Fronteer
development group inc

2.25014

Geological, Geochemical and Geophysical Report

PORTAGE PROPERTY, BIRCH-UCHI GREENSTONE BELT

Skinner and Goodall Townships and Shabu Lake Area, Red Lake Mining Division, NW Ontario

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PORTAGE PROPERTY, BIRCH-UCHI GREENSTONE BELT

Skinner and Goodall Townships and Shabu Lake Area, Red Lake Mining Division, NW Ontario

2.25014

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Dates of work: April 28 to May 6, 2002, July 21, 2002, August 4 to September 1, 2002.
Date of report: December 5, 2002.

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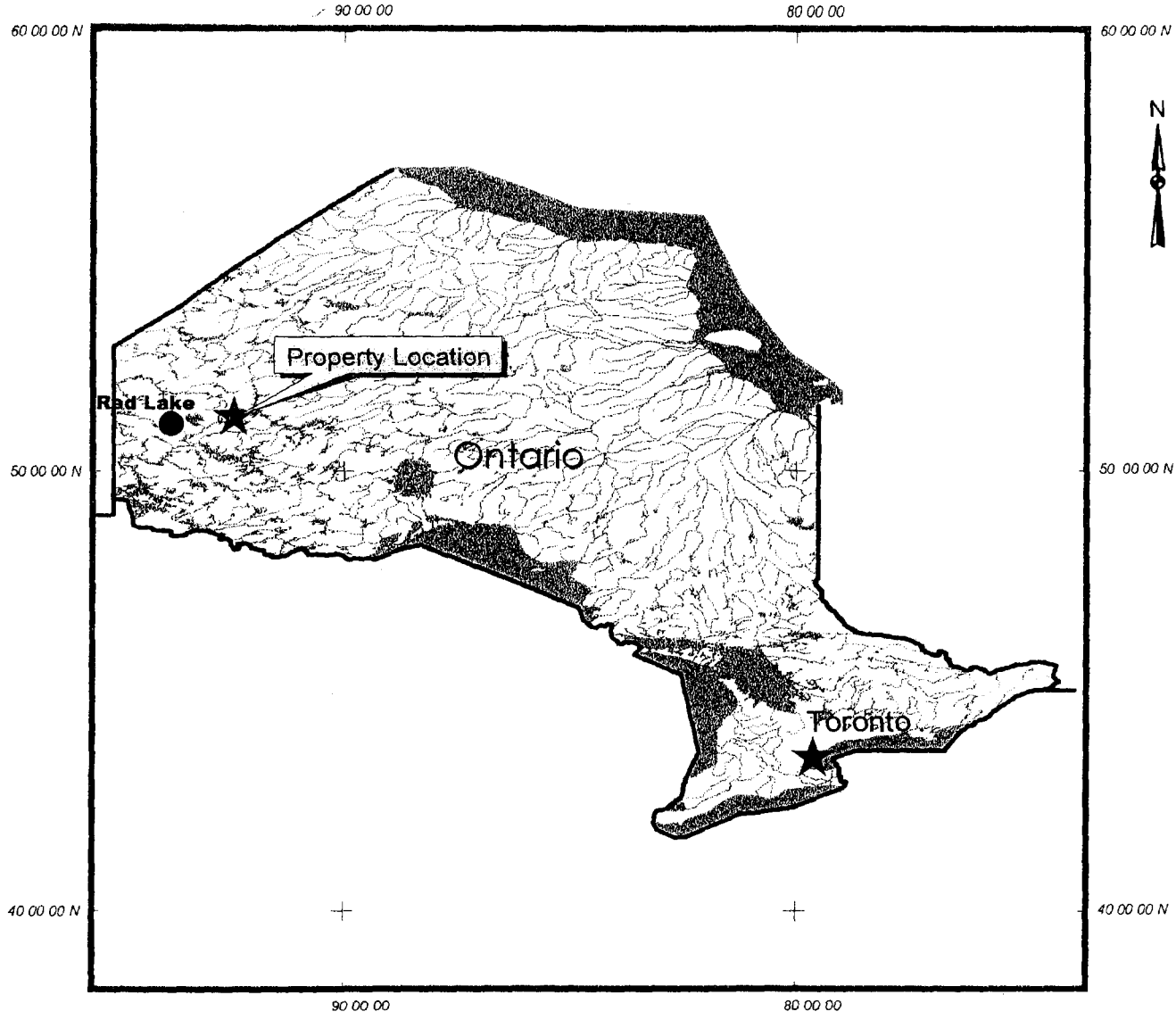
1.0 INTRODUCTION

The Portage Property is a quartz vein hosted gold target, located within the Birch-Uchi Greenstone Belt, an area of historic gold mining and exploration in Northwestern Ontario (Figure 1). The Birch-Uchi Belt lies approximately 100 kilometres east-northeast of the Red Lake gold mining camp. Fronteer Development Group Inc. staked the claims which comprise the Portage Property between February and April of 2002. The ground was staked based on the geological and structural setting and historical reports of gold mineralization.

2.0 PROPERTY DESCRIPTION AND LOCATION

The Portage Property consists of a large, irregular block of claims occupying much of Skinner Township and overlaping into Goodall Township and the Shabu Lake Area, within the Red Lake Mining Division of Ontario (Figure 2). Universal Transverse Mercator co-ordinates for the approximate centre of the property are 512000E, 5676500N (Map Datum NAD 83).

The property, covering an area of 5344 hectares, consists of 27 contiguous, unpatented mineral claims. Fronteer Development Group Inc. holds 100 % title to the claims. Table 1 summarizes the claim data and assessment work requirements for the property.

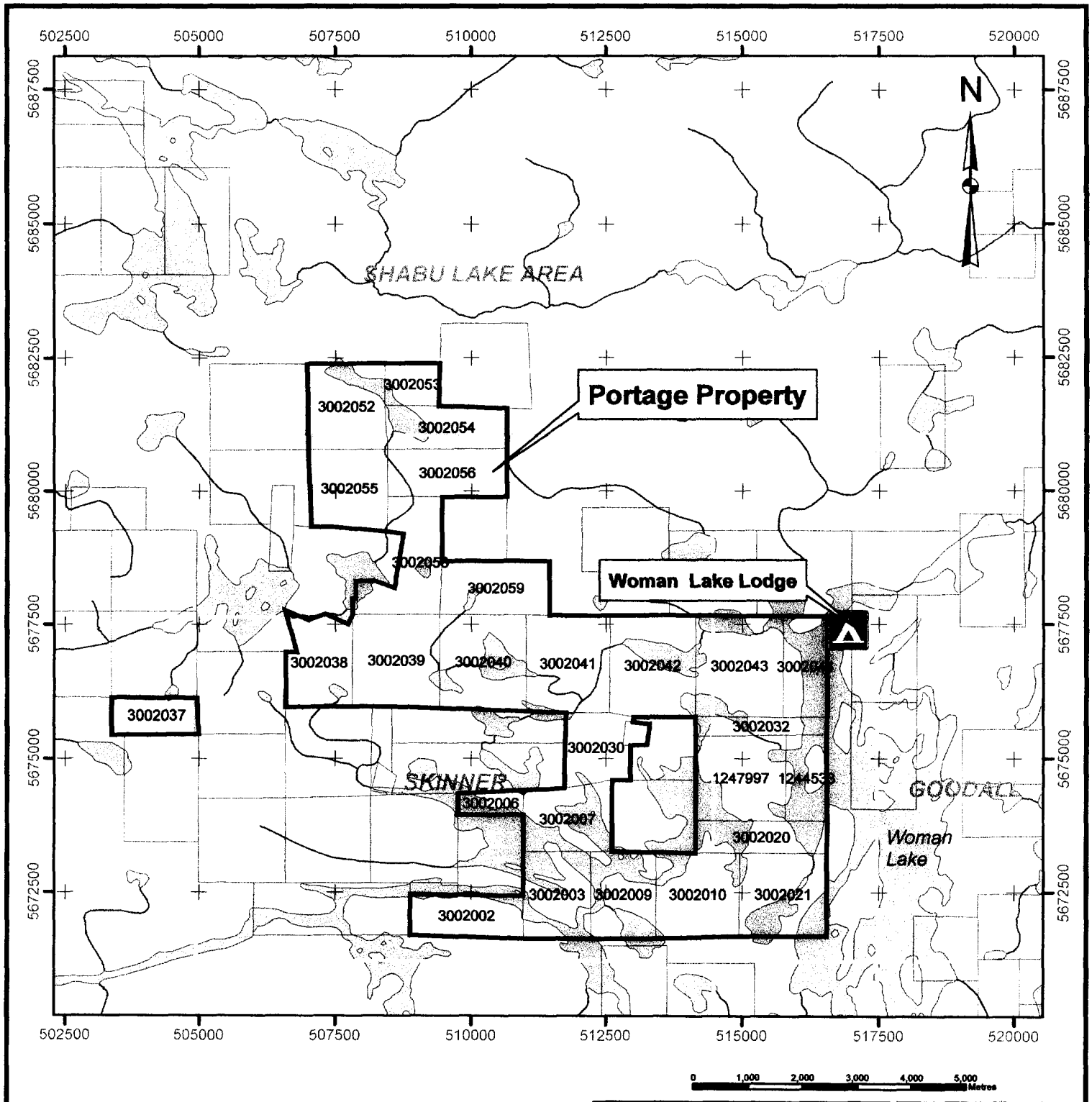


200 0 200 400 600 Kilometers

Fronteer Development Group Inc.

Property Location Map

Figure No.	Scale:	Date:
1	As Shown	November, 2001



Notes:

1. Datum : NAD83
2. UTM Zone: 15
3. NTS 052N
4. Topography derived from 1:250,000 scale digital OGS files
5. Claim Boundaries NOT SURVEYED, locations derived from OGS

Fronteer Development Group Inc.

Portage Property Claim Map

Figure No.	Scale:	Date:
2	As Shown	November, 2002

Table 1 Portage Property , Claim Data

Property Name	Claim Number	Number of 16 Hectare Units	Expiry Date	Work Required
Portage	KRL 1244533	8	2004-FEB-07	$3,200.00
Portage	KRL 1247997	16	2004-FEB-07	$6,400.00
Portage	KRL 3002002	10	2004-APR-15	$4,000.00
Portage	KRL 3002003	12	2004-APR-15	$4,800.00
Portage	KRL 3002006	3	2004-APR-15	$1,200.00
Portage	KRL 3002007	12	2004-APR-15	$4,800.00
Portage	KRL 3002009	12	2004-APR-15	$4,800.00
Portage	KRL 3002010	16	2004-APR-15	$6,400.00
Portage	KRL 3002020	9	2004-APR-15	$3,600.00
Portage	KRL 3002021	16	2004-APR-15	$6,400.00
Portage	KRL 3002030	12	2004-APR-15	$4,800.00
Portage	KRL 3002032	9	2004-APR-15	$3,600.00
Portage	KRL 3002037	8	2004-APR-15	$3,200.00
Portage	KRL 3002038	15	2004-APR-15	$6,000.00
Portage	KRL 3002039	16	2004-APR-15	$6,400.00
Portage	KRL 3002040	16	2004-APR-15	$6,400.00
Portage	KRL 3002041	16	2004-APR-15	$6,400.00
Portage	KRL 3002042	16	2004-APR-15	$6,400.00
Portage	KRL 3002043	16	2004-APR-15	$6,400.00
Portage	KRL 3002044	8	2004-APR-15	$3,200.00
Portage	KRL 3002052	16	2004-APR-15	$6,400.00
Portage	KRL 3002053	5	2004-APR-15	$2,000.00
Portage	KRL 3002054	12	2004-APR-15	$4,800.00
Portage	KRL 3002055	16	2004-APR-15	$6,400.00
Portage	KRL 3002056	12	2004-APR-15	$4,800.00
Portage	KRL 3002058	14	2004-APR-15	$5,600.00
Portage	KRL 3002059	13	2004-APR-15	$5,200.00

3.0 ACCESSIBILITY, CLIMATE AND PHYSIOGRAPHY

The eastern part of the Portage Property was accessed via motorboat from the Woman Lake Lodge, located near the northeast corner of the property. The lodge can be reached by driving approximately 50 kilometres northeast from the town of Ear Falls along the South Bay Mine Road to a boat landing on the south end of Woman Lake. A boat can then be taken up Woman Lake to the lodge, approximately 35 kilometres to the north. Motorboats were used to access the property from the lodge. The northeastern part of the property was accessed via the Mosier chain of lakes, which are connected to Woman Lake. The southern part of the property was accessed from Narrow Lake, which is accessible via a short portage from Woman Lake. The western part of the property was

accessed by driving north along the Joyce Road and then hiking in to the property. The road crosses through the northwestern corner of the property.

Topography on the property is gentle, with elevations ranging from 395 to 430 metres above sea level. The area is covered by a mixed forest of mostly spruce, poplar and birch, with swampy vegetation in low-lying areas. Temperatures range from highs of 25° C in summer to lows of –30° C in winter, with snow cover between November and May. The best season for exploration is between June and October, although in lake covered or swampy areas exploration activities such as geophysical surveys and diamond drilling might best be carried out after winter freeze up.

4.0 PROPERTY HISTORY

The following information describes historical exploration work conducted by previous operators on the area now covered by Fronteer's Portage Property. The historical information is primarily based on Ontario Government reports and assessment files housed in the Resident Geologist's Office of Red Lake, Ontario.

Woman Lake/Narrow Lake Portage Area

- In **1928** Ontario Woman Lake Gold Mines Limited conducted trenching and stripping and diamond drilling in the area between Woman and Narrow Lakes. They claim to have drilled 8 holes, totalling 1404 feet, on quartz veins in this area. veins. The company reported drill intersections of up to 0.54 ounces gold per ton across 29 feet. (Williams 1928, Medicine Rock Gold Mines 1934)

- From **1969 to 1971** Vanco Exploration Limited conducted airborne magnetic and electromagnetic surveys, ground magnetic, self-potential and electromagnetic surveys, rock sampling and geological mapping and diamond drilling (Bergmann 1970, Bergmann 1971, George 1969, George 1969a, George 1969b, Hlava 1970, Hlava 1970a, Hlava 1970b, Ryan 1971). The surveyed area covered part of the current property.

- In **1988** Noramco Explorations Inc. conducted airborne magnetic and electromagnetic surveys over part of the current property (Barrie 1988).

Northwestern Woman Lake

- Several shear zone and quartz vein occurrences near the western shore of northern Woman Lake, were examined by Noramco in **1987 and 1988**. They conducted sampling, geological mapping, ground geophysics and diamond drilling The best results from grab samples reportedly ranged between 114 and 5111 ppb gold. A drill hole reportedly intersected 180 ppb gold across 12 metres (Parker and Atkinson, 1992).

Mosier Lake Area

- In **1987 and 1988** Noramco conducted exploration consisting of geophysics, prospecting, trenching, geological mapping and diamond drilling on narrow northeast trending shear zones west of Mosier Lake. Two holes, totalling 509 metres are reported to have been drilled. A grab sample from a quartz vein reportedly assayed 1.14 ounces per ton gold. The highest reported gold value from diamond drilling in this area was 210 ppb over 1 metre (Parker and Atkinson, 1992).

Leonard Lake Area

- In **1927** Leonard Narrow Lake Mines Ltd. conducted stripping and trenching on two separate areas of east-trending quartz veins in the vicinity of Leonard Lake. In the period between **1967 and 1988** airborne and/or ground geophysics was conducted by Leonard Narrow Lake Mines Ltd., Madsen Red Lake Gold Mines Ltd., C.C. Huston and Associates and Canadian Eagle Exploration Inc. No specific gold values have been reported from the showings (Parker and Atkinson, 1992).

5.0 FRONTEER EXPLORATION PROGRAM IN 2002

Fugro Airborne Surveys conducted airborne magnetic and electromagnetic surveys for Fronteer on part of the Portage Property and two other properties between April 28 and May 6, 2002. A total of 98.1 line kilometres were flown over the Portage Property.

A four man ground exploration program was conducted intermittently between July 21 and September 1, 2002. The program consisted of prospecting, geological mapping, rock sampling and soil sampling. Ninety-three man-days were spent on the property and 236 soil samples and 161 rock samples were collected. The field crew consisted of Fronteer geologists, Robert Falls, Harvey Klatt, Matthew Lennox-King and prospector Ted Archibald.

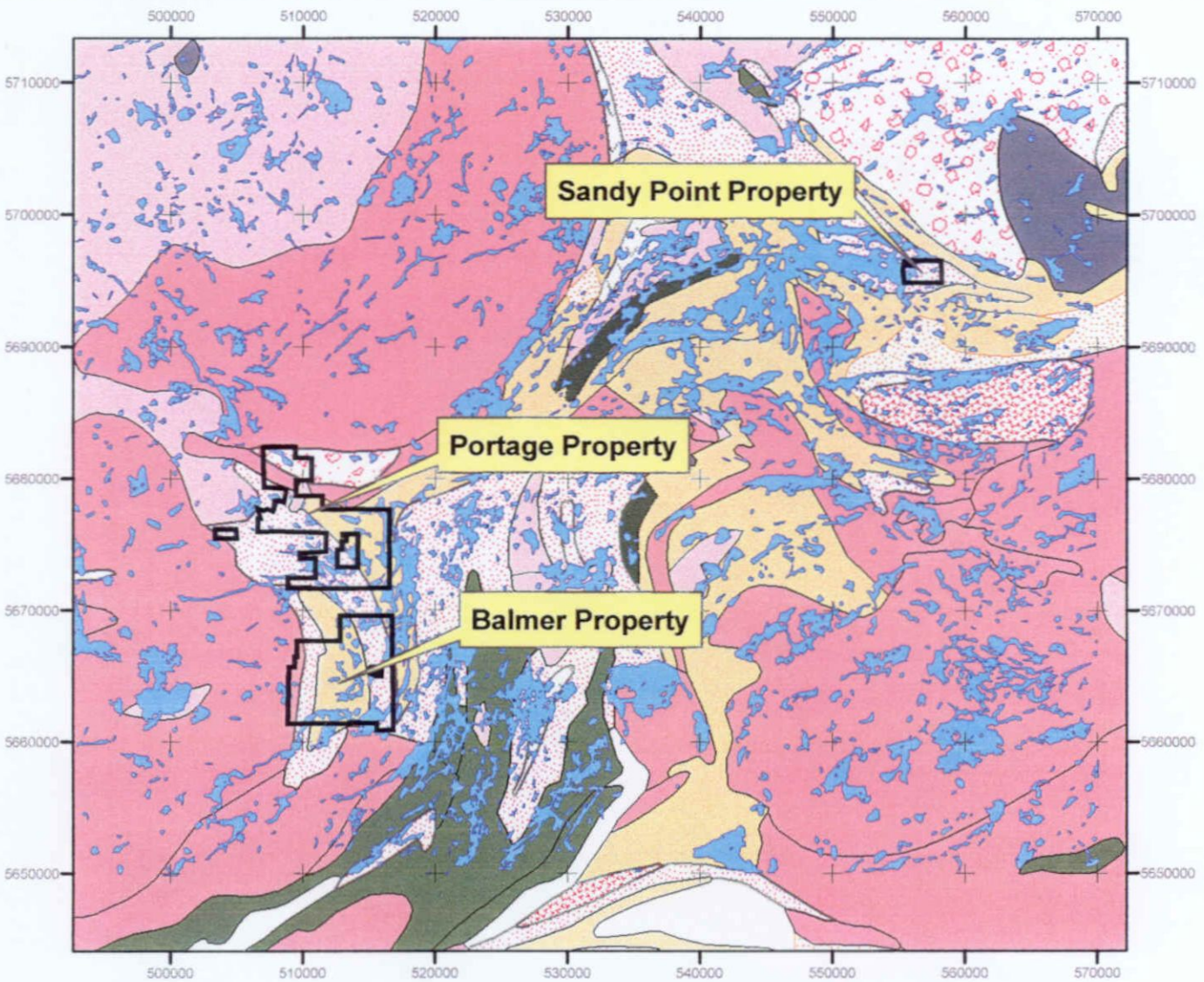
6.0 GEOLOGICAL SETTING

6.1 REGIONAL GEOLOGY

The Portage Property lies within the Archean Birch-Uchi Greenstone Belt of the western Uchi Subprovince of NW Ontario (Figure 3). This belt records a stratigraphic history that spanned approximately 290 Ma, involving repeated episodes of rifting, and associated depositional and magmatic phases. Unconformity-bounded sequences of mafic to felsic volcanic strata and primarily clastic sedimentary strata accumulated between ca. 2992 Ma and 2700 Ma upon a complex extensional architecture, which largely formed the template upon which later compressional structures were superimposed.

Supracrustal strata in the belt have been subdivided into 3 volcano-sedimentary mega-cycles (Scott & Corfu 1991, Thurston 1985b) each comprising variably mafic to felsic volcanic strata and subordinate clastic sedimentary strata. From oldest to youngest these mega-cycles are comprise the following assemblages:

The Balmer Assemblage (2987 Ma) is primarily an Fe-tholeiitic sequence of mafic volcanic strata, with minor interbeds of banded iron formation. The distribution of this



PreCambrian

- Paragneisses and migmatites
- Potassium feldspar megacrystic units
- Basaltic and andesitic flows, tuffs and breccias, chert, iron formation, minor metasedimentary and intrusive rocks, related migmatites
- Gabbro, anorthosite, ultramafic rocks
- Mafic metavolcanic rocks, minor iron formation
- Coarse clastic metasedimentary rocks, marble, quartz arenite, iron formation, komatiite, mafic metavolcanic rocks, and minor felsic metavolcanic rocks
- Massive to foliated granodiorite to granite
- Metavolcanic rocks, minor metasedimentary rocks, mafic gneisses of uncertain protolith, granitic gneisses
- Rhyolitic, rhyodacitic, dacitic and andesitic flows, tuffs and breccias, chert, iron formation, minor metasedimentary and intrusive rocks; related migmatites
- Tonalite, granodiorite, monzonite, granite, syenite; derived gneisses
- Clastic Metasediments

0 5 10 15 20 25 Kilometres

Notes:

1. Datum : NAD83
2. UTM Zone: 15
3. NTS 052N
4. Topography derived from 1:250,000 scale digital OGS files
5. Claim Boundaries NOT SURVEYED, locations derived from OGS

Fronteer Development Group Inc.

Regional Geology Map

Figure No.	Scale:	Date:
3	As Shown	November, 2002

assemblage is restricted to the extreme western edge of the Birch-Uchi Belt immediately adjacent to the Trout Lake Batholith.

The Woman Assemblage (2858 Ma) is also primarily an Fe-tholeiitic sequence of mafic volcanic strata, with minor interbeds of banded chemical sediments and pyritic siltstones and shales. This assemblage is unconformable or paraconformable on the Balmer assemblage and occurs along the western edge of the Birch-Uchi Belt stratigraphically above the Balmer Assemblage.

The Confederation Lake Assemblage (2750-2700Ma) is by far the most aerially extensive assemblage in the belt. It is comprises an assemblage of intermediate to felsic flows and pyroclastic strata, which are unconformably overlain by conglomeratic to argillaceous rift-related sediments. The Confederation Lake Assemblage also has minor interbeds or banded iron formation.

Pluton emplacement and coeval explosive felsic volcanism between ca. 2731 Ma and 2700 Ma heralded the onset of the Kenoran Orogeny. This precursor magmatic event thermally weakened the crust and induced the localization of compression-related polyphase deformation and regional greenschist facies metamorphism within an overall compressional regime.

At least 3 phases of regional deformation affected the area resulting in the widespread development of folds, axial planar fabrics, and ductile shear zones. D1 deformation involved NW-SE shortening, the development of NE to N-striking folds and faults. Evidence for this D1 event is best preserved in the southern part of the belt in the Confederation Lakes area.

D2 deformation involved NE-SW to N-S shortening and the development of ~E-W to WNW-ESE striking regional folds, faults and fabrics. This event is manifested to varying degrees throughout the belt from the Casummit Lake area in the north to the Slate Lake area in the south.

D3 deformation appears to have involved renewed E-W shortening and is restricted to the northern part of the belt in the Mink Lake/Casummit Lake area. This shortening event resulted in the buckling of the regional S2 foliation into N-S folds. This event was accompanied by N-S striking S3 crenulation cleavage and ENE plunging F3 fold development.

6.2 PORTAGE PROPERTY GEOLOGY

The Portage Property is underlain by a gently folded, northwest-trending, conformable sequence of felsic to mafic metavolcanics of the Archean Woman Assemblage (Figure 4). These rocks have been intruded locally by fine to medium grained diorite to gabbro. Felsic intrusives have also been mapped on the property.

The western part of the sequence is dominated by massive, fine grained pillowed mafic volcanics. These rocks generally show weak to moderate chlorite alteration. Fine to medium grained, locally magnetic diorite and gabbro intrusives are common within the mafic package. Minor quartz veining occurs locally within the mafic volcanic rocks and intrusives within narrow, east to northeast trending, chloritic shear zones.

To the east of the mafic rocks lie interlayered intermediate and felsic volcaniclastic rocks. The intermediate rocks generally consist of light green coloured fine tuffs, lapilli tuffs and agglomerates. These rocks are often moderately foliated with weak chlorite alteration.

Felsic volcaniclastics consist of siliceous, sericitic fine tuffs, lapilli tuffs, agglomerates. They often contain up to 30% 1 to 5mm quartz "eyes". These are generally pale in colour and well foliated.

Local areas of strong iron carbonate+silica$\pm$sericite alteration occur within the felsic and intermediate volcaniclastic rocks. These zones are associated with east-northeast to east-southeast trending structures.

7.0 AIRBORNE GEOPHYSICS

Fugro Airborne Surveys conducted an airborne magnetic and electromagnetic survey during the period April 28 to May 6, 2002. The surveyed area covered claims KRL 1244533 and 1247997 in the eastern part of the property. A total of 98.1 line kilometres was flown with flight lines 75 metres apart, oriented 315 degrees. The results of the survey and geophysical maps are contained in Fugro's report which is appended to this report.

There were no significant magnetic anomalies worthy of ground follow-up but the magnetic data was used as an aid in interpreting rock types in overburden covered areas of Figure 4.

Geophysicist Chris Dauth of Aurion Gold Limited, Fronteer's joint venture partner, examined the geophysical data and identified two weak EM anomalies in the survey area. He conducted ground follow-up of these anomalies and his observations are summarized in Table 2 below.

Table 2 EM conductors designated for ground follow-up

Anomaly	Location	Description
P1	514374E 5675521N	Anomaly P1 is associated with a quartz-carbonate-pyrite alteration system where historical trenching has taken place. The quartz veining has been rock chip sampled.
P2	514487E 5675295N	Anomaly P2 remains unexplained. This anomaly is considered similar in character to P1 hence has a good chance of being associated with alteration. Testing of the anomaly with soils is recommended.

The locations of anomalies P1 and P2 are shown on Figure 4. Rock samples from the area of anomaly P1 returned gold values ranging from <0.01 to 0.69 g/t. The results are described in the section 8.0 of this report. A soil grid was established over the area of anomalies P1 and P2. The soil results are described in section 9.0 of this report.

8.0 MINERALIZATION

Rock samples were taken from areas of quartz veining, sulphide mineralization and alteration on the Portage Property (Figures 4a, 4b). Samples were sent to ALS Chemex laboratories for gold and multi-element ICP analysis. Analytical certificates and rock sample descriptions are appended to this report.

Grab sample 23914 was taken from a quartz vein located a few hundred metres southeast of Leonard Lake in the northern part of the property. The sample, from a 20 to 45 centimetre wide quartz vein containing minor arsenopyrite, assayed 3.18 g/t gold with 3700 ppm arsenic. The vein is oriented 060/50N and is hosted within a narrow, chloritic shear zone in diorite. Nearby selective grab sample 23912, consisting of quartz containing arsenopyrite, assayed 0.18 g/t gold with >10000 ppm arsenic.

Float sample 23992, collected on the Portage property to the southeast of the Bathurst Mine property, assayed 0.30 g/t gold with 4.69 ppm silver and 7420 ppm copper. The sampled material consisted of angular mafic volcanic float with quartz veining containing up to 20% pyrite and minor chalcopyrite.

In the northeastern part of the property, samples were taken from several zones of iron-carbonate±silica±sericite alteration. Grab sample 347973 was taken from a 1.5 metre wide zone of intense iron-carbonate+silica+pyrite alteration exposed in an old trench near the shore of Narrow Lake in the northeastern part of the property. The sample assayed 0.69 g/t gold. The zone is hosted within iron-carbonate altered mafic volcanics and strikes 132/85NE. Two other sub-parallel zones of quartz veining and silicification with pyrite mineralization up to 3 metres wide were encountered in this area. Channel sampling was carried out on all three zones but samples returned low gold values. The area coincides with a weak electromagnetic conductor (P1) as interpreted from geophysical data.

Grab sample 23898 was taken from a 1 metre wide zone of iron-carbonate alteration and quartz veining located on a peninsula in Woman Lake in the northeastern corner of the property. The sample, consisting of irregular quartz-ankerite veining in iron-carbonate

altered intermediate volcanics, assayed 0.31 g/t gold. Foliation in the host rocks is oriented 262/90.

Composite grab sample 23648 was taken from quartz veins hosted within sericitic, schistose felsic volcanics approximately 1 kilometre to the south of sample 23898. The sample is a composite of two parallel 5 to 10 centimetre wide quartz veins oriented 090/80N. The veins contain minor pyrite, sphalerite and galena. The sample assayed 0.32 g/t gold with 167.8 ppm lead and 446 ppm zinc. The veins are subparallel to a 1 metre wide shear zone oriented 075/90. Grab sample 347891, taken within the shear itself, assayed <0.01 g/t gold.

A similar area of sheared, sericitic felsic volcanic rocks occurs 500 metres to the south. Grab samples were taken from two small exposures of sericite-iron-carbonate-pyrite altered felsic agglomerate. These rocks host 5 to 10 centimetre wide sheeted quartz veins, typically oriented 155/90 and 060/90. Composite grab samples 23631 to 23635, taken from both vein and wallrock material, assayed between 0.02 and 0.29 g/t gold.

9.0 SOIL GEOCHEMISTRY

A small soil grid was established in the area to the north of the portage between Narrow and Woman Lakes. Samples were taken at 50 metre intervals on north-south lines, spaced 100 metres apart. Samples were collected from B horizon material where possible using a soil mattock and were sent to ALS chemex laboratories for gold and multi-element ICP analysis. Analytical certificates are appended to this report. A statistical analysis of the assay data indicated a poor correlation between gold and the major pathfinder elements. Correlation coefficients and percentile values for gold and several pathfinder elements are appended to this report.

The grid was established to test along strike from an area of east to southeast trending veining and silicification observed along the northeastern shore of Narrow Lake. This Mineralization coincides with electromagnetic anomaly P1. The soil grid also covers the

area of buried electromagnetic anomaly P2. Gold results are generally low, varying from <1 ppb to 26 ppb (Figure 5).

A value of 26 ppb gold, from station 515500E, 5674550N, does not coincide with an area of known mineralization and should be followed up with prospecting. A value of 25 ppb gold, from station 514400E, 5675100N, coincides with an outcrop of felsic to intermediate volcanics cut by a mafic dyke. No veining or mineralization was observed in the outcrop. Elsewhere on the grid, a few scattered values of 10 to 15 ppb gold occur. These areas should be followed up with prospecting as they do not coincide with areas of known mineralization.

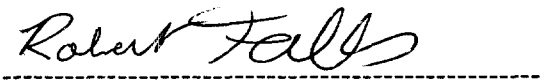
A 2.5 km long north-south soil line was established to the west of Leonard Lake in the northwestern part of the property (Figure 4). Samples were taken at 50 metre intervals along the line where possible. Gold values along this line are generally low but there are spot high values of 97 ppb at station 507300E, 5680850N and 122 ppb at station 507300E, 5680300N. These may be transported anomalies as samplers describe the area as being covered by glaciofluvial deposits consisting of sand, gravel and boulders. Quartz veins containing up to 3.18 g/t gold outcrop within 700 metres to the east and northeast of the anomalous soil samples.

10.0 CONCLUSIONS

The most significant gold result from rock sampling on the Portage Property is 3.18 g/t, from a narrow, shear hosted, northeast-trending quartz vein in the northwestern part of the property. Elsewhere on the property, a grab sample from a 1.5 metre wide, east-southeast trending zone of silicification and carbonate alteration in the northeastern part of the property yielded 0.69 g/t gold. The area coincides with a weak electromagnetic anomaly as interpreted from airborne geophysical data. Follow-up rock and soil samples in this area did not produce significant results. Rock sampling of several other areas of quartz veining on the property produced gold results ranging from <0.01 to 0.32 g/t.

No further work is planned on the specific areas described above due to low grades or narrow vein widths. The fact that gold is present in the system and broad alteration zones are present suggests that further prospecting, rock sampling and geological mapping should be carried out on the remaining unexplored areas of the property.

Respectfully Submitted,



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APPENDIX I

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REFERENCES

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APPENDIX II

ANALYTICAL CERTIFICATES

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number :1-A
Total Pages :1
Certificate Date: 02-AUG-2002
Invoice No. :I0220752
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0220752

SAMPLE	PREP CODE		Au g/t	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe %	Ga ppm	Ge ppm	Hf ppm
347971	205	226	< 0.01	0.03	1.53	1.2	< 10	2.8	0.05	0.01	7.04	0.07	2.64	17.3	338	0.05	44.8	3.00	3.25	0.10	0.02
347972	205	226	< 0.01	0.13	3.70	10.7	< 10	11.6	0.10	0.06	4.47	0.13	26.3	19.8	64	0.10	24.4	7.07	8.40	0.15	0.42
347973	205	226	0.69	0.15	1.39	0.5	< 10	8.4	0.15	0.05	1.41	0.09	5.88	15.8	45	< 0.05	84.4	>15.00	4.90	0.45	0.06

CERTIFICATION: _____

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC. *

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number :1-B
Total Pages :1
Certificate Date: 02-AUG-2002
Invoice No. :I0220752
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0220752

SAMPLE	PREP CODE		Hg ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm
347971	205	226	0.12	0.015	< 0.01	1.0	7.5	3.76	1760	0.50	< 0.01	0.05	89.8	80	2.0	0.1<	0.001	< 0.01	0.15	8.3	0.2
347972	205	226	0.25	0.020	0.05	13.4	22.2	1.70	2240	0.40	0.03	0.15	38.0	730	7.6	1.3<	0.001	0.45	1.95	5.7	0.2
347973	205	226	0.14	0.040	< 0.01	3.2	0.9	1.52	7470	1.10	< 0.01	0.45	40.2	340	8.4	0.3<	0.001	0.78	0.20	5.0	0.8

CERTIFICATION: _____

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2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
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Page Number :1-C
Total Pages :1
Certificate Date: 02-AUG-2002
Invoice No. : I0220752
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0220752

SAMPLE	PREP CODE		Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
347971	205	226	< 0.2	97.9	< 0.01	0.01	< 0.2	< 0.01	< 0.02	< 0.05	57	0.05	2.75	42	0.5
347972	205	226	< 0.2	46.8	< 0.01	0.02	2.6	< 0.01	< 0.02	0.35	31	< 0.05	3.95	74	16.5
347973	205	226	< 0.2	14.4	< 0.01	0.07	0.2	< 0.01	< 0.02	0.10	42	0.05	2.15	86	2.5

CERTIFICATION: _____

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Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
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To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number :1-A
Total Pages :2
Certificate Date: 22-AUG-2002
Invoice No. :I0222122
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0222122

SAMPLE	PREP CODE		Au g/t	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe %	Ga ppm	Ge ppm	Hf ppm
23625	205	226	< 0.01	0.05	0.72	2.3	< 10	62.6	0.05	0.05	1.61	0.06	9.98	4.9	55	0.10	29.8	1.37	1.80	< 0.05	0.04
23626	205	226	< 0.01	0.09	1.23	1.3	< 10	83.6	0.10	0.19	3.03	0.14	68.6	18.9	46	0.40	32.4	3.83	3.55	0.10	0.22
23627	205	226	< 0.01	0.01	0.05	0.9	< 10	5.6	< 0.05	0.02	6.48	0.08	3.18	6.1	71	< 0.05	1.8	2.40	0.25	0.05	0.06
23628	205	226	0.01	0.02	0.23	0.3	< 10	5.0	0.10	0.01	13.25	0.19	3.98	15.4	25	< 0.05	2.6	5.91	0.75	0.10	0.06
23629	205	226	< 0.01	0.01	0.22	0.7	< 10	21.4	< 0.05	0.02	0.74	0.04	2.78	1.8	109	0.10	5.6	0.57	0.65	< 0.05	0.06
23630	205	226	< 0.01	0.04	1.73	0.5	< 10	15.6	0.15	0.11	10.70	0.07	17.00	14.3	56	0.05	22.0	3.31	3.30	0.05	0.24
23631	205	226	0.12	0.06	0.14	2.0	< 10	20.4	0.05	0.02	0.24	0.02	26.0	1.3	117	0.05	2.0	0.82	0.40	< 0.05	0.54
23632	205	219	0.12	0.08	0.12	71.7	< 10	18.8	< 0.05	0.06	0.13	0.03	18.30	0.8	124	0.05	3.2	0.73	0.40	< 0.05	0.30
23633	205	226	0.05	0.01	0.17	157.5	< 10	21.8	0.05	0.01	0.01	< 0.01	55.9	0.3	19	0.10	1.6	0.74	0.60	0.05	1.52
23634	205	219	0.02	0.04	0.15	6.1	< 10	29.6	0.05	0.02	0.08	0.02	37.4	0.9	136	0.10	2.6	0.72	0.50	< 0.05	0.56
23635	205	222	0.29	0.06	0.25	94.3	< 10	95.0	0.15	0.02	0.13	0.06	108.0	2.3	24	0.20	6.2	1.80	1.00	0.10	1.10
23636	205	226	0.01	0.68	0.07	13.9	30	10.0	0.05	1.10	0.36	0.97	13.10	21.4	130	0.05	8.2	0.49	0.30	< 0.05	0.64
23637	205	226	0.01	0.21	0.16	34.4	10	9.8	< 0.05	0.17	0.30	7.57	6.08	12.8	97	0.05	53.3	0.43	0.35	< 0.05	0.36
23638	205	222	< 0.01	0.13	0.07	13.1	< 10	6.2	0.15	0.17	13.10	0.32	3.78	17.4	29	< 0.05	2.4	4.42	0.40	0.05	0.16
23639	205	222	< 0.01	0.08	0.11	4.4	10	28.6	0.05	0.17	1.23	0.05	13.70	6.2	130	0.05	7.8	1.72	0.35	< 0.05	0.26
23640	205	222	0.06	0.08	0.19	11.7	< 10	26.2	0.05	0.02	0.04	0.06	40.7	1.0	93	0.10	1.8	0.55	0.60	0.05	0.56
23641	205	222	< 0.01	0.07	3.32	1.8	< 10	8.8	0.15	0.01	2.99	0.08	5.12	33.9	189	0.10	117.0	5.75	10.85	0.30	0.08
23642	205	222	< 0.01	< 0.01	0.20	1.4	< 10	2.2	< 0.05	< 0.01	0.13	0.01	0.46	1.9	138	0.05	3.4	0.60	0.60	< 0.05	< 0.02
23643	205	222	< 0.01	0.01	0.38	1.0	< 10	30.0	0.05	0.04	0.18	0.02	24.4	2.4	123	0.20	7.0	0.69	1.20	< 0.05	0.08
23644	205	226	< 0.01	0.20	0.12	8.1	< 10	24.2	0.05	0.14	0.06	0.01	17.95	0.9	100	0.10	2.6	0.59	0.45	< 0.05	0.34
23645	205	226	< 0.01	0.05	0.07	66.2	< 10	12.4	< 0.05	0.11	0.01	0.01	10.40	0.8	138	0.05	5.8	0.64	0.35	< 0.05	0.18
23646	205	226	< 0.01	0.04	0.27	26.1	< 10	49.4	0.20	0.06	0.23	0.02	83.6	0.9	42	0.15	3.6	1.34	1.10	0.05	1.04
23647	205	226	0.01	0.07	0.41	97.2	< 10	36.2	0.20	0.07	5.23	0.06	49.5	15.4	51	0.20	24.2	2.73	1.10	0.05	0.78
23648	205	226	0.32	0.74	0.09	26.7	20	9.8	< 0.05	0.74	1.48	0.33	4.38	4.3	114	0.05	28.0	1.01	0.25	< 0.05	0.12
23821	205	226	< 0.01	0.07	0.68	13.0	< 10	45.8	0.15	0.10	2.18	0.13	42.5	11.1	33	0.20	8.6	2.41	1.85	0.05	0.76
23822	205	226	< 0.01	0.06	1.19	22.9	< 10	23.8	0.15	0.28	0.23	< 0.01	9.98	21.7	57	0.20	27.6	4.33	3.10	0.05	0.20
23823	205	226	< 0.01	0.56	1.47	47.7	< 10	7.8	< 0.05	0.11	0.50	0.06	5.76	21.2	106	< 0.05	9.8	3.03	4.45	0.05	0.24
23824	205	226	< 0.01	0.58	3.52	79.2	< 10	12.0	< 0.05	0.14	3.11	0.16	5.82	42.9	42	0.05	80.9	7.34	8.95	0.25	0.26
23825	205	219	< 0.01	0.06	2.36	5.2	< 10	69.6	0.10	0.44	0.67	0.06	7.00	14.9	81	0.25	15.6	4.34	6.45	0.10	0.26
23826	205	219	< 0.01	0.05	1.69	0.8	< 10	38.2	0.10	0.19	4.52	0.13	9.66	22.8	52	0.20	22.2	5.30	4.35	0.10	0.58
23827	205	219	< 0.01	0.02	0.63	< 0.1	< 10	30.4	0.05	0.01	3.81	0.21	8.56	12.1	93	0.10	18.6	3.94	1.60	0.05	0.18
23865	205	226	< 0.01	0.06	1.88	< 0.1	< 10	41.6	0.10	0.03	3.25	0.07	25.9	15.3	46	0.20	20.4	3.73	5.65	0.05	0.32
23866	205	226	< 0.01	0.11	2.87	7.8	< 10	46.0	0.05	0.05	2.95	0.11	22.5	21.4	60	0.20	26.6	6.38	10.10	0.15	0.28
23867	205	226	0.02	0.65	0.09	7.7	< 10	14.2	< 0.05	0.04	1.87	0.15	7.34	1.5	105	0.05	4.4	0.87	0.35	< 0.05	0.06
23868	205	222	< 0.01	0.12	1.66	0.2	< 10	50.0	0.10	0.03	0.68	0.09	18.40	16.4	121	0.15	69.6	4.69	4.25	0.05	0.28
23869	205	226	< 0.01	0.31	0.09	< 0.1	< 10	9.2	0.15	0.08	12.95	3.06	12.15	3.0	18	< 0.05	8.8	4.89	0.55	0.05	0.16
23870	205	226	< 0.01	0.03	0.08	2.4	< 10	11.6	0.15	0.01	10.50	0.14	6.26	8.3	30	< 0.05	7.2	3.17	0.45	0.05	0.10
23871	205	222	< 0.01	0.08	1.66	25.7	< 10	14.4	0.15	0.03	3.42	0.44	4.54	52.0	66	< 0.05	4.2	>15.00	3.90	0.35	0.06
23872	205	219	< 0.01	0.77	2.17	< 0.1	< 10	3.0	0.05	0.01	0.69	0.03	1.56	22.6	477	0.05	38.4	2.59	5.45	0.15	0.02
23873	205	219	< 0.01	1.53	3.27	< 0.1	< 10	8.0	0.15	0.01	0.50	0.03	1.36	46.8	969	0.05	106.5	4.19	8.80	0.25	0.04

CERTIFICATION: _____

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC. *

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Certificate Date: 22-AUG-2002
Invoice No. : I0222122
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0222122

SAMPLE	PREP CODE		Hg ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm
23625	205	226	< 0.01	0.005	0.09	4.6	3.5	0.92	875	0.60	0.01	< 0.05	8.0	230	4.4	2.1<	0.001	0.01	0.05	1.0	< 0.2
23626	205	226	0.01	0.020	0.14	33.8	6.1	1.49	575	0.90	0.06	0.05	61.4	2920	7.4	5.0<	0.001	1.14	0.45	2.3	< 0.2
23627	205	226	< 0.01	0.010	0.01	1.4	0.3	2.05	1695	0.35	0.01	0.05	12.4	150	1.2	0.4<	0.001	0.01	0.05	1.7	< 0.2
23628	205	226	< 0.01	0.005	0.01	1.8	1.3	5.38	4080	0.30	0.02	0.15	34.2	180	1.6	0.5<	0.001	0.03	0.05	2.1	< 0.2
23629	205	226	< 0.01<	0.005	0.03	1.4	0.9	0.16	375	0.45	0.01	< 0.05	4.4	100	2.2	1.3<	0.001	< 0.01	0.05	0.7	< 0.2
23630	205	226	< 0.01	0.010	0.05	8.4	20.2	5.47	4710	0.20	0.01	0.05	52.1	340	3.8	1.2<	0.001	0.03	0.45	3.9	< 0.2
23631	205	226	0.03	0.005	0.09	12.6	0.3	0.06	295	0.55	< 0.01	< 0.05	2.8	30	15.8	1.9<	0.001	< 0.01	0.55	0.9	< 0.2
23632	205	219	0.01	0.005	0.08	9.2	0.4	0.05	170	0.85	< 0.01	0.05	4.0	50	22.6	1.7<	0.001	0.01	0.75	0.5	< 0.2
23633	205	226	0.01	0.005	0.14	27.2	0.1	0.01	35	0.50	< 0.01	< 0.05	0.8	60	3.4	2.6<	0.001	0.01	0.60	0.6	< 0.2
23634	205	219	0.01	0.005	0.11	17.0	0.2	0.03	195	1.00	< 0.01	0.05	3.8	60	9.6	2.3<	0.001	0.01	0.50	0.6	< 0.2
23635	205	222	0.01	0.010	0.19	53.2	0.3	0.02	550	0.80	< 0.01	0.05	2.6	90	6.8	3.9<	0.001	0.22	1.00	1.1	< 0.2
23636	205	226	0.18	0.010	0.04	6.0	0.1	0.14	280	6.00	0.01	< 0.05	15.8	90	333.5	0.9<	0.001	0.01	1.30	1.0	1.0
23637	205	226	1.02	0.060	0.07	2.8	0.8	0.14	130	100.20	0.01	< 0.05	17.2	10	41.4	1.4	0.003	0.06	1.55	1.1	< 0.2
23638	205	222	0.03	0.010	0.04	1.6	1.2	6.42	5250	2.25	0.01	0.10	55.9	40	63.6	0.9<	0.001	0.03	0.25	7.4	0.2
23639	205	222	0.03<	0.005	0.09	6.6	0.6	0.36	955	1.35	0.01	0.05	6.8	350	16.6	2.2<	0.001	0.01	1.30	1.3	< 0.2
23640	205	222	0.01<	0.005	0.14	19.0	0.2	0.02	125	1.05	0.01	< 0.05	2.8	60	9.6	2.4<	0.001	< 0.01	0.40	0.5	< 0.2
23641	205	222	0.01	0.035	< 0.01	2.0	9.8	2.64	1200	0.50	0.02	0.15	47.4	260	2.4	0.3<	0.001	0.08	0.20	25.1	0.2
23642	205	222	< 0.01<	0.005	< 0.01	0.2	1.0	0.14	125	0.65	0.01	< 0.05	4.4	10	0.4	0.1<	0.001	< 0.01	< 0.05	0.8	< 0.2
23643	205	222	< 0.01<	0.005	0.09	12.8	1.7	0.12	290	0.90	0.02	0.05	5.4	270	5.2	2.5<	0.001	< 0.01	0.05	1.0	< 0.2
23644	205	226	0.03	0.005	0.10	8.6	0.2	0.01	130	0.65	0.01	0.05	2.2	140	13.6	2.9<	0.001	0.02	0.60	0.4	< 0.2
23645	205	226	0.01	0.005	0.05	5.0	0.1	< 0.01	120	1.15	0.01	0.05	4.2	60	6.6	1.5<	0.001	0.01	1.65	0.3	< 0.2
23646	205	226	0.01	0.010	0.23	40.6	0.5	0.05	470	0.70	0.03	0.05	1.4	150	8.8	6.1<	0.001	0.01	0.90	1.3	< 0.2
23647	205	226	0.01	0.005	0.22	23.8	2.4	2.11	1205	1.30	0.01	0.05	62.2	510	8.0	5.0<	0.001	0.06	1.20	2.8	< 0.2
23648	205	226	0.09	0.035	0.06	2.2	0.3	0.49	485	0.55	0.01	< 0.05	14.8	100	167.8	1.4<	0.001	0.05	0.80	0.8	< 0.2
23821	205	226	0.02	0.015	0.13	20.8	4.4	0.71	515	0.80	0.04	< 0.05	17.4	670	15.4	3.8<	0.001	0.01	0.25	1.9	< 0.2
23822	205	226	0.02	0.005	0.15	4.6	11.0	0.33	105	1.10	0.04	0.05	51.3	1420	6.2	4.1<	0.001	1.91	0.45	2.9	1.2
23823	205	226	< 0.01	0.030	0.01	2.8	6.2	0.73	470	2.20	< 0.01	0.05	46.6	180	1.2	0.4<	0.001	0.06	0.20	4.0	< 0.2
23824	205	226	0.01	0.095	< 0.01	2.6	14.5	2.54	2120	3.10	< 0.01	0.10	92.3	490	5.4	0.4<	0.001	0.65	1.45	8.6	0.4
23825	205	219	0.01	0.015	0.07	3.2	14.8	1.56	540	2.15	0.04	0.05	54.5	840	2.4	2.1<	0.001	0.71	0.40	4.4	2.2
23826	205	219	< 0.01	0.020	0.05	4.6	9.5	2.62	1420	0.85	0.05	0.05	51.3	560	2.2	1.6<	0.001	1.88	0.25	5.5	4.2
23827	205	219	0.01	0.025	0.06	4.2	3.1	1.66	1635	0.55	0.02	0.05	30.0	350	2.0	1.4<	0.001	0.03	0.10	3.7	< 0.2
23865	205	226	< 0.01	0.015	0.08	12.8	9.4	0.92	1295	0.35	0.06	0.05	24.8	890	4.4	2.7<	0.001	0.12	0.25	3.8	< 0.2
23866	205	226	< 0.01	0.025	0.04	11.4	14.0	1.76	1600	0.25	0.06	0.05	38.0	920	8.0	2.5<	0.001	0.19	0.40	7.6	< 0.2
23867	205	226	0.15	0.005	0.04	3.6	0.5	0.84	1015	0.80	< 0.01	< 0.05	4.0	160	8.8	0.8<	0.001	0.01	3.15	0.5	< 0.2
23868	205	222	0.03	0.015	0.08	8.4	12.1	0.70	3260	1.50	0.04	0.05	57.9	1080	3.4	2.9<	0.001	0.03	0.45	5.0	< 0.2
23869	205	226	0.36	0.065	0.04	6.0	1.6	6.32	5250	0.70	0.01	0.05	4.8	40	15.0	0.8<	0.001	0.04	3.70	3.5	< 0.2
23870	205	226	0.05	0.005	0.03	3.2	0.8	5.29	5020	0.50	0.01	0.05	13.0	190	2.4	0.9<	0.001	0.03	0.60	1.3	< 0.2
23871	205	222	0.01	0.060	< 0.01	2.0	4.7	0.70	9020	0.65	0.01	0.25	39.8	470	4.0	0.2<	0.001	0.10	0.20	9.1	< 0.2
23872	205	219	< 0.01	0.015	< 0.01	0.6	13.2	1.70	435	0.60	< 0.01	< 0.05	116.4	90	0.8	0.1<	0.001	0.01	0.05	10.2	< 0.2
23873	205	219	0.02	0.015	< 0.01	0.6	15.3	2.75	495	0.35	< 0.01	0.05	271.0	140	0.6	0.1<	0.001	0.02	0.05	13.5	< 0.2

