AR98-028

EXPLORATION REPORT
LOCHABER, NOVA SCOTIA
-SEDIMENTARY COPPER DEPOSIT-
11-E-8-D

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Antigonish, Nova Scotia
March, 1998

GOLIATH
COPPER FIELDS LIMITED

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PREFACE

The following work report has been prepared by Jason Ross for Goliath Copper Fields Limited. Goliath Copper Fields is a privately owned company registered in the province of Nova Scotia. The exploration licences in which work credit is being applied to are; licences 03086 registered to Mr. Alex Thomson and 01672, 01672 A and 01672 B which are registered to Mr. Lewis Mitz.

Sincere thanks are extended to Mr. John MacMullen, Mr. Paul MacCulloch and Mr. George O'Reilly who provided valuable input which greatly assisted the project.

SUMMARY

During the period May 24 to September 10, 1997, Goliath Copper Fields Limited, conducted a multifaceted exploration program at the companies 'Lochaber Lake Project'. The project involved exposing bedrock at four locations by way of trenching, archival research, followed by three diamond drill holes and a soil geochemical survey.

The trenching exposed, in bedrock, copper mineralization in a calcareous shale ranging from .15 to .57% copper over an average distance of 30 to 60 feet.

The drilling revealed copper mineralization grading up to 1.15% over a five foot length, and on average 0 .40 % in the mineralized sections.

In addition to the drilling and trenching, enhanced second vertical derivative aeromagnetic digital data and high resolution aeromagnetic residual total field maps published by the Nova Scotia Department of Natural Resources Minerals and Energy Branch were examined. These recent geophysical maps in combination with research conducted by W.G. Shaw and Associates and Goliath Copper Fields staff suggest that there is pervasive evidence which illustrates a stratigraphic continuation of the calcareous sediments containing copper, which appears to extend from the recently tested area to the largely untested area between College Grant and the Lochaber copper deposit.

During a two phase sampling program seventy three deep seated till samples were collected at Goliath Copper Fields Ltd. Lochaber Copper Project. The results from this survey indicate that there are anomalous copper (ranging from 40 - 2150 ppm) and silver (1.0 - 4.5 ppm) values in the deep seated till . The sample locations were intended to provide an extension of previously investigated copper mineralization in the area. In brief the geochemical response of the tills suggests that there is a considerable extension (still open to the southwest) of a unique mineralized carbonate unit.

In combination with previous work in the area (mainly the Great Horn Mining Syndicate's 1972 campaign) and recent investigations by Goliath Copper Fields Ltd. There is evidence which would suggest that the mineralized carbonate unit has a 2800 foot north east - south westerly strike length and could extend as far as a further 1300 feet to the north west.

The Lochaber sedimentary copper unit is an important deposit because of the implications (both geological and from an exploration viewpoint). Although its extent and age are still uncertain (thought to be late Silurian in age) it is thought to be unique in Nova Scotia and possibly in Canada.

Based largely upon the recent revelations of Goliath Copper Fields 1997 exploration project there is significant evidence which should provide the impetus for the company to continue its examination and delineation of this deposit. However, largely as a result of low copper prices hovering around .73 cents per pound the project has been temporarily placed on hold pending market recovery.

INTRODUCTION

The scope of the Lochaber Lake Exploration was initially intended to evaluate previously reported rutile (the chief titanium bearing mineral) occurrences noted by The Great Horn Mining Syndicate in 1972. Initial trenching indicated the presence of rutile and ilmenite which was not considered to be of sufficient quality nor value to warrant further exploration based on the merit of this mineral. However the copper values and the nature of the host rock proved to be sufficiently encouraging to continue further exploration.

The strategy of the program then took on a new direction with further work to verify the previously reported results of The Great Horn Mining Syndicates 1972 campaign and to try to improve upon these results with a more detailed evaluation of the copper content of this property.

The area under consideration were the Silurian sediments consisting of siltstones, graywackes, shales, argillites and calcareous mudstones. These rocks are locally folded and convoluted but generally strike north east and dip steeply to the north west. They are underlain by the red beds previously described as the Moydart formation.

LOCATION AND ACCESS

The Lochaber copper property is located in the province of Nova Scotia and is approximately 15 miles south of the town of Antigonish. It is on the high land west of Lochaber Lake, 300 to 600 feet above the lake. The property can be reached by following the paved highway Route 7 from Antigonish. Local secondary roads allow access to the west side of the lake. The property is best accessed vis-a-vis a gated dirt road on the west side of Lochaber Lake. The road is on a property owned by Mr. Fred MacPherson of Stellarton, Nova Scotia.(see fig.1 "Location Map p.5)

TOPOGRAPHY, SOIL TYPES AND LAND USE

Preglacial topography is now masked by an extensive cover of drift, but probably was originally not unlike that seen today - rolling hills rising to a maximum of 650 feet above sea level upon which an immature drainage system has been implanted.

The glacial drift cover is very irregular, both in thickness and in composition. The Antigonish Highlands were subject to three distinct periods of glacial dispersion the Quaternary; in order of oldest to youngest, they were: 1) toward the southeast, 2) toward the south-southeast, and 3) toward the north (Stea, 1990). Typically overburden thickness ranges from 3 - 60 feet.

The soil types in the vicinity of the Lochaber Copper deposit are reflective of the dominate underlying rock types. Typically the soil in the area is poorly drained and clay rich reflecting soil genesis from the underlying argylitic and calcareous sediments. Consequently, a significant part of the ground is permanently water-logged, leading to very poor soil horizon development.

Soil horizon development appears to be a less important factor than overburden thickness in the success or failure of a geochemical program in glaciated areas. The soil development from the most recent glacial material will only reflect the composition of the upper few feet of the overburden in the absence of rising ground waters, and will only be influenced by the underlying bedrock if the bedrock is sufficiently near surface for the decomposing rock and its constituent minerals to be drawn into the developing soil profile by active weathering processes.

With consideration of the factors influencing soil generation in the study area it was concluded that soil samples taken in close proximity to the underlying bedrock would yield the most objective geochemical response.

Historically land use in the area was typified by various small scale agriculture efforts, but as a result of poorly drained soil, and the overabundance of boulders, much of the farm land was left to revert to forest. In turn the wooded areas have been clear cut over the last several decades. Within the last five years the area has been replanted with softwood seedlings.

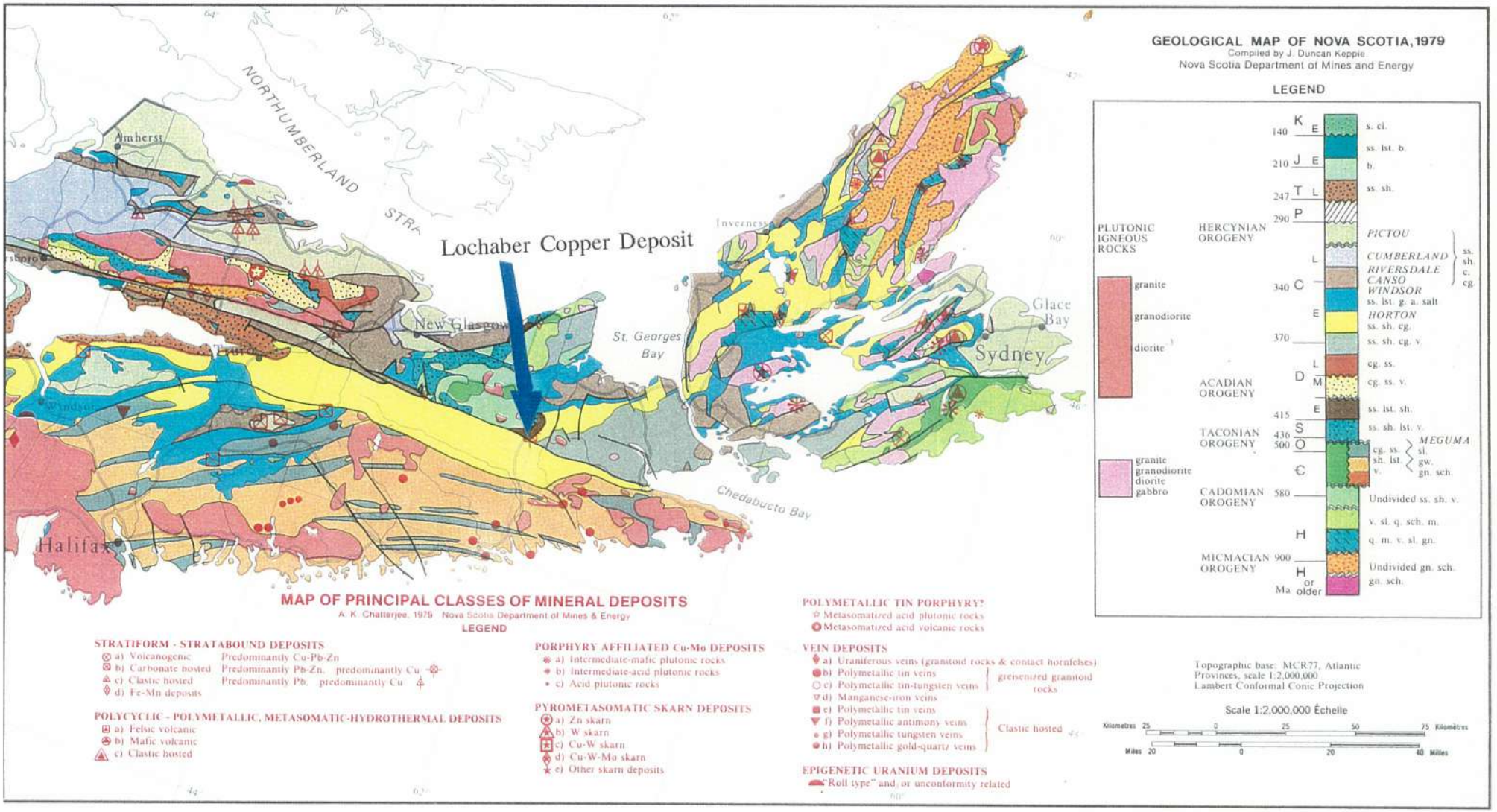


Figure 1, Location Map

LICENCE TABULATION

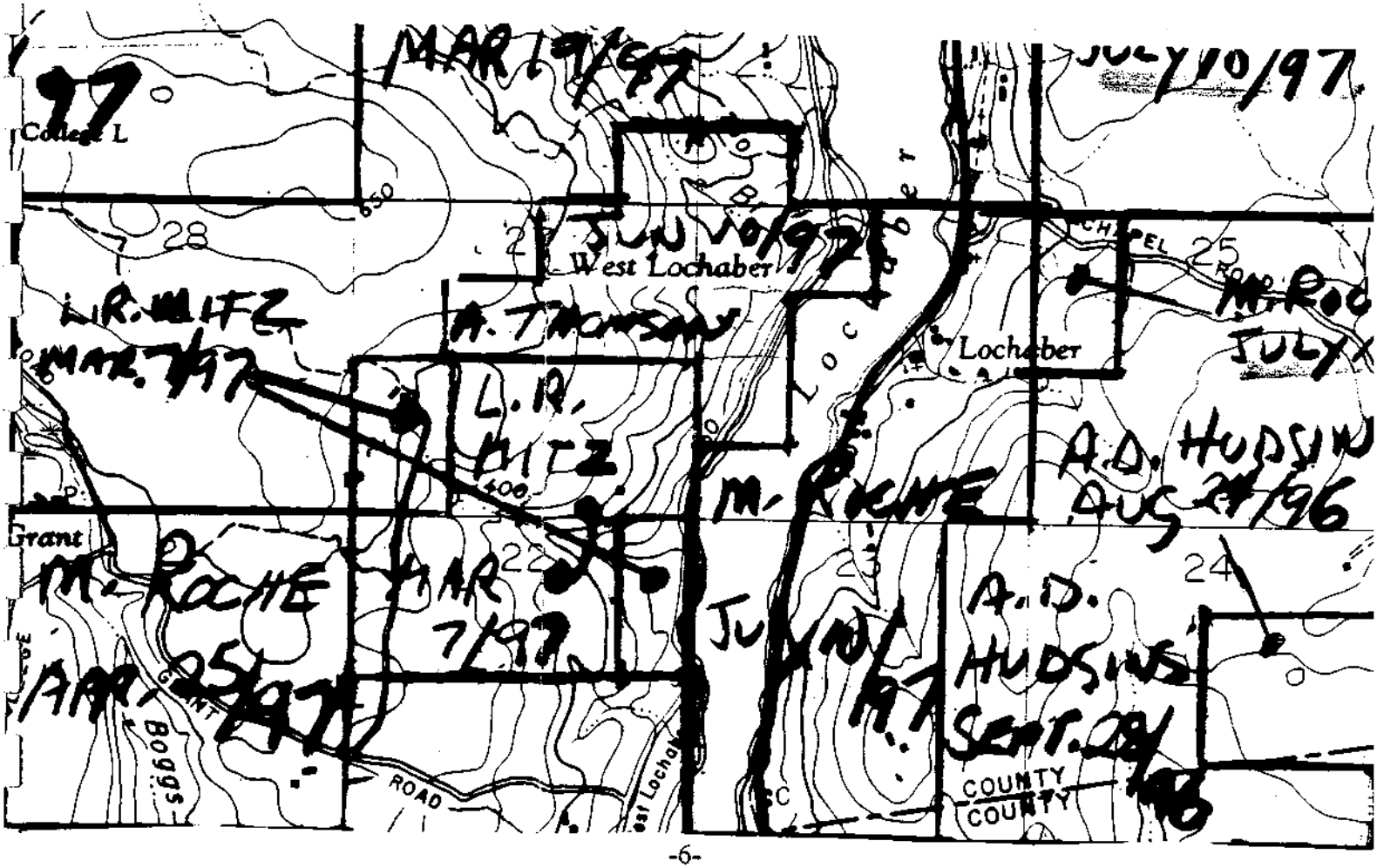
The property consists of 27 claims located on the reference map 11-E-8-D

Licence No.	Tract	Claims	Expiry Date
03086	27	JKLPQ	June 10th 1998
	46	A	June 10th 1998
	26	EMNO	June 10th 1998
	47	D	June 10th 1998
01672	22	KLMNOP	March 7th 1998
	27	ABCFGH	March 7th 1998
01672 A	27	DE	March 7th 1998
01672 B	22	JQ	March 7th 1998

Licence 03086 is in its first year and is registered to Mr. Alex Thomson on behalf of Goliath Copper Fields.

Licence 01672 is in its third year and is registered to Mr. Lewis Mitz on behalf of Goliath Copper Fields.

All of the aforementioned licences are conterminous.



GEOLOGY

The Lochaber Copper Project is located at the southeast corner of the triangular shaped Antigonish Highlands. Copper mineralization is contained in the lower 250 feet of a weakly metamorphosed (sub greenshist facies) series of argillites, calcareous limestones (ribbon shale), siltstones and black-green-grey shales which exhibit characteristics common to the Knoydart Formation (late Silurian). These sediments generally strike in a southwesterly direction, with a near vertical surface dip which appears to flatten out to the northwest with increasing depth, the sequence is complicated by plastic deformation at a regional and localized scale. In specific localities the limestone sequence is bisected by what looks like either an andesitic flow or sill, generally this occurs at the lower limestone sequence, near the base of the mineralization. .

Regionally the limestone overlays (the contact appears to be an angular unconformity resulting from erosion) the red bed slates of the older Moydart formation. Based upon previous and recent drill holes on the property there is evidence of a ancient limestone reef which is sandwiched between the lower sequence of the calcareous limestones. This suggests that the depositional environment was one of a shallow marine shelf.

The bulk of the sulfide mineralization, pyrite and chalcopyrite is concentrated in the calcareous limestone sequence. It may be postulated that metalliferous brines in underlying redbeds, possibly mobilized as a result of basinal compaction, were forced upward into overlying anoxic sediments in which the metals were precipitated. In redbeds or continental environments frequently the oxic cuperiferous brines migrated through arenaceous aquifers where metals were deposited in redox reaction zones between oxidized and originally reduced sediments. Presumably the metalliferous migrated up dip and through laminations and fractures until they encountered mobile reductants, derived from underlying anoxic formations, that were previously trapped.

EXPLORATION HISTORY

The Lochaber copper prospect was discovered by a shallow "B" zone geochemical soil survey conducted during 1970 for the Great Horn Mining Syndicate by International Mine Services (IMS). Four anomalous copper values were found on abandoned farm land to the west of Lochaber Lake. These values were followed up, in 1971 and 1972, by a detailed shallow soil survey, and six trenches following up the soil geochemistry. Geophysical surveys were conducted over the geochemical anomaly. These included self potential, induced polarization, magnetic and electromagnetic surveys. A total of 16 BQ diamond drill holes were drilled by the Nova Scotia Department of Mines for IMS over the copper soil anomaly, during 1971 and 1972.

The 1971 drilling outlined a low grade copper deposit which has a strike length of approximately 700 feet. Drill hole L-14, which was the deepest hole on the property, intersected the base of the mineralization at a vertical depth of 726 feet. The mineralization envelope was described as being 80 to 200 feet thick, and generally dipping 70 degrees to the south west.

There was no further ground work by IMS after 1972.

In 1981 and 1982, Blue Stack Resources Ltd. Conducted a limited geochemical survey. Basal till sampling was completed along access roads, at 500 foot spacing with an overburden sampling drill that returned a sample through its one inch rods. Samples were analyzed for copper, lead and zinc. Overburden depth averaged 27.5 feet along the road on the east side of the property and 10 feet along the road on the west side of the property. The basal till sampling did not pick up any significant anomalies and the property was dropped.

GRID LOCATION

During the early spring of 1997 a temporary flag grid which attempted to duplicate a portion of the 1972 Great Horn grid was hip chained and oriented using a hand held compass, however this temporary grid proved to be insufficient, thus during the summer months a cut grid was established on the property using a tripod mounted compass and a turning board, the grid was further defined by picketing at 100 ft. stations. The base line (which has been cut) is trending 40 degrees from line 0+00 to 18+00 NE and 35 degrees from line 9+00 SW to 0+00. Lines have been turned off at right angles in a NW and SE direction of their respective base line. (Refer to SITE MAP - APPENDIX 1)

TRENCHING PROGRAM

Under the guidelines stated in excavation permit Application #A-118 No. E-110, four trenches were established during the period June 3 to June 9, 1997, the three southwesterly trenches encounter bedrock and the fourth north easterly trench did not reach bedrock. The trench excavation utilized a CASE 580 E, 4 wheel drive "Extendahoe" backhoe operating with a 3 ft. Wide bucket. The operator of the machine was Mr. Fred MacPherson who is also the landowner of the ground where three of the trenches were excavated. After trenching the bedrock was hosed off, mapped, and sampled. Sampling involved the use of a diamond bladed rock saw. A channel cut 4 inches wide and trending perpendicular to the strike of the bedrock enabled a detailed sampling of the trenches that encountered bedrock. In specific locations where the overburden thickness was to deep to safely work in the trenches the backhoe was used to recover rock samples.

Once sampled rock samples were sent to XRAL Laboratories of Toronto, Ontario. After sampling the trenches were restored to their original contour to the satisfaction of the respective landowners (July 20-22, 1997).

DISCUSSION OF TRENCHING RESULTS

As a result of the three trenches that encountered bedrock the following conclusions were made:

-Overburden thickness in the vicinity of the trenches varies from 3 feet to 12 feet in thickness, this variation is interpreted as being the result of the weathering away of the less resistant argillite beds, whereas the more resistant ribbon sediments appear to be slightly more competent, the end result is the ribbon sediments are left as distinct ridges.

-The rock sequence from east to west consists of maroon shale to slate, an andesite flow or sill? followed by a "ribbon" calcareous shale and limestone.

-All units are steeply dipping, from the northwest to vertical in a southeasterly direction.

-The copper present in Trench Two demonstrates that economic mineralization extends for an additional three hundred feet northwest.

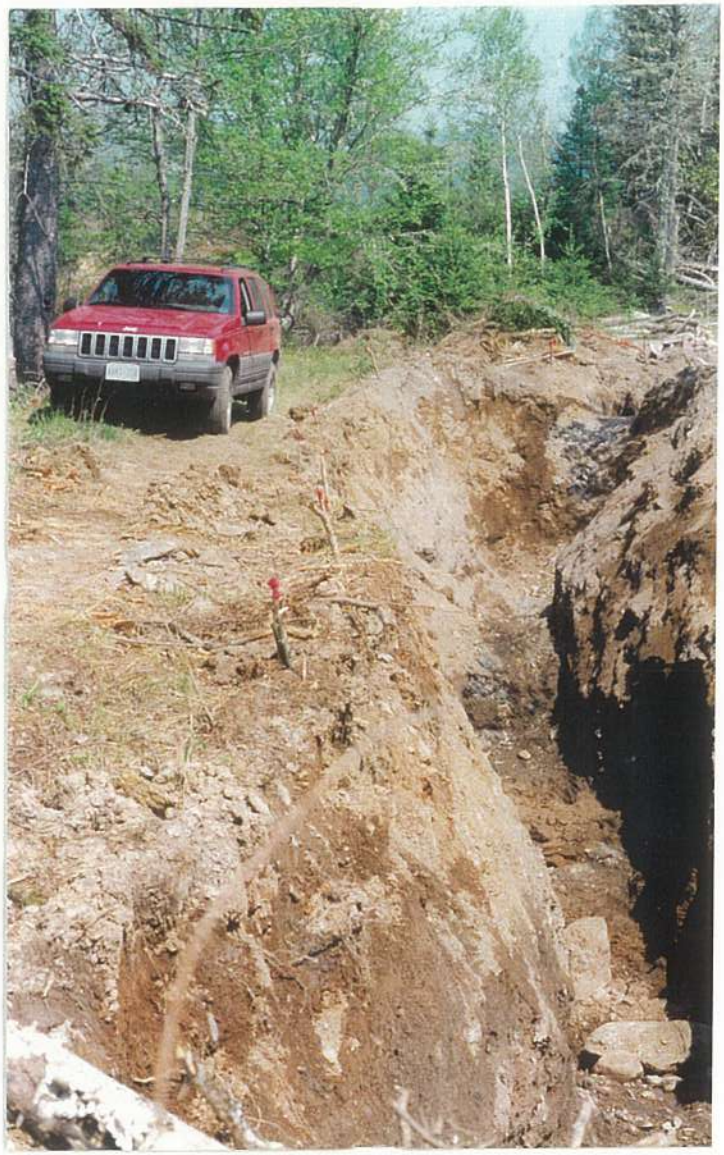
-Reinterpretation of the previous geochemical survey suggests that copper mineralization extends for an additional three hundred feet northwest.

