcanic and volcaniclastic rocks. The prospect has received sporadic exploration since discovery in 1987. Each exploration campaign on the property has confirmed the presence of gold mineralization at the Discovery showing. Additional areas of gold, silver and pathfinder elements have been detected in argillic and siliceous altered rhyolite flows and breccias on a series of resistant knolls covered by the Holy 1 mineral claim.

Zones of intense silicification and secondary brecciation within banded rhyolite up to 10 metres wide occur within the volcanic package of rocks exposed on the Holy Cross property. Gold concentrations ranging from 1.0 to 24.02 g/t have been returned from sampling of this rock. At least three such areas have been identified to date and the potential for additional prospects to be outlined is considered excellent.

Recent sampling indicates that the alteration systems are widespread. Gold mineralization occurs in discrete, narrow strucutral zones and within drusy, banded quartz veins.

### 11.0 Recommendations

It is recommended that an initial program of data acquisition, review and compilation of historic geological information be undertaken to further assess the Holy Cross property. Geological mapping and further rock geochemical sampling are warranted to further assess the prospect prior to drilling. A budget of \$25,000 is recommended to support this work program.





## 11.1 Cost Estimate

Cost estimates for the initial phase of exploration on the Holy 1 mineral claim are provided in the table below.

### Proposed Year 1 Exploration Budget

Data Acquisition, Compilation, Review and Confirmation Sampling	
Data Acquisition, review and compilation	\$10,000
Geological mapping - 14 days	6,000
Geochemical analyses - 100 samples	2,500
Travel Expenses – accommodation, board	1,000
Vehicle Rental – 14 days	1,400
Airfare – YVR to Prince George, return	750
Field Supplies, communications	1,250
Report preparation, result compilation	2,000
Miscellaneous	100
Total	\$25,000

### 12.0 Disbursements

A total of \$9,800.00 was spent on the Holy Cross property during the 2001 sampling program, as tabulated below:

Geoffrey Goodall, P. Geo.	5 days - sampling, report writing		\$2,000.00
John Boutwell, Prospector	4 days sampling		\$1,399.96
Rick Roe, Prospector	4 days sampling		\$1,462.43
Chris Roe, Sampler	4 days sampling		\$960.00
Vehicle and equipment renta	als		\$760.00
Field Supplies			\$191.18
Fuel			\$235.81
Accommodation and Board			\$1,228.00
Analyses			<u>\$1562.62</u>
		Total	\$9,800.00

Prepared by: Global Geological Services Inc.

Per:\_\_\_\_\_ Geoffrey Goodall, B.Sc., P. Geo. October 8, 2002

#### 13.0 **BIBLIOGRAPHY**

#### Barber, R. (1989)

"Geological and Geochemical Report on the Holy Cross Property (HC 1, 4, 5, HCM 2-3 Mineral Claims), Omineca Mining Division"; Noranda Exploration Company, Limited, October 1989, Assessment Report Number 19,627.

#### Donaldson, W. (1988)

"Geological and Geochemical Report on the Holy Cross Property"; Noranda Exploration Company, Limited, September 1988, Assessment Report Number 17,807.

#### Fox, P.E. (1996)

"Geological and Geochemical Report on the Holy Cross Property", Assessment Report by Fox Geological Services Inc. for Phelps Dodge Corporation of Canada, Limited, November 20, 1996.

### Lane, R.A. (1994)

"Preliminary Bedrock Geology, Holy Cross Mountain to Bentzi Lake, Central British Columbia"; Geological Survey Branch Open File 1995-22.

#### Payne, C. (1996)

"Geological and Rock Geochemical Report on the Holy Cross Property"; by Fox Geological Services Inc. for Phelps Dodge corporation of Canada, Limited, January 13, 1996.

#### Savell, M. & Brandish, L. (1989)

"Geophysical Report on the Holy Cross Property"; Noranda Exploration Company, Limited, August 1989, Assessment Report Number 19,278.

#### Savell, M. & Church, C. (1988)

"Geochemical Report on the Holy Cross Property"; Noranda Exploration Company, Limited, December 1988, Assessment Report Number 19,005.