CERTIFICATION: _____

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC. *

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

CERTIFICATE OF ANALYSIS A0222122

SAMPLE	PREP CODE		Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
23625	205	226	< 0.2	36.6	< 0.01	0.02	0.4	< 0.01	0.02	0.05	7	0.10	1.45	42	2.5
23626	205	226	< 0.2	149.1	< 0.01	0.04	2.4	< 0.01	0.02	0.55	13	0.05	7.50	132	15.0
23627	205	226	< 0.2	39.8	< 0.01	0.01	< 0.2	< 0.01	< 0.02	< 0.05	4	0.10	3.70	18	2.5
23628	205	226	< 0.2	63.5	< 0.01	< 0.01	< 0.2	< 0.01	< 0.02	< 0.05	7	0.05	4.10	44	4.0
23629	205	226	< 0.2	17.4	< 0.01	< 0.01	0.2	< 0.01	< 0.02	0.05	5	0.10	1.15	8	2.5
23630	205	226	< 0.2	126.5	< 0.01	< 0.01	1.0	< 0.01	< 0.02	0.15	20	0.05	5.25	32	10.0
23631	205	226	< 0.2	2.4	< 0.01	< 0.01	3.0	< 0.01	< 0.02	0.55	2	0.15	2.55	34	19.5
23632	205	219	< 0.2	2.2	< 0.01	< 0.01	2.0	< 0.01	< 0.02	0.40	< 1	0.15	1.50	40	12.5
23633	205	226	< 0.2	1.2	< 0.01	< 0.01	7.0	< 0.01	< 0.02	0.55	< 1	0.05	3.70	14	61.5
23634	205	219	< 0.2	2.6	< 0.01	< 0.01	4.0	< 0.01	< 0.02	0.70	< 1	0.15	2.60	32	24.5
23635	205	222	< 0.2	3.6	< 0.01	< 0.01	11.8	< 0.01	< 0.02	1.15	< 1	0.15	7.70	58	41.5
23636	205	226	< 0.2	8.8	< 0.01	0.11	2.0	< 0.01	< 0.02	0.70	1	0.05	2.00	70	24.5
23637	205	226	< 0.2	6.8	< 0.01	0.05	1.0	< 0.01	< 0.02	1.00	4	0.10	1.25	716	15.5
23638	205	222	< 0.2	135.9	< 0.01	0.03	0.4	< 0.01	< 0.02	0.25	7	0.05	7.55	46	8.5
23639	205	222	< 0.2	69.1	< 0.01	< 0.01	1.2	< 0.01	< 0.02	0.35	2	0.10	3.00	36	12.5
23640	205	222	< 0.2	1.8	< 0.01	< 0.01	4.4	< 0.01	< 0.02	0.55	1	0.15	2.80	16	23.0
23641	205	222	< 0.2	93.5	< 0.01	0.01	0.2	0.15	< 0.02	< 0.05	195	0.05	6.95	66	2.5
23642	205	222	< 0.2	2.2	< 0.01	< 0.01	< 0.2	< 0.01	< 0.02	< 0.05	11	0.15	0.25	6	0.5
23643	205	222	< 0.2	10.2	< 0.01	< 0.01	1.4	< 0.01	< 0.02	0.25	6	0.10	1.10	18	3.5
23644	205	226	< 0.2	4.0	< 0.01	< 0.01	2.0	< 0.01	< 0.02	0.50	2	0.10	1.75	20	14.5
23645	205	226	< 0.2	1.6	< 0.01	< 0.01	1.2	< 0.01	< 0.02	0.30	< 1	0.20	1.10	40	8.5
23646	205	226	< 0.2	8.0	< 0.01	< 0.01	9.2	< 0.01	< 0.02	1.10	< 1	0.10	6.40	52	40.0
23647	205	226	< 0.2	201.1	< 0.01	< 0.01	5.0	< 0.01	0.02	0.90	6	0.10	8.35	48	36.0
23648	205	226	< 0.2	37.0	< 0.01	0.03	0.2	< 0.01	< 0.02	0.05	3	0.10	1.35	446	5.5
23821	205	226	< 0.2	39.2	< 0.01	< 0.01	5.0	< 0.01	< 0.02	0.70	9	< 0.05	6.40	92	33.5
23822	205	226	< 0.2	10.4	< 0.01	0.20	2.0	< 0.01	0.02	0.55	18	< 0.05	5.45	30	14.5
23823	205	226	< 0.2	2.6	< 0.01	0.34	0.8	< 0.01	< 0.02	0.20	18	0.05	1.50	72	11.0
23824	205	226	< 0.2	11.6	< 0.01	0.30	0.8	< 0.01	0.02	0.15	39	< 0.05	3.60	94	12.5
23825	205	219	< 0.2	20.6	< 0.01	0.05	2.2	< 0.01	< 0.02	0.45	36	0.05	3.15	56	16.0
23826	205	219	< 0.2	37.0	< 0.01	0.02	3.0	< 0.01	< 0.02	0.50	56	< 0.05	6.55	62	28.0
23827	205	219	< 0.2	68.2	< 0.01	< 0.01	0.8	< 0.01	< 0.02	0.15	18	0.05	5.95	38	9.5
23865	205	226	< 0.2	51.8	< 0.01	< 0.01	2.0	< 0.01	< 0.02	0.30	26	< 0.05	3.80	72	14.5
23866	205	226	< 0.2	38.0	< 0.01	0.01	1.6	< 0.01	< 0.02	0.20	42	< 0.05	3.40	112	13.5
23867	205	226	< 0.2	25.4	< 0.01	< 0.01	0.6	< 0.01	< 0.02	0.15	3	0.15	1.15	54	4.5
23868	205	222	< 0.2	18.4	< 0.01	< 0.01	1.4	< 0.01	0.02	0.20	31	0.05	6.65	46	15.5
23869	205	226	< 0.2	123.5	< 0.01	< 0.01	0.8	< 0.01	< 0.02	0.15	2	0.05	16.25	218	6.5
23870	205	226	< 0.2	42.2	< 0.01	< 0.01	0.6	< 0.01	< 0.02	0.10	4	0.05	5.35	20	4.5
23871	205	222	< 0.2	98.2	< 0.01	0.01	< 0.2	< 0.01	< 0.02	< 0.05	54	0.05	6.80	128	3.0
23872	205	219	< 0.2	23.6	< 0.01	0.01	< 0.2	< 0.01	< 0.02	< 0.05	59	4.40	1.40	42	1.5
23873	205	219	< 0.2	12.8	< 0.01	< 0.01	< 0.2	< 0.01	< 0.02	< 0.05	110	7.35	1.25	68	2.0

CERTIFICATION: _____ *

ALS Chemex

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PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

CERTIFICATE OF ANALYSIS A0222122

SAMPLE	PREP CODE		Au g/t	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe %	Ga ppm	Ge ppm	Hf ppm
23874	205	219	< 0.01	1.52	4.12	0.3	< 10	1.8	0.15	0.01	2.27	0.01	2.26	39.6	773	0.15	59.4	4.58	8.55	0.20	0.02
23875	205	226	0.01	0.94	2.33	0.1	< 10	2.2	0.10	0.01	11.40	0.08	3.94	27.7	415	0.05	57.4	4.36	4.70	0.20	< 0.02
23877	205	222	< 0.01	0.28	3.89	0.2	< 10	2.8	0.15	< 0.01	2.25	0.02	1.56	40.3	915	0.10	13.4	4.92	8.15	0.25	0.02
23878	205	222	< 0.01	0.18	5.25	8.9	< 10	10.0	0.15	0.07	0.63	0.01	18.70	23.4	68	0.30	19.4	8.81	11.55	0.15	0.32
23879	205	219	< 0.01	0.20	0.92	1.9	< 10	7.6	0.10	0.10	2.27	0.11	5.80	22.6	79	< 0.05	54.9	>15.00	2.50	0.30	0.08
23880	205	219	< 0.01	0.39	0.86	1.1	< 10	6.6	0.05	0.07	3.20	0.09	5.12	14.7	40	< 0.05	26.0	11.90	2.35	0.20	0.08
23881	205	219	< 0.01	0.32	1.48	6.8	< 10	23.2	0.05	0.12	1.97	0.28	6.44	20.7	78	< 0.05	76.0	14.20	4.05	0.25	0.10
23882	205	222	< 0.01	0.55	3.44	51.3	< 10	22.0	0.20	0.48	1.27	0.49	8.18	54.2	69	0.10	341	9.77	10.25	0.25	0.42
23883	205	222	0.01	0.42	2.88	45.2	< 10	29.8	0.25	0.50	0.82	1.96	11.55	41.0	71	0.15	360	9.19	9.15	0.20	0.44
23884	205	226	< 0.01	0.04	0.15	1.0	< 10	37.0	0.20	0.01	2.23	0.20	2.84	2.2	21	4.70	8.0	14.00	0.70	0.35	0.06
23885	205	226	0.01	0.06	2.98	9.0	< 10	42.2	0.15	0.11	3.87	0.17	39.1	22.6	19	0.45	38.4	6.41	9.60	0.15	0.54
23886	205	226	< 0.01	0.02	0.37	0.3	< 10	23.6	0.15	0.09	0.67	0.02	33.5	1.1	28	0.30	12.8	0.49	1.00	< 0.05	0.46
23887	205	222	< 0.01	0.03	1.60	1.2	< 10	40.2	0.10	0.45	0.83	0.07	52.4	12.1	116	0.30	15.0	2.94	5.25	0.05	0.14
23888	205	226	< 0.01	0.03	1.66	6.7	< 10	46.2	0.10	0.03	3.14	0.08	30.8	18.7	22	0.15	19.8	4.32	6.50	0.10	0.36
23889	205	226	0.01	0.04	0.20	2.8	< 10	38.6	0.05	0.07	0.67	0.01	11.50	2.3	122	0.10	3.2	0.68	0.65	< 0.05	0.22
23890	205	226	< 0.01	0.09	0.51	8.0	< 10	39.2	0.05	0.16	11.45	0.12	12.10	8.0	19	0.15	16.2	3.55	1.30	0.05	0.22
23891	205	222	0.01	0.10	0.13	16.1	< 10	11.6	0.05	0.10	>15.00	0.06	7.20	12.0	16	0.05	8.2	3.57	0.55	0.05	0.22
23892	205	222	0.02	0.01	0.07	1.5	< 10	12.4	0.10	0.01	>15.00	0.05	6.86	3.4	12	< 0.05	1.4	2.69	0.40	0.05	0.06
23893	205	226	0.02	0.10	0.18	11.9	< 10	27.4	0.05	0.65	1.26	1.49	53.6	3.9	50	0.10	20.4	2.99	0.75	0.05	1.06
23894	205	226	< 0.01	0.05	0.22	8.7	< 10	32.0	0.15	0.21	0.64	0.04	79.7	0.9	36	0.05	3.6	0.52	1.00	0.05	1.18
23895	205	226	0.03	0.04	0.30	79.8	< 10	73.2	0.15	0.16	0.34	0.05	65.8	1.2	69	0.15	4.4	1.26	0.95	0.05	1.16
23896	205	222	< 0.01	0.01	0.28	2.6	< 10	71.2	0.10	0.04	0.40	0.03	24.7	1.7	25	0.15	1.8	0.73	0.95	< 0.05	0.44
23897	205	222	0.02	0.01	0.45	1.6	< 10	37.6	0.10	0.27	6.72	0.02	7.14	6.2	77	0.05	11.0	1.74	1.50	< 0.05	0.06
23898	205	222	0.31	0.02	3.74	0.7	< 10	55.8	0.30	0.04	5.21	0.06	18.10	29.3	146	0.05	28.6	5.76	12.60	0.20	0.16
23899	205	222	< 0.01	0.01	0.41	1.1	< 10	30.6	0.15	0.01	1.55	0.05	72.8	1.3	54	0.10	3.2	1.74	1.40	0.05	1.00
347977	205	222	< 0.01	0.04	1.49	0.4	< 10	12.4	0.05	0.02	5.21	0.11	8.46	19.3	142	0.10	54.6	2.71	3.65	0.05	0.14
347978	205	222	< 0.01	0.03	1.24	0.5	< 10	9.6	0.05	0.01	4.06	0.08	6.98	15.6	152	0.05	46.2	2.31	3.20	0.05	0.12
347979	205	222	< 0.01	0.03	0.49	0.7	< 10	38.8	0.05	0.08	0.46	0.08	10.40	5.1	109	0.05	6.4	1.18	1.80	< 0.05	0.28
347980	205	222	< 0.01	0.03	0.36	1.6	< 10	5.4	< 0.05	< 0.01	1.55	0.04	1.90	4.1	150	0.15	5.4	1.08	1.65	< 0.05	< 0.02
347981	--	--	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
347982	205	222	< 0.01	0.78	1.21	0.6	< 10	29.4	0.15	0.18	0.37	0.12	32.7	14.5	48	0.15	12.0	1.94	3.15	0.05	0.56
347983	205	222	0.02	2.06	1.11	1.5	< 10	20.2	0.05	0.12	0.18	0.28	17.15	12.5	76	0.10	44.6	1.62	2.95	< 0.05	0.38
347984	205	219	< 0.01	3.51	0.80	1.4	< 10	15.6	0.05	0.04	0.42	0.10	16.95	24.0	60	0.05	72.8	1.26	2.10	< 0.05	0.30
347985	205	226	< 0.01	0.23	1.25	2.6	< 10	131.2	0.15	0.06	0.40	0.02	14.75	13.9	72	0.15	29.0	3.18	4.20	0.05	0.72
347986	205	226	< 0.01	0.16	0.93	3.1	< 10	53.4	0.25	0.61	1.57	0.04	32.1	30.3	53	0.20	56.3	2.52	2.35	0.05	0.20

CERTIFICATION: _____

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To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Certificate Date: 22-AUG-2002
Invoice No. : I0222122
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0222122

SAMPLE	PREP CODE		Hg ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm
23874	205	219	0.21	0.025	< 0.01	1.0	19.1	3.80	750	0.45	< 0.01	0.05	202.5	160	1.2	0.1<	0.001	0.01	0.35	17.7	0.2
23875	205	226	0.28	0.030	< 0.01	1.6	7.5	5.51	2530	0.20	< 0.01	0.10	113.6	110	2.2	< 0.1<	0.001	0.01	0.30	15.3	0.4
23877	205	222	0.46	0.025	< 0.01	0.6	7.5	5.00	825	0.35	< 0.01	0.05	247.0	130	0.4	< 0.1<	0.001	< 0.01	0.15	24.5	0.2
23878	205	222	0.31	0.020	0.06	8.8	29.9	2.29	510	1.65	0.03	0.15	49.8	1320	1.4	1.7<	0.001	0.15	0.65	5.6	0.2
23879	205	219	0.15	0.030	< 0.01	3.6	1.3	1.55	7390	1.40	< 0.01	0.35	52.9	240	10.4	0.3<	0.001	1.42	0.40	6.0	1.2
23880	205	219	0.14	0.020	< 0.01	2.8	2.5	1.68	5220	1.05	< 0.01	0.20	30.2	190	4.4	0.3<	0.001	0.64	0.25	5.0	0.8
23881	205	219	0.12	0.030	< 0.01	3.2	2.9	1.22	4790	1.75	< 0.01	0.30	58.4	240	3.6	0.5<	0.001	0.81	0.40	5.8	0.8
23882	205	222	0.13	0.235	0.03	4.2	15.3	1.60	1050	3.45	0.01	0.20	81.0	520	22.8	0.9	0.001	3.38	1.05	6.9	4.4
23883	205	222	0.14	0.290	0.06	5.6	12.0	0.99	1190	3.55	0.02	0.15	93.1	540	23.6	1.6	0.004	3.11	1.20	5.6	3.4
23884	205	226	0.08	0.005	0.05	1.6	0.3	0.56	6010	0.55	< 0.01	0.35	6.0	500	1.8	5.0<	0.001	0.05	0.40	1.3	0.2
23885	205	226	0.07	0.025	0.08	19.6	15.3	1.50	1820	1.30	0.03	0.15	19.6	1110	8.4	5.6<	0.001	0.02	0.20	7.1	0.2
23886	205	226	0.06<	0.005	0.16	17.6	0.6	0.07	285	0.30	0.02	< 0.05	1.4	200	2.6	4.2<	0.001	< 0.01	0.10	0.9	< 0.2
23887	205	222	0.07	0.010	0.05	24.8	7.7	0.73	1190	0.90	0.03	0.10	6.8	770	4.4	1.9<	0.001	< 0.01	0.05	2.1	0.2
23888	205	226	0.06	0.015	0.07	14.6	15.3	2.10	770	0.15	0.05	0.05	29.2	950	3.0	4.0<	0.001	< 0.01	0.35	7.4	0.2
23889	205	226	0.06<	0.005	0.15	6.0	0.9	0.23	245	0.70	0.04	< 0.05	4.2	270	11.0	2.7<	0.001	< 0.01	0.55	0.6	< 0.2
23890	205	226	0.07<	0.005	0.13	6.0	4.7	3.84	5650	0.95	0.01	0.10	22.8	460	26.8	2.4<	0.001	0.09	0.55	1.9	0.4
23891	205	222	0.07	0.005	0.05	3.8	2.2	7.44	5770	3.90	0.01	0.10	17.8	30	51.6	0.9	0.001	0.13	8.85	1.6	0.4
23892	205	222	0.06	0.005	0.04	4.0	1.7	7.65	5850	1.15	0.01	0.10	5.8	60	6.6	0.8<	0.001	0.01	0.55	1.0	0.2
23893	205	226	0.07	0.020	0.15	26.2	0.6	0.39	635	1.05	0.05	0.05	4.6	90	15.6	3.7<	0.001	2.18	1.70	1.3	1.4
23894	205	226	0.04<	0.005	0.19	38.6	0.5	0.20	325	0.70	0.03	< 0.05	1.6	100	9.4	4.4<	0.001	0.05	0.35	0.8	0.2
23895	205	226	0.04<	0.005	0.23	32.6	0.7	0.08	235	1.25	0.03	0.05	2.2	70	6.0	5.6<	0.001	0.21	0.45	0.9	0.4
23896	205	222	0.03<	0.005	0.19	13.0	1.6	0.27	360	0.20	0.06	< 0.05	1.8	310	1.6	3.3<	0.001	< 0.01	0.85	0.6	< 0.2
23897	205	222	0.04	0.005	0.04	3.6	4.4	2.36	3180	0.50	0.01	0.05	11.6	200	1.8	1.1<	0.001	0.02	0.15	1.7	0.2
23898	205	222	0.04	0.025	0.02	8.2	33.8	5.38	3670	0.30	< 0.01	0.10	59.5	1020	1.6	0.6<	0.001	0.03	0.15	10.4	0.2
23899	205	222	0.04	0.005	0.14	35.6	2.3	0.49	750	0.65	0.03	0.05	2.8	80	8.2	3.6<	0.001	< 0.01	0.25	1.3	0.2
347977	205	222	0.03	0.010	0.04	4.2	10.9	1.99	815	0.25	0.02	0.05	78.2	190	2.8	1.2<	0.001	0.01	0.10	5.9	0.2
347978	205	222	0.02	0.005	0.03	3.4	9.4	1.55	640	0.45	0.02	0.05	63.7	160	2.2	1.1<	0.001	0.01	0.10	4.6	0.2
347979	205	222	0.02<	0.005	0.05	5.2	3.1	0.43	305	0.70	0.03	< 0.05	15.4	170	6.0	1.5<	0.001	< 0.01	0.05	1.2	< 0.2
347980	205	222	0.01	0.010	< 0.01	0.8	1.9	0.19	320	0.80	0.01	0.05	7.2	70	2.0	0.8<	0.001	< 0.01	0.10	2.4	< 0.2
347981	--	--	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
347982	205	222	0.03	0.005	0.14	15.0	10.3	0.57	375	1.65	0.03	< 0.05	37.8	530	66.6	3.2<	0.001	< 0.01	0.25	2.5	0.2
347983	205	222	0.04	0.005	0.12	8.0	9.1	0.46	100	2.05	0.02	< 0.05	33.2	340	2210	2.8<	0.001	0.04	1.10	1.8	0.2
347984	205	219	0.05	0.005	0.10	8.2	6.3	0.46	250	3.75	0.01	< 0.05	41.4	260	622.0	2.3<	0.001	0.02	0.45	1.7	< 0.2
347985	205	226	0.04	0.005	0.16	7.6	6.7	0.92	210	1.45	0.04	0.30	39.4	770	29.8	3.9	0.001	1.01	0.35	3.3	0.6
347986	205	226	0.05<	0.005	0.19	15.2	6.7	1.04	305	1.05	0.02	0.05	133.1	1770	12.6	4.8	0.003	0.99	0.30	2.7	1.4

CERTIFICATION:_____

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number :2-C
Total Pages :2
Certificate Date: 22-AUG-2002
Invoice No. :10222122
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0222122

SAMPLE	PREP CODE		Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
23874	205	219	< 0.2	51.3	< 0.01	0.01	< 0.2	< 0.01	< 0.02	< 0.05	122	9.05	2.20	76	0.5
23875	205	226	< 0.2	217.4	< 0.01	0.01	< 0.2	< 0.01	< 0.02	< 0.05	86	6.20	5.85	44	0.5
23877	205	222	< 0.2	33.0	< 0.01	0.01	< 0.2	< 0.01	< 0.02	< 0.05	138	1.85	1.60	66	1.0
23878	205	222	< 0.2	14.2	< 0.01	0.04	1.6	< 0.01	< 0.02	0.25	48	0.80	3.45	136	11.5
23879	205	219	< 0.2	19.2	< 0.01	0.13	0.2	< 0.01	< 0.02	0.15	37	0.75	3.45	62	4.0
23880	205	219	< 0.2	30.6	< 0.01	0.07	0.2	< 0.01	< 0.02	0.10	31	2.65	2.80	50	3.0
23881	205	219	< 0.2	18.2	< 0.01	0.15	0.6	< 0.01	0.02	0.15	33	1.90	2.25	140	4.5
23882	205	222	0.8	10.0	< 0.01	1.32	1.6	< 0.01	0.02	0.40	42	0.55	3.30	262	14.5
23883	205	222	0.6	8.0	< 0.01	1.13	2.0	< 0.01	0.02	0.45	38	0.85	3.80	702	15.5
23884	205	226	< 0.2	38.4	< 0.01	0.03	0.2	< 0.01	< 0.02	< 0.05	4	0.20	1.95	22	2.5
23885	205	226	< 0.2	138.5	< 0.01	0.01	4.0	< 0.01	< 0.02	0.50	82	0.05	7.20	136	25.0
23886	205	226	< 0.2	20.0	< 0.01	< 0.01	3.8	< 0.01	0.02	0.30	5	< 0.05	2.95	8	15.0
23887	205	222	< 0.2	32.2	< 0.01	0.01	1.4	< 0.01	0.02	0.15	31	0.10	2.90	56	8.0
23888	205	226	< 0.2	171.2	< 0.01	< 0.01	2.0	< 0.01	< 0.02	0.30	57	< 0.05	5.25	62	15.5
23889	205	226	< 0.2	62.5	< 0.01	< 0.01	0.8	< 0.01	< 0.02	0.30	1	0.10	1.35	14	8.5
23890	205	226	< 0.2	303.0	< 0.01	0.01	0.6	< 0.01	< 0.02	0.15	5	< 0.05	6.70	16	8.5
23891	205	222	< 0.2	206.5	< 0.01	0.03	0.8	< 0.01	< 0.02	0.20	1	0.15	4.35	12	7.5
23892	205	222	< 0.2	177.3	< 0.01	0.02	0.2	< 0.01	< 0.02	0.05	1	< 0.05	3.85	8	2.5
23893	205	226	< 0.2	34.8	< 0.01	0.01	6.4	< 0.01	0.06	1.10	< 1	0.05	5.25	278	35.5
23894	205	226	< 0.2	16.4	< 0.01	< 0.01	9.4	< 0.01	< 0.02	1.40	< 1	0.05	6.10	10	40.5
23895	205	226	< 0.2	7.6	< 0.01	0.01	9.2	< 0.01	0.02	1.15	< 1	0.10	5.10	20	37.5
23896	205	222	< 0.2	35.2	< 0.01	< 0.01	2.2	< 0.01	< 0.02	0.35	1	< 0.05	2.00	22	16.0
23897	205	222	< 0.2	137.0	< 0.01	0.05	0.2	< 0.01	< 0.02	< 0.05	9	0.05	3.95	14	2.5
23898	205	222	< 0.2	131.0	< 0.01	0.01	0.8	< 0.01	< 0.02	0.05	84	< 0.05	6.00	80	6.0
23899	205	222	< 0.2	33.0	< 0.01	< 0.01	8.0	< 0.01	< 0.02	1.10	1	0.05	6.80	44	35.0
347977	205	222	< 0.2	155.0	< 0.01	0.01	0.8	< 0.01	< 0.02	0.10	25	0.05	2.55	30	5.5
347978	205	222	< 0.2	120.1	< 0.01	< 0.01	0.8	< 0.01	< 0.02	0.05	20	0.05	2.00	26	4.5
347979	205	222	< 0.2	23.2	< 0.01	< 0.01	1.6	< 0.01	< 0.02	0.55	9	0.05	2.10	24	11.0
347980	205	222	< 0.2	64.7	< 0.01	< 0.01	< 0.2	< 0.01	< 0.02	< 0.05	24	0.25	1.45	14	0.5
347981	--	--	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
347982	205	222	< 0.2	6.8	< 0.01	< 0.01	5.0	< 0.01	0.02	0.85	15	4.30	4.90	72	22.5
347983	205	222	< 0.2	4.8	< 0.01	< 0.01	3.2	< 0.01	< 0.02	0.45	12	4.05	2.70	40	14.0
347984	205	219	< 0.2	4.0	< 0.01	< 0.01	2.8	< 0.01	< 0.02	0.40	11	19.20	2.60	38	12.5
347985	205	226	0.2	19.8	< 0.01	0.03	3.6	0.11	0.02	0.45	26	1.00	4.75	30	25.0
347986	205	226	< 0.2	44.6	< 0.01	0.52	9.0	< 0.01	0.06	1.85	11	0.25	9.55	28	16.5

CERTIFICATION: _____

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number :1-A
Total Pages :1
Certificate Date: 23-AUG-2002
Invoice No. :I0222389
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0222389

SAMPLE	PREP CODE		Au g/t	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe %	Ga ppm	Ge ppm	Hf ppm
23828	205	226	< 0.01	0.09	0.99	2.3	< 10	8.8	< 0.05	0.06	1.19	0.03	3.68	4.7	158	< 0.05	124.5	2.06	2.55	0.10	0.06
23829	205	226	< 0.01	0.02	0.58	4.3	< 10	22.0	< 0.05	0.01	2.38	0.03	7.96	5.2	114	0.10	13.0	1.10	1.45	0.05	0.02
23830	205	226	0.03	5.51	0.14	2.3	< 10	29.0	< 0.05	4.56	2.82	18.10	8.64	1.6	157	< 0.05	58.0	0.51	0.45	< 0.05	0.10
23831	205	226	0.01	0.25	0.28	2.5	< 10	59.0	< 0.05	0.29	0.83	1.62	17.85	2.4	60	0.05	25.6	0.50	0.90	< 0.05	0.24
23832	205	226	0.04	0.15	1.29	2.2	< 10	12.4	0.05	0.13	2.69	0.72	19.35	12.2	56	0.05	41.0	2.28	2.70	0.05	0.22
23954	205	226	< 0.01	0.07	1.03	1.0	< 10	70.8	0.10	0.16	1.52	0.10	32.2	10.0	58	0.10	8.8	1.98	4.40	0.05	0.56
23955	205	226	< 0.01	0.03	1.68	2.0	< 10	17.4	< 0.05	0.02	0.79	0.07	2.36	16.5	192	< 0.05	41.6	3.39	4.45	0.05	0.04
23956	205	226	< 0.01	0.12	3.62	6.3	20	20.6	0.05	0.02	2.65	0.10	4.46	40.9	235	1.05	421	6.28	10.65	0.25	0.06
23957	205	226	< 0.01	0.12	0.48	1.1	10	10.4	0.25	0.09	6.02	0.10	10.80	7.0	111	0.20	51.3	2.42	1.20	0.05	0.24
347981	205	226	< 0.01	0.07	2.63	5.2	< 10	32.4	0.15	0.11	1.59	0.04	15.80	14.6	64	0.20	10.4	3.79	8.20	0.10	0.42
347987	205	226	< 0.01	0.03	1.95	2.4	10	32.8	0.25	0.07	2.25	0.09	15.70	18.3	113	0.25	25.0	6.55	9.60	0.15	0.12

CERTIFICATION:_____

ALS Chemex
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To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number :1-B
Total Pages :1
Certificate Date: 23-AUG-2002
Invoice No. : I0222389
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0222389

SAMPLE	PREP CODE		Hg ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm
23828	205	226	0.01	0.005	< 0.01	1.8	7.5	0.53	565	0.85	< 0.01	0.05	9.0	190	1.0	0.4<	0.001	< 0.01	0.15	2.5	0.2
23829	205	226	0.01<	0.005	0.12	3.8	6.6	0.37	345	0.50	0.01	0.20	13.8	390	1.2	3.5<	0.001	< 0.01	0.15	1.3	0.2
23830	205	226	0.06	0.045	0.10	4.4	1.2	0.03	360	0.85	0.01	0.05	6.2	110	6080	2.0<	0.001	0.24	2.85	0.4	3.6
23831	205	226	0.01	0.005	0.19	8.8	2.0	0.03	150	0.30	0.05	0.05	3.2	250	161.7	4.5<	0.001	0.16	0.15	0.5	0.2
23832	205	226	0.01	0.020	0.15	9.6	10.9	0.66	725	0.70	0.01	0.20	20.8	300	39.6	4.2<	0.001	0.04	0.10	2.8	0.4
23954	205	226	0.04	0.005	0.10	18.0	4.6	0.93	360	0.30	0.12	< 0.05	28.2	480	13.8	3.5<	0.001	0.03	0.10	2.2	0.2
23955	205	226	0.03	0.015	0.03	1.0	9.7	1.07	730	1.10	0.02	0.05	26.6	260	4.0	0.9<	0.001	0.22	0.10	7.9	1.0
23956	205	226	0.03	0.035	0.11	1.8	17.0	3.20	1010	0.40	0.02	0.15	78.6	370	4.8	13.9<	0.001	0.21	0.20	11.1	1.0
23957	205	226	0.03	0.005	0.06	5.4	3.2	2.81	1150	0.70	0.04	0.05	21.0	260	432.3	1.3<	0.001	< 0.01	0.25	1.9	0.2
347981	205	226	0.01	0.005	0.09	8.6	13.5	1.58	495	0.55	0.03	0.05	17.0	860	12.6	1.9<	0.001	< 0.01	0.25	3.6	0.2
347987	205	226	0.01	0.045	0.05	6.4	15.9	0.99	1400	0.95	0.04	0.05	5.2	1690	5.2	2.5<	0.001	< 0.01	0.30	10.4	0.6

CERTIFICATION:_____

ALS Chemex
Aurora Laboratory Services Ltd.
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212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number :1-C
Total Pages :1
Certificate Date: 23-AUG-2002
Invoice No. :I0222389
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0222389

SAMPLE	PREP CODE		Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
23828	205	226	< 0.2	3.6	< 0.01	0.01	0.4	< 0.01	< 0.02	0.05	13	0.15	0.65	36	2.5
23829	205	226	< 0.2	16.2	< 0.01	0.01	0.4	0.04	< 0.02	0.05	12	0.20	2.20	30	1.0
23830	205	226	< 0.2	151.2	< 0.01	2.06	0.6	< 0.01	< 0.02	0.20	< 1	0.20	1.10	1440	3.0
23831	205	226	< 0.2	30.4	< 0.01	0.07	1.0	< 0.01	< 0.02	0.35	2	0.15	1.05	168	6.5
23832	205	226	< 0.2	19.6	< 0.01	0.04	3.0	0.03	< 0.02	0.35	13	0.30	3.65	234	8.5
23954	205	226	< 0.2	103.8	< 0.01	0.01	4.2	< 0.01	< 0.02	0.75	14	0.05	2.80	60	21.0
23955	205	226	< 0.2	7.6	< 0.01	0.01	0.2	< 0.01	< 0.02	< 0.05	72	0.10	1.75	50	2.0
23956	205	226	< 0.2	26.0	< 0.01	0.01	0.2	0.12	0.08	< 0.05	204	0.20	5.25	80	1.5
23957	205	226	< 0.2	16.6	< 0.01	< 0.01	2.0	< 0.01	< 0.02	0.70	10	0.10	5.40	24	10.5
347981	205	226	< 0.2	74.2	< 0.01	< 0.01	2.0	< 0.01	< 0.02	0.30	39	0.15	3.75	80	18.0
347987	205	226	< 0.2	52.5	< 0.01	< 0.01	0.4	0.01	< 0.02	0.05	76	0.10	11.75	88	5.0

CERTIFICATION:_____

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
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To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number :1-A
Total Pages :1
Certificate Date: 30-AUG-2002
Invoice No. :I0222759
P.O. Number :
Account :TBP

* PLEASE NOTE

CERTIFICATE OF ANALYSIS A0222759

SAMPLE	PREP CODE		Au g/t	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe %	Ga ppm	Ge ppm	Hf ppm
23649	205	226	< 0.01	0.10	0.14	3.2	< 10	9.0	< 0.05	0.04	0.09	0.51	3.62	3.5	202	0.10	49.0	0.63	0.60	< 0.05	0.02
23650	205	226	< 0.01	0.03	2.94	3.3	< 10	21.8	0.20	0.01	2.24	0.12	16.70	27.0	69	0.25	63.8	6.28	11.75	0.35	0.22
23839	205	226	0.08	0.04	0.69	30.6	< 10	35.2	0.05	0.06	3.72	0.07	3.02	13.9	114	0.15	31.8	2.14	1.50	0.05	0.06
23840	205	226	< 0.01	0.02	0.62	2.7	< 10	43.6	0.05	0.08	0.32	0.03	21.0	2.9	74	0.20	35.4	1.07	4.10	0.05	0.40
23841	205	226	< 0.01	< 0.01	0.32	2.9	< 10	35.6	0.25	0.12	1.52	0.18	44.4	4.9	83	0.15	31.0	4.81	2.75	0.20	1.56
23842	205	226	0.03	0.88	0.36	2.0	< 10	5.0	< 0.05	0.76	0.27	3.03	1.88	5.1	105	< 0.05	485	0.92	1.10	0.05	0.06
23843	205	226	0.05	0.05	0.14	2.1	< 10	10.2	< 0.05	0.08	0.15	0.07	1.28	3.4	231	0.05	60.2	0.84	0.50	< 0.05	0.06
23844	205	226	< 0.01	0.06	1.36	8.8	< 10	35.2	0.15	0.14	0.17	0.07	24.1	6.0	76	0.15	64.9	3.36	3.25	0.10	0.54
23845	205	226	0.03	0.03	0.36	2.9	< 10	7.2	< 0.05	1.06	1.45	0.14	1.70	5.4	217	< 0.05	31.2	1.10	1.00	< 0.05	0.02
23846	205	226	< 0.01	< 0.01	0.05	2.8	< 10	6.2	< 0.05	0.01	0.08	0.03	1.18	3.2	197	< 0.05	15.8	0.55	0.25	< 0.05	< 0.02
23847	205	226	< 0.01	0.08	0.86	3.2	< 10	44.6	0.15	0.24	0.85	0.05	31.8	18.6	142	0.05	228	3.60	4.10	0.10	0.44
23848	205	226	< 0.01	0.08	0.29	31.2	< 10	14.4	0.05	16.50	0.76	0.07	1.62	24.8	132	< 0.05	126.0	4.32	0.95	0.10	0.02
23901	205	226	< 0.01	0.04	0.86	4.3	< 10	32.4	< 0.05	0.07	2.23	0.08	16.70	9.4	154	0.15	41.2	1.80	1.85	0.05	0.10
23902	205	226	< 0.01	< 0.01	1.30	1.2	< 10	4.4	< 0.05	0.07	0.41	0.01	0.32	8.9	154	0.05	4.6	2.14	2.85	0.10	< 0.02
23903	205	226	< 0.01	0.03	2.72	48.6	< 10	11.0	0.25	0.02	5.43	0.06	6.88	23.6	148	0.75	15.8	4.72	7.65	0.15	0.06
23904	205	226	0.02	0.06	0.41	< 2.0	< 10	2.4	0.05	< 0.01	>15.00	0.11	0.98	5.5	50	0.20	110.5	0.86	1.40	0.05	< 0.02
23905	205	226	< 0.01	0.05	3.62	2.6	< 10	2.6	0.15	0.02	1.97	0.11	5.78	42.8	90	0.25	128.0	6.77	9.15	0.30	0.10
23906	205	226	< 0.01	0.01	1.06	0.2	< 10	16.2	0.05	0.04	0.22	0.01	9.18	7.4	212	0.10	33.6	1.74	2.60	0.05	0.08
23907	205	226	< 0.01	0.12	3.19	1.7	< 10	51.8	0.20	0.01	1.37	0.23	67.3	26.7	49	0.15	139.5	4.18	8.85	0.20	0.38
23908	205	226	< 0.01	0.23	1.80	1.9	< 10	12.0	0.05	0.10	2.37	0.23	15.00	21.5	74	0.10	39.8	6.77	5.80	0.20	0.40
23909	205	226	< 0.01	< 0.01	1.54	0.2	< 10	24.6	0.05	0.01	0.24	0.05	28.8	6.6	57	< 0.05	12.6	2.83	7.75	0.10	0.52
23910	205	226	< 0.01	0.05	0.11	2.1	< 10	15.4	< 0.05	0.01	1.00	0.04	6.60	3.6	202	< 0.05	17.2	0.88	0.50	< 0.05	0.06
23911	205	226	< 0.01	0.03	0.30	2.3	< 10	32.0	0.05	0.16	0.69	0.04	20.1	7.3	177	< 0.05	6.6	1.50	1.00	0.05	0.10
23958	205	226	< 0.01	0.08	2.95	11.6	< 10	40.0	0.60	1.84	3.57	0.10	107.5	26.4	67	0.20	125.0	6.63	10.15	0.30	0.08
23968	205	226	0.05	0.37	0.47	1.7	< 10	28.6	0.05	0.09	0.29	0.02	15.85	10.8	272	0.05	7.6	1.17	1.60	0.05	0.18
23969	205	226	< 0.01	0.71	1.14	3.6	< 10	23.6	0.05	0.04	1.15	0.04	6.06	22.3	485	0.05	16.0	2.06	3.25	0.05	0.10
23970	205	226	0.09	0.71	0.70	2.3	< 10	56.0	0.15	0.13	0.92	0.03	32.2	12.2	143	0.05	28.4	1.33	1.85	0.05	0.34
23971	205	226	0.03	0.36	0.62	4.2	< 10	125.8	0.15	0.05	1.88	0.05	57.3	13.3	163	0.10	28.8	2.12	2.10	0.10	0.34
23972	205	226	< 0.01	0.62	0.27	1.3	< 10	81.4	0.10	0.02	1.05	0.03	38.1	10.5	116	0.05	13.6	1.00	0.90	0.05	0.36
23973	205	226	< 0.01	0.61	0.03	0.5	< 10	9.2	< 0.05	< 0.01	0.15	< 0.01	2.18	5.5	243	< 0.05	19.4	0.44	0.20	< 0.05	0.02
23974	205	226	0.07	0.47	0.21	3.9	< 10	70.2	0.05	0.23	1.12	0.04	28.9	8.5	150	0.05	22.2	0.97	0.65	0.05	0.32
23975	205	226	< 0.01	0.62	0.04	1.3	< 10	4.8	< 0.05	0.05	0.30	0.01	0.56	5.6	262	< 0.05	21.2	0.50	0.20	< 0.05	< 0.02
23976	205	226	0.01	0.04	0.33	6.9	< 10	18.0	< 0.05	0.05	0.24	0.02	4.86	4.9	271	0.05	4.4	1.13	1.05	< 0.05	0.06
23977	205	226	0.53	0.05	1.98	6.8	< 10	24.8	0.10	0.05	8.64	0.26	2.74	44.6	660	0.10	81.4	5.19	6.25	0.30	0.08
23978	205	226	< 0.01	0.01	0.08	1.9	< 10	15.2	< 0.05	0.04	0.43	0.02	0.98	2.4	214	0.05	5.6	0.70	0.25	< 0.05	0.02
23979	205	226	0.09	0.06	1.17	18.5	< 10	133.4	0.25	0.10	2.34	0.08	100.5	20.7	42	0.15	59.1	3.34	4.40	0.15	0.08

CERTIFICATION:_____*+

*INTERFERENCE: Ca (>15%) ON ICP-MS As, ICP-AES RESULT SHOWN.

ALS Chemex

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To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number :1-B
Total Pages :1
Certificate Date: 30-AUG-2002
Invoice No. :I0222759
P.O. Number :
Account :TBP

* PLEASE NOTE

CERTIFICATE OF ANALYSIS A0222759

SAMPLE	PREP CODE		Hg ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm
23649	205	226	0.01	0.005	0.05	1.6	1.8	0.06	115	1.10	< 0.01	0.05	8.4	40	1.0	3.2<	0.001	0.01	0.30	0.7	< 0.2
23650	205	226	< 0.01	0.020	0.04	7.4	8.8	1.51	1180	1.55	0.02	0.40	25.6	1320	1.8	3.6	0.001	0.11	0.60	8.7	0.4
23839	205	226	0.01<	0.005	0.12	1.2	4.6	1.33	555	1.65	0.01	0.05	50.3	300	2.4	2.7<	0.001	0.15	0.55	2.1	< 0.2
23840	205	226	< 0.01	0.005	0.12	9.4	7.3	0.31	165	0.75	0.09	0.15	4.6	270	3.8	4.5<	0.001	0.05	0.20	1.5	< 0.2
23841	205	226	0.12	0.160	0.06	18.6	4.0	0.39	985	4.15	0.08	0.15	3.4	480	3.0	1.5<	0.001	0.06	1.20	5.5	< 0.2
23842	205	226	0.01	0.245	0.01	0.8	2.1	0.21	125	0.60	0.01	0.05	8.2	70	0.8	0.5<	0.001	0.09	0.15	1.1	< 0.2
23843	205	226	< 0.01<	0.005	0.08	0.6	1.1	0.04	95	1.30	< 0.01	0.10	13.0	70	12.8	2.9<	0.001	0.10	0.15	0.4	< 0.2
23844	205	226	< 0.01	0.025	0.41	12.0	8.9	0.45	280	2.60	0.01	0.60	17.0	580	3.0	10.5	0.001	0.13	0.15	3.3	1.0
23845	205	226	< 0.01<	0.005	0.03	0.6	2.4	0.20	330	44.10	0.01	0.05	14.0	60	1.6	0.9	0.012	0.13	0.20	1.8	< 0.2
23846	205	226	< 0.01<	0.005	0.01	0.6	0.6	0.01	90	1.35	0.01	< 0.05	5.0	10	1.4	0.5<	0.001	< 0.01	0.15	0.3	< 0.2
23847	205	226	< 0.01	0.015	0.10	14.0	5.5	0.51	405	1.35	0.13	0.05	30.2	590	1.2	2.5<	0.001	0.49	0.15	3.8	0.4
23848	205	226	< 0.01	0.010	0.04	0.6	2.4	0.25	635	0.65	0.04	0.05	77.3	60	1.2	1.0<	0.001	0.91	0.25	4.2	1.0
23901	205	226	< 0.01	0.005	0.04	7.2	5.4	0.95	720	2.00	0.04	0.20	26.2	380	1.2	1.9	0.001	0.08	0.15	1.8	< 0.2
23902	205	226	< 0.01<	0.005	< 0.01	< 0.2	11.9	0.97	330	0.60	0.01	< 0.05	27.0	30	0.2	0.9<	0.001	< 0.01	0.05	2.6	< 0.2
23903	205	226	< 0.01	0.020	0.09	3.0	11.8	2.12	835	0.90	0.01	0.10	66.1	330	1.2	4.8<	0.001	0.03	0.20	9.5	< 0.2
23904	205	226	0.01	0.020	< 0.01	0.6	1.8	0.27	1055	0.25	< 0.01	0.05	6.8	50	3.2	0.6<	0.001	0.06	0.15	4.9	< 0.2
23905	205	226	< 0.01	0.005	< 0.01	2.2	12.7	2.19	1060	0.30	0.01	0.20	46.0	570	0.6	0.7	0.001	0.27	0.15	6.1	0.4
23906	205	226	< 0.01<	0.005	0.06	4.6	5.8	0.77	250	0.95	0.01	0.15	20.8	300	1.0	1.7<	0.001	< 0.01	0.05	1.3	< 0.2
23907	205	226	0.01	0.020	0.16	29.2	15.5	2.45	625	0.30	0.01	0.20	72.6	1620	2.4	4.1<	0.001	0.03	0.15	5.5	< 0.2
23908	205	226	0.04	0.030	0.06	7.6	15.9	0.93	720	2.05	0.03	0.15	33.4	250	14.2	1.7	0.001	2.40	1.25	2.9	0.4
23909	205	226	< 0.01	0.005	0.05	13.8	13.6	0.91	730	0.35	0.06	0.20	14.6	490	2.4	1.3<	0.001	0.28	0.15	2.8	< 0.2
23910	205	226	< 0.01<	0.005	0.02	2.6	1.1	0.36	365	1.10	0.01	0.10	27.2	670	1.6	0.8<	0.001	0.01	0.25	2.7	< 0.2
23911	205	226	0.01	0.005	0.05	8.4	2.5	0.49	405	0.60	0.01	< 0.05	25.4	190	1.6	1.6<	0.001	0.29	0.25	2.8	< 0.2
23958	205	226	0.01	0.040	0.23	47.8	22.7	2.01	1410	0.60	0.05	0.15	50.4	2410	17.4	5.4<	0.001	0.03	0.30	8.0	< 0.2
23968	205	226	0.01<	0.005	0.05	7.4	3.2	0.52	170	0.60	0.02	< 0.05	55.1	210	1.4	1.6<	0.001	0.07	0.15	2.0	< 0.2
23969	205	226	0.01	0.005	0.05	2.4	9.4	1.63	355	1.15	< 0.01	0.05	161.0	380	1.4	1.5<	0.001	0.02	0.15	4.8	< 0.2
23970	205	226	0.01<	0.005	0.14	15.0	5.8	0.80	220	0.50	0.01	< 0.05	41.4	650	3.4	3.5<	0.001	0.05	0.20	1.5	< 0.2
23971	205	226	0.01	0.005	0.21	28.0	4.3	0.80	500	0.80	0.04	0.05	32.0	1570	3.6	5.5<	0.001	0.17	0.30	2.4	< 0.2
23972	205	226	0.01<	0.005	0.18	18.6	2.0	0.37	265	0.40	0.02	< 0.05	17.4	790	2.0	4.8<	0.001	0.07	0.20	1.2	< 0.2
23973	205	226	0.01<	0.005	0.01	1.0	0.1	0.05	95	1.15	0.01	0.05	12.4	130	0.4	0.5<	0.001	< 0.01	0.15	0.5	< 0.2
23974	205	226	0.01<	0.005	0.14	13.2	1.3	0.40	250	0.45	0.02	< 0.05	18.2	520	8.4	3.4<	0.001	0.13	0.25	1.1	< 0.2
23975	205	226	0.01<	0.005	0.01	0.2	0.3	0.14	90	1.10	0.01	0.05	16.2	< 10	0.6	0.4<	0.001	< 0.01	0.15	0.4	< 0.2
23976	205	226	0.01<	0.005	0.04	2.2	3.2	0.37	175	0.60	0.01	< 0.05	50.9	20	1.8	1.3<	0.001	0.02	0.15	1.3	< 0.2
23977	205	226	< 0.01	0.025	< 0.01	1.0	14.4	6.53	2290	0.60	< 0.01	0.10	250.0	50	5.6	0.3<	0.001	0.08	0.10	13.5	< 0.2
23978	205	226	< 0.01<	0.005	0.01	0.2	0.6	0.22	185	1.20	0.02	< 0.05	9.2	70	2.0	0.7<	0.001	0.01	0.10	0.7	< 0.2
23979	205	226	< 0.01	0.010	0.30	46.6	8.2	1.27	570	0.10	0.04	0.05	50.0	2690	4.8	8.6<	0.001	0.50	0.25	2.5	< 0.2

CERTIFICATION:_____*+

*INTERFERENCE: Ca (>15%) ON ICP-MS As, ICP-AES RESULT SHOWN.