For trench locations please refer to SITE MAP -APPENDIX 1

Trench 1 - looking southeast

Trench 1 bolder, note malachite staining on calcareous ribbon sediments

Trench 2, looking northwest, note ridge of the more resistant ribbon sediments



Trench 2, looking southeast

Trench 4 looking northwest

Trench 4
Channel cut

TRENCH 1 - MAPPING DATA

Trench 1 was located at Line 3+45 NE, the starting point of the trench was at station 20 NW and the bearing of the trench is 140 degrees.

Trench Linear Footage	Description
0-15'	No outcrop exposed, overburden is greater than 12 feet
15-16'	Outcrop consisting of dull green andesite, too much water in trench for thorough evaluation, however fragments brought up by the excavator contain minor traces of pyrite
16-22'	Dull grey calcareous shale with malachite staining - vertically dipping
22-33'	Highly weathered sericite rich sediments containing 30-40% carbonate, also pods of manganese concordant with bedding -horizons of limey black shale, containing 4 mm calcite violets -malachite staining concentrated mainly between bedding laminations, also in lesser amounts in the matrix of the black shale, 1-2% pyrite, <1% chalcopyrite -bedding thickness is quite fine, but appears to become thicker - up to 1-2cm in the north west portion of the trench -at 0+23' bedding is trending 021/80 SE, cleavage is parallel to bedding -at 0+28' bedding/cleavage is trending 023/80 NW
33-58.5'	heavily weathered Mn-Fe rich sediments, at 39' weathered surface with abundant sericite
58.5-66'	black to dull green alternating shale and argillites, calcite is common in fractures and matrix. 3-8% disseminated pyrite in matrix, very rare specks of chalcopyrite -bedding at 0+66' is 028/80 NE
66-85	at 67' outcrop has a corse grained granular texture, rounded quartz clasts in calcite matrix, strong reaction to HcL 66-85 red-brown "C" horizon, with no outcrop encountered

TRENCH 1 SAMPLE DESCRIPTIONS

Sample #	Footage	% Cu	Sample Description
79654	19-22'	.21	very fine grained grey calcareous shale, malachite coated laminations, finely disseminated pyrite and chalcopyrite >.5%, bedding thickness 1-4 cm
79655	22-25'	.27	same lithology as above, bedding is thinner and irregular, possible cross bedding, calcite filled fractures, malachite staining, slick n'slide surfaces, traces of pyrite and chalcopyrite
79656	25-28'	.13	finer bedding fractures in filled with calcite, malachite between fractures traces of sulfides
79657	28-30'	.07	dull grey calcareous sediments, bedding thickness is 2 cm carbonate is concentrated in fractures and laminations minor Fe and malachite staining traces of sulfides
79658	30-32'	.12	minor hematite, malachite, and Fe staining >0.5% bornite, dark interbedded layers non-calcareous and dull grey calcareous layers - bedding thickness is .5 cm
79659	32-34'	.17	Fe + malachite staining, thinly bedded calcareous beds, finely disseminated sulfides
79660	34-36'	.32	manganese +sericite rich horizons in very friable calcareous sediments noticeably more chalcopyrite 1%
79663	41-43'	nil	dull grey carbonate and black shales with traces of sulfides
79664	43-45'	nil	same as above
79661	59-60'	nil	grey shale is irregularly fractured almost brecciated, traces of sulfides, mostly pyrite
79662	63-64'	nil	rock has a dramatically different weathered surface - dull orange yellow. Courser grained then previous samples

TRENCH 2 MAPPING DATA

Trench 2 (Road side attraction) was started at line 5+80 NE at station 0+00 with an ending point at station 1+30 NW

TRENCH LINEAR FOOTAGE	DESCRIPTION
0-12'	Outcrop was not encountered
12-22'	Andesite
22-37'	Outcrop was not encountered
37-40'	Andesite, dyke dark green, cut by irregular quartz carbonate veins which are up to 2 cm wide. Contact with calcareous sediments appears to be conformable and is also parallel to bedding planes in the calcareous beds.
40-71'	Black-green limey shale (moderate reaction to acid, the south end of the outcrop is finely bedded, alternating light colored beds (calcareous) with dark non calcareous beds. Beds become more massive towards the north end of the trench and appear to contain less carbonate. The entire exposure is cut by irregular narrow quartz carbonate violets. There is a considerable amount of malachite staining. -Chalcopyrite 1 - 3 % is found throughout the 40-71' interval. The chalcopyrite is associated with the highly calcareous beds and the irregular quartz violets. -At 48' bedding is trending 030/87 NW with the cleavage direction paralleling the bedding direction. -At 52' bedding is trending 036/78 SE -At 54' drag fold with an axial plain at 053/vertical plunge 40 degrees to the NE
71-76'	Light green calcareous sediments, traces of chalcopyrite and pyrite cleavage/bedding is trending 043/with a vertical dip
76-78'	Quartz and cherty clasts in a matrix of calcite, and exhibits weak shearing
78-108'	Poorly bedded black calcareous shale with numerous manganese pods concordant with bedding, mineralization is associated with quartz carbonate violets. Bedding is trending 042/with a vertical dip.
108-116'	No outcrop
116-124'	highly weathered calcareous sediment, lots of Fe staining
124-150'	outcrop consists of greenish grey calcareous shale which is weakly mineralized.
140-150'	red brown glacial till with no outcrop encountered.

TRENCH 2 SAMPLE DESCRIPTION

SAMPLE #	FOOTAGE	% Cu	SAMPLE DESCRIPTION
79665	41-42'	.10	1% sulfides rock has dull green appearance, mineralization is parallel to foliation. Bedding thickness is 2-3 mm with distinct interbedded black bands and 1cm wide irregular calcite filled fractures.
79666	42-44'	.11	As was noted before, alternating beds, also minor chloritization, darker bands are not as calcium rich as the pale green bands. Rock is quite competent, occasional malachite staining.
79667	49-50'	.12	Dull grey green sediments with minor pyrite and chalcopyrite. Also minor malachite and Fe staining. The majority of the mineralization is associate with secondary calcite fractures.
79668	49-50'	.17	Same as above
79669	50-52'	.41	More pronounced fracturing, bedding thickness is rough .6 cm, calcareous sediments contain 1.5% chalcopyrite
79670	52-54'	.57	Dull grey sediments with malachite staining and 1.5 % chalcopyrite along bedding planes, reacts strongly with acid.
79671	54-56'	.26	thinly bedded green calcareous sediments with malachite staining. Minor traces of sulfides.
79672	56-58'	.36	1% sulfides, mostly chalcopyrite and malachite coated laminations, the sediments have a darker appearance.
79673	58-60'	.39	Same as last sample, except, more malachite staining and .5 cm calcite fractures and a greater presence of manganese.
79674	60-63'	.39	Dull grey, green, finely laminated, malachite staining along with traces of sulfides
79675	63-65'	.36	manganese and malachite coated fractures, thinly laminated grey beds interbedded with non calcareous black beds, traces of sulfides
79676	65-68'	.42	finely laminated (.5cm, bed thickness) laminations are coated with carbonate and malachite, 1.5 % combined sulfides

continued...

continuation:

79677	68-70'	.16	cross bedding with dull grey and grey-green beds, laminations are malachite coated, traces of sulfides
79678	70-72'	.16	irregular carbonate fractures perpendicular to foliation direction, malachite staining parallel to foliation, traces of sulfides
79679	72-75'	0.01	dull grey sediments, appear to exhibit a brittle fracturing, minor Fe and malachite staining
79680	75-77'	nil	granular quartz clasts cemented with carbonate, pale buff color, no malachite staining nor are there visible sulfides
79681	77-80'	nil	fine grained calcareous sediments, no malachite staining, no visible sulfides
79682	80-82'	nil	same as last sample
79683	82-86'	nil	dull black-gray banded calcareous sediments very slight traces of sulfides
79684	90-91'	nil	same - except for a 2 cm wide calcite fracture perpendicular to bedding
79685	98-100'	nil	same
79686	107-108'	nil	same

TRENCH 3 MAPPING DATA

Trench three was oriented at 135 degrees at line 9+00 NE the starting point of the trench was at station 0+30 SE and the ending point of the trench was at 1+18 NW.

0+30 SE to 0+10 SE	Outcrop was not encountered, the trench immediately filled with water upon excavation. 95% of the rock fragments were angular red-maroon mudstones with no sulfides these were recovered from the bucket of the backhoe and were interpreted as subcrop.
0+15 - 0+18 NW	No outcrop was encountered

No samples were taken from this trench because of difficulty reaching outcrop material in combination with trench flooding.

TRENCH 4 MAPPING DATA

Trench 4 was located at Line 2+20 NE, the starting point of the trench was at station 0+05 NW and the bearing of the trench was 136 degrees from 0 -34' and then 280 degrees between 34 - 66'

TRENCH LINEAR FOOTAGE	DESCRIPTION
0-25'	Overburden is 10' thick, this portion of the trench was flooded, thus detailed mapping was not conducted.
30-34'	Black shale with manganese coatings between laminations
34-38'	Black shale, calcareous, fairly competent bedding thickness is 4cm. At 35' bedding is trending 027/80 NW
38-50'	Black calcareous shale interbedded with dull grey - green calcareous beds, manganese and malachite coated laminations traces of sulfides, At 45' bedding is trending 016/and is vertically dipping.
50-55	Black calcareous shale at 55' bedding/cleavage is trending 016/80 NW
55-57	No outcrop encountered
57-61.5	Black to greenish grey fairly competent shale, locally brecciated. Qtz vein 2-4" wide containing blebs of chalcopyrite.

-The majority of the exposures in this trench contain varying degrees of malachite staining. Pyrite is common ranging from 1-2% along with up to 1.5% chalcopyrite.

TRENCH 4 SAMPLE DESCRIPTIONS

SAMPLE #	FOOTAGE	% Cu	SAMPLE DESCRIPTION
79687	30-32'	.37	Malachite stained black calcareous shale, .5-1% chalcopyrite and manganese coated laminations.
79688	32-34'	.26	Black shale with distinctive manganese coated laminations, slightly lesser chalcopyrite than observed in the last sample.
79689	34-38'	.10	Finley disseminated sulfides in black shale.
79690	42-43'	.34	1% chalcopyrite as well as malachite in grey-black calcareous shale
79691	45-46'	.42	1.5% chalcopyrite in dull grey-green calcareous rock
79692	46-47'	.04	Calcite vein with slight traces of sulfides
79693	47-50'	.58	Up to 2% chalcopyrite in green calcareous rock
79694	52-55'	.04	black shale with traces of sulfides

DRILLING

In order to minimize the environmental impact at the site, the drilling was conducted using a track mounted drill. The drilling was conducted by Maritime Diamond Drilling Limited of Truro, Nova Scotia. Drill casing were removed following the completion of the holes and the holes were then plugged and marked with flagging tape attached to vertically placed logs.

Following drilling the core was logged on site and then transported to the core storage facility in Stellarton, Nova Scotia, where it was split using a table mounted rock saw. After sampling the core was archived at the provincial government's core storage facility.

Hole L 17 - 45 degree hole - showed poor recovery to 60 feet. From 58 to 140 feet copper mineralization averaged .40% Cu. Bedding to core axis generally ranged from 60 - 80 degrees. An ancient reef sequence was cut at 142 - 157 feet.

Hole L 18 - vertical - showed poor recovery from 58 - 168 feet. The mineralized portion of this hole starts at 58 feet to 268 feet, and then begins again at 323 feet and persists to the bottom of the hole at 358 feet. The grades encountered in this hole average between .35% up to 1.15% Cu. These grades are the highest ever encountered on this property represent. A reef sequence was cut between 268 and 295 feet. This vertical hole proved that there were structural complications in the deposit, which appear to be typified by a complex folding. The bedding planes encountered in this hole prove that it was not drilled down dip!

Hole L 19 - 45 degree hole - was intended to twin Great Horn's L - 8 and test reports of rutile. The reports of rutile were not confirmed. Bedding angles were generally 45 degrees to the core axis. An ancient reef was cut from 245 to 253. Copper mineralization averaged .45% from 89 feet to 153 feet.

In regards to understanding the geology and the assessment of the mineral potential at Lochaber this limited drill program has proven to be quite valuable. Two important conclusions deduced from this are:

-An ancient limestone reef appears to be directly related to the observed mineralization.

-The thickness and grade encountered in L 18 indicate a higher grade of copper than had been previously realized at this deposit.

It is recommended that future drilling should utilize NQ drill rods rather than BQ to ensure better core recovery and to preserve the integrity of the core so as to critically view structural features.

Hole: L-17 Property: Lochaber Drill Target: Cu bearing calcareous sediments
Line: 1+ 90 NE Station: 1+30 NW Ultimate Depth: 261' Core Size: BQ

Bearing: 130 degrees Dip: 45 degrees Started: June 20, 1997 Finished: June 23, 1997

Drill Contractor: Maritime Diamond Drilling Ltd. Core Logging: Jason Ross

Depth in Feet	Formation	Sample Number	Width of Sample	Assay Values			
				Cu (%)	Ag (ppm)	Au(ppb)	Lost Core
0 - 47	OVERBURDEN						
47 - 58	Black shale, carbonate beds, pale green,						70%
	decreasing from 6" to 1"4" at 125'						
	47.6 bedding 45° core axis						
58 - 62	Green calcareous shale with dark shale	79754	6'	.78		7	58%
	Disseminated laminated 1% chalcopyrite						
62 - 67	Black - olive green sediments - as above	79755	4'	.65		6	50%
	Disseminated and laminated chalcopryite, pyrite 3%						
67 - 72	As above, 2% sulfide; 1-2% Cp,Py	79756	6'	.56		3	50%
72 - 77	Blotchy core 2% sulfides	79757	5'	.38		1	50%
77 - 82	Laminated argillite 1% sulfides	79758	5'	.32		<1	60%
82 - 87	Laminated argillite 1% sulfides	79759	5'	.14		<1	60%
87 - 92	Granular argillite minor sulfides	79800	5'	.06			15%

Drilling Performed By

Agency

Signature

Geologist

Form 289

GOLIATH

Depth in Feet	Formation	Sample Number	Width of Sample	Assay Values			
				Cu(%)	Ag(ppm)	Au(ppb)	Lost Core
92-102	Argillite black and pale green 1% sulfide 67° C.A.	79760		.12		<1	
102-107	Argillite as above 25 sulfide 71° C.A.	79761		.30		7	
107-112	Carbonate argillite 2%+ sulfide	79762		.45		3	
112-117	Carbonate by argillite - 4% sulfides	79763		.53		3	
117 - 122	Carbonate by argillite - 4% sulfides	79764		.46		8	
122-127	Black argillite, 2-3% sulfides 75° C.A.	79765		.58		5	
127-132	Black argillite,	79766		.53		5	
132-137	Black argillite	79767		.13		<1	
137-142	Black argillite	79768		.27		2	
142-147	Reefal limestone	79769		.25	1.7	1	

Drilling Performed By

Form 769 Agency

Signature ..... Geologist

Depth in Feet	Formation	Sample Number	Width of Sample	Assay Values			
				Cu(%)	Ag(ppm)	Au(ppb)	Lost Core
147 - 152	Reef Limestone	79770	5'	.07			
152 - 157	Reef Limestone	79771(?)	5'	.51			
157 - 162	Calcareous shale 0.6 Cp.	79772	5'	.23			
162 - 167	Calcareous shale 0.5 Cp.	79773	5'	.24			
167 - 172	Calcareous shale 0.5 Cp	79774	5'	.18			
172 - 177	Calcareous shale 0.4 Cp.	79775	5'	.20			
177 - 182	Calcareous shale 51° C.A. 0.3 Cp	79776	5'	.05			
182 - 187	Calcareous shale	79777	5'	.003			
187 - 192	Calcareous shale	79778	5'	.001			
192 - 197	Increased argillite	79779	5'	.16			

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Form 789

Depth in Feet	Formation	Sample Number	Width of Sample	Assay Values			
				Cu(%)	Ag(ppm)	Au(ppb)	Lost Core
197 - 202	Banded calcareous argillite	79780		.16	1.6	.2	
202 - 207		79781		.06	1.3		
207 - 238	Interbedded limestone and green shale						
	215 - 216 bedding 0° C.A.						
238.4 - 261	Maroon shale						
261	END OF HOLE						

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Form 789
MS.8.1./75/93

Hole: L-18 Property: Lochaber Drill Target: Cu bearing calcareous sediments
Line: 1+ 90 NE Station: 1+35 NW Ultimate Depth: 358' Core Size: BQ

Bearing: 130 degrees Dip: vertical Started: June 24, 1997 Finished: June 26, 1997

Drill Contractor: Maritime Diamond Drilling Ltd. Core Logging: Jason Ross

Hole: L-18 Property: Lochaber Drill Target: Cu bearing calcareous sediments
Line: 1+ 90 NE Station: 1+35 NW Ultimate Depth: 358' Core Size: BQ

Bearing: 130 degrees Dip: vertical Started: June 24, 1997 Finished: June 26, 1997

Drill Contractor: Maritime Diamond Drilling Ltd. Core Logging: Jason Ross

Depth in feet	Description	Sample Number	Width of Sample	% Cu	Lost Core
0 - 30	Overburden				
30 - 38	Dull white, fairly pure limestone, bedding is not well developed	79773	8'	.03	40%
38 - 43	Limestone with traces of sulfides	79774	5'	.25	30%
43 - 48	Limestone, traces of Py. And Cpy. Less than 1%	79775	5'	.23	25%
48 - 53	Calcareous green shale with interbedded grey and black sediments, well developed foliation and bedding @ 53' Bedding is dipping 35 degrees to the C.A.	79776	5'	.09	10%
53 - 58	Finely-irregularly fractured argillite (dull green) highly Calcareous >1.5 % Cpy. in fractures	79777	5'	.42	5%
58 - 63	dull green fine grained calcareous sediments	79778	5'	.39	
63 - 68	same. Except occasional 2 mm blebs of cpy in Carbonate fractures 2 % combined sulfides	79779	5'	.44	
68 - 73	four foot qtz vein, minor shearing with gouge, mere traces of sulfides	79780	5'	.13	

HOLE L-18

Depth in feet	Description	Sample Number	Width of Sample	% Cu
73 - 78	dull green calcareous sediments with 8" calcite vein, there is chloritization on the margins of the vein, up to 1.5% Cpy, Py and galena concentrated in altered material	79781	5'	.40
78 - 83	alternating green, black calcareous sediments with carbonate fractures, @ 83' bedding is 37 degrees to the Core axis	79782	5'	.60
83 - 88	same lithology, minor folding - small scale, slumping? 1.5 % combined sulfides concentrated in bedding planes	79783	5'	.77
88 - 93	same plastic deformation, also carbonate fractures with blebs of cpy, @ 89' bedding is 25 degrees to C.A.	79784	5'	.64
93 - 98	grey calcareous sediments with narrow calcite veinlets cpy. 1.4 %	79785	5'	.55
98 - 103	Same	79786	5'	.43
103 - 108	alternating grey/green calcareous sediments, the paler green beds (argillite) are 3" wide on avg. @ 104' Bedding is 54 degrees to the core axis	79787	5'	.33
108 - 113	Dull black calcareous sediments with bisecting qtz Vein @ 109' bedding is 57 degrees to core axis	79788	5'	.43
113 - 118	up to 2 % cpy in stringers, bedding laminations and blebs, concentrated mainly in argillite	79789	5'	1.11

HOLE L-18

Depth in feet	Description	Sample Number	Width of Sample	% Cu
118 - 123	same as above, Cu mineralization is concentrated In pale green argillite, @ 119' bedding is 50 degrees To the core axis	79790	5'	.83
123 - 128	2.5 % cpy rock is predominantly pale green argillite mineralization is mainly in bedding laminations and Fractures, evidence of localized brecciation	79791	5'	1.15
128 - 133	1.5% Cpy in pale green argillite, 3" wide brecciated zone	79792	5'	.60
133 - 138	1 % cpy. @ 137.5' bedding is at 15 degrees to C.A.	79793	5'	.33
138 - 143	1.5 % cpy in pale green argillite beds, notably not Very fractured, small Py cubes in narrow calcite Fractures, @ 137.5 bedding is at 15 degrees to the Core axis	79794	5'	.57
143 - 148	Still in the argillite beds, 1.5 % Cpy. Associated With styrolitic fractures	79795	5'	.52
148 - 153	1.5 % Cpy (blebs up to 2 mm) in 6" calcite vein the host rock is argillite with styrolitic fractures	79796	5'	.42
153 - 158	1 % Cpy in green argillite, which has narrow, irregular calcite fractures	79797	5'	.44
158 - 163	>1% Cpy in persistent pale green argillite beds	79798	5'	.35