# 14.0 CERTIFICATE OF QUALIFIED PERSON

I, Geoffrey N. Goodall, certify to the following:

- 1. I am a consulting geologist residing at 1315 Arborlynn Drive, North Vancouver, BC
- 2. I am a graduate of the University of BC with a Bachelor of Science degree in Geology.
- 3. I am a Professional Geoscientist registered in the Association of Professional Engineers and Geoscientists of British Columbia
- 4. I have been continually engaged in geological work since graduation in 1984.
- 5. I am a "Qualified Person" as defined by National Instrument 43-101.
- 6. I am the author of the report titled "Prospecting Report on the Holy Cross Property" dated October 8, 2002

Geoffrey N. Goodall, B.Sc., P.Geo. North Vancouver, BC October 8, 2002

# APPENDIX I

# SAMPLE DESCRIPTIONS

### SAMPLE DATA FILE CLIENT: Geoffrey Goodall PROJECT: 103BC - Holy Cross LOCATION Central BC

Sample #	Project	Sampler	Date	File	Easting	Northing	Туре	Material	Colour	Торо	Ру	Aspy	Рx	Ср	Argillic	Silica
GG01	103BC	GG	20-Oct-01	HC	370650	5961925	Grab	Bedrock	green	flat	2					4
GG02	103BC	GG	20-Oct-01	HC	370370	5961973	Grab	Float	brown	flat	1					3
GG03	103BC	GG	20-Oct-01	HC	370336	5961809	Grab	Float	brown	hill	1				2	3
GG04	103BC	GG	20-Oct-01	HC	369944	5961883	Grab	Bedrock	maroon	hill	2					2
GG05	103BC	GG	20-Oct-01	HC	369862	5961664	Grab	Float	brown	hill	1				1	2
GG06	103BC	GG	20-Oct-01	HC	369912	5961640	Grab	Bedrock	brown	hill	2	1			1	4
GG07	103BC	GG	20-Oct-01	HC	369876	5961897	Grab	Bedrock	maroon	hill	3	1			1	1
GG08	103BC	GG	20-Oct-01	HC	369605	5962578	Grab	Bedrock	grey	hill	2	2			1	2
GG09	103BC	GG	21-Oct-01	HC	371132	5961645	Grab	Bedrock	green	hill	2	1				2
GG10	103BC	GG	21-Oct-01	HC	371140	5961642	Grab	Bedrock	brown	hill	2	1			1	4
GG11	103BC	GG	21-Oct-01	HC	371150	5961635	Grab	Float	brown	hill	2				1	3
JB01	103BC	JB	20-Oct-01	HC	370794	5961897	Grab	Bedrock	maroon	hill						2
JB02	103BC	JB	20-Oct-01	HC	370796	5961895	Grab	Bedrock	brown	hill	2					
JB03	103BC	JB	20-Oct-01	HC	370551	5962234	Grab	Bedrock	white	hill	1	1			3	2
JB04	103BC	JB	20-Oct-01	HC	370556	5962267	Grab	Float	brown	hill	2				2	3
JB05	103BC	JB	20-Oct-01	HC	370552	5962311	Grab	Float	brown	hill	2				2	4
JB06	103BC	JB	20-Oct-01	HC	370550	5962307	Grab	Bedrock	white	hill	2				3	2
JB07	103BC	JB	20-Oct-01	HC	370398	5962458	Grab	Bedrock	brown	hill					3	2
JB08	103BC	JB	20-Oct-01	HC	370183	5962366	Grab	Bedrock	brown	hill					1	3
JB09	103BC	JB	20-Oct-01	HC	370200	5962370	Grab	Bedrock	brown	hill					1	3
JB10	103BC	JB	20-Oct-01	HC	370226	5962359	Grab	Bedrock	brown	hill						
JB11	103BC	JB	20-Oct-01	HC	370223	5962355	Grab	Bedrock	brown	hill	2					2
JB12	103BC	JB	20-Oct-01	HC	370131	5962335	Grab	Bedrock	brown	hill						
JB13	103BC	JB	20-Oct-01	HC	370131	5962333	Grab	Bedrock	brown	hill						
JB14	103BC	JB	20-Oct-01	HC	370135	5962337	Grab	Bedrock	brown	hill						
JB15	103BC	JB	21-Oct-01	HC	369294	5962486	Grab	Bedrock	brown	hill						
JB16	103BC	JB	21-Oct-01	HC	369294	5962500	Grab	Bedrock	brown	hill						
JB17	103BC	JB	21-Oct-01	HC	369290	5962500	Grab	Bedrock	brown	hill						
JB18	103BC	JB	21-Oct-01	HC	369339	5962469	Grab	Bedrock	brown	hill						
JB19	103BC	JB	21-Oct-01	HC	369339	5962495	Grab	Bedrock	brown	hill						
JB20	103BC	JB	21-Oct-01	HC	369350	5962495	Grab	Bedrock	brown	hill						