ALS Chemex

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To: FRONTEER DEVELOPMENT GROUP INC. *

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Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number : 1-C
Total Pages : 1
Certificate Date: 30-AUG-2002
Invoice No. : 10222759
P.O. Number :
Account : TBP

* PLEASE NOTE

CERTIFICATE OF ANALYSIS A0222759

SAMPLE	PREP CODE		Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
23649	205	226	< 0.2	2.6	< 0.01	< 0.01	< 0.2	< 0.01	< 0.02	< 0.05	7	0.35	0.70	158	1.5
23650	205	226	0.2	41.4	< 0.01	0.01	0.6	0.28	< 0.02	0.05	72	0.40	12.65	124	5.5
23839	205	226	< 0.2	123.4	< 0.01	0.01	< 0.2	< 0.01	< 0.02	< 0.05	11	0.25	2.45	22	3.0
23840	205	226	0.2	12.4	< 0.01	0.02	1.6	0.05	0.02	0.45	14	0.30	1.75	22	12.5
23841	205	226	0.2	81.5	< 0.01	0.03	2.0	< 0.01	< 0.02	0.35	3	0.25	16.55	94	73.5
23842	205	226	< 0.2	7.6	< 0.01	0.42	< 0.2	0.03	< 0.02	< 0.05	15	0.20	1.15	156	2.0
23843	205	226	< 0.2	4.0	< 0.01	0.02	< 0.2	< 0.01	< 0.02	< 0.05	3	0.25	0.70	30	3.0
23844	205	226	0.2	4.2	0.01	0.12	3.2	0.13	0.02	0.50	17	0.20	6.35	62	21.5
23845	205	226	< 0.2	17.0	< 0.01	0.62	< 0.2	< 0.01	< 0.02	< 0.05	11	0.65	1.65	14	1.5
23846	205	226	< 0.2	1.8	< 0.01	0.02	< 0.2	< 0.01	< 0.02	< 0.05	4	0.25	0.40	20	0.5
23847	205	226	< 0.2	11.6	< 0.01	0.10	2.0	< 0.01	< 0.02	0.20	16	0.70	3.20	26	14.0
23848	205	226	< 0.2	6.6	< 0.01	10.15	< 0.2	< 0.01	< 0.02	< 0.05	18	1.30	0.75	22	0.5
23901	205	226	< 0.2	20.6	< 0.01	0.04	1.0	0.08	< 0.02	0.10	21	0.50	2.15	36	3.5
23902	205	226	< 0.2	1.8	< 0.01	0.03	< 0.2	< 0.01	< 0.02	< 0.05	44	0.20	0.20	34	< 0.5
23903	205	226	< 0.2	198.5	< 0.01	0.01	< 0.2	0.01	0.02	< 0.05	75	0.55	4.30	50	2.0
23904	205	226	< 0.2	547.0	< 0.01	0.01	< 0.2	0.01	< 0.02	< 0.05	16	0.15	2.55	12	< 0.5
23905	205	226	< 0.2	40.8	< 0.01	0.01	< 0.2	0.15	< 0.02	< 0.05	139	0.20	7.85	90	2.5
23906	205	226	0.2	6.0	< 0.01	< 0.01	0.2	0.04	< 0.02	< 0.05	15	0.25	1.20	32	3.5
23907	205	226	< 0.2	31.6	< 0.01	< 0.01	4.0	0.10	0.02	0.40	38	0.45	8.35	82	15.5
23908	205	226	< 0.2	37.8	< 0.01	0.07	2.0	< 0.01	0.02	0.25	20	0.15	2.35	128	17.0
23909	205	226	0.2	12.6	< 0.01	< 0.01	3.4	0.05	< 0.02	0.60	22	0.20	3.25	72	20.0
23910	205	226	< 0.2	96.1	< 0.01	0.19	< 0.2	< 0.01	< 0.02	< 0.05	3	0.20	3.45	14	2.5
23911	205	226	< 0.2	58.7	< 0.01	0.10	0.2	< 0.01	< 0.02	< 0.05	9	0.20	4.00	22	4.5
23958	205	226	0.2	58.6	< 0.01	0.84	8.8	< 0.01	0.02	1.15	62	0.20	16.05	138	5.0
23968	205	226	< 0.2	25.4	< 0.01	0.06	0.4	< 0.01	< 0.02	0.05	16	3.75	1.15	20	9.0
23969	205	226	< 0.2	106.8	< 0.01	0.08	< 0.2	< 0.01	< 0.02	< 0.05	27	6.05	2.55	68	4.0
23970	205	226	< 0.2	82.0	< 0.01	0.02	0.8	< 0.01	0.02	0.15	14	5.10	2.30	62	17.5
23971	205	226	< 0.2	213.0	< 0.01	0.01	1.8	< 0.01	0.02	0.35	8	2.75	6.50	46	24.0
23972	205	226	< 0.2	130.0	< 0.01	0.01	1.0	< 0.01	0.02	0.20	5	4.70	3.10	20	18.0
23973	205	226	< 0.2	12.6	< 0.01	< 0.01	< 0.2	< 0.01	< 0.02	< 0.05	1	5.05	0.55	8	1.5
23974	205	226	< 0.2	84.9	< 0.01	0.29	0.8	< 0.01	0.02	0.15	6	2.95	2.05	18	16.0
23975	205	226	< 0.2	18.8	< 0.01	0.06	< 0.2	< 0.01	< 0.02	< 0.05	1	4.60	0.20	12	1.0
23976	205	226	< 0.2	30.2	< 0.01	0.02	< 0.2	< 0.01	< 0.02	< 0.05	9	0.50	0.75	24	2.5
23977	205	226	< 0.2	832.0	< 0.01	0.04	< 0.2	< 0.01	< 0.02	< 0.05	78	0.25	3.00	54	3.0
23978	205	226	< 0.2	35.4	< 0.01	0.01	< 0.2	< 0.01	< 0.02	< 0.05	6	0.25	0.60	6	1.0
23979	205	226	< 0.2	257.0	< 0.01	0.05	2.8	< 0.01	0.04	0.45	15	0.20	7.65	74	8.0

CERTIFICATION: _____ *+

*INTERFERENCE: Ca (>15%) ON ICP-MS As, ICP-AES RESULT SHOWN.

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number : 1-A
Total Pages : 1
Certificate Date: 03-SEP-2002
Invoice No. : I0222995
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0222995

SAMPLE	PREP CODE		Au g/t	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe %	Ga ppm	Ge ppm	Hf ppm
23912	205	226	0.18	0.11	0.07	>10000	40	1.2	< 0.05	0.50	0.19	0.56	0.54	11.6	168	< 0.05	32.8	1.73	0.30	0.05	< 0.02
23913	205	226	0.08	0.05	2.35	49.8	< 10	4.4	0.05	0.01	2.02	0.11	8.20	65.2	30	0.20	120.5	6.61	7.15	0.30	0.18
23914	205	226	3.18	0.27	0.38	3700	30	11.4	< 0.05	1.51	0.92	0.12	1.80	4.3	167	< 0.05	114.0	1.27	0.85	0.05	< 0.02
23915	205	226	< 0.01	0.04	0.27	69.2	30	6.8	< 0.05	0.09	0.06	0.10	0.44	3.3	207	< 0.05	60.5	0.70	0.65	< 0.05	< 0.02
23980	205	226	< 0.01	0.01	1.15	9.7	20	54.8	0.15	0.10	0.82	0.04	28.2	5.3	61	0.15	24.4	1.42	3.10	0.05	0.38
23981	205	226	< 0.01	< 0.01	0.39	13.2	30	26.0	0.05	0.03	0.87	0.21	10.70	4.1	156	0.05	10.2	1.47	1.05	0.05	0.24
23982	205	226	< 0.01	< 0.01	0.21	5.8	20	46.8	0.15	0.09	2.64	0.07	34.9	8.4	90	0.15	15.8	2.90	0.95	0.10	0.76
23983	205	226	< 0.01	0.01	1.51	26.4	30	47.0	0.05	0.03	1.26	0.04	27.8	12.0	54	0.25	25.6	2.39	5.65	0.10	0.32
347991	205	226	< 0.01	0.06	0.28	121.5	30	40.0	0.20	0.02	8.10	0.09	25.3	21.6	24	0.25	41.0	3.88	0.95	0.15	0.48

CERTIFICATION:

ALS Chemex

Aurora Laboratory Services Ltd.
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212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

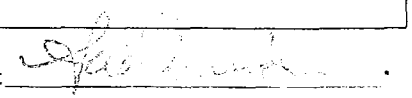
2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number : 1-B
Total Pages : 1
Certificate Date: 03-SEP-2002
Invoice No. : I0222995
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0222995

SAMPLE	PREP CODE		Hg ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm
23912	205	226	0.08	0.025	< 0.01	0.2	0.4	0.05	75	0.75	0.01	0.05	33.6	< 10	6.0	0.1<	0.001	0.79	2.30	0.5	1.2
23913	205	226	0.08	0.005	< 0.01	4.0	12.6	1.54	695	0.35	0.02	0.15	17.6	320	5.8	0.8	0.007	0.58	1.30	6.0	1.4
23914	205	226	< 0.01	0.025	0.04	0.8	2.3	0.28	255	0.65	0.01	< 0.05	13.4	30	1.6	0.9<	0.001	0.19	0.80	1.5	0.6
23915	205	226	< 0.01	0.005	0.03	< 0.2	1.6	0.16	100	0.60	0.01	< 0.05	10.8	10	3.2	0.7<	0.001	0.01	0.15	1.0	< 0.2
23980	205	226	0.01<	0.005	0.19	14.8	12.9	0.76	195	1.10	0.03	< 0.05	8.8	320	3.8	5.6	0.001	0.05	0.20	1.3	< 0.2
23981	205	226	< 0.01	< 0.005	0.07	7.4	2.6	0.33	355	0.80	0.03	< 0.05	14.6	370	3.8	2.0<	0.001	< 0.01	0.10	1.5	< 0.2
23982	205	226	0.01	0.005	0.13	18.8	0.7	0.58	1660	0.90	0.03	0.25	8.0	470	10.6	4.4<	0.001	< 0.01	0.20	2.2	0.2
23983	205	226	< 0.01	0.005	0.12	13.6	20.0	0.69	610	0.45	0.07	0.05	30.6	500	2.6	4.3<	0.001	0.11	2.10	2.5	< 0.2
347991	205	226	0.01	0.005	0.23	11.8	1.4	3.11	2270	0.65	0.01	0.10	75.5	430	7.0	6.0<	0.001	0.01	0.90	3.1	0.2

CERTIFICATION: 

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To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number : 1-C
Total Pages : 1
Certificate Date: 03-SEP-2002
Invoice No. : I0222995
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0222995

SAMPLE	PREP CODE		Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
23912	205	226	< 0.2	2.4	< 0.01	2.93	< 0.2	< 0.01	< 0.02	< 0.05	5	18.75	0.30	18	< 0.5
23913	205	226	< 0.2	29.4	< 0.01	0.03	1.2	0.24	< 0.02	0.05	347	66.3	4.75	98	4.5
23914	205	226	< 0.2	7.2	< 0.01	0.46	< 0.2	< 0.01	< 0.02	< 0.05	15	2.25	1.10	22	0.5
23915	205	226	< 0.2	1.8	< 0.01	0.05	< 0.2	< 0.01	< 0.02	< 0.05	12	1.60	0.35	20	< 0.5
23980	205	226	< 0.2	26.4	< 0.01	0.01	3.0	0.01	0.02	0.45	18	13.20	2.25	52	16.0
23981	205	226	< 0.2	26.6	< 0.01	0.01	1.2	< 0.01	< 0.02	0.20	8	1.00	2.65	36	10.0
23982	205	226	< 0.2	97.4	< 0.01	0.01	4.0	0.01	< 0.02	0.95	3	11.95	6.50	66	33.0
23983	205	226	< 0.2	42.4	< 0.01	0.02	2.2	< 0.01	0.02	0.35	20	0.85	3.35	52	12.5
347991	205	226	< 0.2	245.0	< 0.01	< 0.01	2.0	< 0.01	< 0.02	0.35	8	1.40	6.35	72	20.0

CERTIFICATION:

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To: FRONTEER DEVELOPMENT GROUP INC.

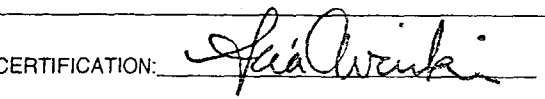
2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number : 1-A
Total Pages : 1
Certificate Date: 11-SEP-2002
Invoice No. : I0223508
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0223508

SAMPLE	PREP CODE		Au g/t	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe %	Ga ppm	Ge ppm	Hf ppm
23917	205	226	< 0.01	0.08	1.59	3.6	< 10	92.2	0.25	0.10	3.18	0.08	36.2	15.8	74	1.00	58.5	2.39	5.45	0.10	0.56
23918	205	226	< 0.01	0.01	0.13	0.7	< 10	6.0	< 0.05	0.05	0.15	0.01	0.60	1.7	124	0.05	7.2	0.45	0.40	< 0.05	0.02
23919	205	226	< 0.01	0.04	0.45	2.6	< 10	23.6	0.05	0.08	0.53	0.04	7.42	3.4	119	0.10	10.0	0.65	1.60	< 0.05	0.08
23920	205	226	< 0.01	0.01	0.19	0.5	< 10	10.2	< 0.05	0.01	0.27	0.01	3.60	1.7	132	0.05	3.8	0.48	0.70	< 0.05	0.02
23986	205	226	0.13	0.12	0.52	98.9	< 10	18.8	< 0.05	0.64	0.44	0.01	8.46	6.5	129	0.05	7.2	1.26	2.65	0.05	0.12
23987	205	226	< 0.01	0.04	0.17	1.8	< 10	7.4	< 0.05	0.01	0.23	0.03	1.08	3.1	110	0.15	67.6	0.48	0.55	< 0.05	< 0.02
23988	205	226	< 0.01	< 0.01	0.08	1.2	< 10	5.6	< 0.05	< 0.01	0.81	0.04	0.34	1.3	191	0.05	11.8	0.39	0.25	< 0.05	< 0.02
347993	205	226	0.02	0.03	0.35	1.1	< 10	25.6	0.05	0.15	0.80	0.03	16.50	6.6	95	0.20	12.6	1.83	1.25	0.05	0.26
347994	205	226	< 0.01	< 0.01	2.19	0.8	< 10	19.4	0.70	0.05	2.80	0.01	18.35	8.4	59	0.10	5.0	1.18	7.45	0.20	0.44
347995	205	226	0.01	0.06	2.19	3.9	< 10	22.2	0.15	0.04	2.02	0.06	43.2	17.1	130	0.05	69.8	3.30	8.65	0.15	0.64
347996	205	226	< 0.01	< 0.01	0.93	1.0	< 10	4.2	< 0.05	< 0.01	0.31	0.01	0.66	7.9	217	0.05	7.2	1.66	1.60	0.05	0.02
347997	205	226	0.07	0.44	0.90	1.9	< 10	14.4	< 0.05	0.01	0.49	0.56	9.10	7.6	151	< 0.05	618	1.67	1.80	0.05	0.06

CERTIFICATION: 

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC. *

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number :1-B
Total Pages :1
Certificate Date: 11-SEP-2002
Invoice No. :I0223508
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0223508

SAMPLE	PREP CODE		Hg ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm
23917	205	226	< 0.01	0.010	0.37	17.8	12.1	1.35	695	0.85	0.03	0.10	22.6	750	5.8	19.3	< 0.001	0.01	0.55	4.8	0.2
23918	205	226	< 0.01	< 0.005	0.01	0.2	1.4	0.07	55	0.50	< 0.01	< 0.05	5.6	20	0.8	0.7	< 0.001	< 0.01	0.05	0.3	< 0.2
23919	205	226	< 0.01	< 0.005	0.06	3.6	2.5	0.20	110	0.75	0.05	0.20	10.4	310	12.8	1.7	< 0.001	< 0.01	0.20	0.7	< 0.2
23920	205	226	< 0.01	< 0.005	0.02	1.6	2.7	0.11	75	0.65	< 0.01	0.05	5.8	40	1.0	0.8	< 0.001	< 0.01	0.05	0.3	< 0.2
23986	205	226	< 0.01	0.005	0.04	4.2	3.8	0.35	160	0.75	0.05	0.15	19.0	220	12.8	1.3	< 0.001	0.07	1.75	1.0	0.2
23987	205	226	< 0.01	< 0.005	0.01	0.4	1.4	0.13	85	0.40	0.02	< 0.05	9.0	150	0.2	1.6	< 0.001	< 0.01	0.05	0.8	< 0.2
23988	205	226	< 0.01	< 0.005	< 0.01	< 0.2	0.5	0.06	160	0.95	0.02	0.05	6.6	10	0.8	0.4	< 0.001	< 0.01	0.10	0.8	< 0.2
347993	205	226	< 0.01	< 0.005	0.09	8.6	1.6	0.23	550	0.50	0.03	0.15	5.4	190	10.2	5.7	< 0.001	0.11	0.40	0.9	< 0.2
347994	205	226	< 0.01	0.005	0.04	9.2	16.8	1.24	525	0.65	0.07	0.10	13.8	420	1.6	1.4	< 0.001	0.01	0.30	1.4	0.2
347995	205	226	< 0.01	0.025	0.07	20.8	12.7	1.42	515	0.60	0.05	0.15	57.0	840	1.8	2.2	< 0.001	0.03	0.05	4.9	0.2
347996	205	226	< 0.01	< 0.005	0.02	0.2	5.2	0.79	260	0.80	0.01	0.05	22.4	50	< 0.2	1.5	< 0.001	< 0.01	0.05	2.1	< 0.2
347997	205	226	< 0.01	0.035	0.04	4.4	4.9	0.76	215	0.55	0.01	0.10	20.2	200	0.6	1.4	< 0.001	0.13	0.10	2.2	0.6

CERTIFICATION:

ALS Chemex

Aurora Laboratory Services Ltd.
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212 Brooksbank Ave., North Vancouver
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To: FRONTEER DEVELOPMENT GROUP INC. *

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Certificate Date: 11-SEP-2002
Invoice No. : I0223508
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0223508

SAMPLE	PREP CODE		Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
23917	205	226	< 0.2	167.3	< 0.01	< 0.01	6.6	0.06	0.14	1.50	28	0.55	6.05	50	19.5
23918	205	226	< 0.2	6.0	< 0.01	0.01	< 0.2	< 0.01	0.02	< 0.05	4	0.15	0.15	6	0.5
23919	205	226	< 0.2	47.8	< 0.01	< 0.01	1.0	0.04	0.02	0.15	6	0.15	0.55	26	2.5
23920	205	226	< 0.2	5.8	< 0.01	< 0.01	0.2	< 0.01	< 0.02	0.05	3	0.15	0.20	10	1.5
23986	205	226	< 0.2	12.2	< 0.01	0.12	0.8	0.03	0.02	0.15	14	0.20	1.45	14	4.0
23987	205	226	< 0.2	4.6	< 0.01	< 0.01	< 0.2	0.01	< 0.02	< 0.05	7	0.15	0.60	6	< 0.5
23988	205	226	< 0.2	4.6	< 0.01	< 0.01	< 0.2	< 0.01	< 0.02	< 0.05	4	0.20	0.15	6	< 0.5
347993	205	226	< 0.2	25.2	< 0.01	0.01	1.6	0.01	0.02	0.20	5	0.15	2.15	34	8.5
347994	205	226	0.2	244.0	< 0.01	< 0.01	2.0	0.06	< 0.02	0.55	19	0.20	1.90	30	12.5
347995	205	226	< 0.2	45.2	< 0.01	0.01	5.6	0.03	0.02	0.60	44	0.05	3.80	56	23.0
347996	205	226	< 0.2	3.4	< 0.01	< 0.01	< 0.2	0.04	< 0.02	< 0.05	35	0.25	0.80	16	0.5
347997	205	226	< 0.2	3.2	< 0.01	0.04	1.0	0.03	< 0.02	0.15	26	0.35	1.60	56	2.0

CERTIFICATION:

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To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
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Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number : 1-A
Total Pages : 1
Certificate Date: 16-SEP-2002
Invoice No. : 10223670
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0223670

SAMPLE	PREP CODE		Au g/t	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe %	Ga ppm	Ge ppm	Hf ppm
23928	205	226	< 0.01	0.01	0.82	3.7	< 10	6.0	< 0.05	0.01	1.17	0.04	2.38	7.5	142	0.10	26.0	1.68	2.90	0.05	< 0.02
23929	205	226	0.02	0.01	1.02	85.2	< 10	8.6	0.05	0.03	2.19	0.05	33.5	5.2	59	< 0.05	15.8	1.79	6.20	0.05	0.38
23930	205	226	0.06	0.20	2.39	70.7	< 10	12.4	< 0.05	0.01	6.06	0.41	3.76	24.4	89	0.15	504	5.07	7.80	0.20	0.04
23931	205	226	0.06	< 0.01	1.24	163.0	< 10	67.6	0.15	0.12	1.52	0.07	33.1	6.4	53	0.15	21.6	2.36	3.10	0.05	0.36
23932	205	226	< 0.01	0.01	1.03	6.9	< 10	9.6	< 0.05	< 0.01	2.59	0.07	3.98	9.7	153	0.05	47.6	1.72	2.45	< 0.05	0.04
23989	205	226	< 0.01	< 0.01	1.59	2.1	< 10	10.6	< 0.05	< 0.01	10.55	0.04	0.92	15.2	179	0.05	5.6	2.11	2.95	< 0.05	0.02
23990	205	226	< 0.01	0.04	3.23	2.0	< 10	19.2	< 0.05	< 0.01	8.04	0.07	6.00	31.0	330	0.10	135.0	4.76	7.80	0.15	0.06
23991	205	226	< 0.01	< 0.01	0.22	1.2	< 10	4.6	< 0.05	< 0.01	0.96	0.02	0.62	3.1	215	0.05	9.4	0.60	0.75	< 0.05	< 0.02
23992	205	226	0.30	4.69	1.06	16.5	< 10	24.6	< 0.05	0.09	3.15	3.33	2.60	30.6	146	0.15	7420	2.91	3.25	0.05	< 0.02
23993	205	226	0.02	0.05	0.27	0.6	< 10	37.4	0.15	0.28	0.09	0.20	15.75	0.8	106	0.30	64.3	0.59	1.50	< 0.05	1.24
347919	205	226	< 0.01	0.05	1.05	11.0	< 10	8.4	< 0.05	0.01	0.99	0.09	2.86	11.0	348	< 0.05	63.5	2.08	3.45	0.05	0.06
347920	205	226	< 0.01	< 0.01	0.41	0.7	< 10	3.0	< 0.05	< 0.01	0.26	0.02	0.28	4.2	266	< 0.05	9.8	0.84	1.00	< 0.05	< 0.02
347921	205	226	0.02	0.28	3.35	2.3	< 10	19.2	0.35	0.04	3.95	0.14	32.8	33.1	45	0.10	3080	8.34	15.00	0.20	0.44
347923	205	226	< 0.01	0.01	1.29	0.3	< 10	6.8	< 0.05	< 0.01	7.19	0.10	3.90	8.1	80	0.20	21.6	2.34	3.70	0.05	0.10
347998	205	226	< 0.01	< 0.01	1.02	0.9	< 10	18.4	< 0.05	< 0.01	0.80	0.13	2.28	10.5	281	0.15	14.0	2.30	3.20	0.05	0.02
347999	205	226	< 0.01	< 0.01	0.20	1.1	< 10	2.6	< 0.05	< 0.01	0.80	0.03	0.78	2.1	179	< 0.05	9.8	0.60	0.65	< 0.05	0.02

CERTIFICATION:

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number :1-B
Total Pages :1
Certificate Date: 16-SEP-2002
Invoice No. :I0223670
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0223670

SAMPLE	PREP CODE		Hg ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm
23928	205	226	< 0.01	0.005	< 0.01	1.0	3.7	0.53	275	0.55	< 0.01	0.05	21.8	90	0.8	1.1	< 0.001	< 0.01	0.05	2.5	< 0.2
23929	205	226	< 0.01	0.010	0.02	18.0	5.7	0.50	360	0.60	0.12	0.30	10.8	590	1.6	0.7	< 0.001	< 0.01	0.10	3.5	< 0.2
23930	205	226	< 0.01	0.055	0.04	1.6	7.2	1.41	1000	0.50	0.02	0.15	31.6	290	1.2	1.7	0.001	0.31	0.10	14.1	1.0
23931	205	226	< 0.01	0.005	0.43	16.6	5.6	0.54	320	0.50	0.04	0.30	9.2	780	1.2	11.3	< 0.001	0.60	0.10	1.7	0.4
23932	205	226	< 0.01	0.005	0.02	1.6	6.2	0.72	390	0.50	0.03	0.15	25.2	110	0.6	0.8	< 0.001	0.03	0.05	3.3	< 0.2
23989	205	226	< 0.01	< 0.005	0.03	0.4	6.7	1.27	1005	0.60	0.02	0.05	32.6	80	0.6	1.5	0.001	< 0.01	0.05	7.1	< 0.2
23990	205	226	< 0.01	0.005	0.03	2.4	15.4	2.54	1145	0.45	0.01	0.15	100.5	290	1.0	2.6	< 0.001	< 0.01	0.05	4.7	0.2
23991	205	226	< 0.01	< 0.005	< 0.01	0.2	1.2	0.17	155	1.20	0.01	0.15	12.8	40	0.4	1.0	< 0.001	< 0.01	0.05	1.1	< 0.2
23992	205	226	0.04	0.325	0.05	1.0	4.6	0.80	540	0.75	0.04	0.15	85.2	140	1.2	3.1	< 0.001	0.71	0.10	2.4	3.4
23993	205	226	< 0.01	0.020	0.15	6.4	1.3	0.04	120	0.90	0.08	1.40	4.8	10	6.6	9.3	< 0.001	0.13	0.10	1.9	0.4
347919	205	226	< 0.01	0.010	< 0.01	1.0	5.7	0.79	475	0.70	0.01	0.25	44.4	70	1.4	0.4	< 0.001	0.01	0.05	5.3	0.2
347920	205	226	< 0.01	< 0.005	< 0.01	< 0.2	2.0	0.36	130	1.40	< 0.01	0.05	19.2	10	0.4	0.4	< 0.001	< 0.01	0.05	1.4	< 0.2
347921	205	226	< 0.01	0.445	0.03	13.8	16.0	1.57	1515	2.15	0.04	0.25	3.0	1770	1.6	1.5	0.004	0.35	0.20	21.4	3.6
347923	205	226	< 0.01	0.025	0.01	1.6	6.9	0.85	795	0.55	0.01	0.05	14.0	80	3.2	0.6	< 0.001	< 0.01	0.05	7.2	< 0.2
347998	205	226	< 0.01	0.015	< 0.01	1.0	5.0	0.66	545	1.35	0.01	0.25	29.8	80	1.8	0.7	< 0.001	< 0.01	0.05	5.2	< 0.2
347999	205	226	< 0.01	< 0.005	< 0.01	0.2	1.1	0.14	125	0.65	< 0.01	< 0.05	9.4	10	0.8	0.2	< 0.001	< 0.01	0.05	1.1	< 0.2

CERTIFICATION: _____

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number :1-C
Total Pages :1
Certificate Date: 16-SEP-2002
Invoice No. :10223670
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0223670

SAMPLE	PREP CODE		Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
23928	205	226	0.2	15.0	< 0.01	< 0.01	< 0.2	0.04	< 0.02	< 0.05	51	0.20	1.35	26	< 0.5
23929	205	226	0.6	21.4	< 0.01	< 0.01	3.2	0.07	< 0.02	0.60	32	0.80	3.40	36	16.0
23930	205	226	0.2	76.8	< 0.01	0.04	< 0.2	0.10	< 0.02	< 0.05	145	2.00	4.70	78	1.0
23931	205	226	0.2	11.2	< 0.01	0.02	3.2	0.08	0.04	0.40	14	1.65	5.90	40	16.0
23932	205	226	0.2	18.4	< 0.01	< 0.01	0.2	0.07	< 0.02	< 0.05	36	0.45	2.40	24	1.0
23989	205	226	0.2	20.6	< 0.01	< 0.01	< 0.2	0.06	< 0.02	< 0.05	54	0.15	3.60	26	0.5
23990	205	226	0.2	49.6	< 0.01	0.01	0.2	0.14	< 0.02	< 0.05	88	0.20	3.90	84	1.0
23991	205	226	0.2	3.4	< 0.01	< 0.01	< 0.2	0.03	< 0.02	< 0.05	9	0.25	0.90	8	0.5
23992	205	226	0.2	31.6	< 0.01	0.41	< 0.2	0.04	0.02	< 0.05	37	0.25	2.60	84	< 0.5
23993	205	226	1.2	4.0	< 0.01	0.03	12.0	< 0.01	0.06	4.35	1	0.55	14.90	18	20.0
347919	205	226	0.2	11.0	< 0.01	0.01	0.4	0.08	< 0.02	0.10	50	0.25	2.75	28	1.5
347920	205	226	0.2	1.8	< 0.01	< 0.01	< 0.2	< 0.01	< 0.02	< 0.05	15	0.25	0.30	8	0.5
347921	205	226	0.2	98.1	< 0.01	0.01	1.4	0.11	< 0.02	0.15	115	0.05	17.30	116	12.0
347923	205	226	0.2	160.0	< 0.01	< 0.01	< 0.2	0.04	< 0.02	< 0.05	63	0.40	4.85	32	3.5
347998	205	226	0.2	15.2	< 0.01	< 0.01	< 0.2	0.03	< 0.02	< 0.05	60	0.45	2.30	38	1.0
347999	205	226	< 0.2	16.2	< 0.01	< 0.01	< 0.2	< 0.01	< 0.02	< 0.05	12	0.30	0.70	10	0.5

CERTIFICATION:

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE-RERUN
Comments: ATTN: M. O'DEA

Page Number :1
Total Pages :1
Certificate Date: 22-OCT-2002
Invoice No. : I0226145
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0226145

SAMPLE	PREP CODE	Au tot g/t	Au - g/t	Au + mg	Wt - grams	Wt + grams					
23874	9403 9414	< 0.07	< 0.07	< 0.002	739	34.73					
23875	9403 9414	< 0.07	< 0.07	< 0.002	719	31.23					
23879	9403 9414	< 0.07	< 0.07	< 0.002	729	32.49					
23880	9403 9414	< 0.07	< 0.07	< 0.002	929	34.35					
23881	9403 9414	< 0.07	< 0.07	< 0.002	764	33.60					
23882	9403 9414	< 0.07	< 0.07	< 0.002	699	36.95					

CERTIFICATION: _____

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC. *

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number : 1-A
Total Pages : 5
Certificate Date: 02-SEP-2002
Invoice No. : I0222665
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0222665

SAMPLE	PREP CODE		Au ppb ICP	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe %	Ga ppm	Ge ppm	Hf ppm
514300E 5675000N	201	202	1	0.04	0.97	1.3	< 10	32.6	0.20	0.19	0.27	0.03	24.9	5.3	24	0.90	7.4	1.34	3.65	0.05	0.04
514300E 5675050N	201	202	2	0.06	1.75	2.2	< 10	75.0	0.35	0.17	0.34	0.06	42.0	10.4	41	1.70	15.0	2.40	6.25	0.05	0.12
514300E 5675100N	201	202	8	0.10	1.30	1.3	< 10	42.4	0.20	0.09	0.20	0.06	19.70	7.3	28	0.95	6.6	1.72	4.55	0.05	0.10
514300E 5675150N	201	202	3	0.05	1.26	1.6	< 10	46.2	0.25	0.09	0.25	0.03	26.8	7.6	31	0.95	7.8	1.83	4.65	0.05	0.10
514300E 5675200N	201	202	2	0.03	0.92	1.7	< 10	46.0	0.30	0.12	0.19	0.08	30.0	6.1	25	1.05	7.8	1.46	4.00	0.05	0.06
514300E 5675250N	201	202	2	0.04	1.06	2.2	< 10	46.4	0.25	0.10	0.31	0.07	39.9	8.0	30	1.15	10.6	1.77	3.90	0.05	0.10
514300E 5675300N	201	202	6	0.04	1.12	2.3	< 10	51.4	0.30	0.12	0.27	0.07	33.7	7.8	29	1.25	10.2	1.70	4.40	0.05	0.08
514300E 5675350N	201	202	2	0.03	0.95	1.5	< 10	39.0	0.20	0.14	0.29	0.03	28.3	6.1	27	1.10	7.2	1.50	3.60	0.05	0.06
514300E 5675400N	201	202	< 1	0.10	1.58	2.8	< 10	56.4	0.30	0.11	0.28	0.04	28.5	8.5	36	1.15	10.2	2.23	5.20	0.05	0.12
514300E 5675450N	201	202	2	0.04	1.06	2.3	< 10	33.2	0.20	0.10	0.26	0.03	24.7	7.3	30	0.85	9.8	1.78	3.95	0.05	0.10
514400E 5675000N	201	202	4	0.01	0.91	4.6	< 10	41.8	0.15	0.14	0.11	0.08	15.55	5.8	19	1.25	10.6	1.22	4.35	< 0.05	< 0.02
514400E 5675050N	201	202	1	0.04	1.01	2.1	< 10	34.2	0.25	0.09	0.24	0.03	29.5	6.4	25	1.00	9.2	1.56	3.55	0.05	0.08
514400E 5675100N	201	202	25	0.01	0.26	0.7	< 10	28.4	0.05	0.08	0.04	0.03	14.30	0.3	3	0.25	3.6	0.18	2.80	< 0.05	< 0.02
514400E 5675150N	201	202	2	0.06	2.42	4.4	< 10	120.4	0.50	0.18	0.33	0.06	29.7	9.9	32	2.25	28.0	2.75	5.90	0.05	0.08
514400E 5675200N	201	202	< 1	0.11	1.03	1.6	< 10	55.6	0.30	0.11	0.24	0.05	29.1	5.2	23	0.95	12.8	1.33	3.70	0.05	0.04
514400E 5675250N	201	202	1	0.06	1.27	2.2	< 10	52.0	0.35	0.12	0.32	0.07	41.2	8.1	32	1.45	10.2	1.91	4.55	0.05	0.10
514400E 5675350N	201	202	1	0.04	1.14	1.7	< 10	42.0	0.25	0.08	0.37	0.03	34.4	7.8	32	1.05	9.4	1.92	4.15	0.05	0.10
514400E 5675400N	201	202	5	0.09	0.94	5.5	< 10	42.0	0.15	0.10	0.14	0.04	16.00	6.0	23	0.65	7.8	1.75	4.40	0.05	0.02
514400E 5675450N	201	202	2	0.06	1.07	2.9	< 10	30.0	0.20	0.09	0.26	0.03	24.7	7.2	28	0.95	10.4	1.79	3.70	0.05	0.08
514400E 5675500N	201	202	< 1	0.07	1.37	3.7	< 10	60.6	0.30	0.12	0.28	0.04	30.3	9.0	34	1.30	11.0	2.06	5.05	0.05	0.08
514400E 5675550N	201	202	2	0.03	0.87	3.2	< 10	34.8	0.15	0.07	0.24	0.02	21.4	5.8	24	0.75	7.2	1.46	3.20	0.05	0.06
514400E 5675600N	201	202	1	0.03	1.08	1.3	< 10	41.4	0.20	0.07	0.29	0.03	30.9	6.2	30	1.05	7.6	1.72	4.10	0.05	0.06
514400E 5675650N	201	202	11	0.05	1.19	3.3	< 10	42.2	0.20	0.09	0.21	0.05	21.2	6.7	32	1.05	9.8	1.97	4.55	0.05	0.08
514400E 5675750N	201	202	2	0.07	1.41	3.8	< 10	67.4	0.40	0.13	0.40	0.04	49.4	8.4	36	1.30	15.4	2.20	4.90	0.05	0.14
514500E 5675000N	201	202	< 1	0.01	0.73	0.9	< 10	29.0	0.15	0.07	0.15	0.06	19.35	3.6	18	0.75	3.8	1.01	3.35	< 0.05	0.04
514500E 5675050N	201	202	1	0.03	1.13	1.1	< 10	45.8	0.20	0.08	0.28	0.07	27.5	6.4	30	1.30	6.8	1.70	4.45	0.05	0.06
514500E 5675100N	201	202	< 1	0.04	1.24	1.4	< 10	43.0	0.25	0.08	0.25	0.04	26.3	6.6	31	1.30	6.6	1.79	4.65	0.05	0.06
514500E 5675150N	201	202	1	0.04	0.93	1.7	< 10	43.4	0.20	0.08	0.20	0.07	22.3	4.8	23	1.00	5.6	1.36	4.05	0.05	0.06
514500E 5675200N	201	202	< 1	0.04	1.00	1.9	< 10	40.6	0.25	0.08	0.26	0.04	30.2	5.7	27	1.05	9.0	1.56	3.95	0.05	0.06
514500E 5675250N	201	202	< 1	0.05	0.94	1.4	< 10	41.2	0.25	0.08	0.22	0.06	24.4	5.2	23	1.00	6.2	1.40	3.80	0.05	0.04
514500E 5675350N	201	202	< 1	0.07	1.16	1.9	< 10	53.0	0.25	0.10	0.25	0.06	23.4	6.5	30	1.05	9.8	1.75	4.45	0.05	0.02
514500E 5675400N	201	202	< 1	0.17	0.96	8.1	< 10	36.0	0.20	0.09	0.17	0.04	14.60	5.6	20	0.70	11.6	1.97	4.50	0.05	0.06
514500E 5675450N	201	202	1	0.04	0.79	5.2	< 10	21.2	0.05	0.09	0.12	0.04	9.96	4.3	19	0.60	6.0	1.60	4.75	0.05	0.02
514500E 5675500N	201	202	2	0.05	0.93	6.7	< 10	42.4	0.10	0.11	0.13	0.05	15.20	6.5	19	0.80	11.6	1.46	4.40	< 0.05	< 0.02
514500E 5675550N	201	202	1	0.03	0.99	1.7	< 10	41.4	0.25	0.09	0.32	0.04	33.3	6.4	28	0.95	9.0	1.64	3.90	0.05	0.06
514500E 5675600N	201	202	1	0.03	0.83	1.2	< 10	27.8	0.15	0.07	0.21	0.06	20.7	4.7	23	0.75	5.8	1.27	3.25	0.05	0.06
514500E 5675650N	201	202	2	0.05	0.84	1.4	< 10	36.4	0.20	0.07	0.25	0.03	26.1	5.2	24	0.90	5.6	1.39	3.50	0.05	0.06
514500E 5675700N	201	202	3	0.03	1.12	2.2	< 10	35.2	0.15	0.08	0.19	0.03	21.7	5.8	28	0.85	8.4	1.70	4.55	0.05	0.08
514500E 5675750N	201	202	< 1	0.04	1.37	2.9	< 10	61.4	0.25	0.09	0.26	0.04	29.5	8.0	33	0.95	9.0	2.05	4.90	0.05	0.10
514600E 5675000N	201	202	6	0.08	0.86	1.8	< 10	41.0	0.20	0.09	0.23	0.04	24.3	5.2	21	0.75	9.0	1.32	3.20	0.05	0.06

CERTIFICATION: _____

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Certificate Date: 02-SEP-2002
Invoice No. :I0222665
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0222665

SAMPLE	PREP CODE		Hg ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm
514300E 5675000N	201	202	0.04	0.010	0.07	12.0	12.3	0.44	160	0.25	0.01	1.00	15.6	600	3.8	16.6<	0.001	< 0.01	0.05	2.7	0.2
514300E 5675050N	201	202	0.06	0.020	0.18	15.6	20.0	0.78	375	0.30	0.02	1.40	26.0	610	6.6	34.3<	0.001	< 0.01	0.10	4.2	0.2
514300E 5675100N	201	202	0.06	0.010	0.05	10.0	13.5	0.49	215	0.30	0.01	1.15	17.0	610	4.0	13.5<	0.001	< 0.01	0.05	2.7	0.2
514300E 5675150N	201	202	0.06	0.010	0.06	12.0	16.7	0.54	200	0.30	0.01	1.15	19.8	590	4.6	14.9<	0.001	< 0.01	0.10	3.1	0.2
514300E 5675200N	201	202	0.06	0.010	0.13	13.8	11.8	0.42	205	0.30	0.01	1.45	15.4	260	5.8	32.0<	0.001	< 0.01	0.05	2.8	0.2
514300E 5675250N	201	202	0.06	0.010	0.11	15.6	13.6	0.52	255	0.25	0.01	1.00	19.2	700	4.6	18.4<	0.001	< 0.01	0.10	3.1	0.2
514300E 5675300N	201	202	0.05	0.015	0.14	13.6	16.6	0.50	270	0.30	0.01	1.30	18.8	500	6.2	28.4<	0.001	< 0.01	0.10	3.2	0.2
514300E 5675350N	201	202	0.07	0.005	0.12	12.8	14.2	0.48	195	0.25	0.01	1.00	16.6	590	4.4	26.8<	0.001	< 0.01	0.15	2.8	0.2
514300E 5675400N	201	202	0.07	0.015	0.07	12.0	16.8	0.59	220	0.40	0.01	1.45	23.6	1000	5.2	14.3<	0.001	< 0.01	0.10	3.1	0.4
514300E 5675450N	201	202	0.06	0.010	0.06	11.2	14.8	0.53	185	0.30	0.01	1.25	19.2	490	4.4	12.5<	0.001	< 0.01	0.10	2.8	0.2
514400E 5675000N	201	202	0.07	0.005	0.05	7.8	9.4	0.37	140	0.45	< 0.01	0.60	13.4	270	4.8	13.8<	0.001	< 0.01	0.15	1.4	0.2
514400E 5675050N	201	202	0.05	0.010	0.07	12.2	13.3	0.44	215	0.25	0.01	0.95	16.0	530	4.4	21.8<	0.001	< 0.01	0.05	2.7	0.2
514400E 5675100N	201	202	0.05<	0.005	0.01	7.4	0.5	0.02	10	0.20	< 0.01	0.35	0.8	110	3.4	2.0<	0.001	< 0.01	0.05	0.7	< 0.2
514400E 5675150N	201	202	0.08	0.025	0.07	15.6	27.9	0.53	260	0.50	0.01	1.85	29.2	450	7.2	12.6<	0.001	0.01	0.15	3.4	0.6
514400E 5675200N	201	202	0.06	0.010	0.06	14.2	13.2	0.36	145	0.30	0.01	1.35	15.0	520	4.2	19.0<	0.001	< 0.01	0.05	2.7	0.2
514400E 5675250N	201	202	0.06	0.015	0.19	13.6	16.3	0.58	310	0.25	0.01	1.30	19.8	550	6.8	28.9<	0.001	< 0.01	0.05	3.4	0.2
514400E 5675350N	201	202	0.05	0.010	0.09	15.6	14.5	0.62	240	0.20	0.02	1.10	20.6	670	4.2	18.7<	0.001	< 0.01	0.05	3.4	0.2
514400E 5675400N	201	202	0.05	0.005	0.05	7.4	9.5	0.32	180	0.40	0.01	1.15	12.8	690	5.2	16.5<	0.001	< 0.01	0.10	1.9	0.2
514400E 5675450N	201	202	0.06	0.005	0.06	11.8	13.6	0.50	215	0.30	0.01	1.05	17.4	770	3.8	12.2<	0.001	< 0.01	0.10	2.5	0.2
514400E 5675500N	201	202	0.06	0.015	0.11	12.0	21.2	0.59	250	0.50	0.01	1.50	23.0	600	5.2	25.6<	0.001	< 0.01	0.10	2.9	0.2
514400E 5675550N	201	202	0.05	0.005	0.05	9.4	11.3	0.42	180	0.20	0.01	1.00	14.2	570	3.2	10.9<	0.001	< 0.01	0.05	2.0	< 0.2
514400E 5675600N	201	202	0.05	0.010	0.09	13.4	13.8	0.55	225	0.20	0.01	1.05	17.6	450	3.8	20.4<	0.001	< 0.01	0.05	2.7	0.2
514400E 5675650N	201	202	0.06	0.010	0.09	9.6	14.9	0.57	190	0.35	0.01	1.30	18.4	300	4.4	20.5<	0.001	< 0.01	0.10	2.5	0.2
514400E 5675750N	201	202	0.06	0.015	0.16	17.6	16.0	0.61	265	0.50	0.01	1.30	21.4	560	6.4	22.7<	0.001	< 0.01	0.10	3.8	0.4
514500E 5675000N	201	202	0.05	0.005	0.04	9.4	9.4	0.30	120	0.20	0.01	1.00	9.6	160	3.6	18.7<	0.001	< 0.01	0.05	1.8	0.2
514500E 5675050N	201	202	0.05	0.010	0.13	12.4	16.8	0.56	215	0.25	0.01	1.10	16.6	550	4.4	28.1<	0.001	< 0.01	0.05	2.7	0.2
514500E 5675100N	201	202	0.06	0.010	0.11	11.0	16.9	0.58	205	0.25	0.01	1.15	18.0	380	4.6	26.4<	0.001	< 0.01	0.05	2.6	0.2
514500E 5675150N	201	202	0.05	0.010	0.08	10.4	13.7	0.42	165	0.25	0.01	1.20	13.0	310	4.2	23.9<	0.001	< 0.01	0.05	2.3	0.2
514500E 5675200N	201	202	0.04	0.010	0.09	12.4	15.3	0.47	210	0.20	0.01	1.00	15.6	500	4.8	21.8<	0.001	< 0.01	0.05	2.5	0.2
514500E 5675250N	201	202	0.05	0.005	0.09	10.8	14.0	0.42	180	0.25	0.01	1.10	13.2	320	4.4	24.3<	0.001	< 0.01	0.05	2.3	0.2
514500E 5675350N	201	202	0.05	0.010	0.08	11.8	13.5	0.53	220	0.25	0.01	1.25	17.2	240	4.6	24.0<	0.001	< 0.01	0.05	2.5	0.2
514500E 5675400N	201	202	0.06	0.005	0.04	6.8	12.0	0.28	110	0.45	< 0.01	1.55	11.4	880	4.6	7.3<	0.001	< 0.01	0.10	1.5	0.2
514500E 5675450N	201	202	0.05	0.005	0.04	5.2	11.4	0.29	100	0.50	< 0.01	1.25	8.6	480	4.8	6.6<	0.001	< 0.01	0.10	1.5	0.2
514500E 5675500N	201	202	0.06	0.005	0.03	6.2	10.8	0.38	245	0.40	< 0.01	1.00	11.4	340	4.2	6.3<	0.001	< 0.01	0.05	1.6	0.2
514500E 5675550N	201	202	0.05	0.005	0.07	16.0	13.5	0.50	230	0.15	0.01	1.10	16.8	660	4.2	18.2<	0.001	< 0.01	0.05	2.7	0.2
514500E 5675600N	201	202	0.05	0.005	0.07	10.2	11.4	0.39	130	0.25	0.01	1.00	13.6	540	3.8	15.8<	0.001	< 0.01	0.05	2.0	0.2
514500E 5675650N	201	202	0.04	0.005	0.10	11.6	12.4	0.40	195	0.20	0.01	1.05	13.4	550	4.0	19.5<	0.001	< 0.01	0.05	2.1	0.2
514500E 5675700N	201	202	0.05	0.005	0.05	10.0	12.0	0.50	175	0.30	0.01	1.10	16.4	450	4.2	11.9<	0.001	< 0.01	0.05	2.4	0.2
514500E 5675750N	201	202	0.05	0.015	0.06	12.0	17.2	0.56	385	0.30	0.01	1.25	19.0	820	4.6	12.7<	0.001	< 0.01	0.05	2.7	0.2
514600E 5675000N	201	202	0.05	0.005	0.06	11.4	12.9	0.37	175	0.20	0.01	1.10	15.4	410	4.0	18.6<	0.001	< 0.01	0.05	2.1	0.2