HOLE L-18

Depth in feet	Description	Sample Number	Width of Sample	% Cu
163 - 168	interbedded calcareous sediments grey - pale green with .5% Cpy and Py	79799	5'	.28
168 - 173	3' wide calcite vein with 2 mm blebs of Cpy @ 168 - 179' bedding is sub parallel to C.A.	79800	5'	.25
173 - 178	Argillite beds with > 0.5% Cpy	79801	5'	.29
178 - 183	1 % Cpy. In carbonate fractures + irregularly folded laminations. Rock type is a pale green calcareous sediment with minor chloritization	79802	5'	.43
183 - 188	fold related breccia in pale dull green sediments, cut by a 3/4" calcite vein which hosts Cpy. Blebs up to 3 mm	79803	5'	.59
188 - 193	same as above, possibly more Cpy.	79804	5'	.66
193 - 198	dull grey, vfg. Calcareous sediments with 5" calcite Fracture 1.5% Cpy	79805	5'	.42
198 - 203	irregular styrolitic fracturing in vfg calcareous sediments	79806	5'	.73
203 - 208	interbedded dull green argillite with 3% combined Sulfides concentrated in bedding laminations, @ 206' Bedding is 43 degrees to core axis	79807	5'	.56
208 - 213	1.5 - 2 % Cpy + Py more black-grey calcareous sediment than green argillite, @ 213' bedding is 22 degrees to the core axis	79808	5'	.54

HOLE L-18

Depth in feet	Description	Sample Number	Width of Sample	% Cu
213 - 218	2.5 % Cpy rock (interbedded grey and green calcareous sediments) exhibits small scale tight folding, @ 213 Bedding is 22 degrees to the core axis, @ 217 bedding is 60 degrees to the core axis	79809	5'	.65
218 - 223	Same lithology as above, notably there are pale red Crystal clusters - rutile or garnets?	79810	5'	.37
223 - 228	Same as above	79811	5'	.27
228 - 233	1 % Cpy same irregular fractured dull grey calcareous sediments	79812	5'	.32
233 - 238	2 % Cpy in dull grey calcareous sediment with narrow, Irregular bands of green argillite	79813	5'	.54
238 - 243	2 % Cpy very distinct 5 mm black layers interbedded With argillite and grey calcareous sediments, also a calcite vein hosting brecciated clasts	79814	5'	.44
243 - 248	2 % Cpy, mineralization is concentrated at bedding laminations, same lithology as above	79815	5'	.59
248 - 253	< 3 % Cpy, finely fractured alternating grey - green beds intersected by a 6" calcite vein hosting blebs of Cpy	79816	5'	.60
253 - 258	1 % Cpy in finely fractured dull grey calcareous sediments with 7" calcite vein	79817	5'	.27
258 - 263	1.5 % Cpy essentially the same as above	79818	5'	.40

HOLE 84-18

Depth in feet	Description	Sample Number	Width of Sample	% Cu
263 - 268	1 % Cpy + Py cubes +1/6" calcite veinlets with reddish colored crystal clusters	7819	5'	.31
268 - 273	Porous carbonate reef with angular pale orange clasts	7820	5'	.03
273 - 278	same	7821	5'	.007
278 - 283	reef sequence continues and is typified by angular clasts along with a little malachite staining	7822	5'	.01
283 - 288	paler colored reef material (sequence above had a more distinct reddish tinge to it) malachite staining is still visible	7823	5'	.06
288 - 293	same as above	7824	5'	.02
293 -296	same as above, but no visible malachite staining lower contact at 295.3 sharp and at 30 degrees to the Core axis	7825	3'	.01
296 - 303	Interbedded dull grey - argillite calcareous sediments >0.5 % Cpy. Evidence of plastic deformation and irregular Fine fractures	7826	7'	.02
303 - 308	Same as above + dusky maroon interbedded bands, notably Lesser sulfides, @ 304 bedding is at 20 degrees to the C.A.	7827	5'	.005
308 - 313	Same as above, traces of sulfides	7828	5'	.005
313 - 318	Same as above	7829	5'	.06

HOLE L-18

Depth in feet	Description	Sample Number	Width of Sample	% Cu
318 - 323	> .5 % sulfides rock type is the pale green argillite	7830	5'	.09
323 - 328	fractured argillite beds with a 6" calcite vein containing blebs of chalcopyrite	7831	5'	.27
328 - 333	.5 % Cpy + Py in irregularly fractured argillite beds	7832	5'	.33
333 - 338	interbedded grey-green sediments with irregular micro fracturing, also a 4" wide barren calcite vein	7833	5'	.24
338 - 343	Same as above, .5% Cpy	7834	5'	.26
343 - 348	.5 % Cpy in interbedded calcareous sediments	7835	5'	.30
348 - 353	same	7836	5'	.41
353 - 358	interbedded grey-green calcareous sediments with traces of sulfides	7837	5'	.30

End of hole 358'

N.B. In hindsight this hole was stopped prematurely, it should have been drilled until the contact with the underlying redbeds was reached.

Hole: L-19 Property: Lochaber Drill Target: Cu bearing calcareous sediments
Line: 1+ 18 NE Station: 1+70 NW Ultimate Depth: 377' Core Size: BQ

Bearing: 130 degrees Dip: 45 degrees Started: June 30, 1997 Finished: July 2, 1997

Drill Contractor: Maritime Diamond Drilling Ltd. Core Logging: Jason Ross

Depth in Feet	Formation	Sample Number	Width of Sample	Assay Values			
				Cu (%)	Ag (ppm)	Au (ppb)	Lost Core
0 - 42	OVERBURDEN						
42 - 66	Buff coloured limestone, fairly pure, minor Fe staining	7838	5'	.02	<0.2	1	
	peppered with very fine grained red specks, under	7839	5'	.02	<0.2	4	
	microscope they look like small garnets (they do not	7840	5'	.02	<0.2	1	
	dissolve in HeL)	7841	6'	.01	<0.2	1	
66 - 89	Very pure dull white limestone - at very least	7842	2'	.07	<0.2	<1	
	industrial grade	7843	5'	.02	<0.2	1	
		7844	5'	-	<0.2	6	
89 - 103	Dull grey calcareous sediments with irregular 3" wide	7845	8'	-	<0.2	3	
	carbonate fracturing, irregular fracturing, bedding is	7846	7'	.14	<0.2	1	
	not distinct Cpy + Py up to 2% concentration in	7847	5'	.69	<0.2	8	
	fractures. Patches of Cpy up to 4 mm	7848	5'	.57	<0.2	11	
		7849	3'	.99	<0.2	4	
103 - 118	Pure limestone as noted above, bedding 45° to C.A.	7850	5'	.09	<0.2	2	
		7851	5'	-	<0.2	<1	
118 - 130	Dull grey calcareous sediments, bedding 45° to C.A.	7852	5'	.19	<0.2	2	
	Weakly mineralized, irregular narrow calcite fractures	7853	5'	.42	<0.2	8	
	@ 127-128 calcite vein with 1.4% Cpy, also in fractures	7854	5'	.43	<0.2	6	
	occasional reddish coaloured crystal clusters and	7855	5'	.77	<0.2	7	
	occasional small Py cubes.						

Depth in Feet	Formation	Sample Number	Width of Sample	Assay Values			
				Cu(%)	Ag(ppm)	Au(ppb)	Lost Core
130 - 153	Mostly dull grey calc. seds. exhibits small scale	7856	5'	.49	<0.2	4	
	localized folding. Occasional narrow argylite beds	7857	5'	.24	<0.2	3	
	2 cm - 7 cm up to p.7 Cpy parallel to bedding.	7858	5'	.45	<0.2	2	
	Occasional 4" wide calcite veins with Cpy.	7859	5'	.47	<0.2	<1	
	@ 148 - 51° to C.A. Bedding						
153 - 193	On argillite more pale green argillaceous beds than	7860	5'	.20	<0.2	1	
	the black-grey calcareous sediment beds. Sediments	7861	5'	.08	<0.2	<1	
	are quite competent with most of the narrow calcite	7862	5'	.06	<0.2	<1	
	veins occuring parallel to bedding planes. Also	7863	5'	.01	<0.2	<1	
	occasional maroon narrow cherty layers. Occasional	7864	5'	.34	<0.2	2	
	small scale folding is still visible. Cpy 0.3 - 0.7	7865	5'	.01	<0.2	<1	
	visible mostly in argillic layers as well as between	7866	5'	-	<0.2	<1	
	bedding laminations.	7867	5'	-	<0.2	<1	
	158'- 50° to C.A.						
	168'- 48° to C.A.						
	178' - 50° to C.A.						
	188' -53° to C.A.						

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GOLIATH
COPPER FIELDS LIMITED

Depth in Feet	Formation	Sample Number	Width of Sample	Assay Values			
				Cu(%)	Ag(ppm)	Au(ppb)	Lost Core
193 - 221	Continuation of interbedded green argilitic with grey	7868	5'	-	<0.2	3	
	calcareous bedding. Minor brecciation @ 206 related	7869	5'	-	<0.2	2	
	to small scale deformation	7870	5'	-	<0.2	<1	
	193' - 44° to C.A.	7871	5'	.01	<0.2	3	
	208' - 52° to C.A.	7872	5'	-	<0.2	5	
	210 - 58° to C.A.	7873	5'	.12	<0.2	4	
221 - 241	Essentially all dull grey very fine grained calcareous	7874	5'	.06	<0.2	2	
	sediment. Irregularly fractured and locally brecciated	7875	5'	.14	<0.2	5	
	by calcite veins - 1 mm - 3 cm in width. Traces of Cpy	7876	5'	.56	<0.2	10	
	predominantly in fractures.						
241 - 245	Massive dull grey calcareous sediment. Median lines	7877	5'	.27	<0.2	3	
	show very little fracturing. Bedding is not distinct	7878	3'	.38	<0.2	6	
245 - 253	Reef limestone different from reef sequence previously	7829	7'	.01	<0.2	2	
	noted in other holes. It is pale white calcareous						
	matrix with angular argylite fragments - Ie Not red						
	and no visible malachite - htere is a fining upwards						
	sequence on the upper contact of the reef.						

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Depth in Feet	Formation	Sample Number	Width of Sample	Assay Values			
				Cu(%)	Ag(ppm)	Au(ppb)	Lost Core
253 - 307	Interbedded calcareous sediments pale green, dusty red	7880	5'	-	<0.2	3	
	and dull grey	7881	5'	-	<0.2	2	
	273 - 52° to C.A.	7882	5'	.01	<0.2	2	
	268 - 50° to C.A.	7883	5'	-	<0.2	3	
	272 localized small scale folding associated with	7884	5'	-	<0.2	6	
	irregular carbonate fractures	7885	5'	-	<0.2	4	
	298 - 48° to C.A.	7886	5'	-	<0.2	2	
		7887	5'	-	<0.2	4	
307 - 330	Pale green gabroic intrusion the upper 4' has calcite	7888	5'	-	<0.2	5	
	filled vesicles as does the lower 7' Mostly Py	7889	5'	-	<0.2	4	
	Mineralization associated with the upper contact	7890	5'	-	<0.2	4	
		7891	5'	-	<0.2	5	
330 - 368	Interbedded dusky red layers / green argillite. There	7892	5'	-	<0.2	4	
	is irregular small scale folding but general bedding	7893	5'	-	<0.2	5	
	trend is 44° to C.A.	7894	5'	-	<0.2	3	
		7895	5'	-	<0.2	4	
368	Gradiation into maroon sediment, bedding not apparent	7896	5'	-	<0.2	3	
		7897	3'	-	<0.2	2	
377	END OF HOLE						

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REVIEW OF THE GREAT HORN MINING SYNDICATES AND BLUE STACK RESOURCES SOIL GEOCHEMICAL RESULTS

During the period of April 1970 to October 1972 the Great Horn Mining Syndicate conducted an extensive shallow soil sampling program. The program revealed anomalous copper values striking 40 degrees, about 100-200 ft wide and roughly 1000 ft. long. Subsequent trenching revealed disseminated chalcopyrite and pyrite in an impure limestone directly below the anomaly. Following trenching the Syndicate conducted a limited drill program over the anomaly which conservatively defined 2.29 million tonns of indicated ore grading 0.33% Cu.

Mr. John MacMullen the project manager for the Syndicate during this campaign credits the geochemical survey as being the process which lead to the initial discovery of this "low grade sedimentary hosted copper deposit" (as a result of recent drilling by Goliath Copper Fields Limited the copper grade appears to be higher than that which was previously calculated by Great Horn).

Despite the initial successes in discovering this deposit there were several critical limitation of Great Horn's original geochemical survey. The soil samples were not taken at a sufficient depth so as to give the maximum chemical response of the underlying bedrock. More significantly the shallow samples were more susceptible to glacial and alluvial drift. Simply put had the Syndicate opted for deep seated soil samples the resultant data would more than likely have reflected a significantly stronger and presumably larger anomaly. Notably the sharp termination at the southwest end (evident from the Syndicates geochemical results in the vicinity of line 1+00 SW) is likely due to the rapidly increasing overburden or possibly because of the southwesterly plunge of the mineralization which is suspected from the results of diamond drilling.

In contrasting the results of the Great Horn Mining Syndicate with the recent results of Goliath Copper Fields Ltd. two crucial differences are revealed. Firstly, the deep seated soil samples recovered in Goliath Copper Fields program exhibit significantly higher Cu values then those of the Syndicates shallow soil samples. Secondly, Goliath's recent sampling program provides pervasive evidence that the sedimentary copper deposit has a southwesterly extension of the strike length.

In addition to the above mentioned geochemical survey Bluestack Resources Ltd. conducted a "reconnaissance basal till sampling program" in 1982. This program utilized a truck mounted overburden drill to procure soil samples ranging in depth varying from 1.0 to 9.5 meters. The samples were taken at 500 foot intervals along two roads - one trending roughly north south located 500 meters due east from the geochemical Cu anomaly delineated by the Great Horn Syndicate and another north south trending road 600 meters due west from the previously mentioned Cu anomaly.

An interesting road side Cu anomaly was located roughly 600 meters directly southwest of anomalous zone delineated by Great Horn. Bluestack's sample 3945 which had a copper value of 118 ppm Cu which is roughly three times what is considered to be normal background in this specific area. Interestingly this sample location is on strike with the sedimentary hosted copper deposit.

The results presented in this portion of the report emanate from a two fold geochemical survey. Phase one (July 15 to August 2, 1997) was conducted by W.G. Shaw & Associates. During this initial survey thirty five deep seated till samples were procured. A follow-up survey (Phase two) was performed (August 27 - September 5, 1997) by Jason Ross and Graham Thomson. Thirty eight samples were collected during Phase 2.

SURVEY METHODOLOGY

The survey was conducted using a portable, overburden percussion drill (a "Pionjar 120" on loan from the Nova Scotia Department of Mines and Energy) to obtain deep seated till samples. The Pionjar drill was equipped with ½ inch drill rods and a flow-through sampling bit. On average 200 grams of soil was collected from each hole. Hole depths varied from 1 - 4 meters. It had been predetermined that a 3 meter sample depth was desirable, however in several instance the drill bit would not penetrate to this depth either due to shallow overburden or refusal caused by boulders.

A total of 73 samples were put down at 50 - 100 foot intervals on a cut and chained grid.

Once collected samples were placed in Kraft sample envelopes and subsequently sent to Bourlimaque Assay Laboratories in Val D'Or, Quebec, where they were then dried, sieved and assayed for copper and silver content.

Sample locations were then plotted on a grid map at a scale of 100 feet to the inch.(SEE SITE MAP LOCATED IN APPENDIX 1)

DISCUSSION OF GEOCHEMICAL RESULTS

In the vicinity of Taylor Brook (marked by a well defined east - west trending valley) where highly anomalus copper and silver values were encountered these are interpreted as being the result of fluvial drift likely sourced from bedrock 200-600 feet to the south west. The variable overburden thickness encountered during trenching appears to be a contributing factor towards the sporadic geochemistry. Additionally when correlating the soil geochemical with the respective underlying mineralized sediments it is apparent that there is a distinct northwest to southeast drift. Rather then trying to interpret the relationship between glacial trends it is probably more realistic to consider topography and likely directions of groundwater flow. The later is considered to be extemely significant when looking at the geochemical results in the vicinity of the Taylor Brook valley. Past exploration campaigns appear to have missed the true source of the anomalous geochemical results in this particular location.

With respect to determining what geochemical values are elevated beyond normal background levels previous work would suggest that 35 ppm Cu is a reasonable threshold.

Till Sample Grid Locations

Sample Number	Line Number	Station Number	Depth	Cu ppm	Ag ppm
1	7+00 NE	0+50 NW	3 m	200	<0.5
2	7+00 NE	1+00 NW	3 m	200	<0.5
3	9+10 NE	0+50 SE	3 m	70	<0.5
4	9+10 NE	0+50 NW	3 m	240	<0.5
5	9+10 NE	1+00 NW	3 m	85	<0.5
6	9+10 NE	1+50 NW	3 m	40	<0.5
7	11+00 NE	0+50 NW	3 m	40	<0.5
8	11+00 NE	1+00 NW	3 m	40	<0.5
9	11+00 NE	1+50 NW	3 m	35	<0.5
10	11+00 NE	2+00 NW	3 m	55	<0.5
11	13+00 NE	0+50 NW	3 m	315	<0.5
12	13+00 NE	1+00 NW	3 m	80	<0.5
13	13+00 NE	1+50 NW	3 m	65	<0.5
14	15+00 NE	1+00 NW	3 m	50	<0.5
15	15+00 NE	0+50 NW	3 m	45	<0.5
16	18+00 NE	2+00 NW	3 m	135	<0.5
17	18+00 NE	1+50 NW	3 m	60	<0.5
18	18+00 NE	1+00 NW	3 m	50	<0.5
19	18+00 NE	0+50 NW	3 m	45	<0.5
20	5+70 SW	1+70 NW	3 m	910	4.0

Till Sample Grid Locations

Sample Number	Line Number	Station Number	Depth	Cu ppm	Ag ppm
21	5+90 SW	1+10 NW	3 m	465	1.5
22	6+10 SW	0+60 NW	3 m	160	-
23	6+20 SW	0+50 SE	3 m	860	4.5
24	5+25 SW	1+50 NW	3 m	535	2.0
25	5+25 SW	1+80 SE	3 m	310	2.0
26	5+25 SW	2+30 SE	3 m	160	1.5
27	5+25 SW	2+80 SE	3 m	375	1.0
28	2+15 SW	0+60 SE	3 m	30	-
29	2+15 SW	1+10 SE	3 m	30	-
30	2+15 SW	1+60 SE	3 m	40	-
31	0+10 SW	0+45 NW	3 m	35	-
32	0+10 SW	0+05 SE	3 m	65	-
33	0+20 SW	0+50 SE	3 m	45	-
34	0+30 SW	1+00 SE	3 m	1400	-
35	0+33 SW	1+50 SE	3 m	2150	0.5
36	0+00	2+00 SE	3 m	118	-
37	0+00	2+50 SE	3 m	62	-
38	1+00 SW	1+00 SE	3 m	167	-
39	1+00 SW	1+50 SE	3 m	80	-
40	1+00 SW	2+00 SE	2 m	32	-
41	1+00 SW	2+30 SE	3 m	87	-

Till Sample Grid Locations

Sample Number	Line Number	Station Number	Depth	Cu ppm	Ag ppm
42	1+00 SW	3+00 SE	3 m	38	-
43	1+00 NE	0+50 SE	2 m	84	-
44	1+00 NE	0+00	3 m	38	-
45	1+00 NE	0+00	3 m	50	-
46	1+00 NE	1+50 SE	.75 m	50	-
47	1+00 NE	1+00 SE	1 m	22	-
48	1+00 NE	2+00 SE	3 m	28	-
49	1+00 NE	2+50 SE	.75 m	25	-
50	1+00 NE	3+00 SE	.75 m	45	-
51	0+00	3+50 SE	3 m	48	-
52	7+00 SW	3+40 SE	2.2 m	38	-
53	7+00 SW	2+90 SE	1.6 m	37	-
54	7+00 SW	2+50 SE	2 m	34	-
55	7+00 SW	2+00 SE	2.5 m	50	-
56	7+00 SW	1+50 SE	2.2 m	63	-
57	7+00 SW	1+00 SE	3.3 m	37	-
58	7+00 SW	0+50 SE	3.3 m	34	-
59	7+00 SW	0+00	3.3 m	56	-
60	7+00 SW	0+50 NW	3.3 m	53	-
61	7+00 SW	1+00 NW	2 m	29	-
62	7+00 SW	1+50 NW	3 m	28	-
63	7+00 SW	2+00 NW	2.2 m	38	-

Till Sample Grid Locations

Sample Number	Line Number	Station Number	Depth	Cu ppm	Ag ppm
64	7+00 SW	2+50 NW	3 m	33	-
65	7+00 SW	2+50 NW	2.5 m	31	-
66	7+00 SW	3+00 NW	2.2 m	33	-
67	7+00 SW	3+50 NW	2 m	31	-
68	9+00 SW	1+50 NW	1 m	8	0.7
69	9+00 SW	2+00 NW	3.3 m	24	-
70	9+00 SW	2+50 NW	4 m	18	-
71	9+00 SW	3+50 NW	3 m	33	-
72	9+00 SW	4+00 NW	3 m	29	-
73	9+00 SW	4+50 NW	1.3 m	39	-

Conclusions and Recommendations

Based upon the results presented in this report the copper mineralization shows acceptable mining widths and metal content. The future of this property should focus on defining economic tonnage. In order to accomplish the latter a comprehensive deep seated soil geochemical survey extending from line 7+00 SW to Collage Grant should be considered and hopefully followed up with trenching and drilling.