Sample #	Project	Sampler	Date	File	Easting	Northing	Туре	Material	Colour	Торо	Рy	Aspy	Рx	Ср	Argillic	Silica
JB21	103BC	JB	21-Oct-01	HC	369493	5962368	Grab	Bedrock	brown	hill						
JB22	103BC	JB	21-Oct-01	HC	369529	5962342	Grab	Bedrock	brown	hill						
JB23	103BC	JB	21-Oct-01	HC	369814	5961805	Grab	Float	brown	hill	2					
JB24	103BC	JB	21-Oct-01	HC	369839	5961897	Grab	Bedrock	brown	hill						
JB25	103BC	JB	21-Oct-01	HC	369888	5961900	Grab	Bedrock	brown	hill						
JB26	103BC	JB	21-Oct-01	HC	369900	5961905	Grab	Bedrock	brown	hill						
JB27	103BC	JB	21-Oct-01	HC	369947	5961957	Grab	Bedrock	brown	hill						
JB28	103BC	JB	21-Oct-01	HC	369950	5961957	Grab	Bedrock	brown	hill						
JB29	103BC	JB	21-Oct-01	HC	369932	5961983	Grab	Bedrock	brown	hill						
RR01	103BC	RR	20-Oct-01	HC	370646	5961933	Grab	Bedrock	grey	flat	2	1				
RR02	103BC	RR	20-Oct-01	HC	370647	5962033			maroon-gr	ey						
RR03	103BC	RR	20-Oct-01	HC	370595	5962200	Grab	Bedrock	maroon-gr	hill	1					
RR04	103BC	RR	20-Oct-01	HC	370604	5962270	Grab	Float	grey	hill	1	1				
RR05	103BC	RR	20-Oct-01	HC	370150	5962625	Grab	Float	maroon-gr	hill						
RR06	103BC	RR	20-Oct-01	HC	370032	5962606	Grab	Bedrock	red	hill						
RR07	103BC	RR	20-Oct-01	HC	370154	5962410	Grab	Bedrock	grey	hill						
RR08	103BC	RR	20-Oct-01	HC	369951	5962072	Grab	Bedrock	grey	hill						
RR09	103BC	RR	20-Oct-01	HC	370112	5962330	Grab	Bedrock	maroon	hill						
RR10	103BC	RR	20-Oct-01	HC	370141	5962393	Grab	Float	grey	hill						
RR11	103BC	RR	20-Oct-01	HC	370067	5962585	Grab	Bedrock	maroon	hill	2					
RR12	103BC	RR	20-Oct-01	HC	369884	5962541	Grab	Float	maroon	hill	1					
RR13	103BC	RR	20-Oct-01	HC	369858	5962539	Grab	Float	grey	hill						
RR14	103BC	RR	20-Oct-01	HC	369734	5962533	Grab	Float	tan	hill						
RR15	103BC	RR	20-Oct-01	HC	369619	5962566	Grab	Float	tan							
RR16	103BC	RR	20-Oct-01	HC	369619	5962614	Grab	Bedrock	purple	flat						
RR17	103BC	RR	20-Oct-01	HC	369592	5962575	Grab	Bedrock	grey		3					
RR18	103BC	RR	20-Oct-01	HC	369574	5962558	Grab	Bedrock	maroon	flat	3					
RR19	103BC	RR	20-Oct-01	HC	369865	5961634	Grab	Bedrock	grey	flat	3					
RR20	103BC	RR	20-Oct-01	HC	369933	5961595	Grab	Bedrock	grey	flat	3					