CERTIFICATION:_____ +

ALS Chemex

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Analytical Chemists * Geochemists * Registered Assayers
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PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Certificate Date: 02-SEP-2002
Invoice No. :10222665
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0222665

SAMPLE	PREP CODE		Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
514300E 5675000N	201	202	0.2	13.6	< 0.01	0.02	3.0	0.07	0.08	0.45	26	0.15	4.10	28	1.5
514300E 5675050N	201	202	0.6	19.0	< 0.01	0.01	5.8	0.12	0.18	0.55	46	0.15	4.50	58	4.5
514300E 5675100N	201	202	0.2	11.2	< 0.01	< 0.01	2.8	0.06	0.06	0.35	29	0.20	3.05	50	3.0
514300E 5675150N	201	202	0.4	13.6	< 0.01	0.01	3.6	0.07	0.08	0.45	34	0.20	3.85	34	3.5
514300E 5675200N	201	202	0.4	12.2	< 0.01	0.01	4.4	0.08	0.12	0.55	30	0.15	3.60	38	2.5
514300E 5675250N	201	202	0.4	14.6	< 0.01	0.01	4.8	0.07	0.14	0.50	34	0.15	4.60	36	4.0
514300E 5675300N	201	202	0.4	14.8	< 0.01	0.01	4.6	0.08	0.14	0.55	34	0.15	3.90	40	3.5
514300E 5675350N	201	202	0.2	13.4	< 0.01	< 0.01	3.8	0.08	0.12	0.50	30	0.15	4.20	36	2.5
514300E 5675400N	201	202	0.4	14.0	< 0.01	0.01	3.4	0.07	0.10	0.50	38	0.20	4.05	46	4.0
514300E 5675450N	201	202	0.2	14.0	< 0.01	0.01	3.2	0.07	0.06	0.40	32	0.15	3.65	32	3.5
514400E 5675000N	201	202	0.4	11.8	< 0.01	0.01	0.2	0.04	0.06	0.35	23	0.25	1.85	42	< 0.5
514400E 5675050N	201	202	0.2	12.6	< 0.01	0.01	4.2	0.07	0.10	0.45	31	0.15	3.75	28	3.0
514400E 5675100N	201	202	0.2	5.4	< 0.01	< 0.01	0.2	0.01	0.02	0.15	6	< 0.05	0.90	6	< 0.5
514400E 5675150N	201	202	0.6	19.6	< 0.01	0.01	3.6	0.06	0.12	0.75	36	0.20	4.50	54	2.5
514400E 5675200N	201	202	0.4	13.0	< 0.01	< 0.01	3.6	0.06	0.10	0.65	25	0.15	4.15	34	1.5
514400E 5675250N	201	202	0.6	17.0	< 0.01	0.01	5.6	0.09	0.18	0.60	39	0.15	4.20	42	3.5
514400E 5675350N	201	202	0.2	17.2	< 0.01	< 0.01	4.2	0.08	0.10	0.50	35	0.15	5.00	38	3.5
514400E 5675400N	201	202	0.2	10.0	< 0.01	0.01	2.0	0.05	0.06	0.30	31	0.20	2.00	32	1.5
514400E 5675450N	201	202	0.2	12.8	< 0.01	0.01	3.2	0.07	0.08	0.40	31	0.25	3.85	34	3.0
514400E 5675500N	201	202	0.4	15.6	< 0.01	0.01	3.4	0.08	0.12	0.50	39	0.20	3.80	40	2.5
514400E 5675550N	201	202	0.2	11.6	< 0.01	< 0.01	2.2	0.05	0.06	0.35	28	0.30	2.95	24	2.0
514400E 5675600N	201	202	0.2	13.4	< 0.01	< 0.01	3.4	0.08	0.10	0.40	33	0.15	3.60	30	2.5
514400E 5675650N	201	202	0.2	12.4	< 0.01	< 0.01	2.6	0.09	0.08	0.30	38	0.15	2.55	34	2.5
514400E 5675750N	201	202	0.6	18.4	< 0.01	0.01	6.6	0.08	0.14	0.65	41	0.20	4.60	36	5.5
514500E 5675000N	201	202	0.2	9.0	< 0.01	< 0.01	2.2	0.06	0.06	0.30	22	0.05	2.25	24	1.5
514500E 5675050N	201	202	0.4	12.8	< 0.01	< 0.01	3.2	0.09	0.10	0.45	33	0.15	3.50	38	2.5
514500E 5675100N	201	202	0.2	12.4	< 0.01	< 0.01	3.2	0.09	0.12	0.40	35	0.15	3.05	36	2.5
514500E 5675150N	201	202	0.2	11.0	< 0.01	< 0.01	2.6	0.07	0.10	0.35	28	0.10	2.75	36	2.0
514500E 5675200N	201	202	0.2	12.8	< 0.01	< 0.01	3.6	0.08	0.10	0.45	33	0.15	3.35	32	2.5
514500E 5675250N	201	202	0.2	11.4	< 0.01	< 0.01	3.0	0.07	0.10	0.40	29	0.10	2.90	36	1.5
514500E 5675350N	201	202	0.4	12.8	< 0.01	< 0.01	2.0	0.07	0.08	0.40	34	0.15	2.85	38	0.5
514500E 5675400N	201	202	0.2	9.4	< 0.01	0.02	1.6	0.06	0.02	0.30	35	0.20	2.15	26	1.5
514500E 5675450N	201	202	0.2	9.6	< 0.01	0.01	1.2	0.06	0.04	0.25	33	0.25	1.30	26	0.5
514500E 5675500N	201	202	0.2	10.8	< 0.01	0.01	0.8	0.06	0.06	0.25	29	0.15	1.55	24	0.5
514500E 5675550N	201	202	0.2	15.2	< 0.01	< 0.01	3.8	0.07	0.08	0.45	32	0.15	4.15	32	2.0
514500E 5675600N	201	202	0.2	9.4	< 0.01	< 0.01	2.4	0.06	0.06	0.35	24	0.15	3.00	28	2.0
514500E 5675650N	201	202	0.2	11.6	< 0.01	< 0.01	3.2	0.07	0.08	0.40	29	0.10	3.10	28	2.0
514500E 5675700N	201	202	0.2	10.6	< 0.01	< 0.01	2.4	0.07	0.08	0.30	31	0.15	2.65	30	2.5
514500E 5675750N	201	202	0.2	11.8	< 0.01	0.01	3.2	0.07	0.08	0.40	37	0.15	3.55	38	3.5
514600E 5675000N	201	202	0.2	10.6	< 0.01	0.01	3.2	0.06	0.06	0.35	26	0.25	3.10	30	2.5

CERTIFICATION: _____

ALS Chemex

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To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Certificate Date: 02-SEP-2002
Invoice No. : I0222665
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0222665

SAMPLE	PREP CODE		Au ppb ICP	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe %	Ga ppm	Ge ppm	Hf ppm
514600E 5675050N	201	202	< 2	0.04	1.53	2.3	< 10	73.4	0.25	0.11	0.33	0.06	42.5	9.2	39	1.85	13.8	2.30	6.40	0.10	0.08
514600E 5675100N	201	202	< 2	0.25	1.91	2.7	< 10	145.8	0.60	0.16	1.03	0.31	71.9	9.0	34	1.30	26.0	2.32	6.45	0.15	0.14
514600E 5675200N	201	202	< 2	0.07	1.48	2.4	< 10	85.6	0.25	0.12	0.49	0.09	37.0	8.9	36	1.65	17.0	2.11	5.90	0.05	0.10
514600E 5675250N	201	202	< 1	0.04	1.31	1.2	< 10	54.0	0.20	0.11	0.20	0.05	23.1	6.6	34	1.05	9.4	1.91	5.65	0.05	0.02
514600E 5675300N	201	202	4	0.04	0.52	4.2	< 10	24.2	0.05	0.10	0.07	0.06	9.70	2.7	14	0.40	3.0	1.24	4.00	< 0.05	< 0.02
514600E 5675350N	201	202	3	0.03	0.36	2.9	< 10	11.2	< 0.05	0.08	0.08	0.04	9.04	2.3	11	0.30	3.6	0.90	3.30	< 0.05	< 0.02
514600E 5675400N	201	202	5	0.04	1.03	6.6	< 10	36.6	0.15	0.10	0.14	0.03	13.70	6.5	21	0.90	9.6	1.71	4.05	0.05	0.06
514600E 5675450N	201	202	1	0.01	0.64	2.3	< 10	23.6	0.05	0.16	0.04	0.03	11.60	1.9	11	0.35	6.0	0.96	6.85	< 0.05	0.02
514600E 5675500N	201	202	2	0.02	1.22	2.6	< 10	35.8	0.15	0.10	0.12	0.04	16.65	4.8	23	1.40	7.2	1.66	5.65	0.05	0.06
514600E 5675550N	201	202	5	0.18	2.26	4.2	< 10	129.4	0.40	0.21	0.37	0.14	32.4	8.7	45	1.70	35.6	2.74	9.05	0.05	0.06
514600E 5675600N	201	202	2	0.03	1.40	1.5	< 10	56.4	0.25	0.10	0.32	0.05	41.3	8.3	38	1.60	9.6	2.18	5.30	0.10	0.08
514600E 5675650N	201	202	2	0.01	1.00	2.5	< 10	25.6	0.10	0.10	0.14	0.06	19.55	4.4	25	0.65	5.6	1.60	5.65	0.05	0.06
514600E 5675700N	201	202	1	0.03	1.40	1.7	< 10	72.8	0.30	0.10	0.37	0.07	43.5	8.1	37	1.50	10.0	2.15	5.30	0.10	0.08
514600E 5675750N	201	202	2	0.03	0.90	7.1	< 10	29.0	0.15	0.09	0.13	0.04	12.90	4.3	21	0.80	5.6	1.73	4.75	0.05	0.02
514700E 5675000N	201	202	1	0.01	1.51	5.9	< 10	28.0	0.30	0.10	0.09	0.03	17.10	5.3	21	0.95	9.8	1.92	4.15	0.05	0.06
514700E 5675050N	201	202	3	0.03	1.11	7.8	< 10	24.8	0.20	0.08	0.09	0.04	11.95	5.0	20	0.95	8.0	1.71	3.55	0.05	0.02
514700E 5675100N	201	202	2	0.03	0.97	7.9	< 10	36.8	0.15	0.10	0.14	0.01	14.40	5.3	17	0.65	10.2	1.85	4.65	0.05	0.06
514700E 5675150N	201	202	1	0.03	1.27	2.3	< 10	45.8	0.20	0.10	0.22	0.04	21.6	8.1	32	1.10	12.4	1.80	5.10	0.05	0.04
514700E 5675200N	201	202	< 1	0.03	0.98	1.2	< 10	46.4	0.20	0.10	0.23	0.04	31.2	5.9	26	1.20	7.4	1.52	4.50	0.05	0.06
514700E 5675250N	201	202	2	0.01	1.26	3.4	< 10	32.0	0.20	0.08	0.25	0.03	32.7	6.7	31	1.05	10.8	1.96	4.15	0.05	0.10
514700E 5675300N	201	202	1	0.03	0.71	1.1	< 10	19.2	0.15	0.06	0.22	0.01	21.8	4.1	20	0.60	4.6	1.18	2.90	0.05	0.04
514700E 5675350N	201	202	2	0.05	1.18	2.3	< 10	59.4	0.30	0.11	0.43	0.08	40.5	6.7	28	1.10	11.4	1.73	4.70	0.05	0.08
514700E 5675400N	201	202	2	0.10	1.26	2.2	< 10	74.2	0.35	0.11	0.61	0.08	41.9	5.6	29	1.20	15.2	1.78	4.65	0.10	0.12
514700E 5675450N	201	202	1	0.08	1.67	2.4	< 10	94.8	0.40	0.13	0.46	0.09	49.3	8.7	39	1.45	13.6	2.31	5.80	0.05	0.08
514700E 5675500N	201	202	< 1	0.06	0.96	1.2	< 10	33.6	0.15	0.08	0.19	0.04	22.5	5.1	25	1.05	5.6	1.36	4.50	0.05	0.04
514700E 5675550N	201	202	1	0.05	0.56	8.1	< 10	21.0	0.10	0.07	0.09	0.04	14.55	3.8	15	0.40	9.8	1.21	2.45	< 0.05	0.02
514700E 5675600N	201	202	1	0.03	1.38	4.0	< 10	28.6	0.15	0.09	0.20	0.04	23.2	6.1	34	0.95	8.2	2.31	5.25	0.05	0.08
514700E 5675650N	201	202	< 1	0.01	1.13	1.4	< 10	34.6	0.15	0.08	0.17	0.03	22.8	5.5	27	0.75	5.0	1.58	5.30	0.05	0.04
514700E 5675700N	201	202	1	< 0.01	0.45	1.9	< 10	18.4	0.05	0.13	0.04	0.07	12.25	1.1	8	0.25	5.2	0.52	4.65	< 0.05	< 0.02
514800E 5675050N	201	202	< 1	0.02	1.61	2.3	< 10	55.8	0.25	0.15	0.16	0.03	17.40	4.7	28	1.60	10.8	1.65	7.30	0.05	0.02
514800E 5675100N	201	202	< 1	0.07	1.26	5.6	< 10	55.0	0.25	0.10	0.10	0.05	12.95	6.6	23	0.90	6.4	2.13	5.20	0.05	0.04
514800E 5675150N	201	202	2	0.03	0.84	6.7	< 10	29.6	0.15	0.08	0.21	0.03	14.70	4.6	16	0.85	11.6	1.38	3.80	< 0.05	0.02
514800E 5675200N	201	202	2	0.12	1.92	2.9	< 10	146.6	0.60	0.15	0.75	0.22	65.7	9.4	36	1.35	19.2	2.32	6.40	0.05	0.12
514800E 5675350N	201	202	5	0.01	1.10	5.2	< 10	49.4	0.25	0.09	0.36	0.06	35.6	8.3	30	0.80	14.6	1.87	4.25	0.05	0.08
514800E 5675400N	201	202	3	< 0.01	0.63	4.8	< 10	23.0	0.05	0.13	0.04	0.05	10.20	1.3	9	0.45	4.4	1.02	5.20	< 0.05	< 0.02
514800E 5675450N	201	202	4	0.17	0.91	13.9	< 10	32.2	0.20	0.09	0.12	0.05	15.65	6.2	18	0.85	9.8	1.54	3.05	< 0.05	0.06
514800E 5675500N	201	202	5	0.08	1.88	10.5	< 10	109.6	0.45	0.23	0.17	0.17	41.0	18.4	30	2.30	19.0	3.03	8.50	0.05	0.04
514800E 5675550N	201	202	1	0.02	0.99	1.2	< 10	26.4	0.15	0.06	0.13	0.01	20.1	5.2	24	0.65	4.6	1.46	3.90	0.05	0.06
514800E 5675600N	201	202	< 1	0.06	0.78	2.1	< 10	62.6	0.15	0.17	0.09	0.06	15.70	3.3	13	1.30	6.2	0.95	5.15	< 0.05	< 0.02
514800E 5675650N	201	202	7	0.01	0.77	10.6	< 10	26.2	0.05	0.10	0.04	0.02	8.12	3.3	15	0.40	8.2	1.80	4.70	0.05	0.02

CERTIFICATION: _____

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Certificate Date: 02-SEP-2002
Invoice No. :I0222665
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0222665

SAMPLE	PREP CODE		Hg ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm
514600E 5675050N	201	202	< 0.01	0.015	0.19	13.4	17.0	0.73	305	0.25	0.02	1.40	26.4	630	6.0	37.6<	0.001	< 0.01	0.05	3.4	0.4
514600E 5675100N	201	202	0.06	0.020	0.12	39.2	17.6	0.56	375	0.40	0.02	1.75	31.2	510	7.2	24.7	0.001	0.04	0.05	3.6	2.4
514600E 5675200N	201	202	0.01	0.015	0.20	16.6	14.3	0.63	460	0.35	0.02	1.45	22.8	730	5.8	40.6<	0.001	0.01	0.05	3.4	0.6
514600E 5675250N	201	202	< 0.01	0.010	0.10	10.4	12.0	0.56	255	0.40	0.01	1.35	19.0	270	5.0	29.9<	0.001	< 0.01	0.05	2.3	0.4
514600E 5675300N	201	202	< 0.01	0.005	0.03	5.0	4.4	0.17	90	0.45	< 0.01	0.95	6.2	290	4.4	8.3<	0.001	< 0.01	0.05	1.0	0.2
514600E 5675350N	201	202	< 0.01	< 0.005	0.02	4.6	3.1	0.14	55	0.30	< 0.01	0.75	5.8	260	3.2	6.3<	0.001	< 0.01	0.05	0.8	0.2
514600E 5675400N	201	202	< 0.01	0.005	0.04	6.0	11.9	0.33	145	0.50	< 0.01	1.40	13.4	570	4.4	9.3<	0.001	< 0.01	0.05	1.4	0.4
514600E 5675450N	201	202	< 0.01	0.005	0.01	6.0	2.8	0.16	50	0.55	< 0.01	1.35	5.0	140	6.2	1.9<	0.001	< 0.01	0.05	1.0	0.2
514600E 5675500N	201	202	0.01	0.005	0.03	8.0	11.1	0.36	180	0.40	0.01	1.30	12.4	410	4.8	11.0<	0.001	< 0.01	0.05	1.7	0.4
514600E 5675550N	201	202	0.04	0.020	0.15	16.4	16.5	0.72	270	0.65	0.01	2.20	26.4	480	7.6	46.1<	0.001	0.01	0.05	3.3	1.4
514600E 5675600N	201	202	< 0.01	0.010	0.18	15.2	15.8	0.68	330	0.20	0.02	0.95	21.2	700	5.4	30.7<	0.001	< 0.01	0.05	3.3	0.4
514600E 5675650N	201	202	< 0.01	0.005	0.04	8.6	7.9	0.38	125	0.35	0.01	1.35	13.4	750	5.2	11.6<	0.001	< 0.01	0.05	1.9	0.6
514600E 5675700N	201	202	< 0.01	0.015	0.16	18.6	17.7	0.70	310	0.20	0.02	1.10	22.8	680	5.0	36.9<	0.001	< 0.01	0.05	3.4	0.4
514600E 5675750N	201	202	0.02	0.005	0.03	6.6	9.6	0.27	95	0.50	0.01	1.20	10.0	520	4.8	8.6<	0.001	0.01	0.05	1.4	0.6
514700E 5675000N	201	202	0.01	0.015	0.02	8.2	11.5	0.25	80	0.80	< 0.01	1.60	11.4	460	4.6	5.5<	0.001	0.01	0.05	1.7	1.4
514700E 5675050N	201	202	0.01	0.005	0.02	5.4	8.7	0.24	110	0.45	0.01	1.30	11.0	620	3.6	7.6<	0.001	0.01	0.05	1.3	0.6
514700E 5675100N	201	202	0.01	0.010	0.02	7.0	9.9	0.20	85	0.70	< 0.01	1.65	11.0	840	4.6	5.7<	0.001	< 0.01	0.10	1.3	0.4
514700E 5675150N	201	202	< 0.01	0.005	0.05	10.6	13.9	0.60	245	0.30	0.01	1.15	19.2	530	4.4	15.4<	0.001	< 0.01	0.05	2.4	0.2
514700E 5675200N	201	202	< 0.01	0.010	0.11	12.6	12.4	0.45	210	0.25	0.01	1.00	15.2	390	5.0	27.6<	0.001	< 0.01	< 0.05	2.4	0.2
514700E 5675250N	201	202	< 0.01	0.010	0.09	12.8	11.7	0.53	175	0.25	0.01	1.05	18.2	630	4.0	14.6<	0.001	< 0.01	0.05	2.5	0.4
514700E 5675300N	201	202	< 0.01	0.005	0.06	9.4	9.4	0.34	135	0.20	0.01	1.05	11.4	480	3.2	14.2<	0.001	< 0.01	< 0.05	1.7	0.2
514700E 5675350N	201	202	< 0.01	0.015	0.13	17.4	14.0	0.50	245	0.25	0.01	1.40	18.2	560	5.0	29.4<	0.001	< 0.01	0.05	2.9	0.6
514700E 5675400N	201	202	0.01	0.015	0.15	25.2	15.5	0.53	185	0.15	0.02	1.50	18.6	710	4.8	30.8<	0.001	0.01	0.05	2.9	0.6
514700E 5675450N	201	202	< 0.01	0.015	0.15	23.6	18.2	0.68	365	0.20	0.02	1.50	24.6	470	5.8	44.1<	0.001	< 0.01	0.05	3.8	0.6
514700E 5675500N	201	202	< 0.01	0.005	0.08	10.0	12.7	0.44	190	0.25	0.01	1.15	14.2	280	4.0	35.1<	0.001	< 0.01	< 0.05	2.2	0.2
514700E 5675550N	201	202	< 0.01	0.005	0.02	5.8	5.4	0.19	90	0.40	< 0.01	0.95	10.2	550	3.2	5.7<	0.001	< 0.01	0.10	1.0	0.2
514700E 5675600N	201	202	0.01	0.010	0.05	9.0	13.7	0.53	165	0.40	0.01	1.65	18.4	890	5.2	12.7<	0.001	0.01	0.05	2.1	0.4
514700E 5675650N	201	202	< 0.01	0.010	0.04	10.0	13.0	0.45	155	0.25	0.01	1.30	15.0	480	4.6	12.6<	0.001	< 0.01	< 0.05	2.1	0.4
514700E 5675700N	201	202	< 0.01	< 0.005	0.01	6.2	1.8	0.07	30	0.30	< 0.01	0.60	3.0	120	4.8	2.5<	0.001	< 0.01	0.05	0.7	0.2
514800E 5675050N	201	202	0.01	0.015	0.04	9.0	16.5	0.39	95	0.40	0.01	1.50	15.8	250	7.2	14.8<	0.001	0.01	0.05	2.0	0.6
514800E 5675100N	201	202	< 0.01	0.005	0.03	6.8	12.4	0.23	155	0.75	< 0.01	1.40	9.0	570	5.2	11.6<	0.001	0.01	0.05	1.5	0.6
514800E 5675150N	201	202	0.08	0.005	0.02	7.0	11.4	0.26	85	0.70	0.01	1.35	11.2	380	3.8	6.7<	0.001	< 0.01	0.05	1.3	0.2
514800E 5675200N	201	202	0.07	0.025	0.14	30.8	25.2	0.59	430	0.60	0.01	1.70	25.6	670	6.4	37.9<	0.001	0.02	0.05	3.6	1.2
514800E 5675350N	201	202	0.04	0.010	0.06	16.8	13.0	0.51	285	0.30	0.01	1.25	19.2	660	4.4	11.2<	0.001	< 0.01	0.05	2.6	0.2
514800E 5675400N	201	202	0.05<	0.005	0.02	5.4	2.4	0.07	30	0.70	< 0.01	1.05	3.0	160	5.8	4.0<	0.001	0.01	0.05	0.8	0.6
514800E 5675450N	201	202	0.02	0.005	0.03	6.4	9.9	0.23	85	0.55	< 0.01	1.35	12.4	390	4.0	5.9<	0.001	< 0.01	0.15	1.3	0.4
514800E 5675500N	201	202	0.06	0.025	0.07	11.2	16.9	0.34	2780	1.45	0.01	1.55	20.6	910	10.6	23.5<	0.001	0.03	0.20	2.1	1.0
514800E 5675550N	201	202	< 0.01	0.005	0.03	9.4	11.4	0.39	160	0.30	0.01	1.05	13.8	260	3.4	10.3<	0.001	< 0.01	< 0.05	1.9	0.2
514800E 5675600N	201	202	< 0.01	0.005	0.04	8.2	4.9	0.17	140	0.65	< 0.01	0.85	6.8	550	5.8	14.6<	0.001	0.01	0.05	1.0	0.6
514800E 5675650N	201	202	0.01	0.005	0.01	4.2	6.2	0.18	60	0.80	< 0.01	2.00	8.8	110	4.4	3.3<	0.001	< 0.01	0.15	1.1	0.6

CERTIFICATION: _____

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
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PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Certificate Date: 02-SEP-2002
Invoice No. : I0222665
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0222665

SAMPLE	PREP CODE		Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
514600E 5675050N	201	202	0.6	17.2	< 0.01	0.01	4.2	0.11	0.16	0.45	44	0.15	3.95	46	3.5
514600E 5675100N	201	202	0.6	33.6	< 0.01	0.02	3.6	0.06	0.12	2.00	45	0.25	11.75	56	3.5
514600E 5675200N	201	202	0.6	19.6	< 0.01	0.01	4.2	0.08	0.16	0.70	36	0.15	5.15	50	3.5
514600E 5675250N	201	202	0.4	12.2	< 0.01	< 0.01	2.2	0.09	0.10	0.35	37	0.15	2.45	52	1.0
514600E 5675300N	201	202	0.2	6.2	< 0.01	0.01	1.2	0.04	0.02	0.20	25	0.15	1.20	26	0.5
514600E 5675350N	201	202	0.2	6.0	< 0.01	< 0.01	0.8	0.04	< 0.02	0.15	18	0.05	1.00	18	< 0.5
514600E 5675400N	201	202	0.2	8.8	< 0.01	0.01	1.2	0.06	0.02	0.30	31	0.20	1.95	24	1.5
514600E 5675450N	201	202	0.6	4.8	< 0.01	< 0.01	1.6	0.06	0.02	0.25	28	0.20	1.10	12	0.5
514600E 5675500N	201	202	0.4	8.8	< 0.01	0.01	1.6	0.05	0.04	0.35	29	0.15	2.05	36	1.5
514600E 5675550N	201	202	0.8	27.2	< 0.01	0.02	2.6	0.09	0.14	0.95	44	0.20	3.45	68	2.0
514600E 5675600N	201	202	0.4	15.8	< 0.01	< 0.01	5.0	0.11	0.14	0.50	42	0.15	4.25	42	3.5
514600E 5675650N	201	202	0.4	9.0	< 0.01	< 0.01	1.8	0.06	0.06	0.30	30	0.20	2.35	36	1.5
514600E 5675700N	201	202	0.4	16.8	< 0.01	0.01	4.4	0.10	0.12	0.55	39	0.15	5.70	54	3.5
514600E 5675750N	201	202	0.2	8.8	< 0.01	0.02	1.4	0.06	0.02	0.25	33	0.15	1.80	20	1.0
514700E 5675000N	201	202	0.2	7.0	0.01	0.01	1.8	0.05	0.02	0.45	29	0.20	2.50	28	1.5
514700E 5675050N	201	202	0.2	6.2	0.01	0.01	1.4	0.04	0.02	0.25	29	0.15	1.60	28	1.0
514700E 5675100N	201	202	0.2	8.4	< 0.01	0.01	1.6	0.06	0.02	0.30	36	0.20	2.30	22	2.0
514700E 5675150N	201	202	0.4	13.2	< 0.01	< 0.01	2.4	0.07	0.06	0.35	32	0.15	2.95	42	2.0
514700E 5675200N	201	202	0.4	12.2	< 0.01	< 0.01	3.6	0.08	0.08	0.45	31	0.75	3.35	38	2.5
514700E 5675250N	201	202	0.2	12.4	< 0.01	0.01	3.4	0.08	0.08	0.40	34	0.15	3.45	32	4.0
514700E 5675300N	201	202	0.2	10.2	< 0.01	< 0.01	2.6	0.06	0.06	0.35	24	0.10	3.10	22	2.0
514700E 5675350N	201	202	0.4	17.6	< 0.01	0.01	4.0	0.07	0.10	0.65	32	0.15	5.95	40	3.0
514700E 5675400N	201	202	0.4	21.6	< 0.01	0.01	4.4	0.07	0.12	0.85	31	0.15	7.85	38	4.0
514700E 5675450N	201	202	0.6	20.6	< 0.01	0.01	4.4	0.08	0.12	1.05	42	0.20	7.50	50	3.0
514700E 5675500N	201	202	0.4	12.2	< 0.01	< 0.01	2.4	0.08	0.08	0.35	28	0.15	2.80	30	1.5
514700E 5675550N	201	202	0.2	6.6	< 0.01	0.01	1.0	0.04	0.02	0.25	21	0.15	1.90	14	0.5
514700E 5675600N	201	202	0.2	10.8	< 0.01	0.01	2.2	0.07	0.06	0.35	44	0.20	2.75	32	2.5
514700E 5675650N	201	202	0.4	11.0	< 0.01	< 0.01	2.2	0.07	0.04	0.35	29	0.15	2.65	32	1.5
514700E 5675700N	201	202	0.6	6.2	< 0.01	< 0.01	0.2	0.03	0.02	0.25	14	0.10	1.20	8	< 0.5
514800E 5675050N	201	202	0.6	10.8	< 0.01	0.01	1.8	0.05	0.08	0.40	33	0.15	2.25	30	1.0
514800E 5675100N	201	202	0.4	9.0	< 0.01	0.01	1.6	0.05	0.02	0.35	39	0.25	1.85	34	1.5
514800E 5675150N	201	202	0.2	13.6	< 0.01	0.01	1.2	0.05	0.02	0.30	25	0.30	2.30	24	1.0
514800E 5675200N	201	202	0.6	32.6	< 0.01	0.01	3.2	0.06	0.10	2.40	38	0.15	10.25	72	3.5
514800E 5675350N	201	202	0.2	16.8	< 0.01	0.01	3.0	0.06	0.06	0.45	34	0.15	5.20	34	2.5
514800E 5675400N	201	202	0.6	6.4	< 0.01	0.01	0.8	0.05	0.02	0.25	28	0.20	1.05	12	0.5
514800E 5675450N	201	202	0.2	8.2	< 0.01	0.02	1.4	0.05	0.02	0.30	27	0.25	2.00	18	1.5
514800E 5675500N	201	202	0.8	16.2	< 0.01	0.03	3.6	0.05	0.12	0.90	41	0.20	3.15	74	1.5
514800E 5675550N	201	202	0.2	9.0	< 0.01	< 0.01	2.4	0.06	0.04	0.30	27	0.10	2.40	24	2.0
514800E 5675600N	201	202	0.6	9.6	< 0.01	< 0.01	1.0	0.03	0.06	0.30	19	0.15	1.65	42	< 0.5
514800E 5675650N	201	202	0.4	4.8	< 0.01	0.02	1.4	0.07	0.02	0.20	44	0.20	1.00	10	1.0

CERTIFICATION: _____

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Certificate Date: 02-SEP-2002
Invoice No. :I0222665
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0222665

SAMPLE	PREP CODE		Au ppb ICP	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe %	Ga ppm	Ge ppm	Hf ppm
514900E 5674700N	201	202	1	0.05	1.18	6.1	< 10	84.8	0.10	0.13	0.10	0.27	26.6	7.9	21	0.65	10.4	1.74	4.55	0.05	0.02
514900E 5674750N	201	202	2	0.05	3.00	10.1	< 10	110.8	0.50	0.23	0.22	0.06	28.9	10.8	45	1.65	28.2	3.31	9.85	0.05	0.08
514900E 5674800N	201	202	6	0.01	0.93	5.3	< 10	34.8	0.15	0.07	0.17	0.04	16.75	5.6	18	0.90	14.0	1.38	3.25	0.05	0.02
514900E 5674950N	201	202	1	0.04	0.74	2.2	< 10	59.8	0.20	0.09	0.12	0.21	15.00	3.2	21	0.70	19.4	0.79	4.60	< 0.05	< 0.02
514900E 5675000N	201	202	3	0.03	1.35	1.2	< 10	55.4	0.25	0.09	0.20	0.02	29.2	7.0	32	1.50	7.4	1.80	5.40	0.05	0.08
514900E 5675050N	201	202	< 1	0.02	0.51	1.0	< 10	36.0	0.05	0.13	0.09	0.02	12.55	1.7	8	0.55	10.0	0.56	5.55	< 0.05	< 0.02
514900E 5675100N	201	202	4	0.07	1.39	4.9	< 10	57.6	0.25	0.22	0.09	0.05	16.10	5.5	20	1.00	13.8	1.95	5.60	0.05	0.06
514900E 5675150N	201	202	1	0.09	0.94	2.0	< 10	58.2	0.25	0.09	0.38	0.08	35.2	5.6	24	0.85	12.8	1.43	3.70	0.05	0.08
514900E 5675200N	201	202	1	0.02	0.29	3.3	< 10	17.6	< 0.05	0.06	0.08	0.07	8.06	1.7	9	0.25	5.6	0.78	1.90	< 0.05	< 0.02
514900E 5675500N	201	202	< 1	0.02	1.04	1.2	< 10	44.4	0.25	0.08	0.24	0.03	31.2	6.0	27	1.20	8.0	1.55	4.35	0.05	0.04
514900E 5675550N	201	202	10	0.09	0.86	14.0	< 10	23.4	0.20	0.10	0.13	0.05	14.65	6.3	20	0.75	8.2	1.70	3.10	< 0.05	0.02
515000E 5674700N	201	202	< 1	0.05	1.56	2.6	< 10	65.6	0.25	0.51	0.02	0.08	24.8	3.0	14	1.40	18.4	1.89	8.75	0.05	0.02
515000E 5674750N	201	202	3	0.03	0.92	4.3	< 10	23.6	0.15	0.09	0.08	0.02	10.00	6.0	18	0.90	13.8	1.32	3.80	< 0.05	0.02
515000E 5674800N	201	202	1	0.03	1.43	2.5	< 10	50.4	0.25	0.09	0.21	0.04	32.0	7.1	34	1.10	19.8	1.86	5.25	0.05	0.02
515000E 5674900N	201	202	15	0.01	1.03	7.3	< 10	28.0	0.25	0.07	0.12	0.03	24.6	5.9	19	0.60	14.2	1.71	2.90	0.05	0.06
515000E 5674950N	201	202	2	0.16	1.72	15.9	< 10	88.0	0.35	0.14	0.20	0.04	21.5	11.5	34	1.40	20.0	2.90	6.20	0.05	0.08
515000E 5675000N	201	202	2	0.09	1.76	9.7	< 10	33.4	0.30	0.08	0.09	0.03	12.10	7.6	24	0.90	10.8	2.12	3.55	0.05	0.08
515000E 5675050N	201	202	1	0.02	0.44	2.0	< 10	19.8	0.05	0.14	0.08	0.10	9.74	1.5	8	0.35	9.2	0.59	4.50	< 0.05	< 0.02
515000E 5675100N	201	202	< 1	0.03	0.55	4.2	< 10	16.8	0.05	0.06	0.14	0.01	11.65	3.8	12	0.55	8.8	0.84	2.55	< 0.05	0.02
515000E 5675150N	201	202	1	0.01	1.23	2.8	< 10	30.4	0.20	0.09	0.35	0.01	41.1	7.4	34	0.80	14.4	1.99	4.30	0.05	0.08
515000E 5675200N	201	202	3	0.01	1.12	3.6	< 10	25.6	0.20	0.07	0.17	0.03	19.00	5.8	27	0.85	10.6	1.70	4.20	0.05	0.06
515000E5675250NA	201	202	1	0.03	0.64	2.9	< 10	26.0	0.10	0.05	0.20	0.03	20.2	4.8	16	0.55	10.8	1.05	2.75	0.05	0.02
515000E5675250NB	201	202	< 1	0.01	0.58	1.6	< 10	25.0	0.15	0.09	0.05	0.12	31.6	1.1	3	0.15	4.4	0.48	4.50	< 0.05	< 0.02
515100E 5674700N	201	202	3	0.02	0.72	8.2	< 10	27.8	0.10	0.14	0.07	0.07	10.15	3.6	16	0.70	10.8	1.25	5.00	< 0.05	< 0.02
515100E 5674750N	201	202	1	0.23	1.47	7.9	< 10	78.6	0.45	0.19	0.15	0.07	22.2	12.0	21	1.70	19.2	2.19	6.80	0.05	< 0.02
515100E 5674800N	201	202	1	0.06	1.36	1.6	< 10	44.0	0.20	0.10	0.17	0.04	24.7	6.2	30	1.30	9.2	1.72	5.80	0.05	0.04
515100E 5674850N	201	202	1	0.06	1.15	1.5	< 10	37.4	0.20	0.09	0.19	0.05	24.1	6.3	30	1.25	7.2	1.68	4.90	0.05	0.02
515100E 5674900N	201	202	1	0.01	0.50	1.4	< 10	19.8	0.05	0.07	0.11	0.04	13.70	2.8	14	0.55	3.8	0.77	3.40	< 0.05	0.02
515100E 5674950N	201	202	1	0.04	0.60	1.8	< 10	23.0	0.05	0.07	0.12	0.03	12.50	3.1	15	0.60	4.4	0.91	3.10	< 0.05	0.02
515100E 5675000N	201	202	< 1	0.06	0.55	9.2	< 10	30.2	0.10	0.10	0.14	0.04	10.50	3.9	14	0.50	7.8	1.32	3.25	< 0.05	0.02
515100E 5675050N	201	202	2	0.06	1.02	8.8	< 10	50.6	0.25	0.09	0.12	0.05	13.15	6.9	21	0.80	10.0	1.93	3.85	0.05	0.02
515100E 5675100N	201	202	2	0.02	0.30	2.0	< 10	14.4	< 0.05	0.11	0.06	0.03	7.42	1.0	6	0.20	3.2	0.36	3.60	< 0.05	< 0.02
515100E 5675150N	201	202	2	0.02	0.81	6.3	< 10	28.8	0.15	0.12	0.08	0.05	10.50	3.5	13	0.70	9.2	1.04	4.70	< 0.05	< 0.02
515100E 5675200N	201	202	< 1	0.16	3.70	11.6	< 10	100.4	0.90	0.29	0.41	0.12	30.3	15.3	32	1.95	23.8	4.50	9.95	0.10	0.08
515100E 5675300N	201	202	< 1	0.03	0.60	2.1	< 10	37.0	0.05	0.24	0.07	0.12	14.40	1.2	7	0.40	11.0	0.81	6.05	< 0.05	< 0.02
515100E 5675350N	201	202	< 1	0.01	0.68	2.0	< 10	21.0	0.10	0.07	0.20	0.01	18.60	3.6	18	0.40	5.4	1.17	2.80	0.05	0.04
515200E 5674550N	201	202	1	0.02	1.38	3.9	< 10	49.8	0.30	0.15	0.30	0.15	18.50	8.6	26	1.40	16.2	1.74	5.65	0.05	0.02
515200E 5674600N	201	202	< 1	0.16	4.15	4.5	< 10	87.8	1.90	0.32	0.34	0.23	63.6	13.1	33	1.35	79.6	3.39	8.75	0.10	0.12
515200E 5674650N	201	202	4	0.05	1.66	5.7	< 10	54.6	0.20	0.58	0.04	0.09	21.6	2.3	15	0.85	9.2	2.73	11.95	0.05	0.02
515200E 5674700N	201	202	< 2	0.06	1.45	3.5	< 10	63.2	0.25	0.16	0.29	0.11	18.90	14.5	64	1.45	14.6	1.93	6.25	0.05	< 0.02

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ALS Chemex

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Certificate Date: 02-SEP-2002
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CERTIFICATE OF ANALYSIS A0222665

SAMPLE	PREP CODE		Hg ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm
514900E 5674700N	201	202	0.03	0.005	0.01	13.2	7.3	0.45	610	1.40	< 0.01	0.20	23.8	280	7.8	6.6<	0.001	0.01	0.15	0.9	0.8
514900E 5674750N	201	202	0.05	0.025	0.07	13.2	26.9	0.72	215	0.95	0.01	2.35	28.6	460	10.2	16.6<	0.001	0.02	0.15	2.7	0.8
514900E 5674800N	201	202	< 0.01	0.005	0.03	7.8	11.2	0.32	105	0.65	0.01	1.10	14.6	440	3.6	7.0<	0.001	< 0.01	0.05	1.4	0.2
514900E 5674950N	201	202	0.03	0.010	0.03	7.8	2.7	0.19	65	0.30	< 0.01	0.25	11.8	480	7.8	10.7<	0.001	0.02	0.05	0.6	1.0
514900E 5675000N	201	202	< 0.01	0.015	0.10	11.8	19.2	0.55	230	0.25	0.01	1.20	18.4	370	4.8	26.0<	0.001	< 0.01	0.05	2.7	0.4
514900E 5675050N	201	202	< 0.01<	0.005	0.04	6.6	2.8	0.13	45	0.30	< 0.01	0.75	8.4	300	5.4	7.6<	0.001	0.01	< 0.05	1.1	0.2
514900E 5675100N	201	202	< 0.01	0.010	0.03	8.6	13.2	0.29	125	0.85	0.01	1.55	14.4	230	6.4	6.9<	0.001	< 0.01	0.05	1.5	0.4
514900E 5675150N	201	202	< 0.01	0.010	0.07	16.8	12.5	0.38	205	0.25	0.01	1.10	15.8	590	4.0	22.5<	0.001	< 0.01	< 0.05	2.5	0.2
514900E 5675200N	201	202	< 0.01<	0.005	0.01	4.0	2.0	0.10	40	0.35	< 0.01	0.55	5.0	220	2.6	3.4<	0.001	< 0.01	0.05	0.7	0.4
514900E 5675500N	201	202	< 0.01	0.010	0.12	13.0	14.7	0.49	250	0.30	0.01	1.00	15.8	350	4.2	31.5<	0.001	< 0.01	< 0.05	2.5	0.2
514900E 5675550N	201	202	0.01	0.005	0.03	6.4	9.7	0.22	330	0.60	< 0.01	1.10	11.0	980	4.8	7.2<	0.001	0.01	0.15	1.1	0.6
515000E 5674700N	201	202	0.04	0.015	0.02	12.4	11.6	0.20	50	1.90	< 0.01	1.00	9.2	320	17.4	6.0<	0.001	0.02	0.10	1.0	0.4
515000E 5674750N	201	202	< 0.01	0.005	0.01	4.8	13.2	0.36	135	0.70	< 0.01	1.15	11.6	170	3.6	4.2<	0.001	< 0.01	0.05	1.1	0.2
515000E 5674800N	201	202	< 0.01	0.015	0.04	15.4	16.1	0.58	245	0.30	0.01	1.20	20.4	420	4.0	10.6<	0.001	< 0.01	0.05	2.7	0.6
515000E 5674900N	201	202	< 0.01	0.005	0.02	9.0	9.4	0.27	85	0.60	0.01	1.40	13.8	380	3.2	4.4<	0.001	< 0.01	0.10	1.4	0.2
515000E 5674950N	201	202	0.03	0.020	0.05	7.8	25.6	0.47	210	0.75	0.01	1.95	28.4	1370	6.0	16.2<	0.001	0.01	0.15	2.0	0.8
515000E 5675000N	201	202	0.01	0.015	0.01	5.8	13.8	0.26	95	0.70	< 0.01	1.65	16.2	500	4.0	6.2<	0.001	0.01	0.10	1.9	0.8
515000E 5675050N	201	202	0.01	0.005	0.02	5.0	1.9	0.08	35	0.40	< 0.01	0.30	5.0	240	5.8	6.4<	0.001	0.01	0.05	0.6	0.4
515000E 5675100N	201	202	< 0.01	0.005	0.04	5.4	8.1	0.22	75	0.55	< 0.01	1.05	10.6	390	2.8	9.2<	0.001	< 0.01	0.05	1.0	0.2
515000E 5675150N	201	202	< 0.01	0.005	0.05	18.0	13.2	0.59	250	0.25	0.01	0.80	19.6	740	4.2	6.7<	0.001	< 0.01	0.05	2.8	0.2
515000E 5675200N	201	202	< 0.01	0.005	0.03	8.4	14.5	0.45	140	0.30	0.01	1.30	16.2	460	3.8	9.4<	0.001	< 0.01	0.05	1.9	0.2
515000E5675250NA	201	202	< 0.01	0.005	0.02	10.6	8.8	0.29	120	0.25	0.01	0.95	10.6	330	3.0	7.1<	0.001	< 0.01	0.05	1.4	0.2
515000E5675250NB	201	202	0.01<	0.005	0.03	16.2	1.6	0.07	35	0.40	< 0.01	0.15	2.6	250	5.4	2.0<	0.001	0.01	< 0.05	0.6	0.2
515100E 5674700N	201	202	0.01	0.005	0.01	5.4	5.4	0.22	85	1.25	< 0.01	1.35	11.0	210	6.2	5.1<	0.001	0.01	0.15	1.0	0.4
515100E 5674750N	201	202	0.06	0.015	0.04	10.4	16.1	0.31	390	1.80	0.01	1.35	14.0	460	10.0	15.2<	0.001	0.02	0.15	1.2	1.2
515100E 5674800N	201	202	< 0.01	0.010	0.05	11.0	15.9	0.52	175	0.30	0.01	1.25	17.6	340	4.8	17.1<	0.001	< 0.01	0.05	2.2	0.4
515100E 5674850N	201	202	< 0.01	0.005	0.11	10.2	14.6	0.53	195	0.40	0.01	1.35	16.6	340	5.0	31.9<	0.001	< 0.01	0.05	2.2	0.2
515100E 5674900N	201	202	< 0.01	0.005	0.03	6.6	6.4	0.21	70	0.30	0.01	0.95	8.4	230	3.8	11.7<	0.001	< 0.01	< 0.05	1.2	0.2
515100E 5674950N	201	202	< 0.01	0.005	0.03	5.8	8.6	0.22	80	0.50	0.01	1.10	9.2	250	3.8	12.2<	0.001	< 0.01	< 0.05	1.1	0.2
515100E 5675000N	201	202	< 0.01	0.005	0.03	4.8	6.6	0.19	105	0.50	< 0.01	1.10	9.0	620	4.4	12.2<	0.001	< 0.01	0.10	1.0	0.2
515100E 5675050N	201	202	0.01	0.010	0.03	5.4	11.3	0.26	165	0.45	< 0.01	1.10	13.8	1170	4.2	7.6<	0.001	< 0.01	0.10	1.1	0.6
515100E 5675100N	201	202	< 0.01<	0.005	0.01	3.8	1.3	0.06	30	0.35	< 0.01	0.50	3.2	140	5.0	3.6<	0.001	< 0.01	0.05	0.5	0.4
515100E 5675150N	201	202	0.02	0.005	0.02	5.4	8.7	0.21	65	0.75	< 0.01	1.00	7.8	270	7.8	3.8<	0.001	0.01	0.05	0.9	0.6
515100E 5675200N	201	202	0.05	0.045	0.06	13.6	33.3	0.51	595	1.35	0.01	2.25	30.0	850	12.0	10.9<	0.001	0.03	0.20	2.2	1.2
515100E 5675300N	201	202	0.04	0.005	0.03	7.4	1.6	0.06	95	0.75	< 0.01	0.35	4.8	430	12.4	4.0<	0.001	0.01	0.10	0.6	0.8
515100E 5675350N	201	202	< 0.01	0.005	0.03	7.6	8.9	0.27	120	0.25	0.01	0.90	10.4	620	3.2	7.6<	0.001	< 0.01	0.05	1.3	0.2
515200E 5674550N	201	202	0.01	0.015	0.01	9.4	12.2	0.42	375	0.70	0.01	1.00	17.0	170	10.2	5.9<	0.001	0.01	0.05	1.5	0.6
515200E 5674600N	201	202	0.08	0.045	0.02	27.4	17.5	0.37	1705	1.25	0.01	1.50	35.8	710	21.8	5.0<	0.001	0.05	0.15	3.3	2.4
515200E 5674650N	201	202	0.06	0.015	0.03	11.0	8.2	0.23	50	4.85	< 0.01	1.30	7.4	270	20.2	4.9<	0.001	0.02	0.40	1.2	0.8
515200E 5674700N	201	202	0.03	0.015	0.03	8.4	20.1	0.61	935	1.30	0.01	1.00	19.8	350	9.0	7.9<	0.001	0.04	0.15	2.0	1.0