STATEMENT OF QUALIFICATIONS

I, Jason D. Ross of 34 Fairmont, Antigonish, Nova Scotia certify as follows:

1. I graduated in geology from Mount Allison University, Sackville, New Brunswick

2. I have been seasonally employed in the mining industry from 1989 - 1996 and have been continuously employed in the mining industry from 1996 - 1998. To date I have worked as a summer student (three field seasons) for the New Brunswick Department of Mines and Energy, Jr. Geologist for New Island Minerals Ltd - central Newfoundland, Project Geologist for Diadem Resources Ltd - Northern Quebec, Project Geologist - SEDEX - ABITIBI Mining Corporation - Ungava Bay, Project Geologist - Totem Mining Corporation - Northern Quebec, and Project Geologist - Titanium Corporation of Canada Ltd and Goliath Copper Fields Ltd. Nova Scotia.

3. I serve on the Board of Directors and am a shareholder of Goliath Copper Fields Ltd. And The Titanium Corporation of Canada Ltd.

4.This report is based upon on site field work as well as archival research.

_____

Jason D. Ross

References

Hooper, M.J., 1972, *Report on Lochaber Copper Property Reserves*, Assessment Report 11E/08D 13-B-19(01).

McCulloch, P.D., 1982, *Report on Geology and Soil And Till Geochemical Surveys, Lochaber Lake, Antigonish County, Nova Scotia*, Assessment Report 11E/08D 13-B-19(02)

McCulloch, P.D., 1983, *Report on Geology and Soil And Till Geochemical Surveys, Lochaber Lake, Antigonish County, Nova Scotia*, Assessment Report 11E/08D 13-B-19(03)

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Doiron, M.L., 1985, *A Petrographic Study of the College Grant Copper Deposit, Antigonish County, Nova Scotia*, B.Sc. Thesis, St. Francis Xavier University.

Northcote, K.E., Demont, G.J. and Armitage, A.E., *Lochaber Lake Copper* in *Selected Mineral Occurrences of the Antigonish Area*, Open File Report 89-003,pp 13-21.

Northcote, K.E., Demont, G.J. and Armitage, A.E., *College Grant* in *Selected Mineral Occurrences of the Antigonish Area*, Open File Report 89-003,pp 7-11.

Department of Mines Memorandum dated October 5, 1971 to F.S. Shea, Director from J.M. Bingley, Geologist, regarding the *Progress of the deep hole (L-14) at the Lochaber Lake project.*

Memorandum to John McMullin from B. Edmond dated January 26, 1971 regarding *Lochaber Lake Trench Samples.*

1) Letter to John McMullin from R.W. Hutchinson dated February 19, 1971, University of Western Ontario, regarding *a thin section study of a rock sample obtained from the Lochaber Lake during a visit to the property.*

1) Memorandum to T.L. Tindale and J. McMullin from B. A. Edmond dated August 4, 1971 regarding *Petrographic examination of rock specimens from Lochaber Lake and Gillis Farm showing.*

2) Memorandum to T.L. Tindale and J. McMullin from B. A. Edmond dated August 19, 1971 regarding *Petrographic study of specimens of drill core, DDH L-8, Lochaber Lake.*

3) Memorandum to T.L. Tindale and J. McMullin from B. A. Edmond dated October 6, 1971 regarding *Facies analysis of a mineralized carbonate succession, Lochaber Lake area.*

4) Memorandum to T.L. Tindale and J. McMullin from B. A. Edmond dated October 10, 1971 regarding *Petrographic studies of thin sections from L-6 and L-8, Lochaber Lake area.*

5) Walcott, P.E., 1972, *A Report on Induced Polarization Surveys for Great Horn Mining Syndicate Inc.*, by Perter E. Walcott & Associates Limited, Vancouver.

6) *Geological cross section D.D.Hs L-14, 9 & 10*, Lochaber Lake Area, 1"=50' (undated, probably 1972).

7) *Drilling Plan & Sections*, Lochaber Lake Area, Scale 1"=50' (undated, probably 1972).

8) *Facies Analysis of a Mineralized Carbonate Succession*, Scale 1"=50'. This plan map includes two cross sections. One is a section of D.D.Hs L-1, 2 and 3; the other is a section of D.D.Hs L-9 and 10. (this plan should be read with the memo from B.A. Edmond dated October 10, 1971 - number 12 in this bibliography). (1972).

9) *Plan of Soil Geochemistry, Copper*, 1"=100' (undated, probably 1971).

) *Plan of EM-16 Survey*, Contours of filtered dip-angle data, 1"=100' (surveyed 1970 and 1971).

.) *Plan of Magnetometer Survey*, 1"=100' (undated, probably 1971).

!) *Surface Plan* - Area of Detailed Grid and Soil Sampling, 1"=100', (1970).

) *Grid Plan of College Grant - Lochaber - Copper Lake - South River Lake area*, Scale 1" = 1/2 mile (revised, March 26, 1974).

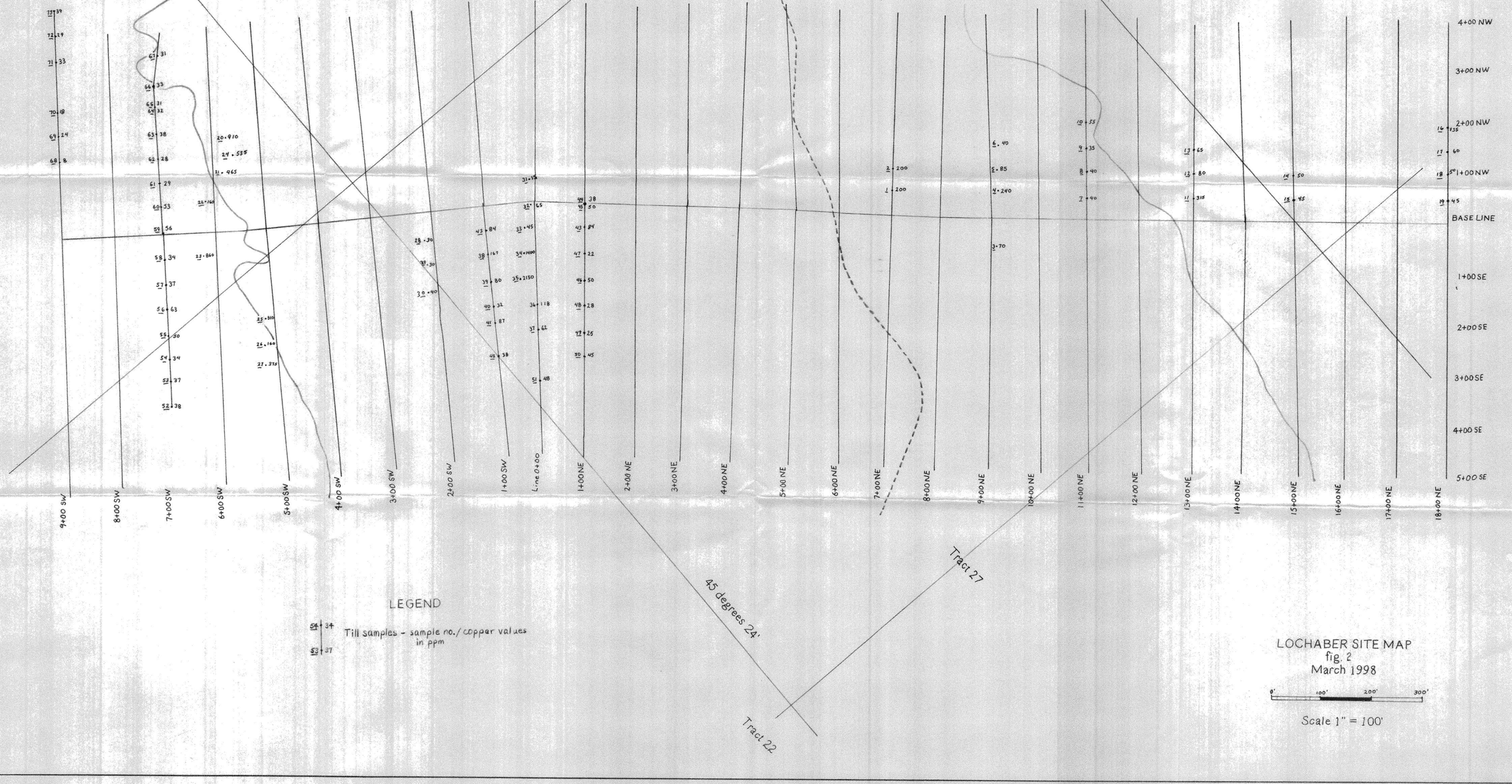
) *Location Map*, Lochaber Project, 1"=400' (undated, probably 1971).

) *Trench Location Map* 1"=50' (rough work map, undated, probably 1971).

) *Drill Logs for holes L-1 through L-16* for the Lochaber Lake Prospect.

Appendix 1

Site Map



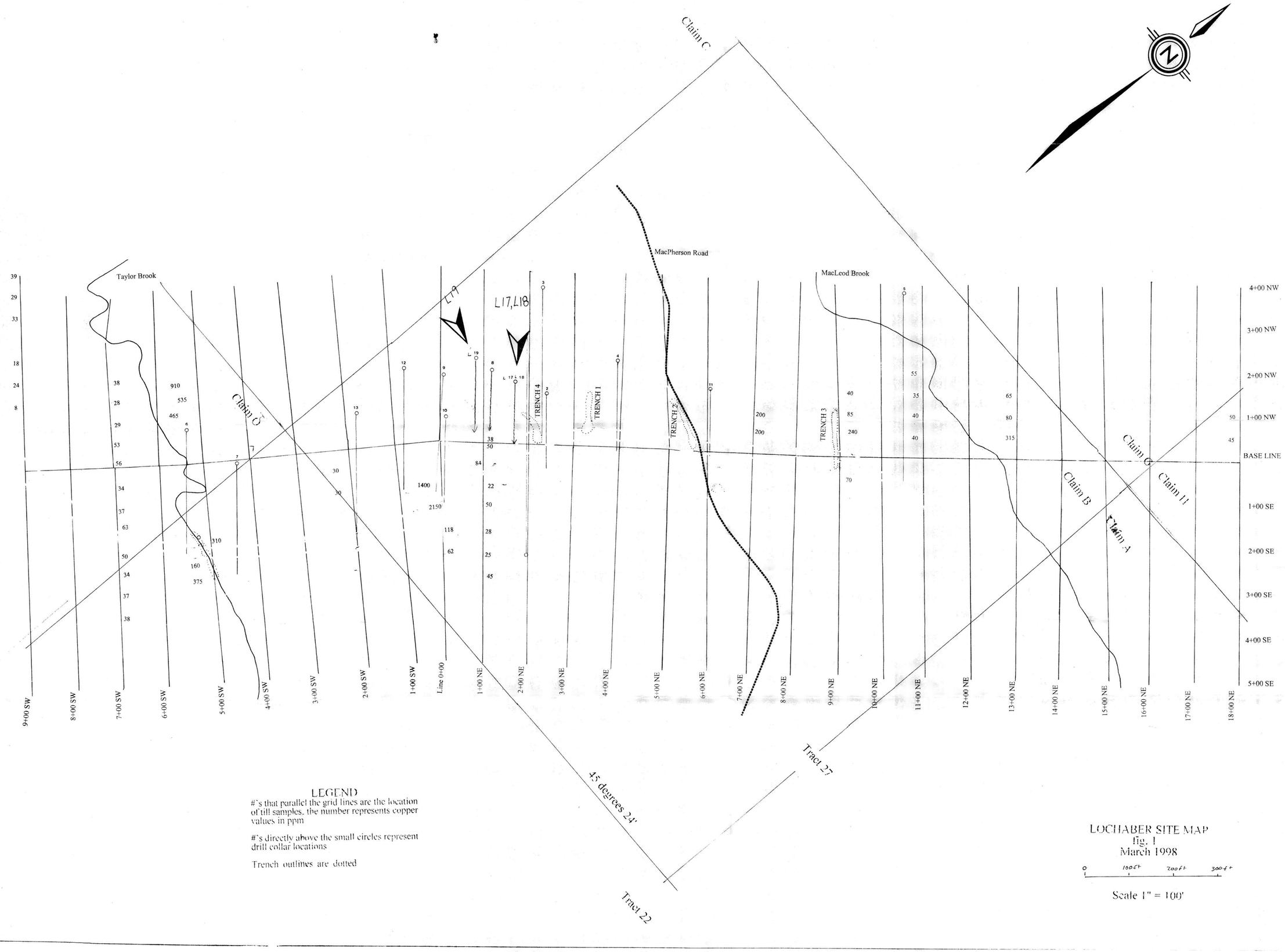
LEGEND

54 | 34 Till samples - sample no./copper values in ppm
53 | 37

LOCHABER SITE MAP
fig. 2
March 1998

0' 100' 200' 300'

Scale 1" = 100'



LEGEND

#'s that parallel the grid lines are the location of till samples, the number represents copper values in ppm

#'s directly above the small circles represent drill collar locations

Trench outlines are dotted

LOCHABER SITE MAP
fig. 1
March 1998

0 100ft 200ft 300ft

Scale 1" = 100'

Appendix 2

-detection limits for assay results
-XRAL 31 Element ICP assay results for trenches and drill holes

XRAL Laboratories
A Division of SGS Canada Inc.

1885 Leslie Street
Don Mills, Ontario
Canada M3B 3J4
Tel: (416) 445-5755
Fax: (416) 445-4152

CERTIFICATE OF ANALYSIS

Work Order: 016147

To: **Fenton Scott Management Inc.**
Attn: **Fenton Scott**
170 Donway West
Ste. 301
Don Mills
ONTARIO M3C 2G3

Date : 30/08/97

Copy 1 to :

Copy 2 to :

P.O. No.	:	
Project No.	:	Midland Minerals
No. of Samples	:	63 Pulp
Date Submitted	:	21/07/97
Report Comprises	:	Cover Sheet plus Pages 1 to 6

Distribution of unused material:
Pulps: Pulps - no instructions
Rejects: Rejects - no instructions

Certified By

Dr. Hugh de Souza, General Manager
XRAL Laboratories

Report Footer:
L.N.R. = Listed not received
I.S. = Insufficient Sample
n.a. = Not applicable
-- = No result
I.N.F. = Composition of this sample makes detection impossible by this method
M after a result denotes ppb to ppm conversion, % denotes ppm to % conversion

XRAL Laboratories
A Division of SGS Canada Inc.

1885 Leslie Street
Don Mills, Ont.
Canada M3B 3J4
Telephone (416) 445-5755
Fax (416) 445-4152

CERTIFICATE OF ANALYSIS
REPORT 14189

TO: FENTON SCOTT MANAGEMENT INC
ATTN: FENTON SCOTT
170 DONWAY WEST
SUITE 301, DON MILLS
ONTARIO
M3C 2G3

CUSTOMER No. 1139

DATE SUBMITTED
23-Jun-97

WORKORDER 15722-

TOTAL PAGES 4

12 ROCKS

	METHOD	DETECTION LIMIT	METHOD CODE
BE PPM	ICP	.5	ICP-70
NA %	ICP	.01	ICP-70
MG %	ICP	.01	ICP-70
AL %	ICP	.01	ICP-70
P %	ICP	.01	ICP-70
K %	ICP	.01	ICP-70
CA %	ICP	.01	ICP-70
SC PPM	ICP	.5	ICP-70
TI %	ICP	.01	ICP-70
V PPM	ICP	2.	ICP-70
CR PPM	ICP	1.	ICP-70
MN PPM	ICP	2.	ICP-70
FE %	ICP	.01	ICP-70
CO PPM	ICP	1.	ICP-70
NI PPM	ICP	1.	ICP-70
CU PPM	ICP	.5	ICP-70
ZN PPM	ICP	.5	ICP-70
AS PPM	ICP	3.	ICP-70
SR PPM	ICP	.5	ICP-70
Y PPM	ICP	.5	ICP-70
ZR PPM	ICP	.5	ICP-70
MO PPM	ICP	1.	ICP-70
AG PPM	ICP	.2	ICP-70
CD PPM	ICP	1.	ICP-70
SN PPM	ICP	10.	ICP-70
SB PPM	ICP	5.	ICP-70
BA PPM	ICP	1.	ICP-70
LA PPM	ICP	.5	ICP-70
W PPM	ICP	10.	ICP-70
PB PPM	ICP	2.	ICP-70
BI PPM	ICP	5.	ICP-70

*** UNLESS INSTRUCTED OTHERWISE WE WILL DISCARD PULPS IN 90 DAYS ***
AND REJECTS IN 30 DAYS FROM THE DATE OF THIS REPORT

DATE 26-JUN-97

CERTIFIED BY

Dr. Hugh de Souza, General Manag

XRAL Laboratories
A Division of SGS Canada Inc.

Work Order: 016112 **Date:** 25/07/97 **FINAL**

Element.	Au	Be	Na	Mg	Al	P	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu
Method.	FA30/1	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70
Det.Lim.	1	0.5	0.01	0.01	0.01	0.01	0.01	0.01	0.5	0.01	2	1	2	0.01	1	1	0.5
Units.	ppb	ppm	%	%	%	%	%	%	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm
05271	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	<0.01	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
05272	14	<0.5	0.01	2.05	2.98	0.02	0.07	0.04	9.1	0.06	116	78	608	7.90	33	19	16.8
05273	n.a.	0.5	0.03	0.67	0.19	0.15	0.01	1.56	<0.5	0.02	31	33	360	9.30	4	2	2.9
05274	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	396
05275	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	223
05276	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	325
05277	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	1180
05278	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	3390
05279	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	1260
05280	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	1200
05281	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	59.4
05282	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	44.8
05283	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	4030
05284	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	102
05285	n.a.	0.6	0.02	0.87	0.54	0.28	0.06	1.62	1.1	0.01	25	32	964	7.19	9	17	4.1
*Dup 05271	n.a.	<0.5	0.02	0.46	0.91	0.02	0.12	0.05	0.6	<0.01	16	138	196	2.35	13	13	56.2
*Dup 05283	n.a.	2.0	0.02	0.79	1.49	0.13	0.11	0.59	11.4	<0.01	31	35	7720	5.77	56	56	4090

Work Order: 016112 **Date:** 25/07/97 **FINAL**

Element.	Zn	As	Sr	Y	Zr	Mo	Ag	Cd	Sn	Sb	Ba	La	W	Pb	Bi
Method.	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70
Det.Lim.	0.5	3	0.5	0.5	0.5	1	0.2	1	10	5	1	0.5	10	2	5
Units.	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
05271	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
05272	105	<3	2.0	13.7	7.9	3	<0.2	<1	<10	<5	26	13.9	<10	5	<5
05273	<0.5	<3	38.1	4.9	1.3	<1	<0.2	<1	<10	<5	14	16.5	<10	13	<5
05274	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
05275	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
05276	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
05277	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
05278	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
05279	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
05280	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
05281	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
05282	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
05283	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
05284	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
05285	9.3	<3	55.9	9.0	4.1	<1	<0.2	<1	<10	<5	63	28.6	<10	12	<5
*Dup 05271	29.7	<3	3.2	2.5	0.9	3	<0.2	<1	<10	<5	23	9.2	<10	<2	<5
*Dup 05283	39.4	61	35.9	66.1	18.8	3	0.7	<1	<10	<5	381	63.4	<10	67	<5

XRAL XRAL Laboratories
A Division of SGS Canada Inc.