### SAMPLE C CLIENT: PROJECT: LOCATION

Sample #	Chlorite	Serecite	Remarks
GG01			olive green coloured tuff, highly siliceous, weakly fractured w/ 1 to 2% disseminated very fine grained pyrite
GG02			tan brown, siliceous rhyolite tuff, local chalcedony banding, quartz veinlets, trace euhedral coarse pyrite to 1%
GG03			limonitic weathered, grey green coloured, moderatley siliceous, weak argillic alteration
GG04			maroon coloured tuff with waxy green phenocrysts, local quartz veinlets, coarse grained pyrite
GG05			strongly limonitic dacite breccia with pyrite in matrix and on fractures, yellow white clay altered feldspar laths
GG06			red brown rhyolite, highly siliceous, dense chalcedony, 1 to 3 % pyrite
GG07			maroon dacite/rhyolite tuff with 5 to 10% disseminated pyrite, waxy green chloritic phenocrysts
GG08			large trench north of main area, dacite with 3 to 5% pyrite and arsenopyrite
GG09			dark green andesite with coarse pyrite cubes to 3%, trace quartz veinlets
GG10			limonitic, tan brown to grey rhyolite, highly siliceous, very fine stockwork veinlets form grey patchwork
GG11			goethitic, vuggy siliceous rhyolite with local quartz crystal intergrowths and open cavities
JB01			purple brown rhyolite with minor quartz stringers
JB02	2		massive rhyolite, chloritic, trace disseminated pyrite
JB03			rhyolite breccia with minor silica, trace coarse pyrite
JB04			argillic brecciated rhyolite
JB05			massive silicified rhyolite with fine grained disseminated pyrite
JB06			argillic altered rhyolite breccia
JB07			light coloured rhyolite with grainy silica infilling vugs with very fine pyrite
JB08	2		epidote quartz breccia, chalcedony veins
JB09	1		silica veins in rhyolite, possibly stibnite
JB10			crackle breccia in rhyolite
JB11		2	jerosite silica rhyolite breccia
JB12			epithermal breccia in rhyolite
JB13			trench sample
JB14			hematite rich breccia in rhyolite, trench
JB15			highly altered yellow pink rhyolite breccia in trench
JB16			chalcedony and pyrite in maroon rhyolite in trench
JB17			drusy quartz on maroon rhyolite
JB18			limonitic breccia, maroon rhyolite, vuggy, silica breccia
JB19			in trench, pyrtitic silica bands
JB20			dark sulphide rich rhyolite, specular hematite?

Sample #	Chlorite Serecite	Remarks
JB21		banded epithermal quartz rhyolite
JB22		quartz veins in silicified rhyolite
JB23		completely silicified rhyolite breccia, fine grained pyrite, limonite
JB24		totally silicified lapilli tuff
JB25		quartz stringers in rusty rhyolite
JB26		limonitic rhyolite, barite and silica
JB27		chalcedonic quartz breccia rhyolite
JB28		chalcedonic quartz breccia and banded veins
JB29		banded chalcedony in rhyolite
RR01		angular subcrop in trench, greenish grey silicified rhyolite breccia, finely disseminated pyrite and arsenopyrite throughout
RR02		silicified rhyolite breccia, disseminated pyrite, vuggy zones
RR03		silicified rhyolite breccia, disseminated pyrite, vuggy zones
RR04		light grey silicified rhyolite, finely disseminated pyrite, arsenopyrite to 2%, limonite stain on fractures
RR05		very silicified rhyolite with finely disseminated pyrite to 2%, vuggy quartz
RR06		silicified, argillic altered breccia in dark red and white rhyolite flows, vuggy quartz with pyrite
RR07		silicified rhyolite breccia, vuggy quartz, disseminated fine grained pyrite
RR08		silicified rhyolite tuff, locally brecciated, dissmeninated coarse grained pyrite, limonite stain on fractures
RR09		silicified rhyolite flow breccia, disseminated pyrite
RR10		silicified rhyolite tuff breccia, vuggy with pyrite and limonite staining
RR11		silicified rhyolite, disseminated pyrite to 2%
RR12		silicified rhyolite breccia, finely disseminated pyrite
RR13		orange grey silicified rhyolite breccia, disseminated pyrite
RR14		quartz flooded, brecciated rhyolite tuff
RR15		silicified tuff with dissemniated pyrite
RR16		silicified fine grained rhyolite tuff, disseminated pyrite in stringers, silver black metallic mineral
RR17		silicified grey tuff, 10% disseminated pyrite, quartz stringers
RR18		silicified rhyolite breccia, 5% disseminated pyrite
RR19		trench sample, silicified rhyolite with 5% disseminated fine grained pyrite
RR20		silicified rhyolite with fine grained disseminated pyrite to 5%

# APPENDIX II

# GEOCHEMICAL ANALYSES

A0127415-CERTIFIED CLIENT : "GLOBAL GEOLOGICAL SERVICES INC." # of SAMPLES : 67 DATE RECEIVED : 25-OCT-2001 PROJECT : "103BC" CERTIFICATE COMMENTS : "ATTN: GEOFF GOODALL"