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SAMPLE	PREP CODE		Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
514900E 5674700N	201	202	0.2	9.2	< 0.01	0.01	1.8	< 0.01	0.02	0.20	20	0.05	1.85	42	0.5
514900E 5674750N	201	202	1.0	19.0	< 0.01	0.03	2.4	0.09	0.12	0.70	63	0.30	3.05	68	2.5
514900E 5674800N	201	202	0.2	9.2	< 0.01	0.01	1.4	0.04	0.02	0.30	24	0.15	2.50	22	1.5
514900E 5674950N	201	202	0.4	11.2	< 0.01	< 0.01	< 0.2	0.01	0.02	0.35	16	0.05	1.75	20	< 0.5
514900E 5675000N	201	202	0.4	13.8	< 0.01	< 0.01	3.6	0.09	0.08	0.45	35	0.15	3.05	42	3.0
514900E 5675050N	201	202	0.6	7.4	< 0.01	< 0.01	1.2	0.03	0.02	0.25	12	0.05	1.45	22	0.5
514900E 5675100N	201	202	0.6	9.2	< 0.01	0.01	1.8	0.05	0.06	0.35	35	0.15	2.00	56	1.5
514900E 5675150N	201	202	0.2	15.0	< 0.01	< 0.01	3.4	0.05	0.08	0.40	26	0.15	5.85	36	2.5
514900E 5675200N	201	202	0.2	5.4	< 0.01	< 0.01	0.8	0.03	< 0.02	0.15	15	0.15	0.90	12	< 0.5
514900E 5675500N	201	202	0.4	12.8	< 0.01	< 0.01	3.4	0.08	0.10	0.45	31	0.15	3.50	34	1.5
514900E 5675550N	201	202	0.2	8.0	< 0.01	0.03	1.2	0.04	0.02	0.30	29	0.15	1.90	22	0.5
515000E 5674700N	201	202	1.0	4.2	< 0.01	0.02	1.2	< 0.01	0.06	0.50	36	0.15	1.70	26	0.5
515000E 5674750N	201	202	0.2	6.6	< 0.01	< 0.01	1.0	0.06	0.02	0.25	25	0.15	1.20	26	0.5
515000E 5674800N	201	202	0.4	13.4	< 0.01	< 0.01	2.4	0.07	0.06	0.55	33	0.15	4.10	36	1.0
515000E 5674900N	201	202	0.2	7.6	< 0.01	0.01	1.6	0.06	0.02	0.30	26	0.15	2.90	16	1.5
515000E 5674950N	201	202	0.4	15.6	< 0.01	0.03	2.2	0.06	0.04	0.45	43	0.25	2.40	32	2.5
515000E 5675000N	201	202	0.2	6.0	0.03	0.01	1.6	0.05	0.02	0.35	30	0.20	2.10	24	2.0
515000E 5675050N	201	202	0.4	5.8	< 0.01	< 0.01	< 0.2	0.01	< 0.02	0.25	15	0.05	1.00	12	< 0.5
515000E 5675100N	201	202	0.2	7.4	< 0.01	0.01	1.2	0.04	0.02	0.25	17	0.10	1.85	14	1.0
515000E 5675150N	201	202	0.2	14.6	< 0.01	0.01	4.4	0.08	0.06	0.45	37	0.20	5.00	32	4.0
515000E 5675200N	201	202	0.2	9.4	< 0.01	< 0.01	2.0	0.06	0.04	0.30	32	0.15	2.65	26	2.0
515000E5675250NA	201	202	0.2	10.6	< 0.01	< 0.01	1.6	0.04	0.02	0.35	19	0.10	2.80	16	1.0
515000E5675250NB	201	202	0.4	3.4	< 0.01	< 0.01	1.0	< 0.01	0.02	0.15	9	< 0.05	0.95	12	< 0.5
515100E 5674700N	201	202	0.4	8.2	< 0.01	0.01	0.6	0.07	0.02	0.25	33	0.25	1.05	22	0.5
515100E 5674750N	201	202	0.6	13.4	< 0.01	0.02	1.0	0.06	0.08	0.55	41	0.30	2.50	36	0.5
515100E 5674800N	201	202	0.4	11.8	< 0.01	< 0.01	2.2	0.07	0.08	0.35	32	0.15	2.60	48	1.5
515100E 5674850N	201	202	0.4	11.2	< 0.01	< 0.01	2.2	0.08	0.08	0.35	31	0.15	2.75	38	1.5
515100E 5674900N	201	202	0.2	7.2	< 0.01	< 0.01	1.4	0.04	0.02	0.25	17	0.15	1.75	18	0.5
515100E 5674950N	201	202	0.2	7.0	< 0.01	< 0.01	1.4	0.05	0.02	0.25	20	0.15	1.60	18	0.5
515100E 5675000N	201	202	0.2	8.4	< 0.01	0.01	1.2	0.04	0.02	0.20	23	0.25	1.25	22	0.5
515100E 5675050N	201	202	0.2	9.4	< 0.01	0.01	1.2	0.04	0.02	0.25	29	0.20	1.55	34	0.5
515100E 5675100N	201	202	0.2	5.2	< 0.01	< 0.01	0.4	0.03	< 0.02	0.15	11	0.05	0.80	6	< 0.5
515100E 5675150N	201	202	0.6	6.6	< 0.01	0.01	0.6	0.04	0.02	0.25	24	0.15	1.25	16	< 0.5
515100E 5675200N	201	202	1.0	16.8	< 0.01	0.04	2.2	0.05	0.10	0.90	57	0.25	5.05	58	2.5
515100E 5675300N	201	202	1.0	4.8	< 0.01	0.01	0.2	< 0.01	0.02	0.25	18	0.05	1.05	26	< 0.5
515100E 5675350N	201	202	0.2	8.6	< 0.01	< 0.01	1.8	0.05	0.02	0.30	23	0.15	2.65	18	2.0
515200E 5674550N	201	202	0.4	13.0	< 0.01	0.01	1.2	0.04	0.04	0.50	31	0.15	2.90	36	0.5
515200E 5674600N	201	202	0.8	18.8	0.02	0.04	2.4	0.04	0.08	3.50	41	0.15	16.65	50	3.0
515200E 5674650N	201	202	1.4	4.4	< 0.01	0.04	1.4	0.01	0.04	0.50	70	0.20	1.60	20	0.5
515200E 5674700N	201	202	0.6	19.4	< 0.01	0.02	0.8	0.06	0.04	0.50	39	0.15	2.35	54	< 0.5

CERTIFICATION: _____

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Certificate Date: 02-SEP-2002
Invoice No. : I0222665
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0222665

SAMPLE	PREP CODE		Au ppb ICP	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe %	Ga ppm	Ge ppm	Hf ppm
515200E 5674750N	201	202	2	0.10	1.60	7.9	< 10	54.6	0.25	0.19	0.14	0.07	21.1	8.6	30	0.85	22.8	2.09	7.00	0.05	0.02
515200E 5674800N	201	202	1	0.06	1.48	2.3	< 10	59.4	0.35	0.10	0.31	0.06	27.6	8.6	33	1.15	12.4	1.87	5.20	0.05	0.02
515200E 5674850N	201	202	< 1	0.01	0.25	1.3	< 10	20.0	0.05	0.08	0.05	0.05	8.46	1.0	6	0.35	2.4	0.44	2.10	< 0.05	< 0.02
515200E 5674900N	201	202	< 1	0.03	1.25	2.1	< 10	36.8	0.20	0.10	0.20	0.05	24.2	6.1	31	1.15	8.2	1.86	5.00	0.05	0.04
515200E 5674950N	201	202	3	0.11	1.53	2.7	< 10	89.0	0.50	0.12	0.64	0.17	49.1	6.7	30	1.00	17.4	1.87	4.60	0.05	0.10
515200E 5675000N	201	202	1	0.02	0.60	3.7	< 10	39.6	0.15	0.17	0.09	0.12	9.94	2.3	17	0.35	9.6	0.96	4.45	< 0.05	< 0.02
515200E 5675050N	201	202	1	0.03	1.99	7.9	< 10	52.6	0.40	0.11	0.26	0.08	35.4	11.3	33	0.95	35.6	2.44	4.70	0.05	0.06
515200E 5675100N	201	202	< 1	0.09	1.04	4.3	< 10	28.2	0.15	0.08	0.16	0.02	15.50	5.6	23	0.85	13.0	1.33	4.20	< 0.05	0.02
515200E 5675150N	201	202	< 1	0.03	0.57	2.6	< 10	20.2	0.05	0.08	0.08	0.04	11.65	2.4	13	0.60	4.4	0.89	4.65	< 0.05	< 0.02
515200E 5675200N	201	202	< 1	0.03	1.16	1.7	< 10	44.6	0.20	0.08	0.24	0.03	23.0	6.7	29	0.90	6.0	1.70	4.30	0.05	0.02
515200E 5675250N	201	202	< 1	0.03	0.79	2.4	< 10	25.2	0.10	0.08	0.09	0.02	12.90	3.2	15	0.55	4.4	1.07	3.55	< 0.05	0.02
515200E 5675300N	201	202	2	0.04	1.23	9.0	< 10	37.0	0.25	0.10	0.15	0.03	14.85	6.4	23	0.85	9.4	2.47	4.30	0.05	0.06
515200E 5675350N	201	202	1	0.02	0.77	1.7	< 10	26.2	0.10	0.06	0.18	0.02	17.05	4.0	18	0.55	4.6	1.17	3.00	0.05	0.02
515300E 5674550N	201	202	< 1	0.01	1.05	4.8	< 10	35.2	0.15	0.20	0.04	0.04	16.80	2.7	15	0.50	10.0	1.41	7.10	< 0.05	0.02
515300E 5674600N	201	202	< 1	0.03	1.96	4.1	< 10	67.2	0.50	0.20	0.21	0.09	20.0	9.2	30	1.70	16.6	2.04	7.30	0.05	0.02
515300E 5674650N	201	202	1	0.01	0.74	5.7	< 10	23.2	0.10	0.11	0.05	0.05	9.56	3.2	14	0.30	8.4	1.21	3.95	< 0.05	< 0.02
515300E 5674700N	201	202	1	0.01	1.22	5.6	< 10	36.2	0.20	0.17	0.11	0.05	12.40	5.1	19	0.85	8.8	1.96	6.80	< 0.05	0.02
515300E 5674750N	201	202	< 1	0.03	0.78	5.0	< 10	34.8	0.15	0.21	0.07	0.07	10.65	2.5	12	0.20	12.0	1.05	5.10	< 0.05	< 0.02
515300E 5674800N	201	202	2	0.01	0.69	4.2	< 10	16.0	0.05	0.13	0.07	0.03	11.15	3.3	17	0.25	7.4	1.34	6.00	< 0.05	< 0.02
515300E 5674850N	201	202	< 1	0.04	0.40	4.0	< 10	17.8	< 0.05	0.09	0.09	0.05	9.88	1.9	10	0.35	4.6	0.67	3.90	< 0.05	< 0.02
515300E 5674900N	201	202	1	0.03	0.88	2.9	< 10	36.4	0.15	0.07	0.30	0.02	24.7	4.2	22	0.60	7.6	1.40	2.90	0.05	0.04
515300E 5674950N	201	202	< 1	0.04	0.75	1.7	< 10	34.2	0.10	0.06	0.22	0.03	18.70	4.4	20	0.60	5.2	1.18	3.40	0.05	0.02
515300E 5675000N	201	202	5	0.03	0.70	3.4	< 10	23.8	0.10	0.13	0.07	0.04	10.80	2.9	16	0.55	7.4	1.03	5.10	< 0.05	< 0.02
515300E 5675050N	201	202	< 1	0.08	1.64	2.8	< 10	82.8	0.40	0.15	0.31	0.09	28.0	10.8	35	1.60	11.4	2.19	6.40	0.05	0.04
515300E 5675100N	201	202	1	0.07	1.27	3.2	< 10	78.0	0.30	0.09	0.80	0.17	47.8	6.7	28	0.85	15.4	1.76	3.80	0.05	0.06
515300E 5675150N	201	202	< 1	0.04	1.17	1.9	< 10	87.0	0.20	0.10	0.25	0.15	23.4	8.2	29	1.00	7.8	1.73	5.35	0.05	0.02
515300E 5675200N	201	202	< 1	0.05	1.01	5.2	< 10	33.6	0.15	0.08	0.17	0.02	16.05	4.2	22	0.70	8.6	1.59	3.55	< 0.05	0.06
515300E 5675250N	201	202	< 1	0.07	1.05	2.1	< 10	29.0	0.15	0.07	0.13	0.01	15.00	4.4	20	0.75	5.0	1.41	3.85	< 0.05	0.04
515300E 5675300N	201	202	2	0.04	0.44	4.4	< 10	17.6	0.05	0.09	0.09	0.04	13.10	2.1	14	0.45	3.6	1.24	3.95	< 0.05	0.02
515300E 5675350N	201	202	< 1	0.01	0.45	0.9	< 10	26.8	0.15	0.12	0.07	0.13	28.3	1.1	11	0.20	9.2	0.32	3.75	< 0.05	< 0.02
515400E 5674550N	201	202	4	< 0.01	0.82	2.2	< 10	30.8	0.15	0.13	0.10	0.03	13.60	2.4	15	0.60	7.2	0.83	4.15	< 0.05	< 0.02
515400E 5674600N	201	202	< 1	0.01	1.02	7.6	< 10	29.4	0.15	0.14	0.05	0.05	9.24	4.6	19	1.20	12.8	2.24	5.80	0.05	0.02
515400E 5674650N	201	202	2	< 0.01	0.92	5.8	< 10	18.6	0.10	0.09	0.07	0.04	15.00	5.8	21	0.60	21.6	1.40	3.55	0.05	0.02
515400E 5674700N	201	202	2	0.01	1.11	4.9	< 10	23.6	0.10	0.15	0.04	0.05	11.60	3.7	16	0.30	8.6	1.45	5.55	< 0.05	< 0.02
515400E 5674750N	201	202	< 1	0.01	1.41	4.9	< 10	32.6	0.20	0.12	0.15	0.05	11.60	7.2	26	1.10	17.6	1.93	5.05	0.05	0.02
515400E 5674800N	201	202	< 1	0.02	0.70	6.8	< 10	45.8	0.15	0.19	0.22	0.32	11.40	5.0	21	0.90	13.8	4.83	4.50	0.05	< 0.02
515400E 5674850N	201	202	6	0.05	0.89	3.1	< 10	30.2	0.15	0.07	0.17	0.02	9.98	4.8	16	0.85	18.6	1.15	3.45	< 0.05	0.02
515400E 5674900N	201	202	13	0.02	0.40	3.1	< 10	19.6	0.05	0.08	0.07	0.05	7.86	2.3	10	0.45	6.0	0.83	3.45	< 0.05	< 0.02
515400E 5674950N	201	202	5	0.20	2.88	5.9	< 10	87.0	1.05	0.13	1.11	0.19	91.6	10.4	36	1.50	73.4	2.50	5.70	0.15	0.16
515400E 5675150N	201	202	< 1	0.05	0.85	2.4	< 10	36.4	0.10	0.07	0.19	0.02	18.45	4.5	21	0.40	7.6	1.21	3.65	< 0.05	0.02

CERTIFICATION:_____

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
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PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC. *

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Certificate Date: 02-SEP-2002
Invoice No. : I0222665
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0222665

SAMPLE	PREP CODE		Hg ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm
515200E 5674750N	201	202	0.05	0.015	0.05	9.8	17.6	0.52	170	1.05	0.01	1.50	21.0	280	8.2	12.0<	0.001	0.03	0.15	1.8	0.8
515200E 5674800N	201	202	< 0.01	0.015	0.04	12.2	15.4	0.55	375	0.30	0.01	1.15	19.2	430	5.0	14.0<	0.001	0.01	0.05	2.3	0.6
515200E 5674850N	201	202	< 0.01<	0.005	0.01	4.8	1.0	0.05	40	0.35	< 0.01	0.25	3.0	180	5.2	4.2<	0.001	0.01	0.05	0.4	0.4
515200E 5674900N	201	202	< 0.01	0.010	0.09	9.8	15.4	0.54	190	0.40	0.01	1.40	17.2	360	5.6	25.0<	0.001	< 0.01	0.05	2.2	0.2
515200E 5674950N	201	202	0.02	0.015	0.09	25.6	18.8	0.48	295	0.35	0.01	1.35	19.2	590	5.4	25.9<	0.001	0.01	0.05	3.0	0.8
515200E 5675000N	201	202	0.04	0.005	0.02	5.2	2.4	0.14	50	0.80	< 0.01	0.50	8.8	250	10.4	5.1<	0.001	0.01	0.10	0.8	1.0
515200E 5675050N	201	202	0.04	0.015	0.03	14.2	22.0	0.62	260	0.60	0.01	1.20	23.0	800	6.0	6.0<	0.001	0.02	0.15	2.4	0.8
515200E 5675100N	201	202	< 0.01	0.005	0.03	7.6	12.7	0.40	120	0.45	0.01	1.10	16.0	350	4.2	7.0<	0.001	< 0.01	0.05	1.6	0.2
515200E 5675150N	201	202	0.01	0.005	0.02	5.6	4.8	0.19	65	0.35	< 0.01	0.85	7.2	210	4.2	7.1<	0.001	< 0.01	0.05	1.0	0.6
515200E 5675200N	201	202	< 0.01	0.005	0.06	10.2	16.1	0.53	250	0.30	0.01	1.15	17.8	450	4.4	18.5<	0.001	< 0.01	< 0.05	2.1	0.2
515200E 5675250N	201	202	< 0.01	0.005	0.02	6.6	7.6	0.20	75	0.45	< 0.01	1.05	8.4	330	4.0	6.4<	0.001	< 0.01	0.05	1.0	0.4
515200E 5675300N	201	202	0.01	0.010	0.03	7.0	12.7	0.25	125	0.55	< 0.01	1.55	11.8	1560	5.2	7.5<	0.001	0.01	0.10	1.3	0.6
515200E 5675350N	201	202	< 0.01	0.005	0.03	7.8	8.9	0.29	95	0.20	0.01	0.95	11.0	540	3.2	7.1<	0.001	< 0.01	< 0.05	1.4	0.2
515300E 5674550N	201	202	0.01	0.005	0.01	8.4	5.9	0.21	75	0.90	< 0.01	1.05	7.6	130	10.8	3.0<	0.001	0.01	0.10	1.3	0.4
515300E 5674600N	201	202	0.03	0.020	0.03	10.0	19.7	0.49	180	1.00	0.01	1.55	19.8	260	11.0	7.6<	0.001	0.02	0.10	1.6	0.6
515300E 5674650N	201	202	0.01	0.005	0.01	4.8	4.7	0.19	60	0.85	< 0.01	1.00	9.2	150	6.0	2.6<	0.001	0.01	0.15	0.9	0.4
515300E 5674700N	201	202	0.01	0.010	0.02	6.2	14.2	0.33	125	2.95	< 0.01	1.50	11.4	160	13.0	4.4<	0.001	0.01	0.15	1.3	0.4
515300E 5674750N	201	202	0.02	0.005	0.01	5.6	3.0	0.16	55	1.20	< 0.01	0.85	8.6	230	10.8	2.1<	0.001	0.02	0.10	0.7	0.6
515300E 5674800N	201	202	< 0.01	0.005	0.01	5.0	5.6	0.25	90	0.40	< 0.01	1.00	9.0	370	5.6	3.7<	0.001	0.01	0.10	1.0	0.2
515300E 5674850N	201	202	0.02<	0.005	0.01	5.0	2.8	0.12	85	0.40	< 0.01	0.60	5.2	170	5.0	4.5<	0.001	0.01	0.05	0.7	0.4
515300E 5674900N	201	202	< 0.01	0.005	0.05	11.2	9.7	0.36	145	0.25	0.01	1.05	12.8	620	3.0	12.5<	0.001	< 0.01	0.05	1.7	0.2
515300E 5674950N	201	202	< 0.01	0.005	0.04	8.6	10.1	0.34	130	0.30	0.01	1.00	12.6	360	3.6	14.9<	0.001	< 0.01	< 0.05	1.7	0.2
515300E 5675000N	201	202	< 0.01	0.005	0.02	5.4	3.6	0.18	60	0.50	< 0.01	0.85	9.2	120	5.2	4.9<	0.001	< 0.01	0.05	1.0	0.4
515300E 5675050N	201	202	< 0.01	0.015	0.08	12.0	20.8	0.61	415	0.50	0.01	1.45	24.4	250	8.0	33.5<	0.001	< 0.01	0.05	2.6	0.6
515300E 5675100N	201	202	0.04	0.010	0.08	22.8	15.6	0.49	335	0.30	0.01	1.15	18.0	800	4.8	20.0<	0.001	0.03	0.10	1.9	0.6
515300E 5675150N	201	202	0.01	0.010	0.08	10.8	14.2	0.49	600	0.45	0.01	1.20	17.8	230	5.6	38.8<	0.001	< 0.01	0.05	2.1	0.8
515300E 5675200N	201	202	0.01	0.005	0.03	7.2	10.3	0.26	80	0.55	0.01	1.65	13.0	630	4.0	6.3<	0.001	< 0.01	0.05	1.4	0.4
515300E 5675250N	201	202	0.01	0.005	0.03	6.6	13.1	0.31	110	0.40	0.01	1.25	11.0	390	3.8	8.7<	0.001	< 0.01	0.05	1.4	0.2
515300E 5675300N	201	202	< 0.01<	0.005	0.03	6.0	3.6	0.13	55	0.40	< 0.01	1.25	5.4	620	5.0	7.1<	0.001	< 0.01	0.05	1.0	0.2
515300E 5675350N	201	202	< 0.01<	0.005	0.01	14.4	1.8	0.04	15	1.05	< 0.01	0.15	9.0	150	7.4	1.8<	0.001	0.01	< 0.05	0.6	0.4
515400E 5674550N	201	202	0.01	0.005	0.01	7.0	5.9	0.18	45	0.45	0.01	0.75	8.0	220	6.8	4.4<	0.001	0.01	0.05	1.0	0.2
515400E 5674600N	201	202	0.03	0.010	0.01	4.8	9.4	0.23	90	1.35	< 0.01	1.70	13.4	190	8.6	6.7<	0.001	0.01	0.20	1.0	0.4
515400E 5674650N	201	202	< 0.01	0.005	0.01	7.2	11.4	0.38	110	0.45	< 0.01	1.00	16.6	210	7.2	4.2<	0.001	0.01	0.15	1.4	0.4
515400E 5674700N	201	202	0.02	0.005	0.01	6.0	6.8	0.27	80	1.75	< 0.01	1.25	9.8	170	10.8	2.2<	0.001	0.01	0.20	1.0	0.4
515400E 5674750N	201	202	0.01	0.010	0.02	6.0	17.9	0.51	145	0.55	< 0.01	1.10	15.4	150	5.4	5.3<	0.001	< 0.01	0.05	1.3	0.2
515400E 5674800N	201	202	0.03	0.020	0.03	5.6	3.1	0.14	360	2.50	< 0.01	0.40	20.2	730	16.8	10.0<	0.001	0.03	0.20	1.2	1.2
515400E 5674850N	201	202	< 0.01	0.005	0.01	5.2	10.0	0.30	115	0.45	< 0.01	0.90	12.4	190	3.4	4.6<	0.001	< 0.01	0.05	1.1	0.2
515400E 5674900N	201	202	< 0.01<	0.005	0.01	4.0	3.6	0.14	45	0.50	< 0.01	0.60	6.6	140	4.4	4.7<	0.001	< 0.01	0.05	0.7	0.4
515400E 5674950N	201	202	0.07	0.025	0.03	62.0	12.0	0.41	665	0.40	0.01	1.20	28.8	410	6.4	9.2<	0.001	0.04	0.10	6.9	1.6
515400E 5675150N	201	202	< 0.01	0.005	0.03	9.2	9.5	0.37	115	0.30	0.01	0.90	13.2	390	3.4	6.1<	0.001	< 0.01	0.05	1.7	0.6

CERTIFICATION:_____ +

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC. *

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Certificate Date: 02-SEP-2002
Invoice No. :10222665
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0222665

SAMPLE	PREP CODE		Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
515200E 5674750N	201	202	0.8	14.6	< 0.01	0.02	0.8	0.08	0.06	0.50	40	0.25	2.85	34	0.5
515200E 5674800N	201	202	0.4	14.0	< 0.01	< 0.01	2.2	0.06	0.06	0.60	33	0.15	3.45	42	1.5
515200E 5674850N	201	202	0.2	5.4	< 0.01	< 0.01	< 0.2	0.01	< 0.02	0.15	10	0.05	0.75	10	< 0.5
515200E 5674900N	201	202	0.4	11.6	< 0.01	< 0.01	2.4	0.09	0.08	0.40	36	0.15	2.65	38	1.5
515200E 5674950N	201	202	0.4	23.2	< 0.01	0.01	3.6	0.06	0.08	1.60	32	0.20	8.65	42	3.0
515200E 5675000N	201	202	0.6	6.8	< 0.01	0.01	2.4	0.03	0.02	0.60	26	0.15	1.25	16	< 0.5
515200E 5675050N	201	202	0.2	14.2	< 0.01	0.01	2.4	0.06	0.02	0.85	37	0.15	5.45	38	2.0
515200E 5675100N	201	202	0.2	9.8	< 0.01	< 0.01	1.2	0.06	0.04	0.30	26	0.20	2.15	24	0.5
515200E 5675150N	201	202	0.4	6.4	< 0.01	< 0.01	0.6	0.05	0.02	0.20	22	0.15	1.25	12	< 0.5
515200E 5675200N	201	202	0.2	11.4	< 0.01	0.01	2.2	0.07	0.04	0.40	31	0.15	2.90	32	1.5
515200E 5675250N	201	202	0.2	6.6	< 0.01	< 0.01	1.4	0.03	0.02	0.25	19	0.15	1.55	20	0.5
515200E 5675300N	201	202	0.2	8.4	0.01	0.02	1.6	0.05	0.02	0.40	39	0.50	2.40	20	2.0
515200E 5675350N	201	202	0.2	8.4	< 0.01	< 0.01	1.6	0.04	0.02	0.30	21	0.15	2.50	18	1.0
515300E 5674550N	201	202	0.8	4.4	< 0.01	0.01	1.4	0.03	0.02	0.25	37	0.15	1.10	16	0.5
515300E 5674600N	201	202	0.8	12.0	< 0.01	0.01	1.4	0.05	0.06	0.50	37	0.20	2.80	40	0.5
515300E 5674650N	201	202	0.4	6.2	< 0.01	0.01	1.0	0.05	0.02	0.20	28	0.15	1.00	12	0.5
515300E 5674700N	201	202	0.6	7.2	< 0.01	0.01	1.0	0.05	0.02	0.30	35	0.20	1.40	24	0.5
515300E 5674750N	201	202	0.8	6.6	< 0.01	0.01	0.2	0.03	0.02	0.40	27	0.20	1.15	12	< 0.5
515300E 5674800N	201	202	0.4	6.2	< 0.01	0.01	0.6	0.06	< 0.02	0.25	28	0.15	1.25	18	< 0.5
515300E 5674850N	201	202	0.2	7.8	< 0.01	0.01	0.6	0.04	< 0.02	0.20	18	0.10	1.00	10	< 0.5
515300E 5674900N	201	202	0.2	10.6	< 0.01	< 0.01	2.2	0.05	0.02	0.40	25	0.15	3.60	24	1.5
515300E 5674950N	201	202	0.2	10.2	< 0.01	< 0.01	1.8	0.05	0.02	0.30	23	0.15	2.55	22	1.5
515300E 5675000N	201	202	0.6	6.2	< 0.01	< 0.01	0.6	0.04	0.02	0.20	26	0.25	1.10	14	< 0.5
515300E 5675050N	201	202	0.6	15.6	< 0.01	0.01	2.4	0.07	0.06	0.50	38	0.15	3.00	66	1.5
515300E 5675100N	201	202	0.2	21.6	< 0.01	0.01	2.0	0.05	0.08	1.10	29	0.15	7.75	36	2.0
515300E 5675150N	201	202	0.4	13.0	< 0.01	< 0.01	1.8	0.07	0.06	0.45	31	0.15	2.50	54	1.0
515300E 5675200N	201	202	0.2	8.6	< 0.01	0.01	1.8	0.05	0.02	0.30	30	0.20	2.45	18	1.5
515300E 5675250N	201	202	0.2	8.0	< 0.01	< 0.01	1.6	0.05	0.02	0.25	25	0.15	1.85	18	1.5
515300E 5675300N	201	202	0.4	7.0	< 0.01	0.01	1.4	0.05	0.02	0.25	25	0.20	1.50	12	0.5
515300E 5675350N	201	202	0.4	6.0	< 0.01	< 0.01	1.2	< 0.01	< 0.02	0.20	7	0.05	1.15	4	< 0.5
515400E 5674550N	201	202	0.4	7.0	< 0.01	< 0.01	0.8	0.03	0.02	0.25	19	0.10	1.75	12	< 0.5
515400E 5674600N	201	202	0.6	6.2	< 0.01	0.02	1.0	0.07	0.02	0.20	43	0.20	1.00	20	0.5
515400E 5674650N	201	202	0.2	5.6	< 0.01	0.01	1.4	0.04	0.02	0.30	25	0.15	1.70	24	1.0
515400E 5674700N	201	202	0.6	4.8	< 0.01	0.01	0.8	0.05	0.02	0.25	38	0.20	1.05	16	< 0.5
515400E 5674750N	201	202	0.2	8.2	< 0.01	0.01	1.4	0.05	0.02	0.35	35	0.15	1.40	32	0.5
515400E 5674800N	201	202	0.6	7.4	< 0.01	0.04	0.8	< 0.01	0.02	0.45	51	0.15	1.70	48	0.5
515400E 5674850N	201	202	0.2	6.8	< 0.01	< 0.01	1.0	0.03	0.02	0.25	20	0.10	1.30	22	0.5
515400E 5674900N	201	202	0.2	6.0	< 0.01	0.01	0.4	0.04	< 0.02	0.15	20	0.10	0.80	10	< 0.5
515400E 5674950N	201	202	0.6	22.0	0.02	0.01	3.8	0.03	0.08	2.10	30	0.15	27.30	36	4.0
515400E 5675150N	201	202	0.2	10.4	< 0.01	< 0.01	1.4	0.05	0.02	0.30	21	0.10	2.45	22	0.5

CERTIFICATION: _____ +

ALS Chemex

Aurora Laboratory Services Ltd.
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212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Certificate Date: 02-SEP-2002
Invoice No. : I0222665
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0222665

SAMPLE	PREP CODE		Au ppb ICP	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe %	Ga ppm	Ge ppm	Hf ppm
515400E 5675200N	201	202	< 1	0.12	1.25	3.1	< 10	67.0	0.30	0.21	0.09	0.13	29.5	9.1	13	1.05	23.8	2.41	7.15	0.05	0.02
515400E 5675250N	201	202	1	0.01	1.27	10.6	< 10	42.8	0.25	0.13	0.09	0.04	12.00	5.0	21	1.00	15.4	2.29	4.60	0.05	0.04
515400E 5675300N	201	202	2	0.03	0.63	4.2	< 10	30.4	0.20	0.16	0.11	0.16	24.3	9.6	14	0.35	39.0	2.74	3.15	0.05	0.02

CERTIFICATION: _____

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To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
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V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Certificate Date: 02-SEP-2002
Invoice No. :I0222665
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0222665

SAMPLE	PREP CODE		Hg ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm
515400E 5675200N	201	202	0.01	0.015	0.03	14.0	9.5	0.17	1105	0.90	< 0.01	0.85	7.8	1190	12.8	8.4	< 0.001	0.01	0.10	1.3	0.8
515400E 5675250N	201	202	0.03	0.010	0.02	5.2	11.5	0.22	85	1.00	< 0.01	1.75	12.0	330	6.6	6.0	< 0.001	0.01	0.15	1.2	0.8
515400E 5675300N	201	202	0.05	0.005	0.03	11.8	0.6	0.05	95	2.75	< 0.01	0.20	37.6	570	13.6	5.1	< 0.001	0.04	0.20	0.7	0.6

CERTIFICATION: _____

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To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Certificate Date: 02-SEP-2002
Invoice No. :I0222665
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0222665

SAMPLE	PREP CODE		Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
515400E 5675200N	201	202	0.8	8.0	< 0.01	0.01	1.0	0.01	0.06	0.40	34	0.10	1.90	84	0.5
515400E 5675250N	201	202	0.4	7.8	0.01	0.03	1.4	0.06	0.02	0.30	38	0.25	1.45	20	1.5
515400E 5675300N	201	202	0.4	7.0	< 0.01	0.11	1.0	< 0.01	< 0.02	0.35	23	0.45	1.60	18	0.5

CERTIFICATION: _____

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PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number : 1-A
Total Pages : 1
Certificate Date: 03-SEP-2002
Invoice No. : I0222760
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0222760

SAMPLE	PREP CODE		Au ppb ICP	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe %	Ga ppm	Ge ppm	Hf ppm
515500E 5674550N	201	202	26	0.01	0.80	1.6	< 10	56.4	0.20	0.11	0.06	0.09	20.0	1.0	5	0.30	11.6	0.31	3.15	< 0.05	< 0.02
515500E 5674600N	201	202	1	< 0.01	0.61	1.9	< 10	23.0	0.05	0.10	0.11	0.12	14.05	1.5	4	0.20	7.2	0.61	3.80	< 0.05	< 0.02
515500E 5674650N	201	202	< 1	0.06	1.00	2.4	< 10	47.6	0.25	0.20	0.13	0.14	19.75	5.5	8	0.70	9.6	3.15	5.25	< 0.05	0.02
515500E 5674700N	201	202	1	0.08	1.69	4.1	< 10	74.2	0.45	0.14	0.59	0.16	23.8	10.3	28	1.20	24.8	1.97	5.00	< 0.05	0.04
515500E 5674750N	201	202	1	0.08	3.30	7.5	< 10	141.8	1.10	0.24	0.75	0.12	53.0	23.8	38	1.70	31.4	3.60	9.00	0.05	0.06
515500E 5674800N	201	202	< 1	< 0.01	0.62	3.1	< 10	26.2	0.10	0.12	0.05	0.03	7.94	2.3	13	0.55	5.8	1.36	4.35	< 0.05	< 0.02
515500E 5674850N	201	202	6	< 0.01	0.52	3.4	< 10	21.2	0.10	0.15	0.07	0.10	8.26	2.2	10	0.30	6.0	0.74	3.40	< 0.05	< 0.02
515600E 5674550N	201	202	3	0.01	0.90	5.6	< 10	51.8	0.25	0.17	0.12	0.09	23.1	3.7	11	0.20	18.4	1.51	5.85	< 0.05	< 0.02
515600E 5674600N	201	202	< 1	0.03	0.90	18.8	< 10	28.8	0.30	0.25	0.06	0.25	29.7	8.1	7	0.45	42.6	4.11	7.30	0.05	0.02
515600E 5674650N	201	202	1	0.19	0.89	3.9	< 10	51.4	0.30	0.20	0.39	0.21	29.7	9.0	68	0.30	28.4	2.23	4.50	< 0.05	0.06
515600E 5674700N	201	202	< 1	0.03	0.85	3.0	< 10	30.8	0.20	0.08	0.31	0.03	24.2	5.4	20	0.55	10.6	1.29	2.85	< 0.05	0.02
515600E 5674750N	201	202	4	0.11	1.49	4.1	< 10	82.4	0.40	0.12	1.13	0.20	58.6	7.4	28	0.90	27.2	1.74	3.85	0.05	0.10
515600E 5674800N	201	202	5	< 0.01	0.90	3.3	< 10	13.0	0.15	0.14	0.08	0.05	13.65	10.7	47	0.20	11.8	2.20	3.15	< 0.05	0.14
515600E 5674850N	201	202	1	0.03	1.23	2.1	< 10	44.2	0.25	0.09	0.33	0.04	28.8	8.8	34	0.95	11.4	1.94	4.50	< 0.05	0.02
515600E 5674900N	201	202	< 1	0.09	1.17	3.5	< 10	16.2	0.05	0.25	0.03	0.03	8.16	11.0	25	0.15	12.0	2.22	4.05	< 0.05	0.06
515700E 5674550N	201	202	< 1	0.06	1.55	4.7	< 10	53.0	0.35	0.20	0.36	0.07	17.20	11.0	24	1.65	11.0	1.97	5.60	< 0.05	< 0.02
515700E 5674600N	201	202	< 1	0.01	1.12	4.0	< 10	45.4	0.20	0.12	0.24	0.04	23.8	7.1	29	0.90	13.8	1.74	3.95	< 0.05	0.08
515700E 5674650N	201	202	< 1	< 0.01	1.19	6.0	< 10	36.8	0.20	0.09	0.06	0.03	16.30	5.9	20	0.70	11.0	1.78	4.35	< 0.05	0.02
515700E 5674700N	201	202	3	< 0.01	0.79	1.8	< 10	27.4	0.15	0.08	0.14	0.02	17.90	4.6	19	0.55	10.8	1.08	3.30	< 0.05	0.02
515700E 5674750N	201	202	< 1	0.04	1.14	1.4	< 10	50.4	0.20	0.09	0.14	0.02	20.7	7.2	27	1.20	6.8	1.56	4.95	< 0.05	0.02
515700E 5674800N	201	202	4	0.07	0.83	1.9	< 10	34.6	0.10	0.07	0.17	0.02	12.25	4.3	19	0.45	6.8	1.08	3.05	< 0.05	0.02
515700E 5674850N	201	202	< 1	0.10	0.65	2.8	< 10	26.2	0.15	0.06	0.13	0.01	9.78	2.6	12	0.40	4.4	0.98	2.25	< 0.05	< 0.02
515700E 5674900N	201	202	< 1	< 0.01	0.64	2.1	< 10	18.0	0.05	0.15	0.04	0.05	10.40	2.2	12	0.30	6.6	0.89	4.15	< 0.05	< 0.02
515800E 5674550N	201	202	< 2	0.07	0.44	4.0	< 10	54.4	0.15	0.14	0.45	0.24	14.90	5.1	7	0.35	14.2	0.83	2.10	< 0.05	< 0.02
515800E 5674600N	201	202	< 1	< 0.01	0.70	4.3	< 10	23.8	0.10	0.08	0.11	0.03	10.70	4.1	16	0.55	8.4	1.14	3.25	< 0.05	< 0.02
515800E 5674650N	201	202	3	0.01	0.59	2.3	< 10	22.2	0.15	0.06	0.22	0.01	15.10	3.5	14	0.40	5.8	0.90	1.95	< 0.05	0.02
515800E 5674700N	201	202	< 1	< 0.01	0.39	2.0	< 10	13.0	0.05	0.11	0.09	0.04	10.20	2.3	10	0.30	4.4	0.72	3.85	< 0.05	< 0.02
515800E 5674750N	201	202	1	0.23	1.49	8.7	< 10	39.0	0.55	0.14	1.02	0.17	31.2	10.8	18	1.15	125.5	1.85	4.55	0.05	0.08
515800E 5674800N	201	202	1	0.06	1.55	5.2	< 10	58.0	0.55	0.19	0.12	0.12	17.40	6.0	21	0.95	24.6	2.48	6.60	< 0.05	0.02
515800E 5674850N	201	202	1	0.01	1.70	3.8	< 10	61.0	0.40	0.10	0.15	0.09	18.00	8.6	30	0.95	9.6	2.21	5.30	< 0.05	0.06
515800E 5674900N	201	202	2	0.14	1.22	4.4	< 10	95.8	0.50	0.16	2.19	0.44	27.8	16.4	14	0.80	57.9	2.15	2.65	0.10	0.14

CERTIFICATION: _____ +

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Certificate Date: 03-SEP-2002
Invoice No. : I0222760
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0222760

SAMPLE	PREP CODE		Hg ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm
515500E 5674550N	201	202	0.05	0.005	0.02	11.2	0.6	0.03	15	0.30	< 0.01	0.20	2.8	270	7.0	3.2<	0.001	0.03	0.05	0.6	< 0.2
515500E 5674600N	201	202	0.04<	0.005	0.01	7.4	0.5	0.04	45	0.60	< 0.01	0.15	2.6	230	4.8	2.0<	0.001	0.01	0.05	0.6	< 0.2
515500E 5674650N	201	202	0.06	0.010	0.03	10.6	8.7	0.09	280	2.55	< 0.01	0.70	7.0	560	8.4	6.5<	0.001	0.02	0.15	1.0	< 0.2
515500E 5674700N	201	202	0.09	0.015	0.04	14.0	16.9	0.52	365	0.40	0.01	1.20	20.4	340	9.6	10.3<	0.001	0.03	0.10	1.9	0.2
515500E 5674750N	201	202	0.13	0.035	0.04	24.6	28.0	0.48	630	0.95	0.01	2.15	30.0	440	15.4	8.0	0.001	0.04	0.15	2.4	1.2
515500E 5674800N	201	202	0.05<	0.005	0.01	4.4	4.3	0.14	45	0.80	< 0.01	1.50	6.0	100	5.4	3.9<	0.001	< 0.01	0.05	0.7	< 0.2
515500E 5674850N	201	202	0.05<	0.005	0.02	4.4	2.6	0.12	45	0.40	< 0.01	0.55	5.8	180	7.6	2.7<	0.001	0.01	0.05	0.6	< 0.2
515600E 5674550N	201	202	0.11	0.010	0.01	12.4	4.8	0.15	80	1.35	< 0.01	1.05	8.4	290	13.0	2.2<	0.001	0.03	0.10	0.8	0.2
515600E 5674600N	201	202	0.16	0.025	0.02	15.2	3.9	0.11	540	1.95	< 0.01	0.60	9.4	1040	26.8	3.6<	0.001	0.04	0.35	1.0	1.4
515600E 5674650N	201	202	0.17	0.015	0.12	15.6	5.8	0.29	405	1.30	0.01	0.30	12.6	800	100.0	4.5<	0.001	0.06	0.25	1.5	1.2
515600E 5674700N	201	202	0.08	0.005	0.02	12.2	9.2	0.31	170	0.20	< 0.01	1.15	12.8	570	3.8	4.5<	0.001	0.01	0.05	1.6	< 0.2
515600E 5674750N	201	202	0.14	0.015	0.06	34.2	13.0	0.48	410	0.45	0.01	1.00	19.2	880	6.4	12.7	0.001	0.08	0.15	2.2	1.0
515600E 5674800N	201	202	0.04	0.005	0.12	6.0	5.9	0.30	170	1.00	0.01	0.15	29.2	400	6.0	3.4<	0.001	< 0.01	0.15	2.4	< 0.2
515600E 5674850N	201	202	0.05	0.010	0.07	12.2	17.8	0.60	255	0.35	0.01	1.35	20.0	490	4.6	21.6<	0.001	0.01	0.05	2.3	< 0.2
515600E 5674900N	201	202	0.19	0.020	0.01	4.0	9.7	0.42	60	2.35	< 0.01	0.35	34.8	100	2.6	2.3<	0.001	< 0.01	0.10	1.5	< 0.2
515700E 5674550N	201	202	0.09	0.015	0.02	8.8	20.2	0.44	330	1.50	< 0.01	1.20	15.6	230	15.8	10.9<	0.001	0.02	0.05	1.3	< 0.2
515700E 5674600N	201	202	0.11	0.015	0.04	12.2	11.8	0.44	170	0.40	0.01	1.45	16.0	290	5.2	7.9<	0.001	0.01	0.05	2.1	0.2
515700E 5674650N	201	202	0.06	0.010	0.02	7.8	11.5	0.31	90	0.85	< 0.01	1.60	14.0	170	4.6	5.5<	0.001	0.01	0.10	1.3	< 0.2
515700E 5674700N	201	202	0.06	0.005	0.01	9.6	9.4	0.30	95	0.25	< 0.01	0.95	13.0	390	4.0	4.2<	0.001	< 0.01	0.05	1.5	< 0.2
515700E 5674750N	201	202	0.08	0.010	0.05	10.2	20.1	0.49	200	0.30	0.01	1.50	19.2	180	4.6	19.3<	0.001	< 0.01	< 0.05	2.0	< 0.2
515700E 5674800N	201	202	0.06	0.005	0.03	6.4	10.7	0.32	110	0.30	< 0.01	1.05	11.8	280	3.4	7.0<	0.001	< 0.01	0.05	1.3	< 0.2
515700E 5674850N	201	202	0.05	0.005	0.01	5.2	6.0	0.12	45	0.35	< 0.01	1.10	7.2	420	2.8	3.9<	0.001	0.01	0.05	0.7	< 0.2
515700E 5674900N	201	202	0.04<	0.005	0.01	5.6	3.5	0.15	50	0.45	< 0.01	0.55	6.6	130	5.2	2.2<	0.001	< 0.01	0.10	0.8	< 0.2
515800E 5674550N	201	202	0.07	0.005	0.06	8.0	1.2	0.08	370	0.90	< 0.01	0.25	8.0	340	11.0	7.8<	0.001	0.04	0.25	0.5	0.2
515800E 5674600N	201	202	0.03	0.005	0.03	5.6	10.0	0.23	80	0.35	< 0.01	0.90	9.6	410	4.0	11.0<	0.001	< 0.01	0.05	1.0	< 0.2
515800E 5674650N	201	202	0.02	0.005	0.01	7.2	7.7	0.20	85	0.25	< 0.01	0.90	8.4	540	2.6	3.7<	0.001	< 0.01	< 0.05	1.0	< 0.2
515800E 5674700N	201	202	0.03<	0.005	0.03	5.4	4.4	0.15	55	0.45	< 0.01	0.70	6.2	130	5.8	7.8<	0.001	0.01	0.05	0.6	< 0.2
515800E 5674750N	201	202	0.11	0.020	0.03	18.8	24.3	0.39	340	0.75	< 0.01	0.95	22.8	460	8.8	9.9<	0.001	0.04	0.10	1.7	1.4
515800E 5674800N	201	202	0.05	0.020	0.02	9.4	13.7	0.24	140	0.90	< 0.01	1.50	13.0	430	8.8	6.0<	0.001	0.01	0.10	1.2	0.2
515800E 5674850N	201	202	0.06	0.015	0.03	9.2	16.9	0.39	165	0.40	< 0.01	1.40	18.6	1030	5.2	8.2<	0.001	0.01	0.05	1.7	0.2
515800E 5674900N	201	202	0.14	0.015	0.03	53.8	8.6	0.32	420	0.75	< 0.01	0.45	20.0	700	8.6	5.8<	0.001	0.09	0.25	2.9	2.4

CERTIFICATION: _____ +

ALS Chemex

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British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number : 1-C
Total Pages : 1
Certificate Date: 03-SEP-2002
Invoice No. : I0222760
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0222760