Work Order: 016063 Date: 29/07/97 **PRELIMINARY**

Element.	Be	Na	Mg	Al	P	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co
Method.	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80
Det.Lim.	0.5	0.01	0.01	0.01	0.01	0.01	0.01	0.5	0.01	2	1	2	0.01	1
Units.	ppm	%	%	%	%	%	%	ppm	%	ppm	ppm	ppm	%	ppm
79782	0.7	0.53	0.68	2.16	0.02	0.12	25.0	2.5	0.08	27	27	5180	1.76	12
79783	1.5	0.03	0.83	3.51	0.04	0.95	22.4	7.1	0.18	57	36	3780	2.45	12
79784	0.6	0.06	0.36	1.49	0.02	0.35	25.5	3.5	0.07	27	26	3310	1.92	13
79785	0.6	0.04	0.40	1.54	0.02	0.44	29.8	3.2	0.08	27	24	2820	1.40	8
79786	1.0	0.03	0.59	2.25	0.03	0.69	27.6	3.8	0.12	32	25	2450	1.71	12
79787	1.4	0.04	0.81	3.12	0.04	0.92	22.9	6.3	0.19	48	26	2850	2.19	17
79788	0.8	0.07	0.50	1.72	0.02	0.38	26.8	4.3	0.10	26	27	4490	1.93	11
79789	1.3	0.49	0.96	3.75	0.05	0.89	21.0	7.3	0.21	59	42	4220	2.83	14
79790	1.7	0.15	1.07	4.26	0.05	1.42	18.0	9.1	0.23	68	52	4790	3.17	15
79791	1.9	0.34	1.24	4.92	0.05	1.49	12.6	10.6	0.30	79	56	2770	3.87	17
79792	1.9	0.45	1.14	4.66	0.05	1.34	12.7	9.5	0.33	76	42	1780	3.28	19
79793	2.9	0.62	1.24	5.70	0.05	1.79	7.65	9.8	0.33	76	42	1400	3.30	20
79794	2.1	0.46	1.13	4.48	0.05	1.35	15.0	9.3	0.25	69	38	1960	3.11	14
79795	2.0	0.32	1.00	4.30	0.04	1.50	18.0	8.8	0.22	66	24	1710	2.60	10
79796	1.5	0.16	0.75	3.43	0.04	1.39	22.4	8.8	0.20	53	18	3790	2.08	10
79797	0.7	0.09	0.66	2.30	0.03	0.82	25.1	4.7	0.12	38	31	2700	1.86	8
79798	0.7	0.05	0.54	2.13	0.03	0.79	24.7	4.1	0.13	36	16	2370	1.55	10
79799	0.5	0.08	0.43	1.72	0.03	0.58	27.3	3.2	0.11	30	15	2340	1.39	12
79800	<0.5	0.03	0.27	0.88	0.02	0.26	27.9	3.5	0.07	14	17	4630	0.91	3
79801	0.6	0.06	0.61	1.76	0.02	0.49	26.1	3.6	0.11	34	11	2320	1.47	10
79802	0.6	0.25	0.68	2.08	0.03	0.65	24.5	3.9	0.12	38	12	3110	1.80	15
79803	<0.5	0.15	0.43	1.28	0.02	0.43	26.7	3.3	0.08	23	13	2740	1.32	4
79804	0.5	0.11	0.48	1.60	0.02	0.57	25.7	3.4	0.10	30	22	2910	1.53	7
79805	0.6	0.04	0.49	1.75	0.03	0.72	26.7	3.8	0.10	29	26	3180	1.30	5
79806	0.9	0.05	0.43	2.22	0.03	0.95	25.4	4.2	0.13	38	35	3260	1.45	5
79807	1.2	0.05	0.69	2.82	0.04	1.10	25.5	5.9	0.17	45	29	4030	2.02	9
79808	0.9	0.05	0.57	2.30	0.03	0.91	23.5	4.5	0.12	37	28	4450	1.71	7
79809	0.5	0.04	0.46	1.79	0.03	0.76	26.2	3.8	0.10	33	20	6570	1.65	14
79810	0.6	0.05	0.47	1.92	0.03	0.81	24.8	3.9	0.12	38	22	5720	1.52	11
79811	<0.5	0.05	0.37	1.45	0.02	0.61	26.9	2.8	0.09	26	19	3490	1.31	11

XRAL Laboratories
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Work Order: 016063 Date: 29/07/97 **PRELIMINARY**

Element.	Be	Na	Mg	Al	P	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co
Method.	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80
Det.Lim.	0.5	0.01	0.01	0.01	0.01	0.01	0.01	0.5	0.01	2	1	2	0.01	1
Units.	ppm	%	%	%	%	%	%	ppm	%	ppm	ppm	ppm	%	ppm
79812	<0.5	0.04	0.30	1.18	0.02	0.51	26.4	2.4	0.07	23	18	4750	1.13	9
79813	<0.5	0.05	0.41	1.52	0.03	0.60	28.5	2.8	0.09	33	21	6610	1.39	8
79814	<0.5	0.07	0.32	1.15	0.02	0.44	30.5	2.9	0.06	16	19	6560	1.10	23
79815	<0.5	0.12	0.53	1.79	0.03	0.56	27.4	3.4	0.10	30	23	4500	1.72	12
79816	0.5	0.18	0.47	1.91	0.03	0.62	26.7	3.6	0.10	31	27	4090	1.61	16
79817	<0.5	0.08	0.45	1.37	0.02	0.43	30.4	3.7	0.07	25	20	5210	1.30	11
79818	0.5	0.32	0.44	1.78	0.02	0.53	28.1	3.4	0.10	32	21	2660	1.24	6
7819	0.5	0.33	0.72	2.08	0.03	0.47	24.5	4.2	0.13	35	28	3090	1.93	20
7820	0.6	0.03	0.27	1.07	0.02	0.33	28.5	1.7	0.07	26	20	1170	0.88	4
7821	<0.5	0.03	0.29	1.16	0.02	0.41	30.6	2.1	0.07	23	5	920	0.76	4
7822	0.7	0.03	0.56	2.04	0.03	0.71	26.2	3.9	0.12	35	15	908	1.32	5
7823	0.7	0.03	0.34	1.30	0.02	0.49	29.7	2.2	0.07	23	7	930	0.87	4
7824	0.7	0.03	0.22	0.90	0.02	0.37	31.1	1.7	0.05	17	6	1160	0.69	3
7825	0.9	0.03	0.32	1.35	0.02	0.56	29.5	2.6	0.08	24	19	1350	1.08	7
7826	1.5	0.09	1.03	4.27	0.05	1.60	17.5	8.8	0.27	66	21	2680	2.80	26
7827	1.4	0.14	0.97	4.34	0.05	1.74	21.3	9.0	0.27	68	22	3570	2.47	24
7828	0.6	0.13	0.51	1.84	0.03	0.72	30.1	3.6	0.11	32	8	4120	1.45	10
7829	0.7	0.08	0.60	2.41	0.03	0.98	25.4	4.9	0.13	39	10	3560	1.66	14
7830	0.7	0.13	0.54	2.07	0.03	0.81	28.0	3.9	0.12	35	18	4090	1.75	18
7831	0.7	0.12	0.65	2.46	0.03	0.93	26.3	7.7	0.14	37	11	3940	1.85	13
7832	0.7	0.19	0.63	2.14	0.03	0.73	27.2	4.3	0.13	35	30	2560	1.74	10
7833	0.6	0.13	0.53	1.73	0.02	0.62	28.0	7.4	0.10	30	22	4200	1.51	8
7834	0.6	0.14	0.67	1.94	0.03	0.62	26.1	4.4	0.12	35	21	5720	2.03	11
7835	0.5	0.13	0.62	1.89	0.03	0.65	26.4	4.3	0.12	32	11	3930	1.85	18
7836	0.7	0.14	0.64	1.96	0.03	0.67	26.3	3.9	0.12	32	20	3400	1.84	10
7837	1.1	0.20	0.78	2.94	0.04	1.02	22.1	5.1	0.18	48	33	2550	2.09	13
79772	0.8	0.04	0.45	1.77	0.02	0.71	28.5	4.4	0.10	30	10	4390	1.43	6
79773	0.6	0.07	0.45	1.78	0.02	0.68	29.2	3.4	0.11	30	16	2660	1.31	10
79774	0.7	0.05	0.49	2.01	0.03	0.77	23.9	4.0	0.13	33	28	2210	1.42	13
79775	0.7	0.04	0.45	1.83	0.03	0.86	26.6	3.8	0.11	33	19	3320	1.40	11

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Element.	Be	Na	Mg	Al	P	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co
Method.	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80
Det.Lim.	0.5	0.01	0.01	0.01	0.01	0.01	0.01	0.5	0.01	2	1	2	0.01	1
Units.	ppm	%	%	%	%	%	%	ppm	%	ppm	ppm	ppm	%	ppm
79776	1.0	0.05	0.59	2.62	0.03	1.13	21.3	5.5	0.13	43	29	1950	1.68	14
79777	0.7	0.04	0.50	2.03	0.03	0.93	24.7	3.7	0.12	33	24	1300	1.30	6
79778	2.0	0.05	0.69	2.93	0.03	1.28	19.9	4.5	0.13	34	27	2710	1.57	8
79779	2.0	0.06	0.92	4.38	0.04	1.82	16.7	8.8	0.22	64	52	2770	2.46	18
79780	1.7	0.13	1.02	4.45	0.04	1.69	14.9	8.9	0.23	67	54	2770	2.71	22
79781	2.2	0.29	1.38	6.03	0.06	2.19	9.92	12.2	0.32	87	74	2020	3.59	23
73	<0.5	0.32	0.32	1.63	0.02	0.61	27.5	3.3	0.08	23	38	1890	0.91	10
74	<0.5	0.03	0.42	1.34	0.02	0.53	30.5	2.8	0.07	23	24	2170	1.23	12
75	<0.5	0.02	0.41	1.23	0.02	0.29	29.6	2.8	0.06	20	8	3140	1.12	9
76	<0.5	0.02	0.29	1.04	0.02	0.40	32.6	2.0	0.06	18	14	2400	0.84	15
77	<0.5	0.27	0.38	1.38	0.02	0.03	28.2	5.0	0.08	19	9	4150	1.05	4
78	<0.5	0.02	0.40	1.25	0.02	0.03	30.9	2.4	0.07	20	7	3540	1.05	6
79	<0.5	0.11	0.43	1.47	0.02	0.02	27.1	2.9	0.08	19	19	4550	1.15	5
80	<0.5	0.02	0.13	0.26	<0.01	<0.01	31.0	4.8	<0.01	3	18	5870	0.48	3
81	<0.5	0.10	0.43	0.75	0.02	0.03	30.5	1.8	0.04	15	21	5280	1.53	22
79754	0.7	0.03	0.62	2.13	0.03	0.63	27.1	4.4	0.12	39	29	2530	2.03	9
79755	<0.5	0.03	0.40	1.38	0.02	0.36	30.2	3.3	0.08	28	17	3320	1.57	6
79756	0.5	0.03	0.51	1.63	0.03	0.27	29.8	3.2	0.10	30	15	2840	1.56	8
79757	<0.5	0.03	0.39	1.19	0.02	0.23	29.0	5.3	0.06	19	10	4680	1.58	10
79758	0.6	0.03	0.50	2.01	0.03	0.64	24.9	3.9	0.11	31	12	3560	1.47	10
79759	0.7	0.04	0.42	1.85	0.03	0.77	27.4	3.5	0.11	31	29	2910	1.20	18
79760	0.6	0.04	0.49	1.84	0.03	0.76	27.7	3.6	0.10	32	21	3820	1.18	18
79761	0.8	0.04	0.59	2.26	0.03	0.87	23.9	4.7	0.13	33	27	5000	1.74	11
79762	0.6	0.04	0.57	2.22	0.03	0.98	27.1	4.7	0.13	39	15	8380	1.64	11
79763	<0.5	0.04	0.41	1.54	0.02	0.67	27.8	3.1	0.09	29	22	5750	1.31	6
79764	<0.5	0.03	0.35	1.28	0.02	0.59	27.4	2.6	0.07	25	20	5250	1.12	7
79765	0.6	0.04	0.41	1.65	0.03	0.67	27.6	3.1	0.09	30	18	4560	1.30	7
79766	<0.5	0.22	0.42	1.37	0.02	0.27	25.1	2.7	0.08	25	25	3420	1.24	6
79767	<0.5	0.22	0.41	1.22	0.02	0.22	27.7	5.6	0.06	22	15	5010	1.10	7
79768	<0.5	0.37	0.52	1.71	0.02	0.31	28.9	3.4	0.08	27	24	4120	1.52	8

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Element.	Be	Na	Mg	Al	P	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co
Method.	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80
Det.Lim.	0.5	0.01	0.01	0.01	0.01	0.01	0.01	0.5	0.01	2	1	2	0.01	1
Units.	ppm	%	%	%	%	%	%	ppm	%	ppm	ppm	ppm	%	ppm
79769	<0.5	0.15	0.52	1.58	0.02	0.40	28.0	3.0	0.07	29	17	4850	1.27	5
79770	<0.5	0.02	0.34	0.97	0.02	0.27	18.5	4.7	0.06	17	24	4070	0.94	11
79780	<0.5	0.03	0.44	1.43	0.02	0.41	27.7	2.9	0.09	25	27	3340	1.28	21
*Dup 79782	0.6	0.45	0.60	2.00	0.02	0.10	24.2	2.1	0.06	25	21	4700	1.65	11
*Dup 79794	2.0	0.42	1.04	4.25	0.05	1.24	14.4	8.6	0.20	64	52	1830	2.89	14
*Dup 79806	1.0	0.05	0.47	2.36	0.03	1.03	26.1	4.6	0.13	38	36	3470	1.56	6
*Dup 79818	0.6	0.34	0.45	1.79	0.02	0.53	28.0	3.4	0.09	32	22	2670	1.25	7
*Dup 7830	0.6	0.13	0.52	1.97	0.03	0.78	27.3	4.0	0.10	32	25	3910	1.66	14
*Dup 79776	1.0	0.05	0.64	2.81	0.04	1.22	22.3	5.4	0.15	47	34	2130	1.84	14
*Dup 79	0.5	0.11	0.43	1.46	0.02	0.02	27.5	2.9	0.07	19	26	4590	1.18	6
*Dup 79763	<0.5	0.04	0.39	1.49	0.02	0.65	26.7	2.9	0.07	28	20	5530	1.26	6

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Element.	Ni	Cu	Zn	As	Sr	Y	Zr	Mo	Ag	Cd	Sn	Sb	Ba	La
Method.	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80
Det.Lim.	1	0.5	0.5	3	0.5	0.5	0.5	1	0.2	1	10	5	1	0.5
Units.	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
79782	7	5990	33.7	<3	656	26.8	68.9	11	2.4	<1	<10	<5	903	16.0
79783	17	7730	45.6	<3	822	16.7	68.4	5	2.4	<1	<10	<5	806	20.1
79784	8	6390	17.2	<3	2110	32.5	29.7	20	1.3	<1	<10	<5	636	9.2
79785	5	5530	15.7	<3	2030	18.5	34.9	12	0.9	<1	<10	<5	1220	10.8
79786	9	4310	22.2	<3	1780	15.6	75.1	3	1.2	<1	<10	<5	531	12.9
79787	16	3280	28.5	<3	1000	15.1	65.3	3	1.4	<1	<10	<5	649	17.2
79788	10	4340	19.6	<3	753	37.3	35.5	18	1.0	<1	<10	<5	720	13.2
79789	19	11100	44.1	<3	879	14.1	75.4	5	2.0	<1	<10	<5	525	22.1
79790	22	8360	49.5	<3	727	20.6	83.9	4	1.3	<1	<10	<5	876	23.6
79791	26	11500	56.4	<3	355	22.7	96.1	11	1.7	<1	<10	<5	971	25.1
79792	26	6050	39.3	<3	379	16.0	101	5	1.3	<1	<10	<5	1080	24.3
79793	26	3350	36.1	<3	218	24.2	166	2	1.2	<1	<10	<5	1500	27.1
79794	26	5720	37.1	<3	937	20.5	86.9	2	1.4	<1	<10	<5	1670	21.5
79795	22	5220	30.5	<3	430	14.3	80.3	<1	0.7	<1	<10	<5	828	22.3
79796	15	4170	19.7	<3	442	34.7	66.7	5	0.6	<1	<10	<5	1130	20.0
79797	16	4400	20.3	<3	480	13.0	46.0	2	0.6	<1	<10	<5	854	14.2
79798	13	3490	13.9	<3	429	11.3	52.3	2	0.6	<1	<10	<5	750	12.6
79799	11	2840	9.9	<3	558	9.0	42.5	3	1.5	<1	<10	<5	519	8.2
79800	2	2540	6.1	<3	402	147.5	24.8	12	<0.2	<1	<10	<5	168	8.9
79801	12	2950	15.0	<3	550	11.4	40.8	2	1.3	<1	<10	<5	269	11.5
79802	9	4340	16.8	<3	558	12.1	43.8	4	0.7	<1	<10	<5	375	11.5
79803	6	5930	12.0	<3	897	23.7	32.0	5	1.1	<1	<10	<5	239	10.3
79804	10	6610	13.6	<3	863	17.3	36.4	12	1.4	<1	<10	<5	340	11.0
79805	10	4230	12.9	<3	1140	17.0	36.6	3	0.7	<1	<10	<5	433	12.4
79806	5	7320	13.8	<3	1050	25.6	45.9	14	2.0	<1	<10	<5	464	13.2
79807	15	5660	23.9	<3	1050	14.5	61.2	5	0.6	<1	<10	<5	606	18.6
79808	10	5370	20.2	<3	1510	14.7	44.3	6	1.0	<1	132	<5	1250	13.1
79809	27	6520	17.1	<3	1490	13.0	35.7	3	1.5	<1	<10	<5	499	12.9
79810	9	3740	15.5	<3	1410	9.0	37.1	3	1.0	<1	<10	<5	485	10.1
79811	7	2790	12.7	<3	2150	8.0	29.4	3	0.8	<1	<10	<5	450	7.8

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Element. Method. Det.Lim. Units.	Ni ICP80 1 ppm	Cu ICP80 0.5 ppm	Zn ICP80 0.5 ppm	As ICP80 3 ppm	Sr ICP80 0.5 ppm	Y ICP80 0.5 ppm	Zr ICP80 0.5 ppm	Mo ICP80 1 ppm	Ag ICP80 0.2 ppm	Cd ICP80 1 ppm	Sn ICP80 10 ppm	Sb ICP80 5 ppm	Ba ICP80 1 ppm	La ICP80 0.5 ppm
79812	4	3160	9.8	<3	1820	10.0	26.4	9	1.7	<1	<10	<5	347	8.2
79813	10	5350	13.3	<3	1980	13.5	32.2	7	1.3	<1	<10	<5	315	9.6
79814	7	4420	11.5	<3	1500	35.2	29.1	439	1.6	<1	<10	<5	233	9.2
79815	12	5910	18.3	<3	1620	16.9	57.6	21	0.4	<1	<10	<5	284	13.6
79816	15	6060	16.6	<3	1310	18.0	40.9	205	1.8	<1	<10	<5	343	14.9
79817	11	2740	17.0	<3	889	36.3	29.7	177	1.3	<1	<10	<5	507	9.3
79818	9	4000	12.7	<3	1130	12.8	35.5	37	1.1	<1	<10	<5	230	11.0
7819	20	3120	20.0	<3	640	22.7	62.0	7	1.0	<1	<10	<5	525	13.6
7820	7	393	8.6	<3	97.8	7.7	25.4	<1	1.1	<1	<10	<5	7100	5.6
7821	6	78.4	9.0	<3	117	6.9	25.0	1	0.9	<1	<10	<5	9530	6.1
7822	13	123	17.6	<3	96.5	10.1	41.8	<1	0.4	<1	<10	<5	6480	12.3
7823	6	603	10.8	<3	114	6.9	24.2	<1	0.9	<1	<10	<5	9390	6.4
7824	90	291	12.0	<3	112	5.7	19.7	<1	1.1	<1	<10	<5	3420	5.2
7825	8	141	10.5	<3	151	8.1	30.6	1	0.9	<1	<10	<5	8690	8.9
7826	28	211	33.8	<3	473	16.0	90.8	1	0.8	<1	<10	<5	947	22.8
7827	27	52.8	31.6	<3	830	16.2	88.4	1	<0.2	<1	<10	<5	651	20.8
7828	13	59.3	15.9	<3	1340	10.7	38.4	5	1.1	<1	<10	<5	264	10.4
7829	17	613	20.7	<3	1120	10.2	47.2	3	0.7	<1	<10	<5	357	13.1
7830	12	977	16.3	<3	1050	10.0	39.7	5	1.4	<1	<10	<5	464	9.7
7831	12	2650	23.0	<3	880	32.3	51.2	10	<0.2	<1	<10	<5	402	12.5
7832	17	3250	24.9	<3	1210	12.2	47.4	5	1.3	<1	<10	<5	343	12.7
7833	9	2460	20.4	<3	1040	28.0	34.1	31	1.2	<1	<10	<5	280	10.9
7834	12	2630	21.9	<3	977	16.3	42.2	34	1.4	<1	<10	<5	390	13.1
7835	18	3070	20.9	<3	996	17.6	43.6	20	0.8	<1	<10	<5	260	12.6
7836	14	4170	29.2	<3	936	13.7	41.2	6	1.1	<1	<10	<5	325	12.1
7837	21	3030	27.2	<3	682	13.7	62.3	28	1.3	<1	<10	<5	517	14.4
79772	9	5180	16.6	<3	941	27.6	35.0	11	1.0	<1	<10	<5	393	10.1
79773	11	2390	15.4	<3	1530	9.3	37.5	4	1.1	<1	<10	<5	385	8.0
79774	12	1840	17.0	<3	1140	9.9	47.1	3	1.3	<1	<10	<5	398	10.8
79775	14	1970	14.9	<3	1280	9.1	39.8	4	0.5	<1	<10	<5	440	10.2

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Element.	Ni	Cu	Zn	As	Sr	Y	Zr	Mo	Ag	Cd	Sn	Sb	Ba	La
Method.	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80
Det.Lim.	1	0.5	0.5	3	0.5	0.5	0.5	1	0.2	1	10	5	1	0.5
Units.	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
79776	18	465	20.8	<3	778	11.6	55.8	4	1.3	<1	<10	<5	390	16.3
79777	11	28.6	12.6	<3	1130	10.4	42.9	4	1.4	<1	<10	<5	352	9.6
79778	12	118	17.8	<3	812	27.7	171	3	0.3	<1	<10	<5	398	23.4
79779	26	1620	28.9	<3	507	20.0	92.2	5	1.0	<1	<10	<5	1180	26.2
79780	26	1690	35.6	10	552	15.4	82.7	4	1.6	<1	<10	<5	438	21.7
79781	37	675	51.4	21	239	19.1	112	<1	1.3	<1	<10	<5	612	33.0
73	8	318	13.3	<3	297	10.0	32.6	<1	<0.2	<1	<10	<5	208	9.5
74	10	2500	18.4	<3	321	11.6	28.9	5	1.1	<1	<10	<5	205	8.2
75	8	2330	18.2	<3	314	18.5	26.1	19	1.5	<1	<10	<5	751	8.0
76	6	963	8.5	<3	340	9.7	23.3	5	0.9	<1	<10	<5	179	7.5
77	7	4200	19.7	<3	459	36.1	33.6	30	2.3	<1	<10	<5	644	9.1
78	4	3940	17.2	<3	470	11.7	28.7	6	0.9	<1	<10	<5	418	8.1
79	5	4900	21.9	<3	460	30.1	35.9	10	2.1	<1	<10	<5	1200	8.4
80	<1	1270	4.1	<3	594	82.9	4.5	4	0.7	<1	<10	<5	1580	14.2
81	4	3970	15.7	<3	785	20.9	16.8	5	21.4	<1	<10	<5	1080	6.6
79754	13	7820	36.0	<3	1440	12.3	41.5	4	1.2	<1	<10	<5	303	12.8
79755	8	6500	22.4	<3	2000	20.4	30.0	6	1.0	<1	<10	<5	223	10.2
79756	11	5640	28.1	<3	1880	14.1	43.1	5	2.2	<1	<10	<5	212	11.3
79757	10	3830	19.7	<3	754	38.6	36.1	16	1.8	<1	<10	<5	554	15.3
79758	9	3200	18.9	<3	360	13.7	41.5	10	1.1	<1	<10	<5	622	11.5
79759	10	1390	12.2	<3	615	10.9	37.5	3	1.1	<1	<10	<5	587	8.5
79760	10	1270	13.4	<3	1380	10.2	36.2	3	1.6	<1	<10	<5	288	8.6
79761	15	3010	22.0	<3	918	12.2	44.3	1	<0.2	<1	<10	<5	352	12.4
79762	13	4520	19.5	<3	1360	11.8	46.9	2	1.7	<1	<10	<5	370	13.9
79763	7	5280	15.8	<3	1760	14.9	30.6	43	1.8	<1	<10	<5	320	9.6
79764	7	4640	12.9	<3	1810	8.4	28.6	4	1.2	<1	<10	<5	265	7.6
79765	9	5820	16.8	<3	1770	10.4	47.4	6	1.9	<1	<10	<5	369	11.3
79766	8	5340	17.5	<3	1390	10.6	30.8	17	1.5	<1	<10	<5	213	7.7
79767	7	1330	16.3	<3	960	38.6	22.6	22	1.0	<1	<10	<5	1190	8.0
79768	10	2700	21.1	<3	990	12.5	33.1	1	<0.2	<1	<10	<5	323	8.8

XRAL Laboratories
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Work Order: 016063 **Date:** 29/07/97 **PRELIMINARY**

Element.	Ni	Cu	Zn	As	Sr	Y	Zr	Mo	Ag	Cd	Sn	Sb	Ba	La
Method.	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80
Det.Lim.	1	0.5	0.5	3	0.5	0.5	0.5	1	0.2	1	10	5	1	0.5
Units.	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
79769	8	2450	21.0	<3	652	13.5	30.2	3	1.7	<1	<10	<5	589	8.1
79770	7	734	13.9	<3	2050	33.5	26.1	5	0.9	<1	<10	<5	1850	6.2
79780	8	1570	14.6	<3	417	12.3	34.7	3	1.7	<1	<10	<5	1700	9.6
*Dup 79782	5	5700	31.6	<3	574	23.1	60.6	10	2.4	<1	<10	<5	752	12.4
*Dup 79794	24	5430	34.6	<3	864	19.0	78.7	2	1.6	<1	<10	<5	1350	19.5
*Dup 79806	7	8000	14.3	<3	1120	26.5	50.2	13	1.3	<1	<10	<5	497	14.2
*Dup 79818	9	4100	13.8	<3	1130	12.9	40.5	35	1.4	<1	<10	<5	265	11.2
*Dup 7830	14	965	17.4	<3	998	9.3	39.8	4	1.0	<1	<10	<5	453	11.1
*Dup 79776	17	490	20.4	<3	846	12.6	54.9	5	1.7	<1	<10	<5	425	14.5
*Dup 79	5	4890	21.7	<3	457	30.2	36.4	10	2.5	<1	<10	<5	1200	9.3
*Dup 79763	8	5160	17.4	<3	1680	14.3	30.5	45	2.1	<1	<10	<5	314	9.3

XRAL Laboratories
A Division of SGS Canada Inc.