	1433	9993	997	2118	2119	2120	557	2121	2122	2123	2124	2125	2126	2127	2128	2150	2130	2131	2132
SAMPLE	KG	Au	Au	Ag	Al	As	В	Ba	Be	Bi	Са	Cd	Со	Cr	Cu	Fe	Ga	Hg	K
DESCRIPTION	kg	ppb	g/tonne	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%
GG01	0.78	11		2.4	0.54	56	<10	450	<.5	2	0.03	<.5	1	24	13	0.79	<10	<1	0.47
GG02	1.1	6		0.4	0.24	<2	<10	240	<.5	<2	0.03	<.5	<1	61	9	0.86	<10	1	0.37
GG03	1.1	6		0.2	0.43	12	<10	290	<.5	<2	0.03	<.5	3	44	15	1.12	<10	<1	0.35
GG04	1.08	8		<.2	0.31	2	<10	510	<.5	<2	0.04	<.5	<1	42	10	1.53	<10	<1	0.33
GG05	0.86	5		0.6	1.35	2	<10	270	<.5	2	0.08	<.5	4	51	34	3.6	<10	1	0.18
GG06	1.16	95		4.4	0.2	6	<10	430	<.5	<2	0.02	<.5	<1	71	46	0.79	<10	<1	0.24
GG07	1.12	37		2	0.31	2	<10	40	<.5	<2	0.05	<.5	2	47	67	2.86	<10	<1	0.33
GG08	1.66	36		6.2	0.3	8	<10	40	<.5	<2	0.04	<.5	56	48	180	2.8	<10	<1	0.28
GG09	1.62	10		3.2	1.78	14	<10	60	0.5	<2	0.1	<.5	21	113	304	6.5	10	1	0.21
GG10	1.48	7		0.6	0.25	4	<10	140	<.5	<2	<.01	<.5	<1	54	12	0.51	<10	<1	0.32
GG11	2.1	36		39.6	0.21	14	<10	280	<.5	10	0.04	<.5	3	156	280	4.76	<10	<1	0.13
JB01	1.4	44		1.4	0.52	36	<10	1430	1	<2	0.01	<.5	11	57	273	5.19	<10	<1	0.21
JB02	1.5	5		<.2	0.39	2	<10	120	<.5	<2	0.01	<.5	7	81	21	2.07	<10	<1	0.33
JB03	0.42	31		74.8	0.21	<2	<10	270	<.5	<2	<.01	<.5	<1	109	684	0.49	<10	<1	0.28
JB04	0.44	5		1.2	0.4	10	<10	710	1.5	<2	0.01	<.5	5	67	159	3.07	<10	1	0.22
JB05	0.44	4		0.6	0.19	2	<10	70	<.5	<2	0.01	<.5	6	90	7	2.08	<10	<1	0.35
JB06	0.36	<1		0.2	0.32	<2	<10	110	<.5	<2	<.01	<.5	<1	63	11	0.84	<10	<1	0.36
JB07	0.72	<1		<.2	0.23	<2	<10	110	<.5	<2	<.01	<.5	<1	67	16	0.94	<10	<1	0.33
JB08	1.24	33		1.4	0.14	<2	<10	180	<.5	<2	<.01	<.5	<1	122	8	0.9	<10	<1	0.26
JB09	1.28	2		<.2	0.3	<2	<10	160	<.5	6	<.01	<.5	<1	82	6	0.74	<10	<1	0.42
JB10	1.04	210		0.2	0.24	<2	<10	130	<.5	<2	<.01	<.5	<1	73	14	1.29	<10	<1	0.3
JB11	0.64	8		0.4	0.21	<2	<10	350	<.5	<2	<.01	<.5	<1	69	1	1.15	<10	<1	0.39
JB12	0.7	5		0.2	0.27	2	<10	100	<.5	<2	<.01	<.5	<1	82	14	0.99	<10	<1	0.27
JB13	0.68	9		0.6	0.24	6	<10	110	<.5	<2	<.01	<.5	1	68	51	0.94	<10	1	0.22
JB14	0.64	3		0.2	0.27	2	<10	180	<.5	<2	<.01	<.5	1	64	24	1.83	<10	<1	0.29
JB15	0.82	120		0.2	0.21	<2	<10	1090	<.5	<2	<.01	<.5	1	72	<1	1.03	<10	<1	0.29
JB16	0.62	15		2.4	0.43	<2	<10	210	<.5	<2	<.01	<.5	<1	31	4	1.06	<10	<1	0.44