SAMPLE	PREP CODE		Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
515500E 5674550N	201	202	0.4	4.8	< 0.01	< 0.01	0.8	< 0.01	0.02	0.60	6	< 0.05	1.75	6	< 0.5
515500E 5674600N	201	202	0.2	4.4	< 0.01	0.01	0.6	< 0.01	0.04	0.10	15	0.05	0.65	12	< 0.5
515500E 5674650N	201	202	0.6	6.2	< 0.01	0.02	1.2	< 0.01	0.02	0.25	44	0.10	1.70	42	0.5
515500E 5674700N	201	202	0.4	15.6	< 0.01	0.01	1.2	0.04	0.08	0.70	28	0.15	6.10	50	1.5
515500E 5674750N	201	202	0.8	22.8	< 0.01	0.03	1.8	0.05	0.12	1.40	48	0.20	9.30	32	2.0
515500E 5674800N	201	202	0.4	4.6	< 0.01	0.01	0.6	0.06	0.02	0.15	35	0.15	0.90	10	< 0.5
515500E 5674850N	201	202	0.4	5.2	< 0.01	0.03	0.2	0.02	0.02	0.15	18	0.10	0.85	8	< 0.5
515600E 5674550N	201	202	0.6	8.4	< 0.01	0.01	0.8	0.02	0.02	0.30	33	0.15	2.00	18	0.5
515600E 5674600N	201	202	0.6	5.2	< 0.01	0.05	1.0	< 0.01	0.02	0.35	49	0.10	2.40	50	1.0
515600E 5674650N	201	202	0.4	13.6	< 0.01	0.01	1.0	< 0.01	0.04	0.25	29	0.10	3.25	52	2.0
515600E 5674700N	201	202	0.2	10.4	< 0.01	0.01	1.4	0.04	0.02	0.45	21	0.10	4.15	16	1.5
515600E 5674750N	201	202	0.2	24.4	< 0.01	0.02	1.6	0.03	0.10	1.25	25	0.10	12.80	26	2.5
515600E 5674800N	201	202	< 0.2	5.2	< 0.01	< 0.01	2.0	< 0.01	0.02	0.45	28	0.05	2.80	24	7.0
515600E 5674850N	201	202	0.2	13.6	< 0.01	0.01	2.0	0.07	0.08	0.35	35	0.15	3.50	30	1.5
515600E 5674900N	201	202	0.2	2.8	< 0.01	0.01	1.4	< 0.01	0.02	0.40	32	0.05	1.05	28	2.0
515700E 5674550N	201	202	0.6	12.0	< 0.01	0.01	1.2	0.03	0.08	0.60	32	0.15	2.55	26	0.5
515700E 5674600N	201	202	0.2	13.2	< 0.01	0.01	2.2	0.05	0.06	0.35	29	0.15	3.50	24	3.0
515700E 5674650N	201	202	0.2	5.0	< 0.01	0.01	1.2	0.05	0.04	0.20	32	0.20	1.60	20	1.0
515700E 5674700N	201	202	0.2	7.8	< 0.01	0.01	1.2	0.03	0.02	0.30	19	0.10	2.90	16	1.0
515700E 5674750N	201	202	0.4	10.6	< 0.01	< 0.01	1.6	0.06	0.08	0.35	28	0.10	2.40	32	1.5
515700E 5674800N	201	202	0.2	8.4	< 0.01	< 0.01	1.2	0.04	0.04	0.25	19	0.10	1.75	20	0.5
515700E 5674850N	201	202	0.2	6.4	< 0.01	< 0.01	0.8	0.03	0.02	0.20	20	0.10	1.65	8	0.5
515700E 5674900N	201	202	0.4	3.6	< 0.01	< 0.01	0.6	0.01	0.02	0.15	26	0.05	0.80	12	< 0.5
515800E 5674550N	201	202	0.6	16.6	< 0.01	0.01	0.6	< 0.01	0.02	0.20	9	0.05	1.15	24	< 0.5
515800E 5674600N	201	202	0.2	6.4	< 0.01	< 0.01	0.8	0.03	0.02	0.20	21	0.15	1.45	16	0.5
515800E 5674650N	201	202	0.2	7.2	< 0.01	< 0.01	1.0	0.03	0.02	0.35	17	0.05	2.60	12	0.5
515800E 5674700N	201	202	0.2	5.4	< 0.01	< 0.01	0.2	0.04	0.02	0.15	20	0.10	1.00	12	< 0.5
515800E 5674750N	201	202	0.4	22.0	< 0.01	0.01	1.2	0.02	0.06	1.10	22	0.05	9.55	42	3.0
515800E 5674800N	201	202	0.6	8.2	< 0.01	0.02	1.2	0.03	0.06	0.30	41	0.20	1.70	40	0.5
515800E 5674850N	201	202	0.2	9.2	< 0.01	0.01	1.4	0.04	0.06	0.35	31	0.15	2.45	54	2.0
515800E 5674900N	201	202	0.2	46.8	0.01	0.05	1.6	< 0.01	0.06	3.60	18	0.05	25.20	14	3.5

CERTIFICATION: _____

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC. *

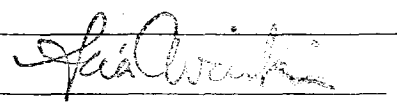
2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Certificate Date: 18-SEP-2002
Invoice No. : I0223590
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0223590

SAMPLE	PREP CODE		Au ppb ICP	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe %	Ga ppm	Ge ppm	Hf ppm
507300E 5679712N	201	202	1	0.01	1.30	7.2	< 10	34.2	0.15	0.13	0.06	0.05	9.84	10.3	64	0.70	22.6	2.21	3.95	0.05	0.06
507300E 5679750N	201	202	1	0.01	2.81	8.9	< 10	49.0	0.55	0.16	0.12	0.06	16.20	24.3	101	1.60	95.5	4.39	7.25	0.15	0.08
507300E 5679850N	201	202	2	0.01	1.18	8.2	< 10	20.8	0.15	0.12	0.06	0.08	10.35	8.4	28	0.75	16.8	2.34	4.85	0.05	0.06
507300E 5680000N	201	202	< 1	0.02	0.66	2.7	< 10	18.8	0.05	0.10	0.05	0.04	8.58	2.6	14	0.60	5.8	1.36	4.15	< 0.05	0.02
507300E 5680050N	201	202	< 1	0.04	1.18	1.5	< 10	31.0	0.25	0.08	0.07	0.05	9.22	4.4	20	0.85	4.4	1.88	4.45	0.05	0.06
507300E 5680100N	201	202	< 1	0.01	1.10	2.6	< 10	40.0	0.20	0.06	0.07	0.01	24.0	4.9	18	0.45	9.0	1.45	2.45	0.05	0.06
507300E 5680150N	201	202	< 1	0.02	0.76	2.0	< 10	17.6	0.10	0.08	0.09	0.01	12.75	2.7	15	0.45	6.0	1.17	3.10	< 0.05	< 0.02
507300E 5680200N	201	202	1	0.09	0.65	3.6	< 10	25.0	0.20	0.14	0.04	0.05	9.68	2.9	14	0.80	9.0	1.83	5.00	0.05	0.02
507300E 5680250N	201	202	< 1	0.08	1.34	2.8	< 10	94.0	0.20	0.15	0.17	0.07	11.95	10.2	25	2.10	10.2	2.73	7.65	0.05	0.08
507300E 5680300N	201	202	122	0.10	1.18	4.6	< 10	34.4	0.20	0.14	0.09	0.07	10.00	8.8	27	1.55	14.6	3.05	6.65	0.10	0.06
507300E 5680350N	201	202	1	0.03	1.15	2.2	< 10	30.6	0.20	0.06	0.07	0.01	9.30	4.1	18	0.60	6.8	1.53	2.85	0.05	0.02
507300E 5680400N	201	202	< 1	0.01	1.22	1.4	< 10	37.8	0.20	0.09	0.13	0.02	30.0	6.0	27	1.10	9.0	1.71	4.45	0.05	0.06
507300E 5680450N	201	202	1	0.04	1.08	2.3	< 10	36.4	0.20	0.11	0.11	0.04	21.6	4.8	24	0.90	10.2	1.42	4.65	0.05	< 0.02
507300E 5680500N	201	202	< 1	0.01	0.92	3.4	< 10	23.8	0.20	0.06	0.07	0.01	20.4	5.1	16	0.50	9.2	1.38	2.25	0.05	0.04
507300E 5680550N	201	202	14	< 0.01	0.57	1.2	< 10	18.2	0.10	0.04	0.18	< 0.01	25.2	4.0	15	0.35	5.6	1.03	2.00	0.05	0.06
507300E 5680600N	201	202	< 1	0.02	1.43	1.9	< 10	40.6	0.20	0.11	0.12	0.03	23.6	5.8	28	1.20	9.2	1.89	5.30	0.05	0.04
507300E 5680650N	201	202	< 1	0.03	1.93	3.3	< 10	19.8	0.40	0.09	0.10	0.06	15.65	5.6	20	0.85	7.0	2.10	3.30	0.05	0.08
507300E 5680700N	201	202	14	0.06	1.35	6.0	< 10	29.4	0.35	0.11	0.06	0.05	8.90	5.2	19	0.75	6.8	2.17	4.35	0.05	0.06
507300E 5680750N	201	202	< 1	0.09	1.15	2.7	< 10	38.4	0.25	0.13	0.05	0.04	6.52	3.9	17	0.85	6.0	2.29	6.00	0.05	0.02
507300E 5680800N	201	202	2	0.42	2.03	8.8	< 10	49.6	0.40	0.19	0.12	0.09	26.7	17.3	40	2.45	57.5	3.60	7.95	0.10	0.08
507300E 5680850N	201	202	97	0.11	1.30	8.2	< 10	86.0	0.25	0.18	0.09	0.10	10.50	8.4	24	1.70	12.8	2.77	7.00	0.05	0.02
507300E 5680900N	201	202	2	0.12	1.06	6.0	< 10	69.6	0.20	0.22	0.07	0.06	9.06	7.8	26	1.30	13.6	2.66	6.90	0.05	0.02
507300E 5680950N	201	202	1	0.01	0.75	4.9	< 10	19.6	0.15	0.09	0.08	0.03	13.30	4.7	14	0.50	13.4	1.30	2.90	0.05	0.04
507300E 5681000N	201	202	< 1	0.05	1.40	4.8	< 10	35.4	0.35	0.12	0.05	0.05	12.60	5.7	19	0.85	11.2	2.11	4.25	0.05	0.08
507300E 5681050N	201	202	4	0.14	2.47	5.1	< 10	68.4	0.45	0.11	0.06	0.06	13.25	8.8	28	1.05	13.2	2.88	4.90	0.05	0.10
507300E 5681100N	201	202	< 1	0.12	2.11	8.1	< 10	52.8	0.50	0.16	0.05	0.12	9.92	8.1	28	1.45	13.2	3.54	9.65	0.05	0.08
507300E 5681150N	201	202	3	0.03	2.50	4.1	< 10	125.6	0.25	0.10	0.09	0.05	5.28	9.1	48	1.85	12.4	3.94	7.70	0.10	0.10
507300E 5681200N	201	202	29	0.03	1.22	3.5	< 10	18.0	0.25	0.08	0.09	0.05	16.40	6.1	18	0.60	15.4	1.81	2.75	0.05	0.10
507300E 5681450N	201	202	4	0.09	0.98	4.1	< 10	30.0	0.15	0.13	0.08	0.06	7.94	5.0	20	0.95	15.4	1.78	6.00	0.05	0.02
507300E 5681500N	201	202	2	0.07	1.84	5.2	< 10	30.4	0.30	0.10	0.06	0.01	9.44	3.2	24	1.45	14.2	2.53	4.10	0.05	0.06
507300E 5681550N	201	202	2	0.09	1.91	7.0	< 10	55.2	0.30	0.17	0.08	0.08	9.94	11.6	33	2.10	23.6	3.04	7.60	0.05	0.06
507300E 5681600N	201	202	< 1	< 0.01	0.77	2.9	< 10	14.0	0.15	0.06	0.13	0.01	12.35	3.5	16	0.60	6.0	1.67	2.55	0.05	0.06
507300E 5681650N	201	202	< 1	0.04	1.08	2.0	< 10	63.0	0.25	0.09	0.40	0.07	39.0	12.1	26	1.30	15.4	1.70	3.95	0.05	0.06
507300E 5681700N	201	202	< 1	0.03	1.14	4.1	< 10	50.4	0.20	0.12	0.23	0.11	28.7	9.3	25	1.10	14.6	1.91	4.60	0.05	0.02
507300E 5681750N	201	202	< 1	0.01	0.97	6.6	< 10	31.8	0.10	0.11	0.06	0.04	11.60	2.9	33	0.50	8.6	1.44	7.05	0.05	0.04
507300E 5681850N	201	202	1	0.08	1.66	6.3	< 10	40.2	0.25	0.08	0.06	0.03	15.55	8.3	27	1.05	15.0	2.05	4.15	0.05	0.08
507300E 5681900N	201	202	1	< 0.01	0.62	0.8	< 10	18.6	0.10	0.05	0.16	< 0.01	13.55	3.4	15	0.55	4.4	0.98	2.50	0.05	0.04
507300E 5681950N	201	202	9	0.09	0.77	2.3	< 10	37.6	0.05	0.12	0.05	0.06	7.82	3.2	20	0.65	6.4	1.34	6.35	0.05	0.02
507300E 5682050N	201	202	6	< 0.01	0.49	4.4	< 10	12.8	< 0.05	0.17	0.05	0.04	5.92	1.4	11	0.40	4.4	1.00	6.50	< 0.05	< 0.02
507300E 5682150N	201	202	< 1	0.02	1.08	1.6	< 10	48.6	0.25	0.11	0.30	0.01	38.2	7.3	27	0.95	11.8	1.67	4.20	0.05	0.06

CERTIFICATION: 

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC.

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Certificate Date: 18-SEP-2002
Invoice No. :10223590
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0223590

SAMPLE	PREP CODE		Hg ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm
507300E 5679712N	201	202	0.01	0.010	0.01	3.8	9.5	0.51	120	0.70	< 0.01	1.35	24.0	80	3.8	4.8<	0.001	< 0.01	0.20	1.9	0.2
507300E 5679750N	201	202	0.05	0.035	0.03	6.8	17.7	0.91	150	1.05	< 0.01	2.20	47.8	200	5.0	5.0<	0.001	0.01	0.20	7.5	0.6
507300E 5679850N	201	202	0.05	0.015	0.03	4.2	9.7	0.26	105	0.90	< 0.01	2.05	12.8	250	4.8	7.4<	0.001	0.01	0.20	1.5	0.6
507300E 5680000N	201	202	0.01	0.005	0.02	4.2	6.1	0.15	50	0.55	< 0.01	1.70	5.6	210	4.2	8.8<	0.001	< 0.01	0.05	0.9	0.2
507300E 5680050N	201	202	0.02	0.010	0.02	4.6	10.7	0.23	80	0.70	0.01	1.90	9.0	340	4.0	11.0<	0.001	< 0.01	0.05	1.3	0.2
507300E 5680100N	201	202	< 0.01	0.005	0.01	5.6	6.0	0.21	80	0.25	0.01	1.25	10.8	360	2.8	3.4<	0.001	< 0.01	0.05	1.4	< 0.2
507300E 5680150N	201	202	0.01	0.005	0.01	5.8	5.6	0.20	60	0.30	0.01	1.25	7.2	280	3.2	5.6<	0.001	< 0.01	0.05	1.1	0.2
507300E 5680200N	201	202	0.02	0.005	0.03	4.6	2.8	0.13	65	0.70	< 0.01	1.55	5.0	360	5.6	8.3<	0.001	< 0.01	0.15	1.0	0.6
507300E 5680250N	201	202	0.01	0.005	0.18	6.0	8.3	0.77	280	1.25	< 0.01	1.35	11.6	770	5.2	28.3<	0.001	< 0.01	0.10	2.4	0.4
507300E 5680300N	201	202	0.03	0.015	0.04	5.0	14.0	0.43	195	1.75	< 0.01	2.40	12.4	350	4.6	13.3<	0.001	0.01	0.10	1.8	0.6
507300E 5680350N	201	202	0.01	0.005	0.01	4.8	7.4	0.20	70	0.50	< 0.01	1.60	9.0	410	3.0	6.0<	0.001	< 0.01	0.05	1.3	0.4
507300E 5680400N	201	202	0.01	0.010	0.07	10.8	12.8	0.45	150	0.25	0.01	0.95	14.2	360	4.4	17.7<	0.001	< 0.01	0.05	2.3	0.2
507300E 5680450N	201	202	0.02	0.010	0.04	9.4	8.4	0.34	100	0.35	0.01	0.90	13.4	480	5.0	13.1<	0.001	0.01	0.05	1.1	0.6
507300E 5680500N	201	202	< 0.01	0.005	0.01	7.6	5.7	0.19	75	0.25	< 0.01	1.20	10.4	520	2.6	3.9<	0.001	< 0.01	0.05	1.5	0.2
507300E 5680550N	201	202	< 0.01	0.005	0.01	10.2	5.7	0.25	105	0.15	0.01	0.50	8.8	560	2.0	4.1<	0.001	< 0.01	0.05	1.5	< 0.2
507300E 5680600N	201	202	0.01	0.010	0.07	9.0	13.0	0.46	135	0.40	0.01	1.55	15.0	330	5.0	19.0<	0.001	< 0.01	0.05	2.1	0.4
507300E 5680650N	201	202	0.04	0.015	0.03	7.0	9.4	0.20	80	0.50	< 0.01	2.05	9.2	960	3.8	7.9<	0.001	0.01	0.10	2.1	1.2
507300E 5680700N	201	202	0.03	0.015	0.01	4.2	8.8	0.16	90	0.55	< 0.01	1.80	8.8	910	4.8	6.2<	0.001	0.01	0.10	1.5	0.8
507300E 5680750N	201	202	0.03	0.005	0.02	3.4	7.1	0.18	100	0.85	< 0.01	1.70	6.8	400	5.0	8.6<	0.001	< 0.01	0.10	1.1	0.8
507300E 5680800N	201	202	0.04	0.025	0.07	11.2	21.9	0.74	360	1.10	< 0.01	2.10	24.4	860	6.0	20.6<	0.001	0.01	0.15	2.5	1.4
507300E 5680850N	201	202	0.04	0.015	0.05	5.2	13.4	0.37	330	1.00	< 0.01	1.75	13.2	630	6.0	21.5<	0.001	0.01	0.20	1.4	0.6
507300E 5680900N	201	202	0.01	0.010	0.05	4.8	9.4	0.39	255	1.25	< 0.01	2.00	12.0	340	5.4	17.8<	0.001	0.01	0.15	1.5	0.4
507300E 5680950N	201	202	0.01	0.005	0.01	5.8	5.9	0.19	90	0.45	< 0.01	1.30	8.0	430	4.2	4.3<	0.001	< 0.01	0.15	1.1	0.4
507300E 5681000N	201	202	0.03	0.015	0.02	6.0	9.4	0.20	115	0.60	< 0.01	1.85	10.2	680	4.8	6.6<	0.001	0.01	0.15	1.6	0.6
507300E 5681050N	201	202	0.06	0.020	0.03	6.6	13.5	0.27	125	0.75	< 0.01	2.35	15.8	640	4.6	8.8<	0.001	0.01	0.15	2.4	1.2
507300E 5681100N	201	202	0.05	0.020	0.03	5.2	14.9	0.28	250	1.50	< 0.01	2.70	11.8	1620	8.0	12.3<	0.001	0.02	0.20	2.0	1.6
507300E 5681150N	201	202	0.01	0.005	0.35	2.8	17.9	1.37	380	0.85	< 0.01	1.60	12.4	360	3.6	23.5<	0.001	0.01	0.20	1.1	0.8
507300E 5681200N	201	202	0.01	0.010	0.01	7.2	7.4	0.22	95	0.30	< 0.01	1.40	10.4	890	3.0	5.3<	0.001	0.01	0.05	1.9	0.2
507300E 5681450N	201	202	0.01	0.005	0.02	4.4	6.4	0.35	105	1.20	< 0.01	1.70	9.4	150	6.0	4.6<	0.001	< 0.01	0.15	1.1	0.2
507300E 5681500N	201	202	0.05	0.015	0.01	5.2	8.7	0.13	45	1.40	< 0.01	2.20	7.4	300	6.0	6.7<	0.001	0.01	0.15	1.3	0.8
507300E 5681550N	201	202	0.02	0.015	0.05	5.0	24.0	0.51	145	1.15	< 0.01	1.60	16.8	960	6.6	16.9<	0.001	0.01	0.20	1.7	0.6
507300E 5681600N	201	202	0.01	0.005	0.01	5.4	6.9	0.14	60	0.55	< 0.01	2.00	6.4	540	3.4	4.7<	0.001	< 0.01	0.05	1.0	0.2
507300E 5681650N	201	202	0.01	0.010	0.07	16.0	10.8	0.48	330	0.75	0.01	1.15	14.6	640	3.8	20.4<	0.001	< 0.01	0.05	2.3	0.4
507300E 5681700N	201	202	0.01	0.010	0.04	12.0	11.2	0.39	305	1.55	0.01	1.25	12.6	550	5.0	13.5<	0.001	0.01	0.10	1.4	0.4
507300E 5681750N	201	202	< 0.01<	0.005	0.05	6.2	5.8	0.43	80	1.95	< 0.01	1.45	9.6	80	6.2	6.7<	0.001	< 0.01	0.50	0.9	0.2
507300E 5681850N	201	202	0.01	0.010	0.04	7.0	12.1	0.38	135	0.85	< 0.01	1.60	14.6	280	4.4	12.3<	0.001	< 0.01	0.15	1.8	0.2
507300E 5681900N	201	202	< 0.01<	0.005	0.02	6.4	6.8	0.28	85	0.30	0.01	0.55	8.2	330	2.6	8.6<	0.001	< 0.01	0.05	1.3	< 0.2
507300E 5681950N	201	202	0.01<	0.005	0.03	4.2	4.6	0.32	90	1.10	< 0.01	1.20	6.6	560	6.2	8.4<	0.001	< 0.01	0.10	0.8	0.2
507300E 5682050N	201	202	0.01<	0.005	0.02	3.0	1.5	0.12	40	1.45	< 0.01	1.55	3.6	130	6.4	4.0<	0.001	< 0.01	0.15	0.7	0.2
507300E 5682150N	201	202	0.01	0.010	0.06	15.8	11.8	0.48	205	0.40	0.01	0.85	15.8	320	4.2	16.9<	0.001	< 0.01	0.10	2.6	< 0.2

CERTIFICATION:

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
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To: FRONTEER DEVELOPMENT GROUP INC. *

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number :1-C
Total Pages :2
Certificate Date: 18-SEP-2002
Invoice No. :I0223590
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0223590

SAMPLE	PREP CODE		Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
507300E 5679712N	201	202	0.2	6.0	< 0.01	0.02	1.6	0.09	0.04	0.25	41	0.35	1.65	24	1.5
507300E 5679750N	201	202	0.6	8.2	0.02	0.03	2.2	0.15	0.06	0.35	97	0.30	4.05	28	2.0
507300E 5679850N	201	202	0.6	4.8	0.02	0.03	1.6	0.09	0.04	0.25	39	0.25	1.85	18	1.5
507300E 5680000N	201	202	0.6	4.4	< 0.01	0.01	1.4	0.07	0.02	0.30	29	0.15	1.45	12	0.5
507300E 5680050N	201	202	0.4	5.6	< 0.01	0.01	1.6	0.08	0.04	0.25	37	0.20	1.65	24	1.5
507300E 5680100N	201	202	0.2	5.6	0.01	0.01	2.6	0.07	0.02	0.30	23	0.15	1.85	12	2.5
507300E 5680150N	201	202	0.2	5.6	< 0.01	0.01	1.2	0.06	0.04	0.25	21	0.15	1.80	12	0.5
507300E 5680200N	201	202	0.6	4.0	< 0.01	0.01	1.6	0.08	0.06	0.25	35	0.20	1.45	18	1.5
507300E 5680250N	201	202	0.8	12.0	< 0.01	0.01	3.8	0.15	0.14	0.65	60	0.50	2.20	54	2.5
507300E 5680300N	201	202	0.6	7.0	< 0.01	0.05	1.8	0.14	0.06	0.35	52	0.50	2.05	54	2.0
507300E 5680350N	201	202	0.2	4.8	< 0.01	0.01	1.4	0.06	0.02	0.25	25	0.20	1.60	14	1.5
507300E 5680400N	201	202	0.4	9.0	< 0.01	0.01	3.0	0.08	0.10	0.40	32	0.10	2.90	28	2.0
507300E 5680450N	201	202	0.6	9.0	< 0.01	0.01	0.2	0.05	0.08	0.45	23	0.15	2.80	22	< 0.5
507300E 5680500N	201	202	0.2	4.6	0.02	0.01	1.8	0.06	0.02	0.35	22	0.20	2.70	12	1.5
507300E 5680550N	201	202	0.2	8.8	< 0.01	< 0.01	2.2	0.05	0.02	0.30	17	0.10	3.55	14	2.5
507300E 5680600N	201	202	0.6	8.8	< 0.01	0.01	2.4	0.08	0.10	0.40	33	0.15	2.70	30	2.0
507300E 5680650N	201	202	0.2	7.2	0.04	0.02	2.2	0.06	0.04	0.55	25	0.30	3.55	32	2.0
507300E 5680700N	201	202	0.4	5.0	0.03	0.03	1.8	0.06	0.04	0.35	32	0.30	1.70	18	2.0
507300E 5680750N	201	202	0.6	5.6	0.01	0.01	1.2	0.07	0.04	0.25	38	0.30	1.20	20	0.5
507300E 5680800N	201	202	0.6	9.8	0.01	0.05	2.2	0.13	0.12	0.40	52	0.40	3.35	68	2.5
507300E 5680850N	201	202	0.6	9.8	< 0.01	0.03	1.0	0.09	0.08	0.35	43	0.30	1.70	60	0.5
507300E 5680900N	201	202	0.8	8.4	< 0.01	0.03	1.2	0.13	0.08	0.30	50	0.30	1.50	40	0.5
507300E 5680950N	201	202	0.4	5.0	0.01	0.01	1.8	0.06	0.04	0.35	22	0.15	2.15	14	1.5
507300E 5681000N	201	202	0.4	5.0	0.03	0.02	2.4	0.06	0.06	0.35	31	0.30	2.00	26	2.0
507300E 5681050N	201	202	0.4	6.4	0.03	0.03	3.0	0.08	0.06	0.45	37	0.40	3.00	40	3.0
507300E 5681100N	201	202	0.6	6.4	0.03	0.05	2.2	0.08	0.08	0.40	50	0.35	1.95	44	3.0
507300E 5681150N	201	202	0.4	9.8	< 0.01	0.04	1.6	0.25	0.20	0.25	86	0.25	1.55	58	4.0
507300E 5681200N	201	202	0.2	5.6	0.04	0.01	3.0	0.06	0.02	0.45	25	0.20	2.95	20	3.0
507300E 5681450N	201	202	0.6	5.6	< 0.01	0.01	1.6	0.15	0.06	0.30	57	0.15	1.40	22	1.0
507300E 5681500N	201	202	0.4	4.6	0.02	0.02	2.0	0.07	0.08	0.50	37	0.15	1.40	14	2.0
507300E 5681550N	201	202	0.6	8.0	< 0.01	0.08	1.8	0.10	0.08	0.35	53	0.20	1.80	46	2.5
507300E 5681600N	201	202	0.2	5.4	0.04	0.01	1.8	0.07	0.02	0.35	25	0.30	2.20	10	2.0
507300E 5681650N	201	202	0.4	16.4	< 0.01	0.01	2.8	0.06	0.12	0.70	31	0.15	5.40	36	1.5
507300E 5681700N	201	202	0.6	11.4	< 0.01	0.02	0.8	0.07	0.10	0.65	37	0.15	3.95	34	0.5
507300E 5681750N	201	202	0.8	9.4	< 0.01	0.01	1.4	0.14	0.06	0.25	46	0.30	1.25	24	1.5
507300E 5681850N	201	202	0.4	7.2	0.01	0.02	2.4	0.10	0.08	0.55	34	0.30	2.45	28	2.5
507300E 5681900N	201	202	0.2	8.4	< 0.01	< 0.01	1.8	0.06	0.02	0.25	19	0.10	2.05	16	1.5
507300E 5681950N	201	202	0.6	6.4	< 0.01	0.01	2.2	0.11	0.06	0.40	37	0.15	1.15	26	1.0
507300E 5682050N	201	202	0.8	6.8	< 0.01	0.01	1.0	0.12	0.04	0.20	49	0.20	0.80	10	< 0.5
507300E 5682150N	201	202	0.4	13.2	< 0.01	0.01	3.2	0.08	0.10	0.45	31	0.15	5.20	30	2.0

CERTIFICATION:

ALS Chemex

Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
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PHONE: 604-984-0221 FAX: 604-984-0218

To: FRONTEER DEVELOPMENT GROUP INC. *

2390 - 1055 W. HASTINGS ST., GUINNESS TOWER
VANCOUVER, BC
V6E 2E9

Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number :2-A
Total Pages :2
Certificate Date: 18-SEP-2002
Invoice No. : I0223590
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0223590

SAMPLE	PREP CODE		Au ppb ICP	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe %	Ga ppm	Ge ppm	Hf ppm
507300E 5682200N	201	202	3	0.01	0.92	2.5	< 10	34.2	0.15	0.07	0.23	0.01	20.0	6.6	22	0.80	10.4	1.59	2.60	0.05	0.06
D507300E5682200N	201	202	1	0.01	0.91	2.6	< 10	35.2	0.15	0.07	0.23	0.02	25.5	6.0	22	0.70	10.0	1.59	2.65	0.05	0.06

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Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number :2-B
Total Pages :2
Certificate Date: 18-SEP-2002
Invoice No. :I0223590
P.O. Number :
Account :TBP

CERTIFICATE OF ANALYSIS A0223590

SAMPLE	PREP CODE		Hg ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm
507300E 5682200N	201	202	0.01	0.005	0.02	6.6	10.0	0.32	105	0.65	0.01	1.20	11.4	420	3.2	7.1	< 0.001	< 0.01	0.05	1.3	< 0.2
D507300E5682200N	201	202	< 0.01	0.005	0.02	7.2	9.7	0.30	100	0.60	0.01	1.25	10.8	380	3.2	6.8	< 0.001	< 0.01	0.05	1.3	0.2

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Project : PORTAGE
Comments: ATTN: M. O'DEA

Page Number :2-C
Total Pages :2
Certificate Date: 18-SEP-2002
Invoice No. : I0223590
P.O. Number :
Account : TBP

CERTIFICATE OF ANALYSIS A0223590

SAMPLE	PREP CODE		Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
507300E 5682200N	201	202	0.2	10.8	< 0.01	0.01	2.2	0.08	0.06	0.35	27	0.25	2.75	18	2.0
D507300E5682200N	201	202	0.2	10.8	< 0.01	0.01	2.2	0.08	0.06	0.35	28	0.20	3.00	16	1.5

CERTIFICATION:

APPENDIX III

ROCK SAMPLE DESCRIPTIIONS

PORTAGE PROPERTY ROCK SAMPLE DESCRIPTIONS

Sample Number	Sample Type	Description
23625	Grab	3 cm wide quartz vein oriented 074/90. Chloritic volcanic host. No sulphides observed.
23626	Grab	Sericitic volcanics exposed in old trench. 1-2% disseminated pyrite. Minor quartz stringers.
23627	Grab	4 cm wide quartz vein in Fe-carbonate altered volcanics. Strikes 190 with west dip. Evidence of old trenching. No sulphides observed.
23628	Grab	Carbonate-altered host from location of previous sample. No sulphides observed.
23629	Float	Quartz veining in chloritic volcanic float.
23630	Grab	Quartz-carbonate lens in chloritic volcanics. Foliation is 050/90.
23631	Float	Quartz float from area of quartz veining in sericitic volcanics.
23632	Composite grab	From 5 to 10 cm quartz veins forming a stockwork oriented 155/90 and 060/90 in sericite altered felsic volcanics. 3x6 metre exposure.
23633	Select grab	Limonitic, sericitic felsic volcanics with minor pyrite. Area of samples 23631-2.
23634	Composite grab	Composite of quartz stockwork in another 2x6 metre outcrop in the area of samples 23631-33.
23635	Grab	Sample of sericitic volcanics with minor pyrite at location of 23634.
23636	Float	Quartz float from old pit in sericite schist. Minor tourmaline+graphite, no sulphides observed.
23637	Float	Chalcedonic quartz from same location as 23636. No sulphides observed.
23638	Float	Iron-carbonate with quartz stringers. No sulphides observed. Same location as previous 23636, 23637.
23639	Grab	Sericitic felsic volcanics with a stockwork of quartz veinlets trending 180. Foliation of host is 030/90. Minor Fe-carb. alteration. No sulphides observed.
23640	Grab	Sericitic felsic volcanics with quartz stringers up to 4 cm wide, oriented parallel to foliation of 015/85W.
23641	Grab	Chloritic volcanics with minor quartz veining and pyrite. Foliation 080/90.
23642	Grab	Irregular quartz vein in chloritic volcanics.
23643	Grab	Quartz stockwork in felsic volcanics. No sulphides observed.
23644	Grab	Quartz veining conformable to foliation in felsic volcanics. 060/90.
23645	Grab	Flat lying quartz vein up to 1.5 cm wide in felsic volcanics. Same location as 23644.
23646	Grab	Felsic volcanic host to 23644-23645.
23647	Grab	Old trench with sericite-Fe-carbonate-quartz altered felsic volcanes. Includes minor 2-5 cm quartz veins oriented 030/70NW. Minor pyrite.
23648	Composite grab	From two 5-10 cm quartz veins oriented 089/85N. Traces of pyrite, galena, sphalerite in the veins. Same location as 23647.
23649	Grab	Quartz vein 10 cm wide in schist. Trends 170, flat lying. No sulphides observed. 6 metre strikelength exposure on Narrow Lake shoreline.
23650	Float	Subangular mafic volcanic float with quartz veining. Limonitic.
23901	Grab	Intrusive? Foliation trends 125. Contains 2 cm wide veins + lenses of quartz.
23902	Grab	Quartz vein in intrusive trending 180/90. No sulphides observed. 8 to 20? Cm wide.
23903	Grab	Chloritic mafic intrusive with blebs + stringers of quartz. Weak limonite.
23904	Grab	40 cm wide shear in intermediate volcanics containing quartz and calcite. Shear oriented 156/68E. Minor pyrite, chalcopyrite and malachite. Traced intermittently for 10 m along strike.
23905	Grab	Finely disseminated pyrite and pyrrhotite in volcanics.

23906	Grab	50 cm wide quartz stockwork zone oriented 281/80S in chloritic volcanics. 2m long exposure.
23907	Grab	Schistose volcanic wallrock to zone of sample 23906. Trace of pyrite marginal to vein.
23908	Grab	Sericitic felsic volcanics with 1-2% pyrite. Foliation 030/80.
23909	Grab	Small outcrop in lake. Quartz porphyritic intrusive with <1% finely disseminated pyrite.
23910	Composite grab	2 m wide quartz vein exposed for 10 metres. Oriented 120/80NE.
23911	Composite grab	From same 2m wide quartz vein as 23910. Minor pyrite. Oriented 120/80NE.
23912	Select grab	Quartz veining with arsenopyrite. Leonard Lake south showing.
23913	Float	2 cm wide quartz vein in gabbro. Minor disseminated pyrite. Gabbro outcrop nearby.
23914	Grab	Quartz-Fe-carbonate-chlorite vein with trace chalcopyrite. Leonard Lake south showing.
23915	Composite grab	Quartz chlorite vein . Leonard Lake south showing.
23917	Grab	Chloritic tuff with minor magnetite. Blebs and stringers of quartz.
23918	Grab	10 cm wide quartz vein oriented 095/62N within volcanics. 10 m strikelength exposure.
23919	Grab	From two 5 cm wide quartz veins oriented 120/80-90 in felsic volcanics. No mineralization observed.
23920	Grab	12 cm wide quartz-chlorite vein oriented 090/90 in intermediate tuff. Foliation in host is 070/72S. No mineralization observed.
23928	Grab	50 cm wide quartz vein in chlorite schist. Oriented 100/40 parallel to foliation. 25 m strikelength exposure. No mineralization observed.
23929	Float	Same location as 23928. Quartz+calcite stringers in silicified phyllite.
23930	Select grab	Quartz in schist from outcrop of 23928-29. Minor fine Py, Cpy.
23931	Float	Rubble of phyllite with disseminated pyrite.
23932	Grab	Chlorite altered intrusives with 8cm wide quartz vein. Strikes 075, steeply dipping. Parallels foliation .
23865	Grab	Carbonate altered intermediate tuff striking 098/78. 1% pyrite on fractures.
23866	Float	Angular boulders of intermediate tuff. Calcite in matrix. 1% blebby pyrite.
23867	Composite grab	Irregular quartz-ankerite sericite alteration zone 3 to 5 metres wide by 100metres long in mafic volcanics.
23868	Grab	Irregular 1-3 cm quartz sweat in carbonate-sericite-chlorite altered volcanics in old trench. Trace Cpy.
23869	Composite Grab	10 cm wide quartz vein in carbonate-sericite altered volcanics. Vein parallels foliation of 048/56NW. No sulphides observed.
23870	Composite Grab	Intensely ankerite-quartz-sericite altered volcanics. 3 x 4 metre pod. No sulphides observed.
23871	Grab	Carbonate alteration zone 20-30 cm wide in schistose volcanics. Parallels foliation of 175/80E. Trace Py.
23872	1.0 m channel	Portage Trench 1. Channel across quartz-ankerite tension veins in chloritic volcanics. Veins up to 20 cm wide, typically strike 177/26E.Trace Py. Sample contains 80% quartz, 20% wallrock.
23873	1.0 m channel	Portage Trench 1. Channel across quartz-ankerite tension veins in chloritic volcanics. To the west of 23872. Veins up to 20 cm wide, typically strike 170/28E.Trace Py. Sample contains 20% quartz, 80% wallrock.
23874	1.0 m channel	Portage Trench 1. Channel across quartz-ankerite tension veins in chloritic volcanics. Contiguous to the west of 23873. Veins up to 10 cm wide, typically strike 224/35SE. Trace Py. Sample contains 60% quartz, 40% wallrock.

23875	1.0 m channel	Portage Trench 1. Channel across quartz-ankerite tension veins in chloritic volcanics. Contiguous to the west of 23874. Veins up to 8 cm wide, typically strike 224/35SE. Trace Py. Sample contains 40% quartz, 60% wallrock.
23877	1.0 m channel	Portage Trench 1. Channel across quartz-ankerite tension veins in chloritic volcanics. 1.5 metres west of 23875. Veins up to 10 cm wide, typically strike 212/22SE. Trace Py. Sample contains 35% quartz, 65% wallrock.
23878	0.85 m channel	Portage Trench 2. Channel across chlorite-sericite altered volcanics in SE end of old trench.
23879	1.40 m channel	Portage Trench 2. Channel across intense silica-ankerite alteration zone/vein in SE end of old trench. Sample contiguous to the SW of 23878. 1-5% disseminated pyrite. Zone trends NW.
23880	1.60 m channel	Portage Trench 2. Channel across intense silica-ankerite alteration zone/vein in NW end of old trench. 1-5% disseminated pyrite. Zone trends NW.
23881	1.0 m channel	Channel across vein/silicified zone in chloritic volcanics. Contains 30% chloritic wallrock inclusions. < 1% disseminated pyrite. Vein has banded texture, strikes 139/70NE.
23882	1.0 m channel	Channel in silicified zone, partially exposed in Narrow Lake. Strikes 096/78N. Up to 10% coarse pyrite locally. Local ankerite. Host is chloritic, schistose sediments or volcanics.
23883	0.70 m channel	Contiguous to the south of 23882. Same silicified zone. Locally contains 10% coarse pyrite. 40% of sample is relatively fresh wallrock.
23884	Float	Angular, banded quartz-carbonate altered rock (iron formation?). 5% fine, euhedral magnetite.
23885	Float	Large blocks of intermediate to felsic tuff. Minor quartz-carbonate veining.
23886	Grab	2 m wide intense sericite alteration zone in chlorite schist. Foliation 280/90.
23887	Grab	Vuggy quartz-chlorite vein in chloritic, intermediate volcanics.
23888	Float	Angular float consisting of intermediate volcanics with carbonate stockwork. Trace of pyrite.
23889	Composite grab	1-10 cm wide quartz-ankerite veins in sericitic felsic tuff. Foliation 068/78. Veins strike 015/68. No sulphides observed.
23890	Grab	10 cm wide carbonate alteration zone in chlorite-sericite schist. Locally 1% pyrite. Foliation 247/80.
23891	Grab	1.5 metre wide alteration zone in chlorite-sericite schist. Stockwork+crosscutting quartz veins. Locally 1-5% pyrite.
23892	Grab	2 m wide carbonate alteration zone with crosscutting quartz veinlets. No sulphides observed.
23893	Grab	Silicified, carbonate altered sericite schist. Bands of pyrite up to 10% locally. Trends 120.
23894	Grab	Silicified, carbonate altered sericite schist. Trace pyrite. Foliation 095/82.
23895	Grab	Quartz-carbonate veinlets crosscutting sericite schist. 1% disseminated pyrite.
23896	Grab	2 metre wide quartz-carbonate alteration zone/vein. Foliation 235/90. No sulphides observed.
23897	Grab	1 metre wide ankerite/quartz vein/alteration zone. Trace pyrite. Host is chloritic intermediate volcanics.
23898	Composite grab	Quartz-carbonate vein + wallrock. Trace of pyrite. Host is chloritic intermediate volcanics. Foliation 252/68.
23899	Grab	Sericitic felsic volcanic with minor carbonate alteration. <1% disseminated pyrite.
23954	Grab	Silica-carbonate altered mafic intrusive. Traces of pyrite.
23955	Grab	1-3 cm wide quartz vein in mafic volcanics. Vein oriented 255/35, contains a trace of pyrite and galena.
23956	Composite grab	Several 3-5 cm wide quartz veins trending 025/80 in mafic intrusives. Locally 1% pyrite in host along vein margins.

23957	Grab	2-5 metre outcrop of quartz-ankerite stockwork in sericitic felsic volcanics.
23958	Grab	30 cm wide zone of carbonate alteration in intermediate volcanics. Foliation is 104/85.
23968	1.0 m channel	Squall showing(2 to 3 metre wide quartz vein), channel sample across 10 cm of wallrock, 90 cm of quartz with wallrock inclusions. Strikes 165/68E.
23969	1.0 m channel	Squall showing(2 to 3 metre wide quartz vein), channel sample in quartz vein with wallrock inclusions. Contiguous to the east of 23968. Strikes 165/68E.
23970	0.85 m channel	Squall showing(2 to 3 metre wide quartz vein), channel sample in quartz vein with wallrock inclusions. Contiguous to the east of 23969. Strikes 165/68E.
23971	1.0 m channel	Squall showing, offshoot of main vein. channel sample in quartz vein with wallrock inclusions of quartz-feldspar porphyry. Limonite, trace pyrite.
23972	1.0 m channel	Squall showing, offshoot of main vein. channel sample in quartz vein with wallrock inclusions of quartz-feldspar porphyry. Limonite, trace pyrite. Contiguous to east of 23971.
23973	1.0 m channel	Squall showing(2 to 3 metre wide quartz vein), channel sample in quartz vein. 4.5 metres south of samples 23968-23970 on same vein. Minor limonite.
23974	1.0 m channel	Squall showing(2 to 3 metre wide quartz vein), channel sample in quartz vein with wallrock inclusions. Minor limonite. Contiguous to the east of 23973.
23975	0.70 m channel	Squall showing(2 to 3 metre wide quartz vein), channel sample in quartz vein. Minor chlorite, Trace of limonite. Contiguous to the east of 23974.
23976	Grab	50 cm wide quartz vein oriented 158/72. Minor limonite, Fe-carbonate, chlorite stringers. Trace pyrite. Qtz-fsp-porphyry host.
23977	Float	Carbonate altered mafic volcanic with quartz stringers. Angular float.
23978	Grab	Quartz vein oriented 135/78. Minor Fe-carbonate, limonite, pyrite. Quartz-feldspar porphyry host?
23979	Grab	Quartz feldspar porphyry wallrock to quartz vein. Trace to 1% pyrite locally.
23980	Grab	Leonard Lake shore showing. 2-3 cm wide quartz vein in schistose zone 1.5 m wide in felsic to intermediate pyroclastics. Foliation 280/90. Trace Pyrite.
23981	Float	From blast pit at shore showing. Angular quartz with minor Fe-carbonate, minor limonite, no sulphides. Trench oriented 300.
23982	Grab	Quartz-Fe carbonate vein in sericite-chlorite schist (int. volc..). Exposed in old blast pit. Foliation in host is 132/65.
23983	Grab	Felsic to intermediate volcanics containing trace to 0.5% pyrite. Foliations in host 333/62 and 215/88.
23986	Grab	3-5 cm wide smokey quartz vein containing trace to 2% pyrite. Vein is oriented 220/70W. Host is intermediate to felsic volcanics.
23987	Float	Angular float of 5 cm wide quartz-chlorite-ankerite vein material. Trace pyrite.
23988	Grab	Quartz-chlorite vein trending 270 in feldspar porphyry.
23990	Grab	5-10 cm wide quartz-calcite-chlorite vein in 2-3 metre wide shear zone in mafic volcanics? Shear zone/vein oriented 090/78. Trace of chalcopyrite, malachite along vein margins.
23991	Grab	10-15 cm wide quartz vein trending 220/65. Mafic volcanic host.
23992	Float	Angular float boulder containing up to 20% Py, Cpy and 5%malachite+azurite. Pillowed mafic volcanic host. Possibly from old trench.
23821	Grab	Sericite-Fe-carbonate altered felsic agglomerate with a trace of pyrite.
23822	Grab	Sericitic, limonitic schistose volcanics. 1-2% pyrite. Rodding in schist 82 towards 009.
23823	Grab	10 cm wide quartz vein in intermediate tuff. Vein oriented 053/27SE. Weak Fe-carbonate alteration of host around vein.
23824	Grab	Moderately silicified, Fe-carbonate altered intermediate tuff. Minor crosscutting quartz veinlets. Up to 1% disseminated pyrite.
23825	Grab	Intermediate volcanics with 1 cm wide quartz veinlet. Fe-carbonate alteration with 1% pyrite marginal to veinlet. Rodding 85 towards 050.

23826	Grab	Strong Fe-carbonate alteration in intermediate volcanic with 3% pyrite.Weak foliation at 025/75SE.
23827	Grab	Quartz-ankerite veinlet following foliation in sericite-Fe-carbonate altered intermediate volcanics. Foliation is 020/80SE. Veinlet is 1-3 cm wide and contains a trace of Py, Cpy.
23828	Composite grab	Irregular quartz veins up to 10 cm wide in sericite-Fe-carbonate altered volcanics. Foliation 125/90. Exposed in old pit.
23829	Float	12-15 cm wide quartz-chlorite vein material. Minor limonite suggests possible Py or Po.
23830	Float	Quartz vein in sericite altered quartz-feldspar porphyry. Contains 1% combined pyrite+ galena. Minor limonite after sulphides.
23831	Grab	Quartz feldspar porphyry with quartz veinlets. 0.5% pyrite.
23832	Grab	3 m wide shear zone oriented 000/66E in mafic schist. Quartz calcite veinlets. 1% Py, Po.
23839	Grab	30-60 cm wide shear zone in intermediate volcanics. Shear zone is oriented 057/85SE and contains Quartz-Fe-carbonate veining. Trace Py in host.
23840	Subcrop Grab	1-3 cm quartz veinlets in biotite-monzonite. Veins contain minor Py, trace Cpy, specularite.
23841	Float	Boulder of sheared feldspathic , sericitic, silicified rock containing 0.5 % pyrite and 5% specular hematite.
23842	Grab	45 cm wide quartz vein striking 109/68NE. Hosted in sheared mafic volcanics. 0.5% combined Py, Po, CPy.
23843	Grab	25 cm wide quartz vein oriented 245/75SE. Vein strikes 245/75SE. Hosted in intermediate to mafic volcanics. Traces Po, CPy, Gn?
23844	Grab	60 cm wide shear zone in intermediate to felsic volcanics. Shear foliation is 155/30NE. Shear contains minor quartz veinlets +silicification. Trace Po?
23845	0.45 m Chip	45 cm wide quartz vein striking 105/88NE in mafic volcanics. Minor pyrite along margins.
23846	Grab	40 cm wide quartz vein in diorite. Strikes 239/60SE.
23847	Grab	Subrcrop of Feldspathic dyke containing grey, 1-2 cm wide stockwork quartz-ankerite veinlets. Minor Py, trace CPy in veinlets. Dyke intrudes Fe-carbonate altered diorite.
23848	Grab	Subcrop of Fe-carbonate altered felsic dyke containing quartz stockwork veining. Locally 1% blebby pyrite in veins. Host to dyke is mafic volcanics with foliation 135/74NE.
347919	Grab	20 cm wide quartz vein in sheared mafic volcanics. Vein is oriented 070/83SE. Trace to 1% pyrite in vein.
347920	Grab	40-80 cm wide quartz vein oriented 160/80NE in mafic volcanics. No sulphides observed.
347921	Float	Angular boulders of chlorite-Fe-carbonate altered quartz-porphyry. Minor Py, CPy along fractures.
347923	Grab	2.5 metre wide shear zone felsic tuff. Contains lenses of quartz-chlorite-calcite. Oriented 086/80NW. Blasted pit. No sulphides observed.
347971	Composite grab	Quartz –carbonate stockwork in chloritic volcanics, trace of pyrite. Exposed in old excavation 2x7 metres. General vicinity of EM conductor anomaly P1.
347972	Grab	Schistose rock with strong Fe-carbonate alteration. 1% disseminated pyrite. Exposed in old trench. Foliation 045/90.
347973	Grab	1.5 to 2 metre wide carbonate-quartz-chlorite alteration zone trending 140. Exposed in old trench. Locally >1% pyrite. Foliation of schistose host is 124/82NW.
347977	Grab	1.5 cm wide calcite-quartz vein in chloritic volcanics. Parallels foliation in host of 168/86E. Trace of pyrite.