Work Order: 016063 **Date:** 29/07/97 **PRELIMINARY**

Element.	Au	W	Pb	Bi
Method.	FA30/5	ICP80	ICP80	ICP80
Det.Lim.	1	10	2	5
Units.	ppb	ppm	ppm	ppm
79782	7	<10	81	*INF
79783	13	<10	48	*INF
79784	16	<10	16	*INF
79785	14	<10	15	*INF
79786	12	<10	11	*INF
79787	5	<10	22	*INF
79788	2	<10	87	*INF
79789	15	<10	80	*INF
79790	16	<10	25	*INF
79791	19	<10	17	*INF
79792	23	<10	9	*INF
79793	3	<10	3	*INF
79794	7	<10	14	*INF
79795	16	<10	<2	*INF
79796	14	<10	5	*INF
79797	11	<10	4	*INF
79798	22	<10	3	*INF
79799	14	<10	4	*INF
79800	9	<10	6	*INF
79801	1	<10	9	*INF
79802	3	<10	7	*INF
79803	12	<10	8	*INF
79804	5	<10	12	*INF
79805	15	<10	6	*INF
79806	14	<10	8	*INF
79807	4	<10	8	*INF
79808	<1	<10	5	*INF
79809	<1	<10	14	*INF
79810	<1	<10	10	*INF
79811	3	<10	9	*INF

XRAL Laboratories
A Division of SGS Canada Inc.

Work Order: 016063 Date: 29/07/97 **PRELIMINARY**

Element.	Au	W	Pb	Bi
Method.	FA30/5	ICP80	ICP80	ICP80
Det.Lim.	1	10	2	5
Units.	ppb	ppm	ppm	ppm
79812	<1	<10	9	*INF
79813	7	<10	9	*INF
79814	14	<10	20	*INF
79815	10	<10	6	*INF
79816	11	<10	15	*INF
79817	16	<10	11	*INF
79818	17	<10	6	*INF
7819	8	<10	4	*INF
7820	7	<10	<2	<5
7821	<1	<10	3	<5
7822	12	<10	<2	5
7823	<1	<10	6	<5
7824	<1	<10	5	<5
7825	<1	<10	5	<5
7826	<1	<10	10	<5
7827	<1	<10	15	<5
7828	<1	<10	18	<5
7829	7	<10	16	<5
7830	<1	<10	14	<5
7831	6	<10	<2	*INF
7832	8	<10	9	*INF
7833	6	<10	10	*INF
7834	4	<10	7	*INF
7835	6	<10	10	*INF
7836	<1	<10	8	*INF
7837	7	<10	3	*INF
79772	6	<10	7	*INF
79773	3	<10	9	*INF
79774	3	<10	13	*INF
79775	<1	<10	19	*INF

XRAL Laboratories
A Division of SGS Canada Inc.

Work Order: 016063 **Date:** 29/07/97 **PRELIMINARY**

Element.	Au	W	Pb	Bi
Method.	FA30/5	ICP80	ICP80	ICP80
Det.Lim.	1	10	2	5
Units.	ppb	ppm	ppm	ppm
79776	<1	<10	26	<5
79777	<1	<10	15	<5
79778	<1	<10	9	<5
79779	8	<10	14	*INF
79780	<1	<10	17	*INF
79781	6	<10	8	<5
73	<1	<10	5	<5
74	<1	<10	11	*INF
75	<1	<10	11	*INF
76	4	<10	10	<5
77	1	<10	42	*INF
78	<1	<10	19	*INF
79	2	<10	39	*INF
80	<1	<10	23	*INF
81	10	<10	3240	*INF
79754	7	<10	32	*INF
79755	6	<10	43	*INF
79756	3	<10	65	*INF
79757	1	<10	559	*INF
79758	<1	<10	6	*INF
79759	<1	<10	13	*INF
79760	<1	<10	29	*INF
79761	7	<10	14	*INF
79762	3	<10	15	*INF
79763	3	<10	16	*INF
79764	8	<10	13	*INF
79765	5	<10	14	*INF
79766	5	<10	18	*INF
79767	<1	<10	19	*INF
79768	2	<10	10	*INF

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XRAL Laboratories
A Division of SGS Canada Inc.

Work Order: 016063 **Date:** 29/07/97 **PRELIMINARY**

Element.	Au	W	Pb	Bi
Method.	FA30/5	ICP80	ICP80	ICP80
Det.Lim.	1	10	2	5
Units.	ppb	ppm	ppm	ppm
79769	1	<10	13	*INF
79770	4	<10	13	<5
79780	2	<10	19	*INF
*Dup 79782	8	<10	73	*INF
*Dup 79794	7	<10	10	*INF
*Dup 79806	17	<10	6	*INF
*Dup 79818	16	<10	3	*INF
*Dup 7830	<1	<10	13	<5
*Dup 79776	<1	<10	24	<5
*Dup 79	2	<10	40	*INF
*Dup 79763	1	<10	14	*INF

XRAL Laboratories
A Division of SGS Canada Inc.

Work Order: 016147 **Date:** 30/08/97 **FINAL**

Element.	Au	Be	Na	Mg	Al	P	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu
Method.	FA30/5	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80
Det.Lim.	1	0.5	0.01	0.01	0.01	0.01	0.01	0.01	0.5	0.01	2	1	2	0.01	1	1	0.5
Units.	ppb	ppm	%	%	%	%	%	%	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm
7838	1	<0.5	0.03	0.04	0.39	0.01	0.16	35.9	1.3	0.02	13	10	1770	0.39	2	5	199
7839	4	<0.5	0.03	0.05	0.43	0.01	0.18	34.5	1.3	0.02	15	14	2030	0.48	3	4	201
7840	1	<0.5	0.06	0.06	0.72	0.02	0.23	34.3	1.6	0.03	17	9	1100	0.39	6	4	228
7841	1	<0.5	0.03	0.06	0.55	0.02	0.23	34.3	1.8	0.03	17	9	904	0.27	<1	2	172
7842	<1	<0.5	0.03	0.08	0.70	0.01	0.28	33.9	1.9	0.04	15	10	1130	0.20	<1	1	754
7843	1	<0.5	0.03	0.09	0.82	0.01	0.29	34.2	2.2	0.05	13	5	2030	0.46	5	6	279
7844	6	<0.5	0.03	0.08	0.78	0.01	0.28	32.9	2.1	0.04	12	9	2250	0.44	2	5	3.4
7845	3	<0.5	0.02	0.09	0.73	0.01	0.25	31.9	2.1	0.04	12	9	2440	0.36	1	5	0.6
7846	1	<0.5	0.02	0.12	0.68	0.01	0.24	33.2	1.6	0.03	12	<1	3130	0.51	3	5	1410
7847	8	<0.5	0.03	0.25	0.91	0.04	0.29	31.8	2.0	0.04	18	6	4160	1.07	5	6	6940
7848	11	<0.5	0.02	0.22	0.76	0.03	0.23	32.3	1.8	0.04	15	5	3430	0.81	2	4	5700
7849	4	<0.5	0.03	0.16	0.79	0.04	0.26	29.1	1.7	0.04	15	8	4250	1.11	1	3	9910
7850	2	<0.5	0.03	0.27	1.25	0.02	0.44	32.2	2.9	0.07	18	3	2270	0.71	4	8	919
7851	<1	<0.5	0.03	0.36	1.56	0.02	0.66	31.1	3.3	0.09	22	4	1260	0.75	4	10	21.1
7852	2	0.6	0.03	0.43	2.12	0.02	0.60	26.6	2.5	0.08	17	5	2530	0.97	7	7	1910
7853	8	<0.5	0.02	0.51	1.61	0.03	0.41	30.3	3.0	0.08	23	4	5560	1.29	9	8	4200
7854	6	<0.5	0.11	0.37	0.94	0.03	0.26	31.0	1.9	0.05	17	5	5330	1.18	10	6	4340
7855	7	0.9	0.04	0.74	2.92	0.05	1.16	24.2	5.1	0.14	40	12	4030	2.02	10	16	7680
7856	4	0.9	0.04	0.85	3.29	0.05	1.35	23.7	6.8	0.19	51	14	2350	2.27	16	20	4920
7857	3	<0.5	0.04	0.41	1.72	0.03	0.81	30.6	3.3	0.10	30	5	1600	1.25	15	10	2450
7858	2	<0.5	0.04	0.42	1.60	0.03	0.67	30.3	3.2	0.10	26	6	1780	1.14	6	9	4500
7859	<1	<0.5	0.04	0.59	1.98	0.04	0.77	27.8	4.9	0.12	29	9	3930	1.48	5	10	4720
7860	1	1.3	0.05	1.41	4.43	0.05	1.56	19.8	9.2	0.25	59	47	3380	3.05	22	24	2010
7861	<1	0.8	0.05	0.85	3.25	0.04	1.34	24.7	6.8	0.18	45	31	4650	2.15	20	19	853
7862	<1	1.3	0.07	1.10	4.93	0.05	2.03	19.8	10.5	0.28	71	53	4150	3.04	23	29	657
7863	<1	1.9	0.07	1.35	6.14	0.06	2.08	12.2	12.9	0.40	92	80	1700	3.66	25	34	169
7864	2	2.7	0.07	1.33	6.26	0.07	2.32	11.5	11.7	0.33	81	71	1490	3.63	27	31	3430
7865	<1	1.7	0.06	1.30	5.41	0.05	2.03	18.5	11.4	0.28	75	32	1740	3.04	16	28	106
7866	<1	0.9	0.05	0.93	3.85	0.04	1.65	23.6	8.1	0.21	53	16	1990	2.14	8	20	20.3
7867	<1	<0.5	0.03	0.48	2.05	0.02	0.89	29.2	4.1	0.13	29	20	1470	1.06	3	11	9.4

Work Order: 016147 **Date:** 30/08/97 **FINAL**

Element.	Au	Be	Na	Mg	Al	P	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu
Method.	FA30/5	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80
Det.Lim.	1	0.5	0.01	0.01	0.01	0.01	0.01	0.01	0.5	0.01	2	1	2	0.01	1	1	0.5
Units.	ppb	ppm	%	%	%	%	%	%	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm
7868	3	<0.5	0.04	0.61	1.98	0.02	0.86	28.7	4.0	0.13	29	12	1880	1.29	3	13	14.1
7869	2	<0.5	0.08	0.61	2.08	0.02	0.87	30.3	4.0	0.13	30	8	1510	1.37	3	10	13.1
7870	<1	<0.5	0.05	0.57	2.02	0.02	0.86	30.0	4.0	0.12	29	22	2660	1.26	5	11	25.0
7871	3	0.7	0.06	0.81	3.27	0.04	1.36	25.3	7.0	0.20	45	12	3770	1.75	15	18	109
7872	5	<0.5	0.05	0.57	2.22	0.03	1.01	30.7	4.6	0.12	36	19	6950	1.33	10	14	86.0
7873	4	<0.5	0.05	0.46	1.63	0.02	0.66	30.4	3.5	0.10	26	18	3280	1.09	13	10	1160
7874	2	<0.5	0.05	0.41	1.58	0.02	0.63	31.1	3.2	0.09	25	17	4270	1.02	11	11	683
7875	5	<0.5	0.05	0.44	1.72	0.02	0.67	30.5	3.4	0.10	27	19	4110	1.04	10	12	1390
7876	10	<0.5	0.06	0.41	1.82	0.04	0.69	30.1	3.4	0.10	27	5	2840	1.14	4	7	5600
7877	3	<0.5	0.13	0.50	2.72	0.04	0.88	28.2	3.7	0.14	41	10	2130	0.93	2	6	2760
7878	6	<0.5	0.16	0.64	2.32	0.05	0.47	24.6	3.9	0.16	32	13	2170	1.34	5	13	3790
7879	2	<0.5	0.03	0.51	2.01	0.02	0.68	27.8	3.9	0.11	25	8	2480	1.08	9	13	136
7880	3	0.9	0.07	0.97	3.86	0.04	1.38	21.1	7.8	0.23	52	15	3230	2.16	8	22	18.1
7881	2	<0.5	0.05	0.66	2.63	0.03	1.09	25.5	5.4	0.15	38	8	3720	1.56	6	16	14.8
7882	2	<0.5	0.06	0.51	1.83	0.02	0.81	28.6	4.1	0.11	29	22	2400	1.02	5	12	157
7883	3	<0.5	0.24	0.53	2.20	0.02	0.87	26.7	4.1	0.14	29	25	2090	1.24	5	12	16.8
7884	6	<0.5	0.16	0.61	2.62	0.03	1.05	26.1	5.2	0.15	37	9	3150	1.45	18	14	336
7885	4	<0.5	0.05	0.48	1.98	0.03	0.92	29.0	4.0	0.12	32	21	6710	1.34	19	17	95.7
7886	2	1.3	0.09	0.97	4.83	0.05	2.06	18.9	9.1	0.27	64	24	3190	2.09	29	29	311
7887	4	0.7	0.27	0.67	3.05	0.03	1.20	23.1	6.0	0.17	45	11	2350	1.70	25	17	728
7888	5	<0.5	0.39	0.58	2.18	0.03	0.73	26.1	4.3	0.13	31	15	1890	1.42	18	13	613
7889	4	2.5	0.90	1.96	7.28	0.07	2.28	9.44	14.8	0.38	96	39	1820	3.68	28	41	1730
7890	4	1.7	0.95	1.99	5.77	0.05	1.43	12.6	11.4	0.29	75	61	2340	3.43	22	32	1110
7891	5	1.9	0.74	1.72	6.56	0.06	2.04	11.5	13.1	0.33	83	58	1690	3.60	20	37	853
7892	4	1.9	0.51	1.37	6.15	0.05	2.18	12.9	11.6	0.29	78	57	1790	3.17	18	35	491
7893	5	1.7	0.38	1.32	6.04	0.05	2.25	12.8	11.6	0.31	77	41	1590	2.98	18	31	716
7894	3	1.7	0.35	1.48	5.91	0.04	2.20	16.6	11.7	0.30	79	28	2410	2.77	20	30	416
7895	4	2.1	0.50	1.51	6.81	0.05	2.56	13.1	12.7	0.32	92	62	2300	2.90	27	38	1220
7896	3	1.6	1.07	1.25	5.65	0.06	1.53	4.44	9.9	0.32	71	110	1070	2.87	14	32	762
7897	2	2.3	1.03	1.13	6.98	0.07	2.33	2.67	12.8	0.42	87	109	809	3.61	14	31	1.1

Work Order: 016147 **Date:** 30/08/97 **FINAL**

Element.	Au	Be	Na	Mg	Al	P	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu
Method.	FA30/5	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80
Det.Lim.	1	0.5	0.01	0.01	0.01	0.01	0.01	0.01	0.5	0.01	2	1	2	0.01	1	1	0.5
Units.	ppb	ppm	%	%	%	%	%	%	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm
7898	3	<0.5	0.02	0.25	0.55	<0.01	0.13	19.3	5.2	0.03	7	4	4420	0.66	5	5	319
7899	2	<0.5	0.03	0.21	0.50	0.01	0.15	30.1	6.9	0.02	6	2	6350	0.59	2	3	320
7900	6	<0.5	0.02	0.14	0.16	<0.01	0.08	33.3	3.6	<0.01	3	2	6780	0.38	<1	1	18.3
*Dup 7838	<1	<0.5	0.03	0.04	0.39	0.01	0.16	34.2	1.2	0.02	13	6	1740	0.39	2	4	187
*Dup 7850	4	<0.5	0.03	0.26	1.22	0.02	0.43	31.7	2.7	0.06	17	11	2320	0.70	4	8	860
*Dup 7862	<1	1.2	0.06	1.00	4.29	0.05	1.75	17.8	9.4	0.25	64	35	3640	2.69	20	26	610
*Dup 7874	1	<0.5	0.05	0.39	1.43	0.02	0.57	30.3	3.1	0.08	25	16	3940	0.93	11	12	672
*Dup 7886	3	1.3	0.08	0.90	4.54	0.05	1.94	17.5	8.4	0.26	57	33	3080	2.00	30	29	288
*Dup 7898	3	<0.5	0.02	0.27	0.59	<0.01	0.13	20.7	5.6	0.03	8	5	4770	0.70	5	5	348

Work Order: 016147 **Date:** 30/08/97 **FINAL**

Element.	Zn	As	Sr	Y	Zr	Mo	Ag	Cd	Sn	Sb	Ba	La	W	Pb	Bi
Method.	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80
Det.Lim.	0.5	3	0.5	0.5	0.5	1	0.2	1	10	5	1	0.5	10	2	5
Units.	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
7838	42.8	6	71.7	5.2	8.1	1	<0.2	<1	<10	<5	217	2.1	<10	13	<5
7839	45.0	<3	68.0	5.8	8.1	<1	<0.2	<1	<10	8	158	2.8	<10	8	<5
7840	87.4	<3	78.3	6.2	12.9	2	<0.2	<1	<10	<5	192	3.1	<10	7	<5
7841	30.3	5	49.2	6.6	12.1	1	<0.2	<1	<10	8	228	3.5	<10	2	<5
7842	12.9	<3	41.5	5.7	13.5	1	<0.2	<1	<10	<5	479	3.3	<10	4	<5
7843	26.8	3	88.1	5.8	16.4	3	<0.2	<1	<10	6	229	4.8	<10	10	<5
7844	11.3	7	125	6.1	14.7	4	<0.2	<1	<10	<5	161	5.0	<10	3	<5
7845	9.8	<3	100	6.6	15.7	4	<0.2	<1	<10	<5	156	5.0	<10	6	<5
7846	9.0	<3	128	7.4	13.6	4	<0.2	<1	<10	<5	284	4.2	<10	8	*INF
7847	15.0	9	312	26.0	17.9	70	<0.2	<1	<10	<5	308	4.0	<10	8	*INF
7848	15.7	<3	372	16.3	14.0	55	<0.2	<1	<10	7	231	3.9	<10	8	*INF
7849	12.8	<3	233	26.0	14.0	49	<0.2	<1	<10	<5	242	5.5	<10	12	*INF
7850	13.7	<3	248	9.8	23.4	5	<0.2	<1	<10	6	757	7.7	<10	7	<5
7851	13.4	5	434	9.8	34.2	5	<0.2	<1	<10	<5	768	8.5	<10	9	<5
7852	8.9	9	404	18.2	71.8	7	<0.2	<1	<10	<5	1080	13.4	<10	8	*INF
7853	11.8	<3	647	13.0	38.8	9	<0.2	<1	<10	<5	270	9.4	<10	15	*INF
7854	6.6	6	856	18.6	23.2	8	<0.2	<1	<10	<5	750	7.4	<10	13	*INF
7855	25.1	7	862	16.0	66.8	8	<0.2	<1	<10	<5	979	12.5	<10	13	*INF
7856	25.7	<3	1090	13.8	63.8	6	<0.2	<1	<10	<5	1090	14.1	<10	17	*INF
7857	11.7	5	2380	8.6	35.5	5	<0.2	<1	<10	9	562	8.8	<10	20	*INF
7858	13.4	<3	2510	9.3	39.1	5	<0.2	<1	<10	<5	422	7.9	<10	16	*INF
7859	18.6	15	1190	35.3	49.6	16	<0.2	<1	<10	<5	467	11.8	<10	11	*INF
7860	36.8	29	781	17.0	88.9	4	<0.2	<1	<10	<5	734	21.0	<10	18	*INF
7861	23.4	20	997	13.7	63.4	4	<0.2	<1	<10	<5	619	15.2	<10	30	<5
7862	37.2	46	666	18.8	97.2	7	<0.2	<1	<10	<5	850	25.6	<10	40	<5
7863	33.2	43	325	21.3	141	8	<0.2	<1	<10	<5	735	30.3	<10	26	<5
7864	35.7	22	288	25.4	158	7	<0.2	<1	<10	<5	777	30.8	<10	22	*INF
7865	29.3	27	442	19.4	101	4	<0.2	<1	<10	<5	719	24.6	<10	27	<5
7866	21.6	4	588	15.8	74.7	4	<0.2	<1	<10	<5	879	18.2	<10	16	<5
7867	8.2	<3	835	9.4	46.5	4	<0.2	<1	<10	<5	1120	9.5	<10	9	<5