SAMPLE	KG	Au	Au	Ag	Al	As	В	Ва	Be	Bi	Са	Cd	Со	Cr	Cu	Fe	Ga	Hg	K
DESCRIPTION	kg	ppb	g/tonne	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%
JB17	0.58	400		5	0.23	8	<10	130	<.5	<2	<.01	<.5	1	79	40	2.37	<10	<1	0.28
JB18	0.84	12		1.4	0.35	6	<10	300	1	<2	<.01	<.5	1	38	16	1.78	<10	<1	0.33
JB19	0.5	5		0.6	0.27	4	<10	350	<.5	<2	<.01	<.5	4	94	6	1.45	<10	<1	0.36
JB20	0.56	3		0.6	0.29	8	<10	650	<.5	<2	0.01	<.5	<1	85	3	2.57	<10	<1	0.31
JB21	0.82	3		5	0.08	<2	<10	1610	<.5	<2	<.01	<.5	1	177	4	0.66	<10	4	0.08
JB22	0.8	<1		<.2	0.19	<2	<10	210	<.5	<2	<.01	<.5	<1	101	1	1.22	<10	2	0.22
JB23	0.76	7		1.2	0.07	224	<10	90	<.5	<2	<.01	<.5	2	179	4	2.02	<10	<1	0.07
JB24	0.82	7		1.6	0.12	86	<10	80	<.5	<2	<.01	<.5	3	159	54	1.42	<10	<1	0.16
JB25	0.98	3		<.2	0.52	4	<10	300	<.5	<2	0.07	<.5	<1	53	12	1.66	<10	<1	0.45
JB26	0.54	2		0.6	0.34	6	<10	950	<.5	<2	0.01	<.5	1	80	8	1.21	<10	<1	0.3
JB27	1.26	3		<.2	0.16	<2	<10	540	<.5	<2	<.01	<.5	<1	138	9	0.65	<10	<1	0.19
JB28	0.78	10		1.6	0.18	2	<10	730	<.5	<2	<.01	<.5	1	139	53	0.98	<10	<1	0.14
JB29	1.2	4		1.4	0.13	6	<10	510	<.5	<2	<.01	<.5	1	168	24	3.2	<10	<1	0.09
RR01	1.44	63		3.6	0.31	318	<10	120	<.5	<2	<.01	<.5	2	29	11	1.24	<10	3	0.3
RR02	1.54	17		0.2	0.19	4	<10	240	<.5	<2	<.01	<.5	<1	49	17	0.66	<10	<1	0.17
RR03	0.86	20		1.8	0.22	2	<10	400	<.5	<2	<.01	<.5	<1	53	13	0.62	<10	<1	0.3
RR04	1.1	13		1.4	0.25	8	<10	70	<.5	<2	<.01	<.5	2	40	17	0.6	<10	<1	0.2
RR05	0.84	6		1	0.27	50	<10	100	<.5	<2	<.01	<.5	16	69	13	1.94	<10	<1	0.24
RR06	1.26	23		0.2	0.16	8	<10	180	<.5	<2	<.01	<.5	<1	74	12	1.27	<10	<1	0.13
RR07	1.26	5		0.8	0.34	<2	<10	190	<.5	<2	<.01	<.5	1	65	16	0.99	<10	<1	0.16
RR08	1.26	6		<.2	0.23	8	<10	200	<.5	2	<.01	<.5	<1	44	14	1.76	<10	<1	0.27
RR09	1.1	7		3	0.19	<2	<10	120	<.5	<2	<.01	<.5	<1	48	20	0.41	<10	<1	0.22
RR10	1.4	2		<.2	0.18	2	<10	170	<.5	<2	<.01	<.5	<1	42	24	1.07	<10	<1	0.24
RR11	1.3	6		0.4	0.19	22	<10	140	<.5	<2	<.01	<.5	3	52	9	0.83	<10	<1	0.23
RR12	1.18	2		0.2	0.12	<2	<10	220	<.5	<2	<.01	<.5	1	74	6	2.02	<10	<1	0.47
RR13	0.92	7		1.8	0.2	2	<10	300	<.5	<2	<.01	<.5	1	85	43	1.31	<10	<1	0.23
RR14	0.8	2		1.2	0.23	2	<10	300	<.5	<2	<.01	<.5	13	61	22	0.68	<10	<1	0.19
RR15	0.96	4		2.4	0.17	10	<10	230	<.5	<2	<.01	<.5	1	78	51	1.71	<10	<1	0.23
RR16	0.92	64		<.2	0.22	6	<10	370	<.5	<2	<.01	<.5	<1	48	8	1.67	<10	<1	0.28
RR17	1.12	41		7.4	0.2	4	<10	10	<.5	<2	<.01	<.5	112	38	104	4	<10	<1	0.23
RR18	0.78	5		0.6	0.2	6	<10	170	<.5	<2	<.01	<.5	<1	47	24	2.04	<10	<1	0.19
RR19	0.84	>2000	24.02	20.8	0.17	<2	<10	140	<.5	<2	<.01	<.5	1	107	33	0.99	<10	<1	0.14
RR20	1.06	130		9.4	0.12	28	<10	80	<.5	<2	0.01	<.5	11	81	130	1.79	<10	<1	0.14