347978	Grab	3-4 cm wide irregular quartz-chlorite-ankerite vein in mafic volcanics. Vein strikes 095/80S. No sulphides observed.
347979	Composite grab	Composite from 10 quartz veins 1-10 cm wide over a 10 metre area. Typical vein orientation is 006/70W. Host is mafic volcanics. Trace pyrite.
347980	Grab	15 cm wide quartz vein in chloritic mafic volcanics oriented 332/72W. Foliation of host is 252/68. 1% disseminated pyrite. In previously cleared area near old drill road.
347981	Grab	Irregular quartz vein on island in Narrow Lake. Strikes 170/55W. Host is intermediate lapilli tuff. No sulphides observed.
347982	1.0 m channel	Channel across foliation in chlorite-quartz-schist. No sulphides observed. Foliation 056/90.
347983	0.70 m channel	Contiguous to the NW of 347982 on the same outcrop. Sericite-quartz-chlorite schist with Minor Gn, trace Py, CPy.
347984	1.3 m channel	Taken across same outcrop but 2.4 metres NE of 347982/983. Quartz-sericite schist with trace of Gn, CPy, Py. Foliation 240/80SE.
347985	Grab	10 m wide rusty weathering zone in agglomerate. Locally up to 3% pyrite. Slight sericite-chlorite alteration. Foliation 027/80SE.
347986	Grab	Carbonate-sericite-chlorite alteration zone in volcanics. Zone is 10 metres wide. 0.5 to 1% disseminated pyrite.
347987	Grab	3 cm wide quartz vein in sheared diorite. Vein is slightly vuggy+limonitic and strikes 300/45SW. Trace of pyrite in host.
347991	Composite grab	Sheared sericitic felsic volcanics exposed in old trench. Quartz stockworking. Shear foliation approx. 070/85S.
347993	Float	3-5 cm wide quartz-ankerite vein material probably derived from adjacent outcrop where a similar vein strikes 106/90 in intermediate tuff. Trace Py.
347994	Grab	Brecciated volcanic with quartz-calcite flooding. Trace of Pyrite.
347995	Grab	Felspar-porphyritic dyke containing traces of Py, CPy. Strikes 350/75W. Up to 1 metre wide?
347996	Composite grab	From several 2-6 cm quartz veins typically trending 140-160 with steep dips. Composite over a 5x20 metre area in feldspar-porphyritic mafic intrusive. No sulphides observed.
347997	Grab	5-40 cm wide quartz vein in 3 metre wide shear zone in mafic volcanics. Oriented 082/75N. Minor CPy, Po. Possible previous blasting at this site. 10 metre strikelength exposure.
347998	Grab	2-6 cm wide quartz vein in 50 cm wide shear oriented 106/70S in medium grained gabbro to diorite. No sulphides observed.
347999	Composite grab	Sample from three parallel quartz veins 10-35 cm wide. Oriented 350/60W. Host is diorite.

APPENDIX IV

PORTAGE PROPERTY

SOIL GEOCHEMISTRY STATISTICS

Portage Property Soil Geochemistry Statistics

	Correlation Coefficient
Au:As	0.08
Au:Bi	0.03
Au:Sb	0.07

Element	75th percentile	85th percentile	95th percentile
Au	2 ppb	4 ppb	8.25 ppb

APPENDIX V

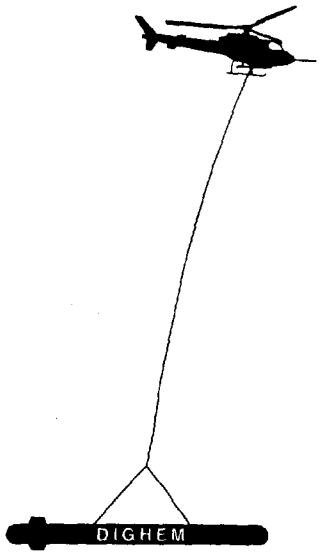
FUGRO AIRBORNE SURVEYS

GEOPHYSICAL REPORT

Report #2101

DIGHEM$^{V\text{-}DSP}$ SURVEY
FOR
FRONTEER DEVELOPMENT GROUP INC.
BALMER, PORTAGE AND SANDY POINT AREAS
RED LAKE AREA, ONTARIO

NTS 52N/2,8



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July 16, 2002

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SUMMARY

This report describes the logistics and results of a DIGHEM$^{V\text{-}DSP}$ airborne geophysical survey carried out for Fronteer Development Group Inc., over three properties located near Red Lake, Ontario. Total coverage of the survey blocks amounted to 1166.3 km. The survey was flown from April 28 to May 6, 2002.

The purpose of the survey was to detect mineralization associated with structural breaks and to provide information which could be used to map the geology and structure of the survey areas. This was accomplished by using a DIGHEM$^{V\text{-}DSP}$ multi-coil, multi-frequency electromagnetic system, supplemented by a high sensitivity cesium magnetometer. The information from these sensors was processed to produce maps which display the magnetic and conductive properties of the survey areas. A GPS electronic navigation system, utilizing a satellite (UHF) link, ensured accurate positioning of the geophysical data with respect to the base maps. Visual flight path recovery techniques were used to confirm the location of the helicopter where visible topographic features could be identified on the ground.

The survey properties contain several anomalous features, some of which are considered to be of moderate to high priority as exploration targets. Most of the inferred bedrock conductors appear to warrant further investigation using appropriate surface exploration techniques. Areas of interest may be assigned priorities on the basis of supporting geophysical, geochemical and/or geological information. After initial investigations have

been carried out, it may be necessary to re-evaluate the remaining anomalies based on information acquired from the follow-up program.

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1. INTRODUCTION

A DIGHEM$^{V\text{-}DSP}$ electromagnetic/resistivity/magnetic survey was flown for Fronteer Development Group Inc., from April 28 to May 6, 2002, over three survey blocks located near Red Lake, Ontario. The survey areas can be located on NTS map sheets 52N/2,8 (Figures 1 and 2).

Survey coverage consisted of approximately 1166 line-km, including tie lines. Flight lines were flown in an azimuthal direction of 315° with a line separation of 75 metres for the Balmer and Portage blocks and in an aximuthal direction of 0° with a line separation of 50 metres for the Sandy Point block.

The survey employed the DIGHEM$^{V\text{-}DSP}$ electromagnetic system. Ancillary equipment consisted of a magnetometer, radar and barometric altimeter, video camera, analog and digital recorders, and an electronic navigation system. The instrumentation was installed in an AS350B3 turbine helicopter (Registration C-GECL) which was provided by Questral Helicopters Ltd. The helicopter flew at an average airspeed of 129 km/h with an EM sensor height of approximately 30 metres.

Section 2 provides details on the survey equipment, the data channels, their respective sensitivities, and the navigation/flight path recovery procedure. Noise levels of less than 2 ppm are generally maintained for wind speeds up to 35 km/h. Higher winds may cause

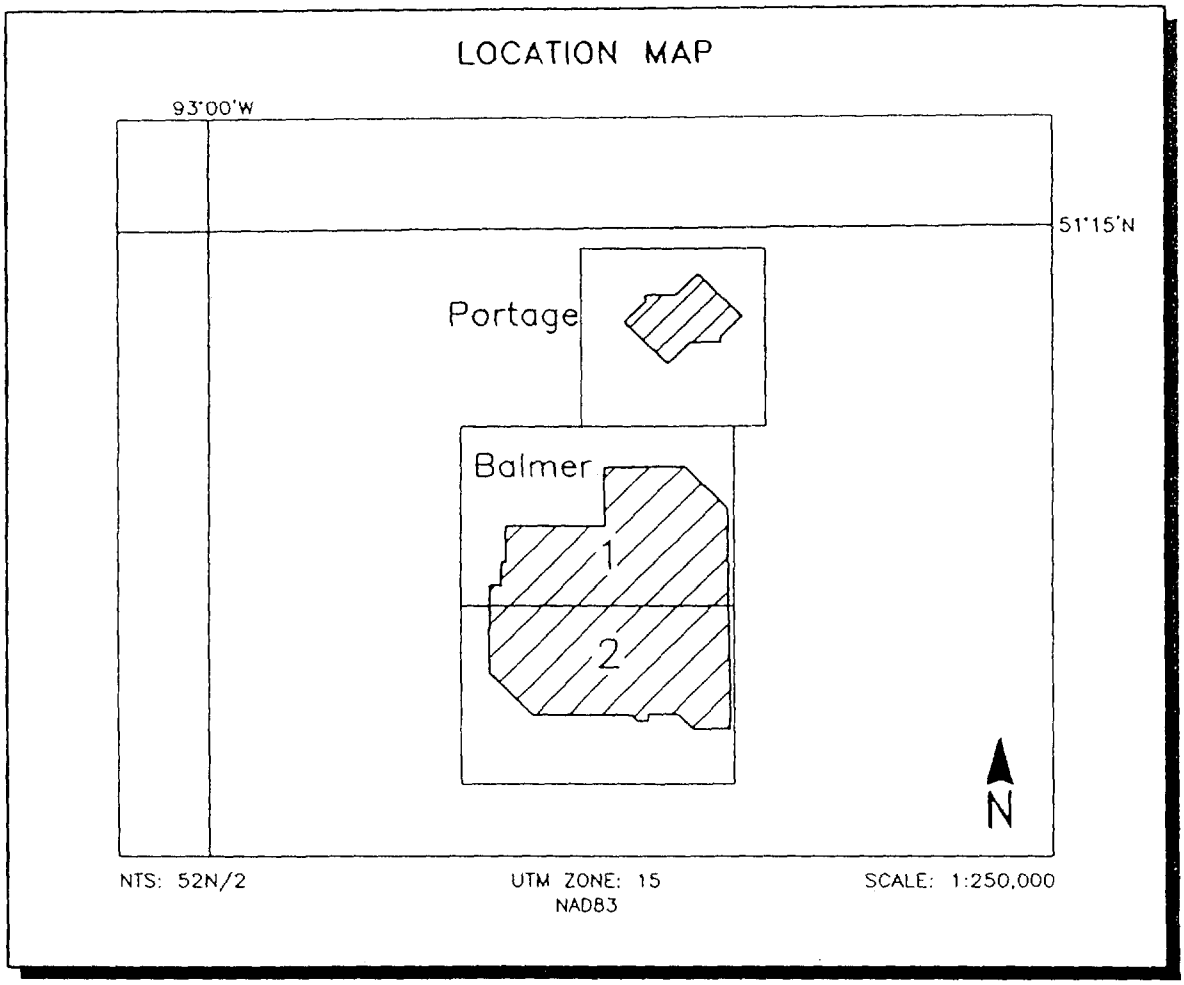


Figure 1
Fronteer Development Group Inc.
Portage and Balmer Areas
Ontario
Job#2101

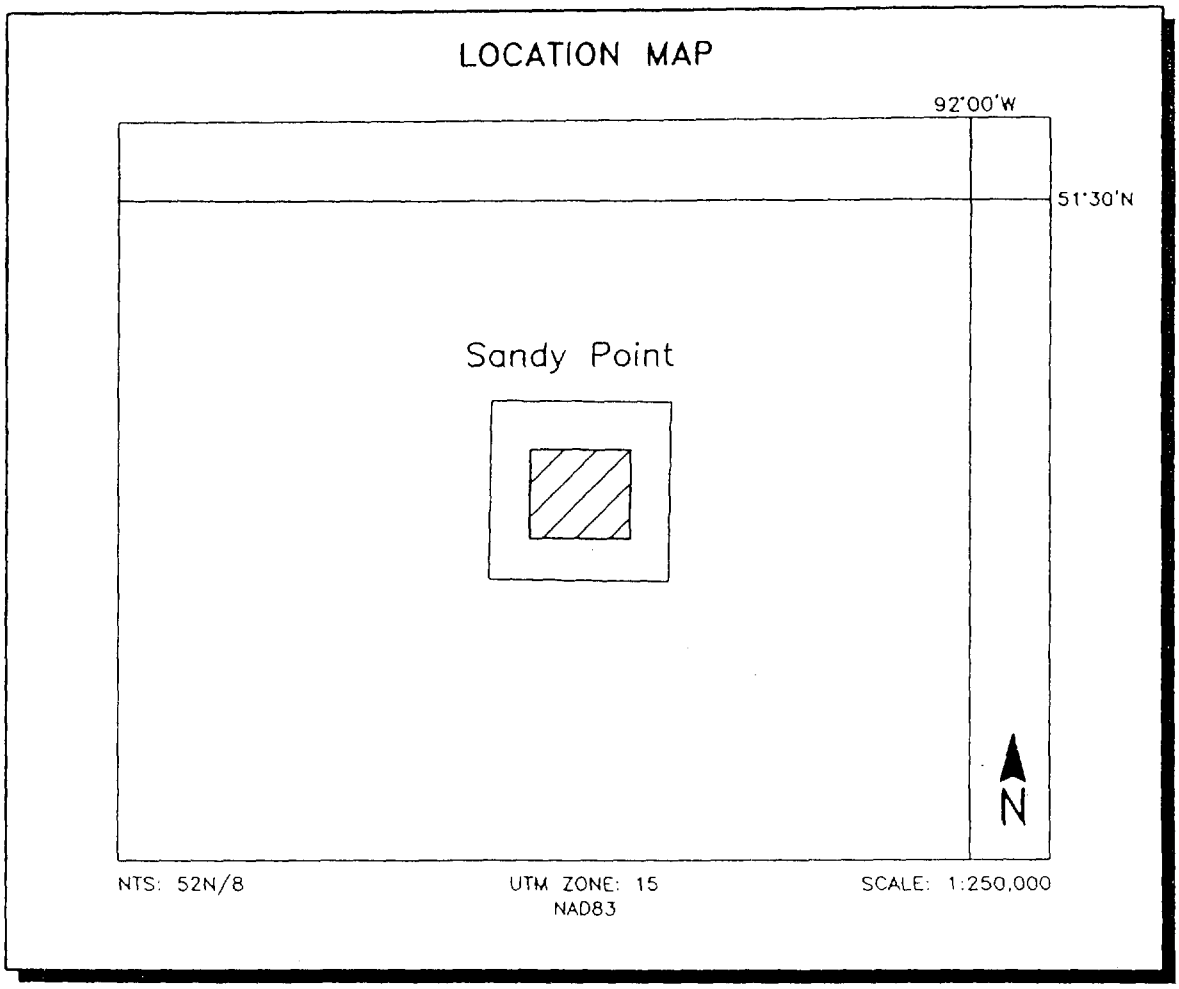


Figure 2
Fronteer Development Group Inc.
Sandy Point Area
Ontario
Job#2101

the system to be grounded because excessive bird swinging produces difficulties in flying the helicopter. The swinging results from the 5 m^2 of area which is presented by the bird to broadside gusts.

2. SURVEY EQUIPMENT

This section provides a brief description of the geophysical instruments used to acquire the survey data and the calibration procedures employed.

Electromagnetic System

Model: DIGHEM$^{V\text{-}DSP}$

Type: Towed bird, symmetric dipole configuration operated at a nominal survey altitude of 30 metres. Coil separation is 8 metres for 900 Hz, 1000 Hz, 5500 Hz and 7200 Hz, and 6.3 metres for the 56,000 Hz coil-pair.

Coil orientations/frequencies:

orientation		nominal	actual
coaxial	/	1000 Hz	1,122 Hz
coplanar	/	900 Hz	855 Hz
coaxial	/	5,500 Hz	5,822 Hz
coplanar	/	7,200 Hz	7,301 Hz
coplanar	/	56,000 Hz	56,000 Hz

Channels recorded:
5 in-phase channels
5 quadrature channels
2 monitor channels

Sensitivity:
0.06 ppm at 1000 Hz Cx
0.12 ppm at 900 Hz Cp
0.12 ppm at 5,500 Hz Cx
0.24 ppm at 7,200 Hz Cp
0.60 ppm at 56,000 Hz Cp

Sample rate: 10 per second, equivalent to 1 sample every 3 m, at a survey speed of 110 km/h.

The electromagnetic system utilizes a multi-coil coaxial/coplanar technique to energize conductors in different directions. The coaxial coils are vertical with their axes in the flight direction. The coplanar coils are horizontal. The secondary fields are sensed simultaneously by means of receiver coils which are maximally coupled to their respective transmitter coils. The system yields an in-phase and a quadrature channel from each transmitter-receiver coil-pair.

DSP System Calibration

The phase calibration adjusts the phase angle of the receiver to match that of the transmitter. The initial phase calibration is conducted with a ferrite bar on the ground, and subsequent calibrations are conducted in the air using a calibration coil in the bird. A ferrite bar, which produces a purely in-phase anomaly, is positioned near each receiver coil. The bar is rotated from minimum to maximum field coupling and the responses for the in-phase and quadrature components for each coil-pair/frequency are measured. The phase of the response is adjusted at the console to return an in-phase only response for each coil-pair. Phase checks are performed daily.

The ferrite bar phase calibrations measure a relative change in the secondary field, rather than an absolute value. This removes any dependency of the calibration procedure on the secondary field due to the ground, except under circumstances of extreme ground conductivity

Calibrations of the gain, phase and the system zero level are performed in the air, before, after, and at regular intervals during each flight. The system is flown to an altitude high enough to be out of range of any secondary field from the earth (the altitude is dependent on ground resistivity) at which point the zero, or base level of the system is measured. Calibration coils in the bird are activated for each frequency in turn by closing a switch to form a closed circuit through the coil. The transmitter induces a current in this loop, which creates a secondary field in the receiver of precisely known phase and amplitude. The phase and gain of the system are automatically adjusted by the digital receiver to set the measured calibration signal to the known values for the system.

Magnetometer

Model:	MEP-710 processor with Scintrex CS2 sensor
Type:	Optically pumped cesium vapour
Sensitivity:	0.01 nT
Sample rate:	10 per second

The magnetometer sensor is housed in the EM bird, 30 m below the helicopter.

Magnetic Base Station

Model:	Fugro CF1 base station	
Sensor type:	Geometrics G823A sensor	
Counter specifications:	Accuracy:	±0.1 nT
	Resolution:	0.01 nT
	Sample rate	1 Hz
GPS specifications:	Model:	Marconi Allstar
	Accuracy of time-base with respect to UTC: 0.25 seconds	
	Sample rate:	1 Hz

Environmental Monitor specifications:

Temperature:

- Accuracy: ±1.5°C max
- Resolution: 0.0305°C
- Sample rate: 1 Hz
- Range: -40°C to +75°C

Barometric pressure:

- Model: Motorola MPXA4115A
- Accuracy: ±3.0° kPa max (-20°C to 105°C temp. ranges)
- Resolution: 0.013 kPa
- Sample rate: 1 Hz
- Range: 55 kPa to 108 kPa

Model:	GEM Systems GSM-19T
Type:	Digital recording proton precession
Sensitivity:	0.10 nT
Sample rate:	0.2 per second

A digital recorder is operated in conjunction with the base station magnetometer to record the diurnal variations of the earth's magnetic field. The clock of the base station is

synchronized with that of the airborne system to permit subsequent removal of diurnal drift.

Radar Altimeter

Manufacturer:	Sperry
Model:	RT 330
Type:	Short pulse modulation, 4.3 GHz
Sensitivity:	0.3 m

The radar altimeter measures the vertical distance between the helicopter and the ground. This information is used in the processing algorithm which determines conductor depth.

Barometric Pressure and Temperature Sensors

Model:	DIGHEM D 1300	
Type:	Motorola MPX4115AP analog pressure sensor AD592AN high-impedance remote temperature sensors	
Sensitivity:	Pressure: Temperature:	150 mV/kPa 100 mV/°C or 10 mV/°C (selectable)
Sample rate:	10 per second	

The D1300 circuit is used in conjunction with one barometric sensor and up to three temperature sensors. Two sensors (baro and temp) are installed in the EM console in the aircraft, to monitor pressure and internal operating temperatures.

Analog Recorder

Manufacturer:	RMS Instruments
Type:	DGR33 dot-matrix graphics recorder
Resolution:	4x4 dots/mm
Speed:	1.5 mm/sec

The analog profiles are recorded on chart paper in the aircraft during the survey. Table 2-1 lists the geophysical data channels and the vertical scale of each profile.

Table 2-1. The Analog Profiles

Channel Name	Parameter	Scale units/mm	Designation on Digital Profile
1X9I	coaxial in-phase (1000 Hz)	2.5 ppm	CXI1000
1X9Q	coaxial quad (1000 Hz)	2.5 ppm	CXQ1000
3P9I	coplanar in-phase (900 Hz)	2.5 ppm	CPI900
3P9Q	coplanar quad (900 Hz)	2.5 ppm	CPQ900
2P7I	coplanar in-phase (7200 Hz)	5 ppm	CPI7200
2P7Q	coplanar quad (7200 Hz)	5 ppm	CPQ7200
4X7I	coaxial in-phase (5500 Hz)	5 ppm	CXI5500
4X7Q	coaxial quad (5500 Hz)	5 ppm	CXQ5500
5P5I	coplanar in-phase (56000 Hz)	10 ppm	CPI56K
5P5Q	coplanar quad (56000 Hz)	10 ppm	CPQ56K
ALTR	altimeter (radar)	3 m	ALTR
MAGC	magnetics, coarse	20 nT	MAG
MAGF	magnetics, fine	2.0 nT	MAG
1KPA	altimeter (barometric)	30 m	
2TDC	internal (console) temperature	1° C	
3TDC	external temperature	1° C	
BAT+	system input voltage		

Digital Data Acquisition System

Manufacturer:	RMS Instruments
Model:	DGR 33
Recorder:	SCM Microsystems flash card drive

The data are stored on a 48 Mb flash card and are downloaded to the field workstation PC at the survey base for verification, backup and preparation of in-field products.

Video Flight Path Recording System

Type:	Panasonic VHS Colour Video Camera (NTSC)
Model:	AG 2400/WVCD132

Fiducial numbers are recorded continuously and are displayed on the margin of each image. This procedure ensures accurate correlation of analog and digital data with respect to visible features on the ground.

Navigation (Global Positioning System)

Airborne Receiver

Model:	Ashtech Glonass GG24
Type:	SPS (L1 band), 24-channel, C/A code at 1575.42 MHz, S code at 0.5625 MHz, Real-time differential.
Sensitivity:	-132 dBm, 0.5 second update
Accuracy:	Manufacturer's stated accuracy is better than 10 metres real-time
Recorder:	48 Mb Flash Card

Base Station

Model:	Ashtech Z-Surveyor
Type:	Code and carrier tracking of L1 band, 12-channel, C/A code at 1575.42 MHz, and L2 P-code at 1227 MHz
Accuracy:	Manufacturer's stated accuracy for differential corrected GPS is better than 1 metre

The Ashtech GG24 is a line of sight, satellite navigation system which utilizes time-coded signals from at least four of forty-eight available satellites. Both Russian GLONASS and American NAVSTAR satellite constellations are used to calculate the position and to provide real time guidance to the helicopter. The Ashtech system can be combined with a RACAL or similar GPS receiver which further improves the accuracy of the flying and subsequent flight path recovery to better than 5 metres. The differential corrections, which

are obtained from a network of virtual reference stations, are transmitted to the helicopter via a spot-beam satellite. This eliminates the need for a local GPS base station. However, the Ashtech Z-Surveyor was used as a backup to provide post-survey differential corrections.

The Ashtech Z-Surveyor is operated as a base station and utilizes time-coded signals from at least four of the twenty-four NAVSTAR satellites. The base station raw XYZ data are recorded, thereby permitting post-survey processing for theoretical accuracies of better than 1 metre.

The Ashtech receiver is coupled with a PNAV 2100 navigation system in the aircraft for real-time guidance.

Although the base station receiver is able to calculate its own latitude and longitude, a higher degree of accuracy can be obtained if the reference unit is established on a known benchmark or triangulation point. For this survey, the GPS station was located at latitude 51°03'21.0766"N, longitude 93°44'41.8948"W at an elevation of 348.02 a.m.s.l. The GPS records data relative to the WGS84 ellipsoid, which is the basis of the revised North American Datum NAD83. The NAD83 coordinate system is displayed on the base maps.

Field Workstation

A PC is used at the survey base to verify data quality and completeness. Flight data are transferred to the PC hard drive to permit the creation of a database using a proprietary software package (typhoon-version 17.01.04). This process allows the field operators to display both the positional (flight path) and geophysical data on a screen or printer.

3. PRODUCTS AND PROCESSING TECHNIQUES

Table 3-1 lists the maps and products which have been provided under the terms of the survey agreement. Other products can be prepared from the existing dataset, if requested. These include magnetic enhancements or derivatives, percent magnetite, digital terrain or resistivity-depth sections. Most parameters can be displayed as contours, profiles, or in colour.

Base Maps

Base maps of the survey area have been produced from published topographic maps. These provide a relatively accurate, distortion-free base which facilitates correlation of the navigation data to the UTM grid. The original topographic maps are scanned to a bitmap format and combined with geophysical data for plotting the final maps. All maps are created using the following parameters:

Projection Description:

Datum:	NAD83
Ellipsoid:	Clarke 1866
Projection:	UTM (Zone: 15N)
Central Meridian:	93°W
False Northing:	0
False Easting:	500000
Scale Factor:	0.9996
WGS84 to Local Conversion:	Molodensky
Datum Shifts:	DX: 0 DY: 0 DZ: 0

Table 3-1 Survey Products

1. Final Transparent Maps (+3 prints) @ 1:10,000

   Dighem EM anomalies
   Total magnetic field
   Calculated vertical magnetic gradient
   Apparent resistivity (900 Hz)
   Apparent resistivity (7200 Hz)

2. Colour Maps (2 sets) @ 1:10,000

   Total magnetic field
   Calculated vertical magnetic gradient
   Apparent resistivity (900 Hz)
   Apparent resistivity (7200 Hz)

3. Additional Products

   Digital XYZ archive in Geosoft format (CD-ROM)
   Digital grid archives in Geosoft format (CD-ROM)
   Survey report (3 copies)
   Multi-channel stacked profiles
   Analog chart records
   Flight path video cassettes

Note: Other products can be produced from existing survey data, if requested.

Electromagnetic Anomalies

EM data are processed at the recorded sample rate of 10 samples/second. If necessary, appropriate spheric rejection median or Hanning filters are applied to reduce noise to acceptable levels. EM test profiles are then created to allow the interpreter to select the most appropriate EM anomaly picking controls for a given survey area. The EM picking parameters depend on several factors but are primarily based on the dynamic range of the

resistivities within the survey area, and the types and expected geophysical responses of the targets being sought.

Anomalous electromagnetic responses are selected and analysed by computer to provide a preliminary electromagnetic anomaly map. The automatic selection algorithm is intentionally oversensitive to assure that no meaningful responses are missed. Using the preliminary map in conjunction with the multi-parameter stacked profiles, the interpreter then classifies the anomalies according to their source and eliminates those that are not substantiated by the data. The final interpreted EM anomaly map includes bedrock, surficial and cultural conductors. A map containing only bedrock conductors can be generated, if desired.

Apparent Resistivity

The apparent resistivity in ohm-m can be generated from the in-phase and quadrature EM components for any of the frequencies, using a pseudo-layer half-space model. A resistivity map portrays all the EM information for that frequency over the entire survey area. This contrasts with the electromagnetic anomaly map which provides information only over interpreted conductors. The large dynamic range makes the resistivity parameter an excellent mapping tool.

The preliminary resistivity maps and images are carefully inspected to locate any lines or line segments which might require levelling adjustments. Subtle changes between in-flight

calibrations of the system can result in line to line differences, particularly in resistive (low signal amplitude) areas. If required, manual levelling is carried out to eliminate or minimize resistivity differences which can be caused by changes in operating temperatures. These levelling adjustments are usually very subtle, and do not result in the degradation of anomalies from valid bedrock sources.

After the manual levelling process is complete, revised resistivity grids are created. The resulting grids can be subjected to a microlevelling filter in order to smooth the data for contouring. The coplanar resistivity parameter has a broad 'footprint' which requires very little filtering.

The calculated resistivities for the three coplanar frequencies are included in the XYZ and grid archives. Values are in ohm-metres on all final products.

EM Magnetite

The apparent percent magnetite by weight is computed wherever magnetite produces a negative in-phase EM response. This calculation is more meaningful in resistive areas.

Total Magnetic Field

The aeromagnetic data are corrected for diurnal variation using the magnetic base station data. Manual adjustments are applied to any lines that require levelling, as indicated by shadowed images of the gridded magnetic data or tie line/traverse line intercepts. The IGRF gradient can be removed from the corrected total field data, if requested.

Calculated Vertical Magnetic Gradient

The diurnally-corrected total magnetic field data are subjected to a processing algorithm which enhances the response of magnetic bodies in the upper 500 m and attenuates the response of deeper bodies. The resulting vertical gradient map provides better definition and resolution of near-surface magnetic units. It also identifies weak magnetic features which may not be evident on the total field map. However, regional magnetic variations and changes in lithology may be better defined on the total magnetic field map.

Magnetic Derivatives (optional)

The total magnetic field data can be subjected to a variety of filtering techniques to yield maps of the following:

enhanced magnetics

second vertical derivative

reduction to the pole/equator

magnetic susceptibility with reduction to the pole

upward/downward continuations

analytic signal

All of these filtering techniques improve the recognition of near-surface magnetic bodies, with the exception of upward continuation. Any of these parameters can be produced on request. Dighem's proprietary enhanced magnetic technique is designed to provide a general "all-purpose" map, combining the more useful features of the above parameters.

Multi-channel Stacked Profiles

Distance-based profiles of the digitally recorded geophysical data are generated and plotted by computer. These profiles also contain the calculated parameters which are used in the interpretation process. These are produced as worksheets prior to interpretation, and are also presented in the final corrected form after interpretation. The profiles display electromagnetic anomalies with their respective interpretive symbols. Table 3-2 shows the parameters and scales for the multi-channel stacked profiles.

In Table 3-2, the log resistivity scale of 0.06 decade/mm means that the resistivity changes by an order of magnitude in 16.6 mm. The resistivities at 0, 33 and 67 mm up from the bottom of the digital profile are respectively 1, 100 and 10,000 ohm-m.

Table 3-2. Multi-channel Stacked Profiles

Channel Name (Freq)	Observed Parameters	Scale Units/mm
MAG	total magnetic field	20 nT
RALT	EM sensor height above ground	6 m
CXI1000	vertical coaxial coil-pair in-phase (1000 Hz)	2 ppm
CXQ1000	vertical coaxial coil-pair quadrature (1000 Hz)	2 ppm
CPI900	horizontal coplanar coil-pair in-phase (900 Hz)	4 ppm
CPQ900	horizontal coplanar coil-pair quadrature (900 Hz)	4 ppm
CXI5500	vertical coaxial coil-pair in-phase (5500 Hz)	5 ppm
CXQ5500	vertical coaxial coil-pair quadrature (5500 Hz)	5 ppm
CPI7200	horizontal coplanar coil-pair in-phase (7200 Hz)	10 ppm
CPQ7200	horizontal coplanar coil-pair quadrature (7200 Hz)	10 ppm
CPI56K	horizontal coplanar coil-pair in-phase (56,000 Hz)	20 ppm
CPQ56K	horizontal coplanar coil-pair quadrature (56,000 Hz)	20 ppm
	Computed Parameters	
DIFI (5500/7200 Hz)	difference function in-phase from CXI and CPI	5 ppm
DIFQ (5500/7200 Hz)	difference function quadrature from CXQ and CPQ	5 ppm
RES900	log resistivity	.06 decade
RES7200	log resistivity	.06 decade
RES56K	log resistivity	.06 decade
DP900	apparent depth	6 m
DP7200	apparent depth	6 m
DP56K	apparent depth	6 m
CDT	conductance	1 grade

Contour, Colour and Shadow Map Displays

The geophysical data are interpolated onto a regular grid using a modified Akima spline technique. The resulting grid is suitable for generating contour maps of excellent quality. The grid cell size is usually 25% of the line interval.

Colour maps are produced by interpolating the grid down to the pixel size. The parameter is then incremented with respect to specific amplitude ranges to provide colour "contour" maps. Colour maps of the total magnetic field are particularly useful in defining the lithology of the survey area.

Monochromatic shadow maps or images are generated by employing an artificial sun to cast shadows on a surface defined by the geophysical grid. There are many variations in the shadowing technique. These techniques can be applied to total field or enhanced magnetic data, magnetic derivatives, VLF, resistivity, etc. The shadow of the enhanced magnetic parameter is particularly suited for defining geological structures with crisper images and improved resolution.

Resistivity-depth Sections

The apparent resistivities for all frequencies can be displayed simultaneously as coloured resistivity-depth sections. Usually, only the coplanar data are displayed as the close

frequency separation between the coplanar and adjacent coaxial data tends to distort the section. The sections can be plotted using the topographic elevation profile as the surface. The digital terrain values, in metres a.m.s.l., can be calculated from the GPS z-value or barometric altimeter, minus the aircraft radar altimeter.

Resistivity-depth sections can be generated in three formats:

(1) Sengpiel resistivity sections, where the apparent resistivity for each frequency is plotted at the depth of the centroid of the in-phase current flow[1]; and,

(2) Differential resistivity sections, where the differential resistivity is plotted at the differential depth[2].

(3) Occam[3] or Multi-layer[4] inversion.

Both the Sengpiel and differential methods are derived from the pseudo-layer half-space model. Both yield a coloured resistivity-depth section which attempts to portray a smoothed approximation of the true resistivity distribution with depth. Resistivity-depth

---

1 Sengpiel, K.P., 1988, Approximate Inversion of Airborne EM Data from Multilayered Ground: Geophysical Prospecting 36, 446-459.

2 Huang, H. and Fraser, D.C., 1993, Differential Resistivity Method for Multi-frequency Airborne EM Sounding: presented at Intern. Airb. EM Workshop, Tucson, Ariz.

3 Constable et al, 1987, Occam's inversion: a practical algorithm for generating smooth models from electromagnetic sounding data: Geophysics, 52, 289-300.

4 Huang H., and Palacky, G.J., 1991, Damped least-squares inversion of time domain airborne EM data based on singular value decomposition: Geophysical Prospecting, 39, 827-844.

sections are most useful in conductive layered situations, but may be unreliable in areas of moderate to high resistivity where signal amplitudes are weak. In areas where in-phase responses have been suppressed by the effects of magnetite, the computed resistivities shown on the sections may be unreliable.

Both the Occam and Multi-layer Inversions compute the layered earth resistivity model which would best match the measured EM data. The Occam inversion uses a series of thin, fixed layers (usually 20 x 5m and 10 x 10m layers) and computes resistivities to fit the EM data. The multi-layer inversion computes the resistivity and thickness for each of a defined number of layers (typically 3-5 layers) to best fit the data.

4. SURVEY RESULTS

General Discussion

The survey results are presented on separate map sheets for each parameter at a scale of 1:10,000. Table 4-1 summarizes the EM responses in the survey area(s), with respect to conductance grade and interpretation.

The anomalies shown on the electromagnetic anomaly maps are based on a near-vertical, half plane model. This model best reflects "discrete" bedrock conductors. Wide bedrock conductors or flat-lying conductive units, whether from surficial or bedrock sources, may give rise to very broad anomalous responses on the EM profiles. These may not appear on the electromagnetic anomaly map if they have a regional character rather than a locally anomalous character. These broad conductors, which more closely approximate a half-space model, will be maximum coupled to the horizontal (coplanar) coil-pair and should be more evident on the resistivity parameter. Resistivity maps, therefore, may be more valuable than the electromagnetic anomaly maps, in areas where broad or flat-lying conductors are considered to be of importance. Contoured resistivity maps, based on the 900 Hz and 7200 Hz coplanar data are included with this report.

TABLE 4-1 EM ANOMALY STATISTICS

BALMER AREA, ONTARIO

CONDUCTOR GRADE	CONDUCTANCE RANGE SIEMENS (MHOS)	NUMBER OF RESPONSES
7	>100	1
6	50 - 100	0
5	20 - 50	5
4	10 - 20	8
3	5 - 10	16
2	1 - 5	8
1	<1	0
*	INDETERMINATE	1349
TOTAL		1387

CONDUCTOR MODEL	MOST LIKELY SOURCE	NUMBER OF RESPONSES
D	DISCRETE BEDROCK CONDUCTOR	52
B	DISCRETE BEDROCK CONDUCTOR	83
S	CONDUCTIVE COVER	1252
TOTAL		1387

(SEE EM MAP LEGEND FOR EXPLANATIONS)

TABLE 4-2 EM ANOMALY STATISTICS

PORTAGE AREA, ONTARIO

CONDUCTOR GRADE	CONDUCTANCE RANGE SIEMENS (MHOS)	NUMBER OF RESPONSES
7	>100	0
6	50 - 100	0
5	20 - 50	0
4	10 - 20	1
3	5 - 10	16
2	1 - 5	3
1	<1	0
*	INDETERMINATE	167
TOTAL		187

CONDUCTOR MODEL	MOST LIKELY SOURCE	NUMBER OF RESPONSES
D	DISCRETE BEDROCK CONDUCTOR	13
B	DISCRETE BEDROCK CONDUCTOR	23
S	CONDUCTIVE COVER	151
TOTAL		187

(SEE EM MAP LEGEND FOR EXPLANATIONS)

TABLE 4-3 EM ANOMALY STATISTICS

SANDY POINT AREA, ONTARIO

CONDUCTOR GRADE	CONDUCTANCE RANGE SIEMENS (MHOS)	NUMBER OF RESPONSES
7	>100	0
6	50 - 100	3
5	20 - 50	3
4	10 - 20	5
3	5 - 10	9
2	1 - 5	13
1	<1	0
*	INDETERMINATE	382
TOTAL		415

CONDUCTOR MODEL	MOST LIKELY SOURCE	NUMBER OF RESPONSES
D	DISCRETE BEDROCK CONDUCTOR	28
B	DISCRETE BEDROCK CONDUCTOR	21
S	CONDUCTIVE COVER	366
TOTAL		415

(SEE EM MAP LEGEND FOR EXPLANATIONS)

Excellent resolution and discrimination of conductors was accomplished by using a fast sampling rate of 0.1 sec and by employing a common frequency (5500 Hz and 7200 Hz) on two orthogonal coil-pairs (coaxial and coplanar). The resulting "difference channel" parameters often permit differentiation of bedrock and surficial conductors, even though they may exhibit similar conductance values.

Anomalies which occur near the ends of the survey lines (i.e., outside the survey area), should be viewed with caution. Some of the weaker anomalies could be due to aerodynamic noise, i.e., bird bending, which is created by abnormal stresses to which the bird is subjected during the climb and turn of the aircraft between lines. Such aerodynamic noise is usually manifested by an anomaly on the coaxial in-phase channel only, although severe stresses can affect the coplanar in-phase channels as well.

Magnetics

A Fugro CF1 magnetometer was operated at the survey base to record diurnal variations of the earth's magnetic field. The clock of the base station was synchronized with that of the airborne system to permit subsequent removal of diurnal drift. A GEM Systems GSM-19T proton precession magnetometer was also operated as a backup unit.

The total magnetic field data have been presented as contours on the base maps using a contour interval of 5 nT where gradients permit. The maps show the magnetic properties of the rock units underlying the survey areas.

The total magnetic field data have been subjected to a processing algorithm to produce maps of the calculated vertical gradient. This procedure enhances near-surface magnetic units and suppresses regional gradients. It also provides better definition and resolution of magnetic units and displays weak magnetic features which may not be clearly evident on the total field maps.

There is some evidence on the magnetic maps which suggests that the survey areas have been subjected to deformation and/or alteration. These structural complexities are evident on the contour maps as variations in magnetic intensity, irregular patterns, and as offsets or changes in strike direction.

If a specific magnetic intensity can be assigned to the rock type which is believed to host the target mineralization, it may be possible to select areas of higher priority on the basis of the total field magnetic data. This is based on the assumption that the magnetite content of the host rocks will give rise to a limited range of contour values which will permit differentiation of various lithological units.

The magnetic results, in conjunction with the other geophysical parameters, have provided valuable information which can be used to effectively map the geology and structure in the survey areas.

Apparent Resistivity

Apparent resistivity maps, which display the conductive properties of the survey area, were produced from the 900 Hz and 7200 Hz coplanar data. The maximum resistivity values, which are calculated for each frequency, are 1,000 and 8,000 ohm-m respectively. These cutoffs eliminate the erratic higher resistivities which would result from unstable ratios of very small EM amplitudes.

In general, the resistivity patterns show some agreement with the magnetic trends. This suggests that some of the resistivity lows are probably related to bedrock features, rather than conductive overburden.

There are other resistivity lows in the area. Some of these often reflect "formational" conductors which may be of minor interest as direct exploration targets. However, attention may be focused on areas where these zones appear to be faulted or folded or where anomaly characteristics differ along strike.

Electromagnetic Anomalies

The EM anomalies resulting from this survey appear to fall within one of two general categories. The first type consists of discrete, well-defined anomalies which yield marked inflections on the difference channels. These anomalies are usually attributed to

conductive sulphides or graphite and are generally given a "B", "T" or "D" interpretive symbol, denoting a bedrock source.

The second class of anomalies comprises moderately broad responses which exhibit the characteristics of a half-space and do not yield well-defined inflections on the difference channels. Anomalies in this category are usually given an "S" or "H" interpretive symbol. The lack of a difference channel response usually implies a broad or flat-lying conductive source such as overburden. Some of these anomalies may reflect conductive rock units, zones of deep weathering, or the weathered tops of kimberlite pipes which can often yield "non-discrete" signatures.

The effects of conductive overburden are evident over portions of the survey area. Although the difference channels (DIFI and DIFQ) are extremely valuable in detecting bedrock conductors which are partially masked by conductive overburden, sharp undulations in the bedrock/overburden interface can yield anomalies in the difference channels which may be interpreted as possible bedrock conductors. Such anomalies usually fall into the "S?" or "B?" classification but may also be given an "E" interpretive symbol, denoting a resistivity contrast at the edge of a conductive unit.

The "?" symbol does not question the validity of an anomaly, but instead indicates some degree of uncertainty as to which is the most appropriate EM source model. This ambiguity results from the combination of effects from two or more conductive sources, such as overburden and bedrock, gradational changes, or moderately shallow dips. The

presence of a conductive upper layer has a tendency to mask or alter the characteristics of bedrock conductors, making interpretation difficult. This problem is further exacerbated in the presence of magnetite.

In areas where EM responses are evident primarily on the quadrature components, zones of poor conductivity are indicated. Where these responses are coincident with magnetic anomalies, it is possible that the in-phase component amplitudes have been suppressed by the effects of magnetite. Most of these poorly-conductive magnetic features give rise to resistivity anomalies which are only slightly below background. If it is expected that poorly-conductive economic mineralization may be associated with magnetite-rich units, most of these weakly anomalous features will be of interest. In areas where magnetite causes the in-phase components to become negative, the apparent conductance and depth of EM anomalies may be unreliable. Magnetite effects usually give rise to overstated (higher) resistivity values and understated (shallow) depth calculations.

As economic mineralization within the area may be associated with massive to weakly disseminated sulphides, which may or may not be hosted by magnetite-rich rocks, it is impractical to assess the relative merits of EM anomalies on the basis of conductance. It is recommended that an attempt be made to compile a suite of geophysical "signatures" over any known areas of interest. Anomaly characteristics are clearly defined on the computer-processed geophysical data profiles which are supplied as one of the survey products.

A complete assessment and evaluation of the survey data should be carried out by one or more qualified professionals who have access to, and can provide a meaningful compilation of, all available geophysical, geological and geochemical data.

Conductors in the Survey Area

The electromagnetic anomaly maps show the anomaly locations with the interpreted conductor type, dip, conductance and depth being indicated by symbols. Direct magnetic correlation is also shown if it exists. The strike direction and length of the conductors are indicated where anomalies can be correlated from line to line with a reasonable degree of confidence.

In areas where several conductors or conductive trends appear to be related to a common geological unit, these have been outlined as "zones" on the EM anomaly maps. The zone outlines usually approximate the limits of conductive units defined by the resistivity contours, but may also be related to distinct rock units which can be inferred from the magnetic data.

Potential Targets

Balmer Area

The total magnetic field data in the Balmer survey area reveals a relatively complex geology that displays a dynamic range of over 6,200 nT. It is characterized by two large, highly magnetic features in the eastern section of the survey area, numerous east/west-trending dykes in the north, and a number of north-trending, weakly magnetic linear features in the western section of the block.

A known contact is situated along the western boundary of a highly magnetic linear feature that trends northeast from line 10340, fiducial 5551 through line 10480, fiducial 6231 and northward to line 11100, fiducial 4402 before heading northwest to line 11110, fiducial 4523.

Immediately to the east is a wide, sinuous, magnetic feature consisting of two to three parallel, highly magnetic sinuous lineaments that reach values as high as 65,000 nT.

There are a few magnetic features in the Balmer block that may be of interest. They include:

1. Line 10320, fiducial 4905

   An oblate magnetic high that lies within a large magnetically quiet area. Lies on the edge of a weakly conductive, surficial anomaly.

2. Line 10590, fiducial 4959

   Strongly magnetic oblate feature that lies within a lake. It correlates with a large, conductive feature associated with bedrock- and dyke-type anomalies.

There are numerous anomalies within the survey area that represent potential targets. Most lie along the contact and/or adjacent linear magnetic high and the highly magnetic sinuous feature in the eastern section of the Balmer block.

A few targets that occur along the contact and/or adjacent magnetic high include those on:

3. Line 11070, fiducial 3350

   Line 11060, fiducial 2892

   Elongate and circular resistivity lows characterized by weak coplanar inphase responses. These bedrock anomalies lie on a linear, weakly magnetic feature.

4. Line 11040, fiducial 2415

   Discrete, circular resistivity low characterized by weak to moderate inphase responses on all frequencies. It is situated within a lake in a magnetically quiet area.

5. Line 11010, fiducial 1678

   Circular resistivity low characterized by a weak 900 Hz coplanar response. This bedrock anomaly lies along the edge of an east/west-trending dyke.

6. Line 10980, fiducial 672

   Elongate resistivity low located near a lake. Consists of a small number of bedrock anomalies and one dyke-type anomaly that dips towards the southeast. Anomalies are characterized by weak to moderate coplanar inphase responses

and very weak coaxial responses. This anomaly lies along a southeast-trending linear magnetic high that intersects an east/west-trending dyke.

A few hundred metres to the south lies a lake that is relatively conductive with respect to other lakes in the region. It reaches values of less than 200 ohm-m in its southern portion, where a bedrock anomaly characterized by a 1000 Hz coaxial peak and a 900 Hz coplanar trough exists. This lake, centred on line 10920, fiducial 2262 may be of interest as it lies along the same trend as the anomalies to its north and coincides with a circular and oblate magnetic high.

7. Line 10771, fiducial 1329
   Line 10751, fiducial 477

Discrete, circular resistivity lows characterized by weak coplanar inphase responses. The former has coplanar peaks which are offset from the coaxial peaks, suggesting a dipping source towards the southeast. Both lie along a strongly magnetic linear feature.

8. Line 10680, fiducial 1223

   Line 10670, fiducial 945

   Weakly conductive bedrock anomalies. Characterized by weak 900 Hz inphase responses. Both are situated along the edge of or near a highly magnetic linear feature.

9. Line 10500, fiducial 7016

   Line 10490, fiducial 6761

   Line 10460, fiducial 5472

   Three circular resistivity lows characterized by weak to moderate inphase responses on all frequencies. All consist of bedrock anomalies and lie along a highly magnetic linear feature between two lakes. These anomalies are of interest as they lie close to a known gold deposit centred approximately on line 10490, fiducial 6768.