Work Order: 016147 **Date:** 30/08/97 **FINAL**

Element.	Zn	As	Sr	Y	Zr	Mo	Ag	Cd	Sn	Sb	Ba	La	W	Pb	Bi
Method.	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80
Det.Lim.	0.5	3	0.5	0.5	0.5	1	0.2	1	10	5	1	0.5	10	2	5
Units.	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
7868	11.2	7	624	9.6	48.6	6	<0.2	<1	<10	<5	708	10.2	<10	13	<5
7869	7.8	6	1010	9.3	44.2	4	<0.2	<1	<10	<5	567	10.5	<10	14	<5
7870	16.3	<3	1690	9.0	40.5	5	<0.2	<1	<10	<5	352	10.2	<10	19	<5
7871	16.3	12	1290	14.0	66.8	4	<0.2	<1	<10	<5	521	15.4	<10	21	<5
7872	14.3	15	1950	9.7	41.2	6	<0.2	<1	<10	10	390	10.0	<10	27	<5
7873	15.8	<3	2340	8.5	32.6	6	<0.2	<1	<10	<5	423	8.4	<10	23	*INF
7874	12.1	10	2610	7.2	32.3	6	<0.2	<1	<10	7	235	7.3	<10	27	<5
7875	9.8	5	2200	10.3	44.2	10	<0.2	<1	<10	7	504	9.2	<10	21	*INF
7876	9.5	<3	1890	9.1	36.9	7	<0.2	<1	<10	6	270	8.3	<10	14	*INF
7877	12.5	<3	1340	10.4	51.1	18	<0.2	<1	<10	<5	410	10.0	<10	12	*INF
7878	14.9	<3	603	12.2	69.7	5	<0.2	<1	<10	<5	617	10.7	<10	14	*INF
7879	13.0	5	438	11.1	40.1	3	<0.2	<1	<10	<5	2500	11.6	<10	11	<5
7880	27.8	13	627	15.9	79.8	4	<0.2	<1	<10	6	1140	18.9	<10	15	<5
7881	18.4	<3	1060	11.4	50.4	5	<0.2	<1	<10	<5	635	13.1	<10	15	<5
7882	9.5	<3	1510	8.7	40.4	5	<0.2	<1	<10	<5	362	9.1	<10	12	<5
7883	16.2	4	1340	9.5	48.3	5	<0.2	<1	<10	<5	246	10.7	<10	17	<5
7884	14.9	15	1280	10.3	51.7	4	<0.2	<1	<10	7	377	11.0	<10	21	<5
7885	15.8	13	<0.5	8.9	42.0	7	<0.2	<1	<10	<5	209	9.8	<10	33	<5
7886	25.3	35	923	16.4	85.6	3	<0.2	<1	<10	<5	431	21.1	<10	22	<5
7887	18.0	22	946	12.3	57.6	7	<0.2	<1	<10	<5	276	14.1	<10	28	<5
7888	11.9	6	1180	10.0	46.7	5	<0.2	<1	<10	<5	158	9.8	<10	19	<5
7889	47.1	31	346	22.1	136	2	<0.2	<1	<10	<5	483	29.0	<10	21	*INF
7890	45.5	17	416	18.8	104	2	<0.2	<1	<10	<5	1070	26.6	<10	16	*INF
7891	44.3	18	316	17.8	112	2	<0.2	<1	<10	<5	399	28.9	<10	20	<5
7892	41.1	25	333	18.0	106	2	<0.2	<1	<10	<5	398	28.8	<10	20	<5
7893	38.9	13	292	16.5	103	3	<0.2	<1	<10	<5	392	28.9	<10	21	<5
7894	41.3	44	321	15.9	96.2	2	<0.2	<1	<10	<5	379	27.0	<10	31	<5
7895	47.5	23	236	15.9	112	4	<0.2	<1	<10	<5	515	34.4	<10	25	*INF
7896	43.7	<3	105	16.5	129	3	<0.2	<1	<10	<5	357	31.4	<10	10	<5
7897	44.9	6	82.9	19.2	148	2	<0.2	<1	<10	<5	641	39.9	<10	10	<5

Work Order: 016147 **Date:** 30/08/97 **FINAL**

Element.	Zn	As	Sr	Y	Zr	Mo	Ag	Cd	Sn	Sb	Ba	La	W	Pb	Bi
Method.	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80	ICP80
Det.Lim.	0.5	3	0.5	0.5	0.5	1	0.2	1	10	5	1	0.5	10	2	5
Units.	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
7898	8.9	<3	3990	32.7	11.8	3	<0.2	<1	<10	6	1360	3.0	<10	9	<5
7899	5.6	<3	1490	62.2	9.2	2	<0.2	<1	<10	<5	2180	5.8	<10	<2	<5
7900	1.6	<3	340	79.7	3.4	2	<0.2	<1	<10	7	483	4.6	<10	5	<5
*Dup 7838	39.8	<3	72.0	5.0	7.7	<1	<0.2	<1	<10	8	221	2.0	<10	11	<5
*Dup 7850	11.9	<3	238	9.4	23.3	4	<0.2	<1	<10	<5	707	7.2	<10	7	<5
*Dup 7862	37.5	35	615	17.2	86.9	6	<0.2	<1	<10	<5	745	23.6	<10	31	<5
*Dup 7874	15.4	12	2450	7.0	31.9	5	<0.2	<1	<10	6	230	7.1	<10	26	<5
*Dup 7886	26.9	31	833	15.0	78.8	3	<0.2	<1	<10	<5	409	20.8	<10	21	<5
*Dup 7898	9.4	<3	3510	35.2	11.6	4	<0.2	<1	<10	7	1200	2.4	<10	8	<5

XRAL

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SAMPLE	BE PPM ICP ICP-80	NA % ICP ICP-80	MG % ICP ICP-80	AL % ICP ICP-80	P % ICP ICP-80	K % ICP ICP-80	CA % ICP ICP-80	SC PPM ICP ICP-80
79654	<.5	.52	.65	2.73	.03	.72	19.7	4.5
79655	<.5	.17	.60	2.85	.02	.98	23.4	4.8
79656	<.5	.19	.42	2.01	.02	.77	25.8	3.8
79657	<.5	.05	.36	1.50	.02	.56	26.3	3.1
79658	<.5	.06	.41	1.72	.02	.62	24.8	3.4
79659	<.5	.06	.51	2.48	.03	.89	22.6	4.4
79660	3.3	.18	1.29	7.17	.09	2.52	2.61	13.9
79661	<.5	.22	.49	1.79	.02	.66	24.9	3.1
79662	<.5	.16	.44	2.03	.03	.71	22.7	4.0
79663	<.5	.15	.37	1.54	.02	.57	27.0	3.1
79664	<.5	.08	.39	1.94	.02	.72	24.1	3.8
79665	<.5	1.11	.71	2.74	.02	.36	21.4	4.9
79666	<.5	1.04	.52	2.17	.02	.20	22.1	4.4
79667	.6	.64	.54	2.88	.03	.81	19.6	3.8
79668	.6	.51	.61	3.05	.03	.93	20.2	4.5
79669	3.3	.52	1.55	7.99	.06	2.43	2.09	12.4
79670	2.3	.34	1.16	6.14	.05	1.74	9.74	10.0
79671	<.5	.25	.50	2.21	.02	.74	24.0	3.7
79672	<.5	.36	.55	2.64	.02	.71	23.7	4.6
79673	.8	.19	.58	2.83	.03	.93	19.3	5.0
79674	.6	.42	.59	2.85	.03	.87	20.6	4.8
79675	.6	.31	.72	3.18	.03	1.02	21.8	5.9
79676	<.5	.17	.41	1.41	.02	.43	28.2	3.0
79677	<.5	.33	.56	2.29	.02	.66	24.9	4.3
79678	<.5	.21	.49	1.68	.02	.50	25.9	3.5
79679	<.5	.33	.64	2.66	.03	.89	22.7	5.1
79680	<.5	.09	.44	2.27	.02	.84	25.7	4.1
79681	<.5	.39	.46	2.13	.02	.68	23.7	3.9
79682	<.5	.27	.42	2.00	.02	.71	26.1	3.7
79683	<.5	.32	.32	1.34	.01	.38	28.4	3.2
79684	<.5	.37	.29	1.27	.01	.32	27.5	2.6
79685	<.5	.33	.52	2.18	.02	.70	24.6	4.5
79686	<.5	.23	.66	2.53	.03	.85	22.0	4.9
79687	<.5	.07	.40	1.85	.02	.61	23.0	3.1
79688	<.5	.06	.37	1.77	.02	.62	26.1	3.3
79689	<.5	.12	.30	1.51	.02	.52	26.0	2.9
79690	.7	.11	.85	3.59	.04	1.31	18.9	6.8
79691	<.5	.07	.63	2.31	.02	.84	23.1	4.6
79692	<.5	.05	.17	.22	<.01	.08	>30	3.8
79693	<.5	.13	.47	2.04	.02	.75	26.2	4.3

CONCENTRATION TOO HIGH FOR GEOCHEMICAL ANALYSIS

XRAL

20-JUN-97 REPORT 14150 WORKORDER 15516-

SAMPLE	BE PPM ICP ICP-80	NA % ICP ICP-80	MG % ICP ICP-80	AL % ICP ICP-80	P % ICP ICP-80	K % ICP ICP-80	CA % ICP ICP-80	SC PPM ICP ICP-80
79654	<.5	.52	.65	2.73	.03	.72	19.7	4.5
79655	<.5	.17	.60	2.85	.02	.98	23.4	4.8
79656	<.5	.19	.42	2.01	.02	.77	25.8	3.8
79657	<.5	.05	.36	1.50	.02	.56	26.3	3.1
79658	<.5	.06	.41	1.72	.02	.62	24.8	3.4
79659	<.5	.06	.51	2.48	.03	.89	22.6	4.4
79660	3.3	.18	1.29	7.17	.09	2.52	2.61	13.9
79661	<.5	.22	.49	1.79	.02	.66	24.9	3.1
79662	<.5	.16	.44	2.03	.03	.71	22.7	4.0
79663	<.5	.15	.37	1.54	.02	.57	27.0	3.1
79664	<.5	.08	.39	1.94	.02	.72	24.1	3.8
79665	<.5	1.11	.71	2.74	.02	.36	21.4	4.9
79666	<.5	1.04	.52	2.17	.02	.20	22.1	4.4
79667	.6	.64	.54	2.88	.03	.81	19.6	3.8
79668	.6	.51	.61	3.05	.03	.93	20.2	4.5
79669	3.3	.52	1.55	7.99	.06	2.43	2.09	12.4
79670	2.3	.34	1.16	6.14	.05	1.74	9.74	10.0
79671	<.5	.25	.50	2.21	.02	.74	24.0	3.7
79672	<.5	.36	.55	2.64	.02	.71	23.7	4.6
79673	.8	.19	.58	2.83	.03	.93	19.3	5.0
79674	.6	.42	.59	2.85	.03	.87	20.6	4.8
79675	.6	.31	.72	3.18	.03	1.02	21.8	5.9
79676	<.5	.17	.41	1.41	.02	.43	28.2	3.0
79677	<.5	.33	.56	2.29	.02	.66	24.9	4.3
79678	<.5	.21	.49	1.68	.02	.50	25.9	3.5
79679	<.5	.33	.64	2.66	.03	.89	22.7	5.1
79680	<.5	.09	.44	2.27	.02	.84	25.7	4.1
79681	<.5	.39	.46	2.13	.02	.68	23.7	3.9
79682	<.5	.27	.42	2.00	.02	.71	26.1	3.7
79683	<.5	.32	.32	1.34	.01	.38	28.4	3.2
79684	<.5	.37	.29	1.27	.01	.32	27.5	2.6
79685	<.5	.33	.52	2.18	.02	.70	24.6	4.5
79686	<.5	.23	.66	2.53	.03	.85	22.0	4.9
79687	<.5	.07	.40	1.85	.02	.61	23.0	3.1
79688	<.5	.06	.37	1.77	.02	.62	26.1	3.3
79689	<.5	.12	.30	1.51	.02	.52	26.0	2.9
79690	.7	.11	.85	3.59	.04	1.31	18.9	6.8
79691	<.5	.07	.63	2.31	.02	.84	23.1	4.6
79692	<.5	.05	.17	.22	<.01	.08	>30	3.8
79693	<.5	.13	.47	2.04	.02	.75	26.2	4.3

CONCENTRATION TOO HIGH FOR GEOCHEMICAL ANALYSIS

XRAL

20-JUN-97 REPORT 14150 WORKORDER 15516-

SAMPLE	BE PPM ICP ICP-80	NA % ICP ICP-80	MG % ICP ICP-80	AL % ICP ICP-80	P % ICP ICP-80	K % ICP ICP-80	CA % ICP ICP-80	SC P I ICP-(
79694	<.5	.16	.48	1.83	.02	.69	24.7	3.
D 79654	<.5	.56	.70	2.93	.03	.77	21.2	4.
D 79666	<.5	1.10	.54	2.27	.02	.21	22.6	4.
D 79678	<.5	.21	.49	1.67	.02	.49	25.8	3.
D 79690	.7	.12	.89	3.87	.04	1.43	19.9	7.

D - QUALITY CONTROL DUPLICATE

SAMPLE	BE PPM ICP ICP-80	NA % ICP ICP-80	MG % ICP ICP-80	AL % ICP ICP-80	P % ICP ICP-80	K % ICP ICP-80	CA % ICP ICP-80	SC P I ICP-
79694	<.5	.16	.48	1.83	.02	.69	24.7	3.
D 79654	<.5	.56	.70	2.93	.03	.77	21.2	4.
D 79666	<.5	1.10	.54	2.27	.02	.21	22.6	4.
D 79678	<.5	.21	.49	1.67	.02	.49	25.8	3.
D 79690	.7	.12	.89	3.87	.04	1.43	19.9	7.

D - QUALITY CONTROL DUPLICATE

XRAL

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SAMPLE	TI % ICP ICP-80	V PPM ICP ICP-80	CR PPM ICP ICP-80	MN PPM ICP ICP-80	FE % ICP ICP-80	CO PPM ICP ICP-80	NI PPM ICP ICP-80	CU PPM ICP ICP-80
79654	.17	37	35	1940	1.19	46	24	2070
79655	.14	41	11	2610	1.28	29	15	2720
79656	.10	28	5	1610	.86	29	12	1260
79657	.08	25	5	1340	.91	23	11	714
79658	.10	29	21	1960	1.10	31	17	1150
79659	.13	38	12	2350	1.29	36	19	1710
79660	.41	124	96	6290	5.72	17	58	3150
79661	.09	23	24	5080	1.23	3	10	25.7
79662	.12	30	22	1060	1.16	3	10	22.5
79663	.08	21	18	2450	.89	5	10	30.4
79664	.12	29	26	1330	1.15	2	9	197
79665	.16	35	13	2140	1.46	16	18	1020
79666	.12	29	7	2610	1.14	12	13	1090
79667	.16	40	10	1780	1.06	5	13	1200
79668	.16	43	29	2170	1.23	5	15	1770
79669	.44	108	50	1640	3.27	13	39	4100
79670	.31	80	57	2600	2.64	10	29	5740
79671	.11	27	6	3170	1.20	8	12	2580
79672	.15	34	9	2330	1.36	8	12	3620
79673	.15	46	13	2790	1.46	7	15	3880
79674	.15	38	12	2210	1.47	9	14	3910
79675	.18	44	11	1880	1.65	10	17	3640
79676	.08	21	4	3530	1.18	7	10	4230
79677	.13	29	9	2230	1.37	14	14	1600
79678	.09	22	5	4010	1.17	14	14	1550
79679	.13	37	8	4310	1.50	10	18	112
79680	.12	27	6	2390	1.06	5	14	55.3
79681	.13	28	6	1340	.90	4	13	16.8
79682	.10	26	4	1310	.83	3	12	16.2
79683	.07	20	14	2460	1.09	3	11	29.0
79684	.06	17	14	2430	.63	3	8	16.9
79685	.12	31	21	2130	1.11	5	13	15.9
79686	.14	31	27	3960	1.39	7	19	14.7
79687	.09	28	25	3090	1.01	5	9	3710
79688	.10	28	22	5270	1.00	7	11	2580
79689	.09	21	9	2280	.76	7	6	1010
79690	.19	49	31	4990	1.87	16	18	3430
79691	.12	34	24	6870	1.60	13	15	4160
79692	.01	3	2	8420	.44	<1	2	465
79693	.12	27	10	2170	1.28	14	7	5750

XRAL

20-JUN-97 REPORT 14150 WORKORDER 15516-

SAMPLE	TI % ICP ICP-80	V PPM ICP ICP-80	CR PPM ICP ICP-80	MN PPM ICP ICP-80	FE % ICP ICP-80	CO PPM ICP ICP-80	NI PPM ICP ICP-80	CU PPM ICP ICP-80
79654	.17	37	35	1940	1.19	46	24	2070
79655	.14	41	11	2610	1.28	29	15	2720
79656	.10	28	5	1610	.86	29	12	1260
79657	.08	25	5	1340	.91	23	11	714
79658	.10	29	21	1960	1.10	31	17	1150
79659	.13	38	12	2350	1.29	36	19	1710
79660	.41	124	96	6290	5.72	17	58	3150
79661	.09	23	24	5080	1.23	3	10	25.7
79662	.12	30	22	1060	1.16	3	10	22.5
79663	.08	21	18	2450	.89	5	10	30.4
79664	.12	29	26	1330	1.15	2	9	197
79665	.16	35	13	2140	1.46	16	18	1020
79666	.12	29	7	2610	1.14	12	13	1090
79667	.16	40	10	1780	1.06	5	13	1200
79668	.16	43	29	2170	1.23	5	15	1770
79669	.44	108	50	1640	3.27	13	39	4100
79670	.31	80	57	2600	2.64	10	29	5740
79671	.11	27	6	3170	1.20	8	12	2580
79672	.15	34	9	2330	1.36	8	12	3620
79673	.15	46	13	2790	1.46	7	15	3880
79674	.15	38	12	2210	1.47	9	14	3910
79675	.18	44	11	1880	1.65	10	17	3640
79676	.08	21	4	3530	1.18	7	10	4230
79677	.13	29	9	2230	1.37	14	14	1600
79678	.09	22	5	4010	1.17	14	14	1550
79679	.13	37	8	4310	1.50	10	18	112
79680	.12	27	6	2390	1.06	5	14	55.3
79681	.13	28	6	1340	.90	4	13	16.8
79682	.10	26	4	1310	.83	3	12	16.2
79683	.07	20	14	2460	1.09	3	11	29.0
79684	.06	17	14	2430	.63	3	8	16.9
79685	.12	31	21	2130	1.11	5	13	15.9
79686	.14	31	27	3960	1.39	7	19	14.7
79687	.09	28	25	3090	1.01	5	9	3710
79688	.10	28	22	5270	1.00	7	11	2580
79689	.09	21	9	2280	.76	7	6	1010
79690	.19	49	31	4990	1.87	16	18	3430
79691	.12	34	24	6870	1.60	13	15	4160
79692	.01	3	2	8420	.44	<1	2	465
79693	.12	27	10	2170	1.28	14	7	5750

XRAL

20-JUN-97 REPORT 14150 WORKORDER 15516-

SAMPLE	TI % ICP ICP-80	V PPM ICP ICP-80	CR PPM ICP ICP-80	MN PPM ICP ICP-80	FE % ICP ICP-80	CO PPM ICP ICP-80	NI PPM ICP ICP-80	CU PPM ICP ICP-80
79694	.11	24	19	2810	1.19	22	10	366
D 79654	.19	40	26	2030	1.25	47	24	2230
D 79666	.13	30	7	2720	1.19	13	14	1140
D 79678	.09	23	4	3990	1.15	14	14	1510
D 79690	.22	53	38	5360	2.01	17	18	3720

D - QUALITY CONTROL DUPLICATE

XRAL

20-JUN-97 REPORT 14150 WORKORDER 15516-

SAMPLE	TI % ICP ICP-80	V PPM ICP ICP-80	CR PPM ICP ICP-80	MN PPM ICP ICP-80	FE % ICP ICP-80	CO PPM ICP ICP-80	NI PPM ICP ICP-80	CU PPM ICP ICP-80
79694	.11	24	19	2810	1.19	22	10	366
D 79654	.19	40	26	2030	1.25	47	24	2230
D 79666	.13	30	7	2720	1.19	13	14	1140
D 79678	.09	23	4	3990	1.15	14	14	1510
D 79690	.22	53	38	5360	2.01	17	18	3720