### A0127415-CER CLIENT : "GLOI # of SAMPLES DATE RECEIVE PROJECT : "10 CERTIFICATE (

	2151	2134	2135	2136	2137	2138	2139	2140	551	2141	2142	2143	2144	2145	2146	2147	2148	2149
SAMPLE	La	Mg	Mn	Мо	Na	Ni	Р	Pb	S	Sb	Sc	Sr	Ti	TI	U	V	W	Zn
DESCRIPTION	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
GG01	<10	0.03	15	21	0.02	1	80	16	0.29	<2	<1	32	<.01	<10	<10	3	<10	8
GG02	<10	<.01	10	5	0.02	1	90	52	0.22	<2	<1	14	<.01	<10	<10	1	<10	2
GG03	10	0.04	35	5	0.02	1	120	10	0.49	<2	<1	41	<.01	<10	<10	1	<10	6
GG04	10	<.01	40	<1	0.02	1	130	2	0.29	<2	<1	26	<.01	<10	<10	3	<10	8
GG05	<10	0.12	540	7	0.02	2	40	28	0.46	4	1	9	<.01	<10	<10	6	<10	144
GG06	<10	<.01	10	16	0.02	1	40	24	0.3	6	<1	8	<.01	<10	<10	1	<10	4
GG07	10	<.01	35	7	0.02	1	260	12	1.98	<2	<1	12	<.01	<10	<10	3	<10	12
GG08	<10	0.01	20	7	0.01	4	60	58	1.71	2	<1	13	<.01	<10	<10	2	<10	18
GG09	<10	0.86	1615	5	0.02	43	730	48	2.48	10	7	16	0.01	<10	<10	74	<10	142
GG10	<10	0.01	20	44	0.02	1	40	62	0.2	<2	<1	4	<.01	<10	<10	2	<10	20
GG11	<10	0.01	45	46	0.03	4	220	208	0.47	6	<1	40	<.01	<10	<10	11	<10	24
JB01	<10	0.01	95	185	0.02	2	610	34	0.04	12	1	10	<.01	<10	<10	11	<10	48
JB02	<10	0.03	35	17	0.02	2	60	14	1.16	<2	<1	10	<.01	<10	<10	1	<10	6
JB03	<10	<.01	20	1	0.02	2	70	58	0.12	<2	<1	12	<.01	<10	<10	2	<10	4
JB04	40	0.01	2080	42	0.02	3	780	12	0.01	4	<1	6	<.01	<10	<10	10	<10	72
JB05	<10	<.01	30	11	0.02	2	100	10	1.68	<2	<1	14	<.01	<10	<10	3	<10	2
JB06	10	<.01	20	<1	0.02	1	190	<2	<.01	2	<1	5	<.01	<10	<10	3	<10	16
JB07	<10	<.01	30	8	0.02	1	60	4	0.01	<2	<1	4	0.01	<10	<10	3	<10	<2
JB08	10	<.01	50	8	0.02	3	140	6	0.15	2	<1	9	<.01	<10	<10	1	<10	2
JB09	10	<.01	35	<1	0.02	1	160	10	0.06	<2	<1	5	<.01	<10	<10	2	<10	2
JB10	<10	<.01	45	1	0.02	1	140	8	0.01	<2	<1	3	0.01	<10	<10	3	<10	8
JB11	10	<.01	15	<1	0.02	1	80	2	0.28	<2	<1	8	<.01	<10	<10	1	<10	2
JB12	30	<.01	75	4	0.02	1	210	2	<.01	<2	<1	5	<.01	<10	<10	3	<10	14
JB13	10	<.01	185	5	0.02	2	240	8	0.02	<2	<1	5	<.01	<10	<10	3	<10	20
JB14	10	<.01	70	1	0.02	2	260	4	0.01	<2	<1	7	<.01	<10	<10	5	<10	12
JB15	<10	<.01	50	<1	0.01	1	50	22	0.14	<2	<1	14	0.01	<10	<10	4	<10	4
JB16	<10	0.01	30	1	0.02	<1	90	26	0.59	<2	<1	16	<.01	<10	<10	4	<10	12