D - QUALITY CONTROL DUPLICATE

XRAL

20-JUN-97 REPORT 14150 WORKORDER 15516-

SAMPLE	ZN PPM ICP ICP-80	AS PPM ICP ICP-80	SR PPM ICP ICP-80	Y PPM ICP ICP-80	ZR PPM ICP ICP-80	MO PPM ICP ICP-80	AG PPM ICP ICP-80	CD PPM ICP ICP-80
79654	6.2	<3	789	11.9	76.1	2	.3	<1
79655	9.4	3	1510	11.8	55.4	<1	.5	<1
79656	9.8	<3	1990	6.8	43.7	2	<.2	<1
79657	<.5	5	1940	6.6	34.3	2	<.2	<1
79658	<.5	15	1610	7.5	37.3	3	<.2	<1
79659	1.8	16	1550	9.3	57.0	2	.6	<1
79660	106	30	143	39.0	206	5	.9	<1
79661	12.4	5	2150	6.7	33.5	3	<.2	<1
79662	1.2	6	1130	8.5	51.8	2	<.2	<1
79663	<.5	9	2530	6.4	33.5	4	<.2	<1
79664	8.7	5	1910	9.4	35.0	1	<.2	<1
79665	9.9	9	740	15.1	58.7	<1	<.2	<1
79666	3.2	3	704	22.2	45.0	<1	<.2	<1
79667	13.9	6	1550	11.7	52.6	3	.2	<1
79668	13.9	7	1590	11.8	52.2	4	<.2	<1
79669	42.6	29	182	27.6	160	3	.6	<1
79670	32.9	16	740	27.2	103	4	.9	<1
79671	1.9	13	1820	17.2	101	3	.4	<1
79672	1.8	10	1870	10.9	50.1	3	.2	<1
79673	5.6	7	1090	18.9	64.2	2	.5	<1
79674	6.7	10	1490	11.0	63.0	2	.2	<1
79675	9.3	12	1630	10.6	61.8	2	.3	<1
79676	1.7	3	2220	8.4	32.9	4	.2	<1
79677	2.3	11	1650	9.1	46.1	3	<.2	<1
79678	.5	<3	1400	8.6	31.2	3	<.2	<1
79679	2.2	<3	1260	11.2	51.9	4	<.2	<1
79680	<.5	<3	462	9.7	43.3	2	<.2	<1
79681	<.5	6	1120	9.4	55.7	1	<.2	<1
79682	<.5	9	1810	7.3	41.5	1	<.2	<1
79683	<.5	8	2340	9.3	30.4	3	<.2	<1
79684	5.8	<3	3280	8.1	29.0	4	<.2	<1
79685	4.1	11	2970	10.1	44.5	3	<.2	<1
79686	7.7	<3	1720	11.4	49.7	3	<.2	<1
79687	.9	<3	2070	9.3	40.8	5	<.2	<1
79688	<.5	9	2510	6.1	32.4	3	<.2	<1
79689	<.5	9	2850	6.5	35.5	2	<.2	<1
79690	12.2	20	1280	10.9	75.1	2	<.2	<1
79691	5.1	8	1680	9.2	41.9	4	<.2	<1
79692	<.5	<3	768	42.1	5.7	<1	<.2	<1
79693	<.5	10	1150	11.8	42.1	2	.3	<1

XRAL

20-JUN-97 REPORT 14150 WORKORDER 15516-

SAMPLE	ZN PPM ICP ICP-80	AS PPM ICP ICP-80	SR PPM ICP ICP-80	Y PPM ICP ICP-80	ZR PPM ICP ICP-80	MO PPM ICP ICP-80	AG PPM ICP ICP-80	CD PPM ICP ICP-80
79654	6.2	<3	789	11.9	76.1	2	.3	<1
79655	9.4	3	1510	11.8	55.4	<1	.5	<1
79656	9.8	<3	1990	6.8	43.7	2	<.2	<1
79657	<.5	5	1940	6.6	34.3	2	<.2	<1
79658	<.5	15	1610	7.5	37.3	3	<.2	<1
79659	1.8	16	1550	9.3	57.0	2	.6	<1
79660	106	30	143	39.0	206	5	.9	<1
79661	12.4	5	2150	6.7	33.5	3	<.2	<1
79662	1.2	6	1130	8.5	51.8	2	<.2	<1
79663	<.5	9	2530	6.4	33.5	4	<.2	<1
79664	8.7	5	1910	9.6	35.0	1	<.2	<1
79665	9.9	9	740	15.1	58.7	<1	<.2	<1
79666	3.2	3	704	22.2	45.0	<1	<.2	<1
79667	13.9	6	1550	11.7	52.6	3	.2	<1
79668	13.9	7	1590	11.8	52.2	4	<.2	<1
79669	42.6	29	182	27.6	160	3	.6	<1
79670	32.9	16	740	27.2	103	4	.9	<1
79671	1.9	13	1820	17.2	101	3	.4	<1
79672	1.8	10	1870	10.9	50.1	3	.2	<1
79673	5.6	7	1090	18.9	64.2	2	.5	<1
79674	6.7	10	1490	11.0	63.0	2	.2	<1
79675	9.3	12	1630	10.6	61.8	2	.3	<1
79676	1.7	3	2220	8.4	32.9	4	.2	<1
79677	2.3	11	1650	9.1	46.1	3	<.2	<1
79678	.5	<3	1400	8.6	31.2	3	<.2	<1
79679	2.2	<3	1260	11.2	51.9	4	<.2	<1
79680	<.5	<3	462	9.7	43.3	2	<.2	<1
79681	<.5	6	1120	9.4	55.7	1	<.2	<1
79682	<.5	9	1810	7.3	41.5	1	<.2	<1
79683	<.5	8	2340	9.3	30.4	3	<.2	<1
79684	5.8	<3	3280	8.1	29.0	4	<.2	<1
79685	4.1	11	2970	10.1	44.5	3	<.2	<1
79686	7.7	<3	1720	11.4	49.7	3	<.2	<1
79687	.9	<3	2070	9.3	40.8	5	<.2	<1
79688	<.5	9	2510	6.1	32.4	3	<.2	<1
79689	<.5	9	2850	6.5	35.5	2	<.2	<1
79690	12.2	20	1280	10.9	75.1	2	<.2	<1
79691	5.1	8	1680	9.2	41.9	4	<.2	<1
79692	<.5	<3	768	42.1	5.7	<1	<.2	<1
79693	<.5	10	1150	11.8	42.1	2	.3	<1

XRAL

20-JUN-97 REPORT 14150 WORKORDER 15516-

SAMPLE	ZN PPM ICP ICP-80	AS PPM ICP ICP-80	SR PPM ICP ICP-80	Y PPM ICP ICP-80	ZR PPM ICP ICP-80	MO PPM ICP ICP-80	AG PPM ICP ICP-80	CD PPM ICP ICP-80
79694	.9	25	1400	7.9	38.0	3	<.2	<1
D 79654	5.4	<3	874	12.8	77.1	2	<.2	<1
D 79666	2.2	<3	728	23.0	53.3	2	.2	<1
D 79678	<.5	4	1380	8.6	32.6	3	<.2	<1
D 79690	13.3	17	1370	11.3	73.7	2	.3	<1

D - QUALITY CONTROL DUPLICATE

XRAL

20-JUN-97 REPORT 14150 WORKORDER 15516-

SAMPLE	ZN PPM ICP ICP-80	AS PPM ICP ICP-80	SR PPM ICP ICP-80	Y PPM ICP ICP-80	ZR PPM ICP ICP-80	MO PPM ICP ICP-80	AG PPM ICP ICP-80	CD PPM ICP ICP-80
79694	.9	25	1400	7.9	38.0	3	<.2	<1
D 79654	5.4	<3	874	12.8	77.1	2	<.2	<1
D 79666	2.2	<3	728	23.0	53.3	2	.2	<1
D 79678	<.5	4	1380	8.6	32.6	3	<.2	<1
D 79690	13.3	17	1370	11.3	73.7	2	.3	<1

D - QUALITY CONTROL DUPLICATE

XRAL

20-JUN-97 REPORT 14150 WORKORDER 15516-

SAMPLE	SN PPM ICP ICP-80	SB PPM ICP ICP-80	BA PPM ICP ICP-80	LA PPM ICP ICP-80	W PPM ICP ICP-80	PB PPM ICP ICP-80	BI PPM ICP ICP-80
79654	<10	<5	464	10.3	<10	7	INF
79655	<10	<5	465	12.4	<10	9	INF
79656	<10	<5	344	7.9	<10	9	INF
79657	<10	<5	282	7.6	<10	12	8
79658	<10	<5	332	9.1	<10	16	INF
79659	<10	<5	585	12.5	<10	18	INF
79660	<10	6	1190	53.8	<10	25	INF
79661	<10	5	249	8.6	<10	16	6
79662	<10	<5	509	9.9	<10	9	6
79663	<10	<5	234	7.0	<10	10	7
79664	<10	<5	285	14.5	<10	4	7
79665	<10	<5	333	10.3	<10	7	INF
79666	<10	<5	327	10.6	<10	5	INF
79667	<10	<5	191	5.9	<10	18	INF
79668	<10	5	230	6.4	<10	18	INF
79669	<10	<5	594	30.8	<10	7	INF
79670	<10	<5	430	23.5	<10	8	INF
79671	<10	<5	171	13.6	<10	12	INF
79672	<10	<5	214	10.6	<10	9	INF
79673	<10	<5	403	14.2	<10	6	INF
79674	<10	<5	175	9.7	<10	8	INF
79675	<10	<5	241	12.2	<10	8	INF
79676	<10	10	135	6.4	<10	11	INF
79677	<10	<5	172	9.8	<10	12	INF
79678	<10	<5	257	10.1	<10	10	INF
79679	<10	<5	534	12.1	<10	12	6
79680	<10	<5	292	10.7	<10	5	6
79681	<10	<5	314	9.9	<10	6	6
79682	<10	<5	125	8.4	<10	8	6
79683	<10	<5	121	12.2	<10	10	8
79684	<10	<5	400	8.5	<10	5	8
79685	<10	<5	197	11.6	<10	9	9
79686	<10	<5	207	12.2	<10	9	8
79687	<10	<5	280	6.9	<10	7	INF
79688	<10	<5	236	7.9	<10	12	INF
79689	<10	<5	197	7.1	<10	7	INF
79690	<10	<5	472	11.4	<10	10	INF
79691	<10	<5	265	11.1	<10	8	INF
79692	<10	<5	45	9.6	<10	<2	5
79693	<10	<5	377	9.5	<10	5	INF

INF - COMPOSITION MAKES DETECTION IMPOSSIBLE BY THIS METHOD

XRAL

20-JUN-97 REPORT 14150 WORKORDER 15516-

SAMPLE	SN PPM ICP ICP-80	SB PPM ICP ICP-80	BA PPM ICP ICP-80	LA PPM ICP ICP-80	W PPM ICP ICP-80	PB PPM ICP ICP-80	BI PPM ICP ICP-80
79654	<10	<5	464	10.3	<10	7	INF
79655	<10	<5	465	12.4	<10	9	INF
79656	<10	<5	344	7.9	<10	9	INF
79657	<10	<5	282	7.6	<10	12	8
79658	<10	<5	332	9.1	<10	16	INF
79659	<10	<5	585	12.5	<10	18	INF
79660	<10	6	1190	53.8	<10	25	INF
79661	<10	5	249	8.6	<10	16	6
79662	<10	<5	509	9.9	<10	9	6
79663	<10	<5	234	7.0	<10	10	7
79664	<10	<5	285	14.5	<10	4	7
79665	<10	<5	333	10.3	<10	7	INF
79666	<10	<5	327	10.6	<10	5	INF
79667	<10	<5	191	5.9	<10	18	INF
79668	<10	5	230	6.4	<10	18	INF
79669	<10	<5	594	30.8	<10	7	INF
79670	<10	<5	430	23.5	<10	8	INF
79671	<10	<5	171	13.6	<10	12	INF
79672	<10	<5	214	10.6	<10	9	INF
79673	<10	<5	403	14.2	<10	6	INF
79674	<10	<5	175	9.7	<10	8	INF
79675	<10	<5	241	12.2	<10	8	INF
79676	<10	10	135	6.4	<10	11	INF
79677	<10	<5	172	9.8	<10	12	INF
79678	<10	<5	257	10.1	<10	10	INF
79679	<10	<5	534	12.1	<10	12	6
79680	<10	<5	292	10.7	<10	5	6
79681	<10	<5	314	9.9	<10	6	6
79682	<10	<5	125	8.4	<10	8	6
79683	<10	<5	121	12.2	<10	10	8
79684	<10	<5	400	8.5	<10	5	8
79685	<10	<5	197	11.6	<10	9	9
79686	<10	<5	207	12.2	<10	9	8
79687	<10	<5	280	6.9	<10	7	INF
79688	<10	<5	236	7.9	<10	12	INF
79689	<10	<5	197	7.1	<10	7	INF
79690	<10	<5	472	11.4	<10	10	INF
79691	<10	<5	265	11.1	<10	8	INF
79692	<10	<5	45	9.6	<10	<2	5
79693	<10	<5	377	9.5	<10	5	INF

INF - COMPOSITION MAKES DETECTION IMPOSSIBLE BY THIS METHOD

XRAL

20-JUN-97 REPORT 14150 WORKORDER 15516-

SAMPLE	SN PPM ICP ICP-80	SB PPM ICP ICP-80	BA PPM ICP ICP-80	LA PPM ICP ICP-80	W PPM ICP ICP-80	PB PPM ICP ICP-80	BI PPM ICP ICP-80
79694	<10	<5	256	9.4	<10	12	6
79654	<10	<5	494	11.5	<10	8	INF
79666	<10	<5	338	10.7	<10	5	INF
79678	<10	<5	258	9.9	<10	9	INF
79690	<10	<5	492	12.2	<10	10	INF

D - QUALITY CONTROL DUPLICATE
INF - COMPOSITION MAKES DETECTION IMPOSSIBLE BY THIS METHOD

Appendix 3

Bourlimaque Assay Certificates

C.P. / P.O. 550 148, AVENUE PERREAULT VAL D'OR (QUÉBEC) J9P 4P5 TÉL.: (819) 824-433
FAX: (819) 824-474

LABORATOIRE D'ANALYSE BOURLAMAQUE LTÉE
BOURLAMAQUE ASSAY LABORATORIES LTD.

CERTIFICAT D'ANALYSES
CERTIFICATE OF ANALYSIS

Nº 70048

Fenton Scott Management Inc.

ÉCHANTILLONS
SAMPLES

RECU DE
RECEIVED FROM William G. Shaw

VAL D'OR (QUÉBEC) August 13, 19 97

ANALYSES
ASSAYS 9 Cu, 9 Ag
Geochemical

Sample No.	Cu ppm	Ag ppm
LL-T97-01	200	<0.5
02	200	<0.5
03	70	<0.5
04	240	<0.5
05	85	<0.5
06	40	<0.5
07	40	<0.5
08	40	<0.5
09	35	<0.5

< = less than

ANALYSTE / ASSAYER

C.P. / P.O. 550 148, AVENUE PERREAULT VAL D'OR (QUÉBEC) J9P 4P5 TÉL.: (819) 824-4337
FAX: (819) 824-4745

SOIL SAMPLES
LOCHABOR

LABORATOIRE D'ANALYSE BOURLAMAQUE LTÉE
BOURLAMAQUE ASSAY LABORATORIES LTD.

Fenton Scott Management Inc.

CERTIFICAT D'ANALYSES
CERTIFICATE OF ANALYSIS

N° 70049

ÉCHANTILLONS
SAMPLES

VAL D'OR (QUÉBEC) August 13, 19 97

REÇU DE
RECEIVED FROM William G. Shaw

ANALYSES
ASSAYS 26 Cu, 26 Ag Geochemical

Sample No.	Cu ppm	Ag ppm
LL-T97-10	55	<0.5
11	315	<0.5
12	80	<0.5
13	65	<0.5
14	50	<0.5
15	45	<0.5
16	135	<0.5
17	60	<0.5
18	50	<0.5
19	45	<0.5
20	910	4.0
21	465	1.5
22	160	<0.5
23	860	4.5
24	535	2.0
25	310	2.0
26	160	1.5
27	375	1.0
28	30	<0.5
29	30	<0.5
30	40	<0.5
31	35	<0.5
32	65	<0.5
33	45	<0.5
34	1400	<0.5
35	2150	0.5

< = less than

ANALYSTE / ASSAYER

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FAX: (819) 824-4745

LABORATOIRE D'ANALYSE BOURLAMAQUE LTÉE
BOURLAMAQUE ASSAY LABORATORIES LTD.

Goliath Copper Fields Ltd.

ÉCHANTILLONS / SAMPLES: Soil

REÇU DE / RECEIVED FROM: Jason Ross

CERTIFICAT D'ANALYSES
CERTIFICATE OF ANALYSIS

N° 70184

VAL D'OR (QUÉBEC) September 11 19 97

ANALYSES / ASSAYS: 16 Ag, 16 Cu Geochemical

Sample No.	Ag ppm	Cu ppm
36	<0.5	118
37	<0.5	62
38	<0.5	167
39	<0.5	80
40	<0.5	32
41	<0.5	87
42	<0.5	38
43	<0.5	84
44	<0.5	38
45	<0.5	50
46	<0.5	50
47	<0.5	22
48	<0.5	28
49	<0.5	25
50	<0.5	45
51	<0.5	48

< = less than

ANALYSTE / ASSAYER

[illegible] AVENUE PERREAULT VAL D'OR (QUÉBEC) J9P 4P5
TÉL.: (819) 824-433
FAX: (819) 824-474

LABORATOIRE D'ANALYSE BOURLAMAQUE LTÉE
BOURLAMAQUE ASSAY LABORATORIES LTD.

Goliath Copper Fields Ltd.

ÉCHANTILLONS / SAMPLES: Soil

REÇU DE / RECEIVED FROM: Jason Ross

CERTIFICAT D'ANALYSES
CERTIFICATE OF ANALYSIS

N° 70213

VAL D'OR (QUÉBEC) September 16 19 97

ANALYSES / ASSAYS: 22 Ag, 22 Cu Geochemical

Sample No.	Ag ppm	Cu ppm
52	<0.5	38
53	<0.5	37
54	<0.5	34
55	<0.5	50
56	<0.5	63
57	<0.5	37
58	<0.5	34
59	<0.5	56
60	<0.5	53
61	<0.5	29
62	<0.5	28
63	<0.5	38
64	<0.5	33
65	<0.5	31
66	<0.5	33
67	<0.5	31
68	0.7	8
69	<0.5	24
70	<0.5	18
71	<0.5	33
72	<0.5	29
73	<0.5	39

< = less than

ANALYSTE / ASSAYER

Department of Natural Resources

Form No. 10

MAP 11E8D
REFS.

Rec'd 04/04/98 A

STATEMENT OF ASSESSMENT WORK EXPENDITURES

(N.B. Complete as necessary to substantiate the total claimed)

RE: EXPLORATION LICENCE NO. 1672 DATE OF ISSUE March 7, 1995 19 95

TYPE OF WORK			AMOUNT SPENT
1. Prospecting		days	
2. Geological mapping		days	
3. Trenching/Stripping/Refilling	8069	m³	5959.00
4. Assaying & whole rock analysis	73 Geochem + Drill + trench	#	3956.73
5. Other laboratory		#	
6. Grid: a) Linecutting	2.5	km	590.00
b) Picket setting	2.5	km	200.00
c) Flagging		km	
7. Geophysical Surveys:			
Airborne: a) EM		km	
b) Mag or Grad		km	
c) Radiometric		km	
d) Combination		km	
e) Other		km	
8. Geophysical Surveys:			
Ground: a) EM		km	
b) Seismic Soundings		#	
c) Magnetic/telluric		km	
d) IP/Resistivity		km	
e) Gravity		km	
f) Other		km	
9. Geochemical Surveys:			
a) Lake, stream, spring (seds/water)		samples	
b) Rock/core/chips		samples	
c) Soil/Overburden	73	samples	4500.00
d) Gas Method		samples	
e) Biogeochemistry		samples	
f) Sample Collection		days	
g) Other			
10. Drilling:			
a) Diamond (#holes/m)	3 / 303.9	m	16176
b) Percussion (#hole/m)	/	m	
c) Rotary (#hole/m)	/	m	
d) Auger (#holes/m)	/	m	
e) Reverse circulation (#holes/m)	/	m	
f) Logging, supervision etc. Glen. Covey. + Splitting	7 /	days	700
g) Sealing (# holes)			
11. Other: (describe) Jason Ross May - Sept			15000.00
Sample shipment			633.06
		SUBTOTAL	47714.79

OVERHEAD COSTS	
12. Secretarial Services	
13. Drafting Services	
14. Office Expenses (rent, heat, light etc.) May Sept.	3750.00
15. Field Supplies	549.49
16. Compensation Paid to Landowners	1500.00
17. Legal Fees	
18. Other (describe)	
SUBTOTAL	5799.49
TOTAL	53514.28

RECEIVED MAR 10 1998 MINERAL DEVELOPMENT

I hereby certify that the above information is true and correct and that it has not before been submitted for assessment work credit.

As an agent I am duly authorized to make this certification.
(Position in Company or Licensee)

DATED AT Antigonish in the Province of Nova Scotia

this 7 day of March 19 97.

Name and Address of Licensee: 34 Faccmont Antigonish, Nova Scotia

Signature J Ross