SAMPLE	La	Mg	Mn	Мо	Na	Ni	Р	Pb	S	Sb	Sc	Sr	Ti	TI	U	V	W	Zn
DESCRIPTION	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
JB17	<10	<.01	50	8	0.02	1	160	34	1.08	<2	<1	11	<.01	<10	<10	6	<10	10
JB18	<10	<.01	75	11	0.02	<1	410	14	0.11	2	<1	21	<.01	<10	<10	11	<10	24
JB19	<10	<.01	15	4	0.02	1	100	12	0.41	<2	<1	30	<.01	<10	<10	3	<10	26
JB20	<10	<.01	35	13	0.02	2	170	16	0.1	26	<1	53	0.02	<10	<10	9	10	2
JB21	<10	<.01	20	1	0.01	4	30	8	0.05	<2	<1	14	<.01	<10	<10	1	<10	10
JB22	<10	<.01	40	3	0.01	2	60	18	0.01	10	<1	10	0.01	<10	<10	4	<10	6
JB23	<10	<.01	40	37	0.01	5	50	32	1.17	6	<1	7	<.01	<10	<10	3	<10	8
JB24	<10	<.01	15	26	0.01	3	10	50	1.11	8	<1	8	<.01	<10	<10	1	<10	22
JB25	20	0.04	95	1	0.02	6	710	8	0.2	<2	1	13	<.01	<10	<10	8	<10	12
JB26	10	0.01	40	2	0.02	2	230	48	0.12	<2	<1	26	<.01	<10	<10	4	<10	6
JB27	10	<.01	15	4	0.02	2	70	32	0.06	<2	<1	10	<.01	<10	<10	2	<10	6
JB28	10	<.01	25	3	0.02	3	170	100	0.03	<2	<1	17	<.01	<10	<10	5	10	8
JB29	<10	<.01	25	3	0.01	3	110	18	0.03	2	1	21	<.01	<10	<10	19	90	8
RR01	<10	0.01	15	30	0.02	<1	50	40	0.83	4	<1	10	<.01	<10	<10	2	<10	6
RR02	10	<.01	15	3	0.02	1	50	6	0.14	<2	<1	8	<.01	<10	<10	3	<10	6
RR03	<10	<.01	20	28	0.02	1	50	28	0.22	<2	<1	11	<.01	<10	<10	1	<10	12
RR04	<10	<.01	5	13	0.02	1	20	28	0.5	<2	<1	4	<.01	<10	<10	1	<10	2
RR05	10	0.03	45	6	0.02	3	90	8	0.99	<2	<1	6	<.01	<10	<10	8	<10	8
RR06	<10	<.01	25	6	0.02	1	100	8	0.01	<2	<1	5	<.01	<10	<10	6	<10	4
RR07	<10	0.11	215	<1	0.02	1	140	8	0.06	<2	<1	4	<.01	<10	<10	6	<10	16
RR08	<10	<.01	30	4	0.02	<1	130	40	0.65	2	<1	29	<.01	<10	<10	4	<10	16
RR09	<10	<.01	5	42	0.02	1	150	10	0.03	<2	<1	3	<.01	<10	<10	1	<10	<2
RR10	10	<.01	10	5	0.02	<1	160	4	0.12	<2	<1	6	<.01	<10	<10	1	<10	<2
RR11	<10	<.01	5	5	0.02	1	60	<2	0.53	<2	<1	3	<.01	<10	<10	1	<10	<2
RR12	<10	<.01	25	4	0.02	<1	70	8	0.75	<2	<1	4	<.01	<10	<10	<1	<10	<2
RR13	<10	0.01	40	16	0.02	2	50	20	0.32	<2	<1	8	<.01	<10	<10	3	<10	4
RR14	<10	<.01	1065	3	0.02	4	220	26	<.01	<2	<1	7	<.01	<10	<10	2	<10	24
RR15	<10	<.01	55	5	0.01	3	110	48	0.63	<2	<1	14	<.01	<10	<10	1	<10	10
RR16	10	<.01	45	1	0.02	1	80	26	0.16	<2	<1	13	0.02	<10	<10	3	<10	10
RR17	<10	<.01	15	15	0.02	4	80	24	3.63	<2	<1	6	<.01	<10	<10	1	<10	8
RR18	<10	<.01	25	3	0.02	<1	50	12	0.57	<2	<1	3	<.01	<10	<10	4	<10	8
RR19	<10	<.01	5	61	0.02	2	40	16	0.69	<2	<1	4	<.01	<10	<10	1	<10	<2
RR20	<10	<.01	5	117	0.02	1	20	634	1.49	<2	<1	10	<.01	<10	<10	2	<10	10