A large number of potential targets are situated within a highly magnetic sinuous linear feature in the eastern section of the survey area and include:

10. Zone 1 centred on line 11170, fiducial 6268

Zone 1 consists of two parallel, linear resistivity lows that trend to the northeast. Characterized by moderate to strong inphase responses on all frequencies. Discrete coaxial peaks and coplanar troughs are evident on both the inphase and quadrature channels, indicating the presence of dyke-type anomalies. Zone 1 correlates well with a strong, discrete magnetic high.

11. Line 11060, fiducial 2973

Line 11050, fiducial 2711

Weakly conductive bedrock anomaly evident on the 7200 Hz frequency data. Characterized by very subtle coaxial peaks and coplanar troughs on the quadrature channels, as well as a possible offset 7200 Hz coplanar inphase peak with respect to a very weak 5500 Hz inphase peak. Correlates well with an elongate magnetic high.

12. Line 11010, fiducial 1613

A possible bedrock anomaly characterized by a very weak inphase response. Correlates with a weak local magnetic high in what appears to be a break or local suppression of magnetite in a linear sinuous magnetic high feature.

13. Zone 2 centred on line 10990, fiducial 1094

Wide, oblate, strongly conductive resistivity low reaching values as low as 7 ohm-m. Characterized by moderately strong inphase responses and two dyke-type sources which dip in opposite directions. Situated along a highly magnetic linear feature.

14. Zone 3 centred on line 10910, fiducial 1806
Zone 4 centred on line 10832, fiducial 4072

Highly conductive zone consisting of bedrock and dyke-type anomalies. Reaching values of less than 30 ohm-m. Characterized by strong, wide inphase responses on all EM frequencies. Lies along a highly magnetic linear feature.

15. Line 10860, fiducial 4965

Small, oblate resistivity low characterized by weak inphase coplanar peaks. This bedrock anomaly is situated along a highly magnetic linear feature between conductive zones 3 and 4.

16. Zone 5 centred on line 10781, fiducial 1656

Zone 6 centred on line 10710, fiducial 2448

Zone 7 centred on line 10670, fiducial 974

Zone 8 centred on line 10630, fiducial 1564

Zones 5 through 8 represent a cluster of small oblate resistivity lows that are characterized by moderate to strong inphase responses on all frequencies. All consist of bedrock and dyke-type anomalies and correlate well with a highly magnetic linear feature. Zones 6, 7 and 8 lie partly on land and within the northern portion of a lake.

17. Zone 9 centred on line 10600, fiducial 5110

This highly conductive feature lies mostly within a lake and reaches values as low as 10 ohm-m. It is characterized by moderately strong inphase responses on all frequencies and consists mainly of dyke-type anomalies. It correlates very well with a similarly-shaped magnetic high located within a larger sinuous magnetic feature. The southern part of Zone 9, on line 10470, fiducial 6035, is characterized by a strong, discrete inphase response with offset coplanar peaks indicating a dip towards the northwest. The dipping dyke coincides with a very strong, discrete magnetic high. It should be noted that Zone 9 lies adjacent to a known gold deposit on approximately line 10490, fiducial 6768.

18. Zone 10 centred on line 10730, fiducial 3256

Zone 11 centred on line 10590, fiducial 4964

Zones 10 and 11 lie within or partially within a narrow portion of a lake. These conductive features, which reach values as low as 40 ohm-m, consist of bedrock and/or dyke-type anomalies. Both are characterized by moderately strong inphase responses on all frequencies. The southern section of Zone 11 consists of three northwest-dipping sources. Zone 11 coincides with a large, oblate, strongly magnetic feature, whereas Zone 10 is associated with a weakly magnetic feature within a magnetically quiet area.

19. Zone 12 centred on line 10590, fiducial 4974

Zone 12 is an oblate resistivity low that is situated immediately to the southeast of Zone 11. It reaches values as low as 37 ohm-m and is characterized by weak to moderate inphase responses on all frequencies. The offset coplanar peaks evident throughout Zone 12 indicates a dip towards the northwest. It is partially associated with a very weak, small, circular magnetic feature.

20. Line 11130, fiducial 5391

Line 10470, fiducial 5976

Two single point bedrock anomalies located on or near the edges of lakes. The former is characterized by a weak 900 Hz inphase response and is only visible on that frequency. The latter is characterized by subtle coaxial quadrature peaks and coplanar troughs. Both occur within magnetic lows adjacent to weakly magnetic linear features.

Portage Area

The magnetic data in the survey area are generally complex and display a dynamic range of just over 300 nT. The area is characterized by a number of linear structures. The first trends north from line 20160, fiducial 5058 to line 20280, fiducial 8440 where it then trends west to line 20230, fiducial 6794. These linear magnetic features follow the edges of a lake, suggesting it is structurally controlled. The second generally trends north from line 20060, fiducial 2382 to approximately line 20190, fiducial 5719 and the third trends north from line 20010, fiducial 1093 to line 20060, fiducial 2336.

A structural break is evident in the northern section of the survey area. It trends east from approximately line 20120, fiducial 4494 to at least line 20300, fiducial 8885.

There are a few magnetic features within the survey area that may be of interest. They include:

1. Line 20340, fiducial 9500

   Oblate magnetic high that is situated at the eastern end of an east-trending structural break. It lies partially on the edge of a small island and within a lake and averages 100 nT above the background magnetic value.

2. Line 20351, fiducial 740
   Line 20300, fiducial 8860

   Two small circular magnetic highs. No resistivity correlation.

3. From line 20090, fiducial 2986 to line 20030, fiducial 1876
   From line 20050, fiducial 2192 to line 20010, fiducial 1093

   Elongate magnetic highs situated within a lake. Both correlate with elongate resistivity lows. Numerous bedrock and dyke-type anomalies associated with these features.

There are a number of resistivity lows within the survey area that represent interesting potential targets. They include:

4. Line 20160, fiducial 5124

Line 20090, fiducial 2994

Small, oblate resistivity lows lying along the edges of lakes. Characterized by wide, weak inphase responses. Bedrock anomalies occur near the edges of the lakes. Both coincide with weak magnetic features.

5. Line 20100, fiducial 3480

Oblate resistivity low that is situated within a lake. Characterized by moderate, discrete inphase responses and offset coplanar peaks, which are an indication of a dipping source toward the southeast. Correlates with the northern portion of an elongate magnetic feature.

6. From line 20050, fiducial 2203 to line 20010, fiducial 1093

Lake-hosted elongate conductive zone trending towards the southeast. Consists of numerous bedrock- and dyke-type anomalies and characterized by moderate to strong inphase responses. Extremely conductive, reaching values of approximately 40 ohm-m. Correlates well with two strong, elongate magnetic high features possibly suggesting that the resistivity low may in fact be two individual conductive zones. A dipping source occurs on line 20070, fiducial

2653, representing the northern edge of both the resistivity low and the easternmost magnetic high within the lake.

7. Line 20060, fiducial 2362

Solitary dipping dyke-type anomaly characterized by weak offset coplanar quadrature peaks. Lies on the edge of a circular magnetic feature. No resistivity correlation.

8. Line 20140, fiducial 4797

Possible bedrock anomaly situated in a stream between two lakes. Characterized by a coaxial 1000 Hz peak and a coplanar 900 Hz sharp trough on the quadrature channels. May be of interest as it lies approximately 75 metres north of a structural break that trends east from line 20120, fiducial 4494 to at least line 20300, fiducial 8885.

9. Line 20170, fiducial 5379

A single dyke-type anomaly characterized by weak coaxial quadrature peaks and subtle coplanar troughs. Associated with a broad magnetic zone approximately 100 metres north of an east-trending structural break. No resistivity correlation.

10. Line 20180, fiducial 5596

Small, circular, weakly conductive bedrock anomaly located near a lake. Characterized by weak, broad coplanar inphase responses. Associated with an oblate, weakly magnetic feature.

Sandy Point Area

The total magnetic field data in the Sandy Point block is characterized by two large, highly magnetic features. The northernmost feature ranges between 60,000 nT to approximately 104,500 nT for a dynamic range of almost 45,000 nT. The other highly magnetic feature, located in the centre of the survey area, trends toward the southwest and is fragmented in a number of places. A possible offset occurs within this magnetic feature and can clearly be seen on the calculated vertical magnetic gradient map. A small block, centred on line 30250, fiducial 8006, seems to be offset to the northwest by approximately 100 metres. It probably lies between two structural breaks that trend southeast from line 30170, fiducial 9263 to line 30300, fiducial 7278 and from at least line 30230, fiducial 8409 to approximately line 30290, fiducial 7457. Locations along and in the vicinity of these probable structural breaks may be of interest.

There are two other locations that may also be of interest as they represent breaks within the southwest-trending magnetic high features. These locations are centred on

line 30110, fiducial 2170 and line 30160, fiducial 1160. A possible break may trend southeast from line 30130, fiducial 1836 to at least line 30190, fiducial 9006. Both fragmented areas occur partially within or near a lake and are associated with surficial anomalies.

There is a very discrete circular magnetic high located on line 30110, fiducial 2092. This one line anomaly lies immediately to the southwest (less than 50 metres) of a discrete, circular resistivity low situated on line 30120, fiducial 1994. This bedrock anomaly is characterized by a weak 900 Hz inphase response only.

The resistivity data indicates three areas of interest within the Sandy Point area. The most interesting of these lies in the northeastern corner of the survey area and consists of two groups of anomalies. They include those:

1. Centred on line 30400, fiducial 5801

   An oblate resistivity low visible on the 7200 Hz resistivity data and associated with a strong magnetic high. This anomaly consists of three dyke-type anomalies. The EM responses are characterized by discrete coaxial quadrature peaks and coplanar troughs. The anomaly on line 30410, fiducial 5467 exhibits offset coplanar peaks that indicate a dipping source towards the north.

2. From line 30460, fiducial 4847 to line 30680, fiducial 1183

A string of two linear parallel resistivity lows that trend toward the southeast and associated with a southeast-trending highly magnetic linear feature within a broad magnetic high. Consists mainly of dyke-type anomalies along with a small number of bedrock anomalies. Most are characterized by moderate single peak responses on the coaxial quadrature channels and troughs on the coplanar quadrature channels. Although the inphase responses are suppressed by the extremely strong magnetic responses, moderate inphase responses are present in the vicinity of an oblate resistivity low centred on line 30610, fiducial 2413. This resistivity low consists of dyke-type anomalies on both its southwestern and northeastern boundaries and reaches a value of approximately 65 ohm-m on the 900 Hz data.

The second point of interest lies in the central section of the survey area within the southern portion of a lake and trend east:

3. From line 30430, fiducial 5235 to line 30550, fiducial 3455

These bedrock- and dyke-type anomalies lie along the southern edge of a highly fractured magnetic feature that trends to the southwest. It is characterized by subtle coaxial peaks and coplanar troughs on the quadrature channels as well as offset coplanar peaks.

The third area of interest consists of three potential targets on:

4. Line 30120, fiducial 1995

Circular resistivity low that lies on the northeastern edge of a discrete, circular magnetic high. This bedrock anomaly is only evident on the 900 Hz data.

5. Line 30090, fiducial 2665

Line 30140, fiducial 1615

Lake-hosted single bedrock anomalies that correlate with circular magnetic highs within a southwest-trending fragmented magnetic feature. Both lie close to fragmented areas and are characterized by very subtle coplanar troughs on the quadrature channels that align with coaxial peaks.

5. CONCLUSIONS AND RECOMMENDATIONS

This report provides a very brief description of the survey results and describes the equipment, procedures and logistics of the survey.

The primary objective of the survey was to detect mineralization associated with structural breaks, as well as providing information on the geology and structure within the survey area. The high content of magnetite within the rocks has caused moderate negative deflections in the inphase responses on most frequencies in some areas. The 900 Hz data in the Sandy Point area, for example, has experienced negative inphase deflections of as much as 340 ppm. In this case, the quadrature response and difference channels were used to select targets. This illustrates the importance of all quadrature responses in selecting anomalies. Numerous bedrock anomalies that occur along magnetic contacts and characterized by weak quadrature responses are of great interest as the gold is thought to be shear hosted.

The survey was also successful in locating a few moderately weak or broad conductors which may warrant additional work. The various maps included with this report display the magnetic and conductive properties of the survey areas. It is recommended that the survey results be reviewed in detail, in conjunction with all available geophysical, geological and geochemical information. Particular reference should be made to the

computer generated data profiles which clearly define the characteristics of the individual anomalies.

Most anomalies in the area are moderately weak and poorly-defined. Many have been attributed to conductive overburden or deep weathering, although a few appear to be associated with magnetite-rich rock units. Others coincide with magnetic gradients which may reflect contacts, faults or shears. Such structural breaks are considered to be of particular interest as they may have influenced mineral deposition within the survey areas.

The interpreted bedrock conductors defined by the survey should be subjected to further investigation, using appropriate surface exploration techniques. Anomalies which are currently considered to be of moderately low priority may require upgrading if follow-up results are favourable.

It is also recommended that image processing of existing geophysical data be considered, in order to extract the maximum amount of information from the survey results. Current software and imaging techniques often provide valuable information on structure and lithology, which may not be clearly evident on the contour and colour maps. These techniques can yield images which define subtle, but significant, structural details.

Respectfully submitted,

FUGRO AIRBORNE SURVEYS CORP.



Mark Stephens, M.Sc.
Geophysicist

MS/sdp

R2101JUL.02

APPENDIX A

LIST OF PERSONNEL

The following personnel were involved in the acquisition, processing, interpretation and presentation of data, relating to a DIGHEM$^{V\text{-}DSP}$ airborne geophysical survey carried out for Fronteer Development Group Inc., near Red Lake, Northern Ontario.

David Miles	Manager, Helicopter Operations
Emily Farquhar	Manager, Data Processing and Interpretation
Carlos Fernandez	Senior Geophysical Operator
Nick Venter	Field Geophysicist
Michel Rourde	Pilot (Questral Helicopters Ltd.)
Gordon Smith	Data Processing Supervisor
Elizabeth Bowslaugh	Computer Processor
Mark Stephens	Interpretation Geophysicist
Lyn Vanderstarren	Drafting Supervisor
Susan Pothiah	Word Processing Operator
Albina Tonello	Secretary/Expeditor

The survey consisted of 1166.3 km of coverage, flown from April 28 to May 6, 2002.

All personnel are employees of Fugro Airborne Surveys, except for the pilot who is an employee of Questral Helicopters Ltd.

APPENDIX B

STATEMENT OF COST

Date: July 17, 2002

IN ACCOUNT WITH FUGRO AIRBORNE SURVEYS

To: Fugro flying of Agreement dated April 27, 2002, pertaining to an Airborne Geophysical Survey in the Red Lake area, Northern Ontario.

Survey Charges

Mobilization/demobilization	$ 8,500.92
1076 km of flying @ $94.33/km	$ 101,499.08
	$ 110,000.00

Allocation of Costs

- Data Acquisition	(80%)
- Data Processing	(10%)
- Interpretation, Report and Maps	(10%)

BACKGROUND INFORMATION

Electromagnetics

DIGHEM electromagnetic responses fall into two general classes, discrete and broad. The discrete class consists of sharp, well-defined anomalies from discrete conductors such as sulphide lenses and steeply dipping sheets of graphite and sulphides. The broad class consists of wide anomalies from conductors having a large horizontal surface such as flatly dipping graphite or sulphide sheets, saline water-saturated sedimentary formations, conductive overburden and rock, and geothermal zones. A vertical conductive slab with a width of 200 m would straddle these two classes.

The vertical sheet (half plane) is the most common model used for the analysis of discrete conductors. All anomalies plotted on the geophysical maps are analyzed according to this model. The following section entitled **Discrete Conductor Analysis** describes this model in detail, including the effect of using it on anomalies caused by broad conductors such as conductive overburden.

The conductive earth (half-space) model is suitable for broad conductors. Resistivity contour maps result from the use of this model. A later section entitled **Resistivity Mapping** describes the method further, including the effect of using it on anomalies caused by discrete conductors such as sulphide bodies.

Geometric Interpretation

The geophysical interpreter attempts to determine the geometric shape and dip of the conductor. Figure C-1 shows typical DIGHEM anomaly shapes which are used to guide the geometric interpretation.

Discrete Conductor Analysis

The EM anomalies appearing on the electromagnetic map are analyzed by computer to give the conductance (i.e., conductivity-thickness product) in siemens (mhos) of a vertical sheet model. This is done regardless of the interpreted geometric shape of the conductor. This is not an unreasonable procedure, because the computed conductance increases as the electrical quality of the conductor increases, regardless of its true shape. DIGHEM anomalies are divided into seven grades of conductance, as shown in Table C-1. The conductance in siemens (mhos) is the reciprocal of resistance in ohms.

The conductance value is a geological parameter because it is a characteristic of the conductor alone. It generally is independent of frequency, flying height or depth of burial, apart from the averaging over a greater portion of the conductor as height increases. Small anomalies from deeply buried strong conductors are not confused with small anomalies from shallow weak conductors because the former will have larger conductance values.

Table C-1. EM Anomaly Grades

Anomaly Grade	Siemens
7	> 100
6	50 - 100
5	20 - 50
4	10 - 20
3	5 - 10
2	1 - 5
1	< 1

Conductive overburden generally produces broad EM responses which may not be shown as anomalies on the geophysical maps. However, patchy conductive overburden in otherwise resistive areas can yield discrete anomalies with a conductance grade (cf. Table C-1) of 1, 2 or even 3 for conducting clays which have resistivities as low as 50 ohm-m. In areas where ground resistivities are below 10 ohm-m, anomalies caused by weathering variations and similar causes can have any conductance grade. The anomaly shapes from the multiple coils often allow such conductors to be recognized, and these are indicated by the letters S, H, and sometimes E on the geophysical maps (see EM legend on maps).

For bedrock conductors, the higher anomaly grades indicate increasingly higher conductances. Examples: DIGHEM's New Insco copper discovery (Noranda, Canada) yielded a grade 5 anomaly, as did the neighbouring copper-zinc Magusi River ore body; Mattabi (copper-zinc, Sturgeon Lake, Canada) and Whistle (nickel, Sudbury, Canada) gave grade 6; and DIGHEM's Montcalm nickel-copper discovery (Timmins, Canada)

yielded a grade 7 anomaly. Graphite and sulphides can span all grades but, in any particular survey area, field work may show that the different grades indicate different types of conductors.

Strong conductors (i.e., grades 6 and 7) are characteristic of massive sulphides or graphite. Moderate conductors (grades 4 and 5) typically reflect graphite or sulphides of a less massive character, while weak bedrock conductors (grades 1 to 3) can signify poorly connected graphite or heavily disseminated sulphides. Grades 1 and 2 conductors may not respond to ground EM equipment using frequencies less than 2000 Hz.

The presence of sphalerite or gangue can result in ore deposits having weak to moderate conductances. As an example, the three million ton lead-zinc deposit of Restigouche Mining Corporation near Bathurst, Canada, yielded a well-defined grade 2 conductor. The 10 percent by volume of sphalerite occurs as a coating around the fine grained massive pyrite, thereby inhibiting electrical conduction. Faults, fractures and shear zones may produce anomalies which typically have low conductances (e.g., grades 1 to 3). Conductive rock formations can yield anomalies of any conductance grade. The conductive materials in such rock formations can be salt water, weathered products such as clays, original depositional clays, and carbonaceous material.

For each interpreted electromagnetic anomaly on the geophysical maps, a letter identifier and an interpretive symbol are plotted beside the EM grade symbol. The horizontal rows of dots, under the interpretive symbol, indicate the anomaly amplitude on the flight record.

The vertical column of dots, under the anomaly letter, gives the estimated depth. In areas where anomalies are crowded, the letter identifiers, interpretive symbols and dots may be obliterated. The EM grade symbols, however, will always be discernible, and the obliterated information can be obtained from the anomaly listing appended to this report.

The purpose of indicating the anomaly amplitude by dots is to provide an estimate of the reliability of the conductance calculation. Thus, a conductance value obtained from a large ppm anomaly (3 or 4 dots) will tend to be accurate whereas one obtained from a small ppm anomaly (no dots) could be quite inaccurate. The absence of amplitude dots indicates that the anomaly from the coaxial coil-pair is 5 ppm or less on both the in-phase and quadrature channels. Such small anomalies could reflect a weak conductor at the surface or a stronger conductor at depth. The conductance grade and depth estimate illustrates which of these possibilities fits the recorded data best.

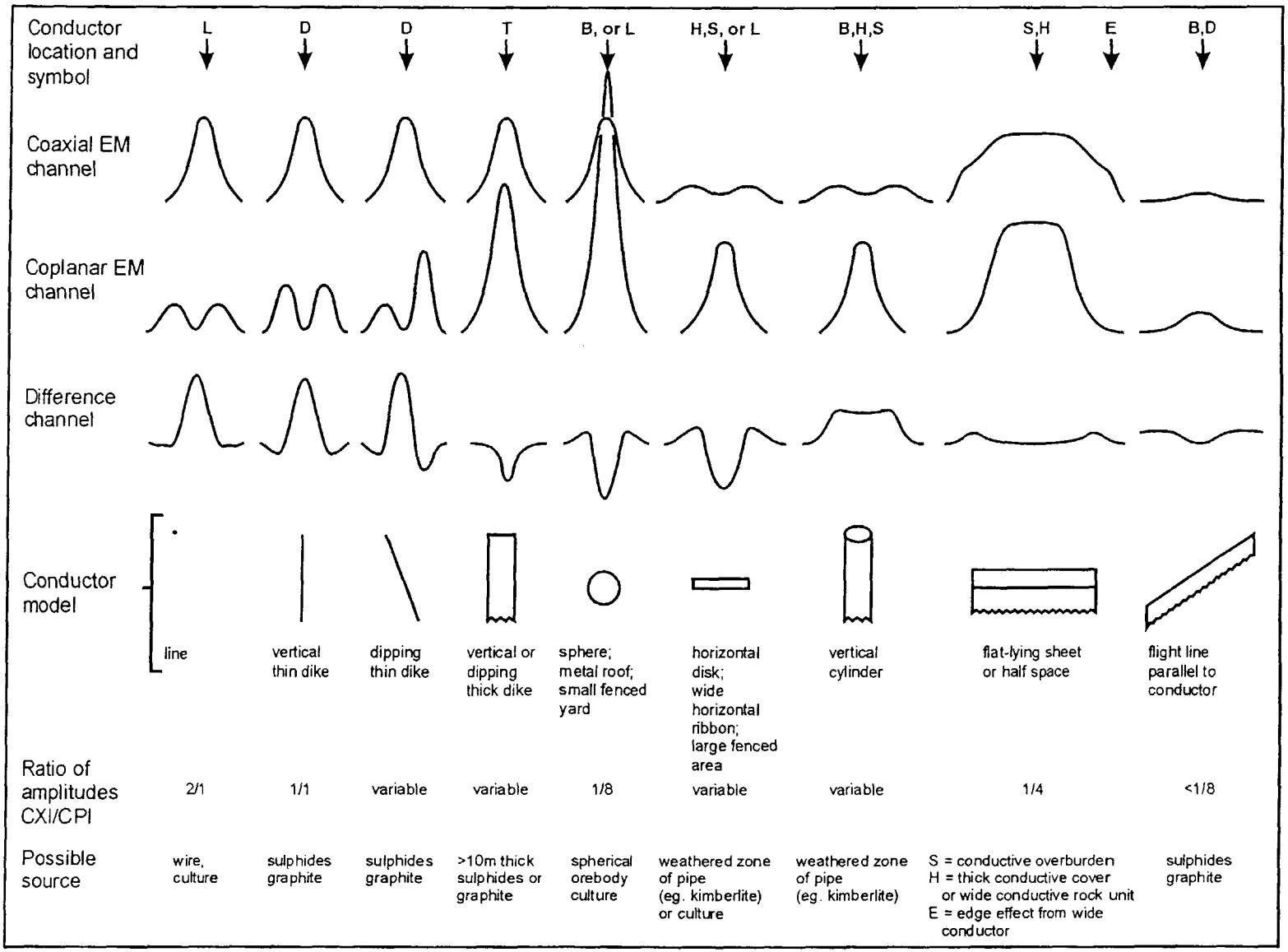
The conductance measurement is considered more reliable than the depth estimate. There are a number of factors which can produce an error in the depth estimate, including the averaging of topographic variations by the altimeter, overlying conductive overburden, and the location and attitude of the conductor relative to the flight line. Conductor location and attitude can provide an erroneous depth estimate because the stronger part of the conductor may be deeper or to one side of the flight line, or because it has a shallow dip. A heavy tree cover can also produce errors in depth estimates. This is because the depth estimate is computed as the distance of bird from conductor, minus the altimeter reading.

The altimeter can lock onto the top of a dense forest canopy. This situation yields an erroneously large depth estimate but does not affect the conductance estimate.

Dip symbols are used to indicate the direction of dip of conductors. These symbols are used only when the anomaly shapes are unambiguous, which usually requires a fairly resistive environment.

A further interpretation is presented on the EM map by means of the line-to-line correlation of bedrock anomalies, which is based on a comparison of anomaly shapes on adjacent lines. This provides conductor axes which may define the geological structure over portions of the survey area. The absence of conductor axes in an area implies that anomalies could not be correlated from line to line with reasonable confidence.

DIGHEM electromagnetic anomalies are designed to provide a correct impression of conductor quality by means of the conductance grade symbols. The symbols can stand alone with geology when planning a follow-up program. The actual conductance values are printed in the attached anomaly list for those who wish quantitative data. The anomaly ppm and depth are indicated by inconspicuous dots which should not distract from the conductor patterns, while being helpful to those who wish this information. The map provides an interpretation of conductors in terms of length, strike and dip, geometric shape, conductance, depth, and thickness. The accuracy is comparable to an interpretation from a high quality ground EM survey having the same line spacing.



Typical DIGHEM anomaly shapes
Figure C-1

The attached EM anomaly list provides a tabulation of anomalies in ppm, conductance, and depth for the vertical sheet model. The EM anomaly list also shows the conductance and depth for a thin horizontal sheet (whole plane) model, but only the vertical sheet parameters appear on the EM map. The horizontal sheet model is suitable for a flatly dipping thin bedrock conductor such as a sulphide sheet having a thickness less than 10 m. The list also shows the resistivity and depth for a conductive earth (half-space) model, which is suitable for thicker slabs such as thick conductive overburden. In the EM anomaly list, a depth value of zero for the conductive earth model, in an area of thick cover, warns that the anomaly may be caused by conductive overburden.

Since discrete bodies normally are the targets of EM surveys, local base (or zero) levels are used to compute local anomaly amplitudes. This contrasts with the use of true zero levels which are used to compute true EM amplitudes. Local anomaly amplitudes are shown in the EM anomaly list and these are used to compute the vertical sheet parameters of conductance and depth. Not shown in the EM anomaly list are the true amplitudes which are used to compute the horizontal sheet and conductive earth parameters.

Questionable Anomalies

DIGHEM maps may contain EM responses which are displayed as asterisks (*). These responses denote weak anomalies of indeterminate conductance, which may reflect one

of the following: a weak conductor near the surface, a strong conductor at depth (e.g., 100 to 120 m below surface) or to one side of the flight line, or aerodynamic noise. Those responses which have the appearance of valid bedrock anomalies on the flight profiles are indicated by appropriate interpretive symbols (see EM legend on maps). The others probably do not warrant further investigation unless their locations are of considerable geological interest.

The Thickness Parameter

DIGHEM can provide an indication of the thickness of a steeply dipping conductor. The amplitude of the coplanar anomaly (e.g., CPI channel on the digital profile) increases relative to the coaxial anomaly (e.g., CXI) as the apparent thickness increases, i.e., the thickness in the horizontal plane. (The thickness is equal to the conductor width if the conductor dips at 90 degrees and strikes at right angles to the flight line.) This report refers to a conductor as thin when the thickness is likely to be less than 3 m, and thick when in excess of 10 m. Thick conductors are indicated on the EM map by parentheses "( )". For base metal exploration in steeply dipping geology, thick conductors can be high priority targets because many massive sulphide ore bodies are thick, whereas non-economic bedrock conductors are often thin. The system cannot sense the thickness when the strike of the conductor is subparallel to the flight line, when the conductor has a shallow dip, when the anomaly amplitudes are small, or when the resistivity of the environment is below 100 ohm-m.

Resistivity Mapping

Resistivity mapping is useful in areas where broad or flat lying conductive units are of interest. One example of this is the clay alteration which is associated with Carlin-type deposits in the south west United States. The Dighem system was able to identify the clay alteration zone over the Cove deposit. The alteration zone appeared as a strong resistivity low on the 900 Hz resistivity parameter. The 7,200 Hz and 56,000 Hz resistivities show more of the detail in the covering sediments, and delineate a range front fault. This is typical in many areas of the south west United States, where conductive near surface sediments, which may sometimes be alkalic, attenuate the higher frequencies.

Resistivity mapping has proven successful for locating diatremes in diamond exploration. Weathering products from relatively soft kimberlite pipes produce a resistivity contrast with the unaltered host rock. In many cases weathered kimberlite pipes were associated with thick conductive layers which contrasted with overlying or adjacent relatively thin layers of lake bottom sediments or overburden.

Areas of widespread conductivity are commonly encountered during surveys. These conductive zones may reflect alteration zones, shallow-dipping sulphide or graphite-rich units or conductive overburden. In such areas, anomalies can be generated by decreases of only 5 m in survey altitude as well as by increases in conductivity. The typical flight record in conductive areas is characterized by in-phase and quadrature channels which

are continuously active. Local EM peaks reflect either increases in conductivity of the earth or decreases in survey altitude. For such conductive areas, apparent resistivity profiles and contour maps are necessary for the correct interpretation of the airborne data. The advantage of the resistivity parameter is that anomalies caused by altitude changes are virtually eliminated, so the resistivity data reflect only those anomalies caused by conductivity changes. The resistivity analysis also helps the interpreter to differentiate between conductive bedrock and conductive overburden. For example, discrete conductors will generally appear as narrow lows on the contour map and broad conductors (e.g., overburden) will appear as wide lows.

The apparent resistivity is calculated using the pseudo-layer (or buried) half-space model defined by Fraser (1978)[5]. This model consists of a resistive layer overlying a conductive half-space. The depth channels give the apparent depth below surface of the conductive material. The apparent depth is simply the apparent thickness of the overlying resistive layer. The apparent depth (or thickness) parameter will be positive when the upper layer is more resistive than the underlying material, in which case the apparent depth may be quite close to the true depth.

The apparent depth will be negative when the upper layer is more conductive than the underlying material, and will be zero when a homogeneous half-space exists. The

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[5] Resistivity mapping with an airborne multicoil electromagnetic system: Geophysics, v. 43, p.144-172

apparent depth parameter must be interpreted cautiously because it will contain any errors which may exist in the measured altitude of the EM bird (e.g., as caused by a dense tree cover). The inputs to the resistivity algorithm are the in-phase and quadrature components of the coplanar coil-pair. The outputs are the apparent resistivity of the conductive half-space (the source) and the sensor-source distance. The flying height is not an input variable, and the output resistivity and sensor-source distance are independent of the flying height when the conductivity of the measured material is sufficient to yield significant in-phase as well as quadrature responses. The apparent depth, discussed above, is simply the sensor-source distance minus the measured altitude or flying height. Consequently, errors in the measured altitude will affect the apparent depth parameter but not the apparent resistivity parameter.

The apparent depth parameter is a useful indicator of simple layering in areas lacking a heavy tree cover. The DIGHEM system has been flown for purposes of permafrost mapping, where positive apparent depths were used as a measure of permafrost thickness. However, little quantitative use has been made of negative apparent depths because the absolute value of the negative depth is not a measure of the thickness of the conductive upper layer and, therefore, is not meaningful physically. Qualitatively, a negative apparent depth estimate usually shows that the EM anomaly is caused by conductive overburden. Consequently, the apparent depth channel can be of significant help in distinguishing between overburden and bedrock conductors.

Interpretation in Conductive Environments

Environments having low background resistivities (e.g., below 30 ohm-m for a 900 Hz system) yield very large responses from the conductive ground. This usually prohibits the recognition of discrete bedrock conductors. However, DIGHEM data processing techniques produce three parameters which contribute significantly to the recognition of bedrock conductors in conductive environments. These are the in-phase and quadrature difference channels (DIFI and DIFQ, which are available only on systems with common frequencies on orthogonal coil pairs), and the resistivity and depth channels (RES and DP) for each coplanar frequency.

The EM difference channels (DIFI and DIFQ) eliminate most of the responses from conductive ground, leaving responses from bedrock conductors, cultural features (e.g., telephone lines, fences, etc.) and edge effects. Edge effects often occur near the perimeter of broad conductive zones. This can be a source of geologic noise. While edge effects yield anomalies on the EM difference channels, they do not produce resistivity anomalies. Consequently, the resistivity channel aids in eliminating anomalies due to edge effects. On the other hand, resistivity anomalies will coincide with the most highly conductive sections of conductive ground, and this is another source of geologic noise. The recognition of a bedrock conductor in a conductive environment therefore is based on the anomalous responses of the two difference channels (DIFI and DIFQ) and the

resistivity channels (RES). The most favourable situation is where anomalies coincide on all channels.

The DP channels, which give the apparent depth to the conductive material, also help to determine whether a conductive response arises from surficial material or from a conductive zone in the bedrock. When these channels ride above the zero level on the digital profiles (i.e., depth is negative), it implies that the EM and resistivity profiles are responding primarily to a conductive upper layer, i.e., conductive overburden. If the DP channels are below the zero level, it indicates that a resistive upper layer exists, and this usually implies the existence of a bedrock conductor. If the low frequency DP channel is below the zero level and the high frequency DP is above, this suggests that a bedrock conductor occurs beneath conductive cover.

Reduction of Geologic Noise

Geologic noise refers to unwanted geophysical responses. For purposes of airborne EM surveying, geologic noise refers to EM responses caused by conductive overburden and magnetic permeability. It was mentioned previously that the EM difference channels (i.e., channel DIFI for in-phase and DIFQ for quadrature) tend to eliminate the response of conductive overburden.

Magnetite produces a form of geological noise on the in-phase channels of all EM systems. Rocks containing less than 1% magnetite can yield negative in-phase anomalies caused by magnetic permeability. When magnetite is widely distributed throughout a survey area, the in-phase EM channels may continuously rise and fall, reflecting variations in the magnetite percentage, flying height, and overburden thickness. This can lead to difficulties in recognizing deeply buried bedrock conductors, particularly if conductive overburden also exists. However, the response of broadly distributed magnetite generally vanishes on the in-phase difference channel DIFI. This feature can be a significant aid in the recognition of conductors which occur in rocks containing accessory magnetite.

EM Magnetite Mapping

The information content of DIGHEM data consists of a combination of conductive eddy current responses and magnetic permeability responses. The secondary field resulting from conductive eddy current flow is frequency-dependent and consists of both in-phase and quadrature components, which are positive in sign. On the other hand, the secondary field resulting from magnetic permeability is independent of frequency and consists of only an in-phase component which is negative in sign. When magnetic permeability manifests itself by decreasing the measured amount of positive in-phase, its presence may be difficult to recognize. However, when it manifests itself by yielding a negative in-phase anomaly (e.g., in the absence of eddy current flow), its presence is assured. In this latter case, the negative component can be used to estimate the percent magnetite content.

A magnetite mapping technique was developed for the coplanar coil-pair of DIGHEM. The method can be complementary to magnetometer mapping in certain cases. Compared to magnetometry, it is far less sensitive but is more able to resolve closely spaced magnetite zones, as well as providing an estimate of the amount of magnetite in the rock. The method is sensitive to 1/4% magnetite by weight when the EM sensor is at a height of 30 m above a magnetitic half-space. It can individually resolve steep dipping narrow magnetite-rich bands which are separated by 60 m. Unlike magnetometry, the EM magnetite method is unaffected by remanent magnetism or magnetic latitude.

The EM magnetite mapping technique provides estimates of magnetite content which are usually correct within a factor of 2 when the magnetite is fairly uniformly distributed. EM magnetite maps can be generated when magnetic permeability is evident as negative in-phase responses on the data profiles.

Like magnetometry, the EM magnetite method maps only bedrock features, provided that the overburden is characterized by a general lack of magnetite. This contrasts with resistivity mapping which portrays the combined effect of bedrock and overburden.

Recognition of Culture

Cultural responses include all EM anomalies caused by man-made metallic objects. Such anomalies may be caused by inductive coupling or current gathering. The concern of the

interpreter is to recognize when an EM response is due to culture. Points of consideration used by the interpreter, when coaxial and coplanar coil-pairs are operated at a common frequency, are as follows:

1. Channels CXP and CPP monitor 60 Hz radiation. An anomaly on these channels shows that the conductor is radiating power. Such an indication is normally a guarantee that the conductor is cultural. However, care must be taken to ensure that the conductor is not a geologic body which strikes across a power line, carrying leakage currents.

2. A flight which crosses a "line" (e.g., fence, telephone line, etc.) yields a centre-peaked coaxial anomaly and an m-shaped coplanar anomaly.[6] When the flight crosses the cultural line at a high angle of intersection, the amplitude ratio of coaxial/coplanar response is 8. Such an EM anomaly can only be caused by a line. The geologic body which yields anomalies most closely resembling a line is the vertically dipping thin dike. Such a body, however, yields an amplitude ratio of 4 rather than 8. Consequently, an m-shaped coplanar anomaly with a CXI/CPI amplitude ratio of 8 is virtually a guarantee that the source is a cultural line.

3. A flight which crosses a sphere or horizontal disk yields centre-peaked coaxial and coplanar anomalies with a CXI/CPI amplitude ratio (i.e., coaxial/coplanar) of 1/8.

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[6] See Figure C-1 presented earlier.

In the absence of geologic bodies of this geometry, the most likely conductor is a metal roof or small fenced yard.[7] Anomalies of this type are virtually certain to be cultural if they occur in an area of culture.

4. A flight which crosses a horizontal rectangular body or wide ribbon yields an m-shaped coaxial anomaly and a centre-peaked coplanar anomaly. In the absence of geologic bodies of this geometry, the most likely conductor is a large fenced area.[5] Anomalies of this type are virtually certain to be cultural if they occur in an area of culture.

5. EM anomalies which coincide with culture, as seen on the camera film or video display, are usually caused by culture. However, care is taken with such coincidences because a geologic conductor could occur beneath a fence, for example. In this example, the fence would be expected to yield an m-shaped coplanar anomaly as in case #2 above. If, instead, a centre-peaked coplanar anomaly occurred, there would be concern that a thick geologic conductor coincided with the cultural line.

5. The above description of anomaly shapes is valid when the culture is not conductively coupled to the environment. In this case, the anomalies arise from

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[7] It is a characteristic of EM that geometrically similar anomalies are obtained from: (1) a planar conductor, and (2) a wire which forms a loop having dimensions identical to the perimeter of the equivalent planar conductor.

inductive coupling to the EM transmitter. However, when the environment is quite conductive (e.g., less than 100 ohm-m at 900 Hz), the cultural conductor may be conductively coupled to the environment. In this latter case, the anomaly shapes tend to be governed by current gathering. Current gathering can completely distort the anomaly shapes, thereby complicating the identification of cultural anomalies. In such circumstances, the interpreter can only rely on the radiation channels and on the camera film or video records.

Magnetics

Total field magnetics provides information on the magnetic properties of the earth materials in the survey area. The information can be used to locate magnetic bodies of direct interest for exploration, and for structural and lithological mapping.

The total field magnetic response reflects the abundance of magnetic material, in the source. Magnetite is the most common magnetic mineral. Other minerals such as ilmenite, pyrrhotite, franklinite, chromite, hematite, arsenopyrite, limonite and pyrite are also magnetic, but to a lesser extent than magnetite on average.

In some geological environments, an EM anomaly with magnetic correlation has a greater likelihood of being produced by sulphides than one which is non-magnetic. However,

sulphide ore bodies may be non-magnetic (e.g., the Kidd Creek deposit near Timmins, Canada) as well as magnetic (e.g., the Mattabi deposit near Sturgeon Lake, Canada).

Iron ore deposits will be anomalously magnetic in comparison to surrounding rock due to the concentration of iron minerals such as magnetite, ilmenite and hematite.

Changes in magnetic susceptibility often allow rock units to be differentiated based on the total field magnetic response. Geophysical classifications may differ from geological classifications if various magnetite levels exist within one general geological classification. Geometric considerations of the source such as shape, dip and depth, inclination of the earth's field and remanent magnetization will complicate such an analysis.

In general, mafic lithologies contain more magnetite and are therefore more magnetic than many sediments which tend to be weakly magnetic. Metamorphism and alteration can also increase or decrease the magnetization of a rock unit.

Textural differences on a total field magnetic contour, colour or shadow map due to the frequency of activity of the magnetic parameter resulting from inhomogeneities in the distribution of magnetite within the rock, may define certain lithologies. For example, near surface volcanics may display highly complex contour patterns with little line-to-line correlation.

Rock units may be differentiated based on the plan shapes of their total field magnetic responses. Mafic intrusive plugs can appear as isolated "bulls-eye" anomalies. Granitic intrusives appear as sub-circular zones, and may have contrasting rings due to contact metamorphism. Generally, granitic terrain will lack a pronounced strike direction, although granite gneiss may display strike.

Linear north-south units are theoretically not well-defined on total field magnetic maps in equatorial regions due to the low inclination of the earth's magnetic field. However, most stratigraphic units will have variations in composition along strike which will cause the units to appear as a series of alternating magnetic highs and lows.

Faults and shear zones may be characterized by alteration which causes destruction of magnetite (e.g., weathering) which produces a contrast with surrounding rock. Structural breaks may be filled by magnetite-rich, fracture filling material as is the case with diabase dikes, or by non-magnetic felsic material.

Faulting can also be identified by patterns in the magnetic total field contours or colours. Faults and dikes tend to appear as lineaments and often have strike lengths of several kilometres. Offsets in narrow, magnetic, stratigraphic trends also delineate structure. Sharp contrasts in magnetic lithologies may arise due to large displacements along strike-slip or dip-slip faults.

APPENDIX D

EM ANOMALY LIST

EM Anomaly List

Label	Fid	Interp	XUTM m	YUTM m	CX 900 HZ Real ppm	CX 900 HZ Quad ppm	CP 900 HZ Real ppm	CP 900 HZ Quad ppm	CP 7200 HZ Real ppm	CP 7200 HZ Quad ppm	Vertical Dike COND siemens	Vertical Dike DEPTH* m	Mag. Corr NT
LINE 20010			FLIGHT 15										
A	1115.1	S	513587	5674504	1.4	4.0	7.6	33.1	96.5	174.2	---	---	0
B	1105.9	S	513824	5674255	0.7	2.3	2.9	14.2	49.1	81.9	---	---	0
C	1096.5	D	514075	5674010	6.5	6.5	53.7	57.3	150.4	92.8	6.2	34	0
D	1093.0	D	514164	5673919	2.7	6.9	53.7	57.3	150.4	92.8	---	---	0
E	1088.8	D	514272	5673811	16.0	15.0	71.9	77.8	186.0	82.8	9.0	13	0
F	1080.8	S	514481	5673605	0.3	2.3	1.6	21.1	30.7	136.2	---	---	0
G	1067.2	S	514831	5673261	0.7	0.5	0.5	3.1	2.0	16.5	---	---	0
LINE 20020			FLIGHT 15										
A	1541.3	S?	513687	5674511	1.9	2.1	2.2	25.3	69.6	142.7	---	---	35
B	1555.3	D	514070	5674118	11.4	12.2	33.9	37.9	94.3	55.1	6.9	20	0
C	1560.1	B	514214	5673992	5.4	4.7	33.9	53.4	149.1	123.9	6.8	40	0
D	1562.1	B	514270	5673936	5.1	5.3	34.3	53.4	149.1	123.9	5.6	39	0
E	1571.5	S	514522	5673674	1.0	2.6	1.6	24.4	55.5	150.7	---	---	0
F	1583.3	S	514821	5673365	0.6	2.1	0.7	11.7	16.1	80.7	---	---	0
LINE 20030			FLIGHT 15										
A	1876.0	B?	513774	5674539	5.4	3.6	11.8	33.3	93.7	161.7	9.3	47	142
B	1867.7	B	513982	5674326	2.8	4.6	2.7	4.8	3.9	32.5	---	---	0
C	1861.1	B	514137	5674159	4.5	4.0	26.3	32.2	78.3	95.5	6.3	29	60
D	1856.9	D	514246	5674048	3.8	3.2	26.3	32.2	82.7	96.5	6.4	46	0
E	1854.5	B	514307	5673981	1.0	4.3	15.2	24.2	82.7	96.5	---	---	0
F	1843.8	S	514589	5673702	0.4	3.1	1.8	28.2	75.0	155.9	---	---	10
G	1836.1	S	514794	5673506	1.1	3.2	1.0	21.4	41.9	133.7	---	---	0
H	1832.1	S	514896	5673404	1.2	3.6	1.5	21.1	41.9	132.5	---	---	0
LINE 20040			FLIGHT 15										
A	1992.8	B?	513861	5674568	6.0	5.2	28.0	39.2	101.6	153.0	7.2	33	189
B	2000.0	D	514042	5674382	13.3	21.1	28.7	56.6	126.6	61.7	4.8	4	0
C	2004.8	B	514160	5674266	10.5	8.7	19.7	41.6	99.6	64.2	9.0	20	122
D	2010.4	B	514289	5674117	1.1	3.3	23.7	9.1	40.0	44.0	---	---	0
E	2017.0	S	514444	5673940	0.6	0.8	2.9	23.2	64.0	97.4	---	---	0
F	2025.7	S	514677	5673729	0.0	1.1	1.1	21.4	32.0	135.3	---	---	10
G	2036.8	S	514951	5673454	0.4	2.6	1.2	41.0	84.8	241.0	---	---	0
LINE 20050			FLIGHT 15										
A	2204.3	B	513839	5674675	2.9	6.2	23.4	48.8	107.4	195.6	---	---	0

CX = COAXIAL
CP = COPLANAR

Note:EM values shown above are local amplitudes

*Estimated Depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or magnetite/overburden effects

EM Anomaly List

Label	Fid	Interp	XUTM m	YUTM m	CX 900 HZ Real ppm	CX 900 HZ Quad ppm	CP 900 HZ Real ppm	CP 900 HZ Quad ppm	CP 7200 HZ Real ppm	CP 7200 HZ Quad ppm	Vertical Dike COND siemens	Vertical Dike DEPTH* m	Mag. Corr NT
LINE 20050			FLIGHT 15										
B	2201.2	B?	513919	5674593	8.1	10.4	23.4	48.8	107.4	195.6	5.0	20	200
C	2196.0	D	514059	5674456	12.6	15.6	26.5	58.9	92.1	55.4	6.1	12	0
D	2191.5	B?	514176	5674333	7.3	7.6	26.5	55.4	149.5	130.3	6.1	26	98
E	2186.0	B?	514324	5674188	1.5	2.7	10.6	8.2	64.9	32.9	---	---	0
F	2170.6	S	514720	5673790	0.2	1.3	1.1	4.4	5.8	32.0	---	---	0
G	2162.4	S	514929	5673591	1.8	1.6	2.3	20.8	50.0	119.8	---	---	0
LINE 20060			FLIGHT 15										
A	2328.4	B?	513951	5674649	3.6	4.5	9.5	22.4	49.0	93.3	3.9	28	175
B	2335.9	D	514147	5674478	5.6	7.2	12.2	19.5	42.4	94.7	4.4	22	0
C	2345.4	S	514375	5674237	0.8	1.3	6.2	18.4	56.6	86.5	---	---	0
D	2362.0	D	514769	5673833	0.1	1.4	2.5	5.1	3.1	38.6	---	---	82
E	2369.4	S	514948	5673661	0.8	0.9	4.0	13.5	18.2	92.2	---	---	0
LINE 20070			FLIGHT 15										
A	2663.2	S?	513947	5674785	1.9	5.6	8.1	44.7	78.3	265.5	---	---	92
B	2660.1	S?	514024	5674705	2.5	9.3	8.1	44.7	78.3	265.5	---	---	49
C	2652.8	D	514206	5674513	8.3	5.5	16.5	7.5	18.0	17.2	11.0	43	0
D	2647.1	S	514362	5674368	1.1	6.6	4.6	39.5	70.1	252.7	---	---	0
E	2644.8	S?	514423	5674310	1.8	4.7	1.1	39.5	70.1	252.7	---	---	11
F	2629.3	S	514792	5673928	1.7	1.2	1.9	3.1	1.7	23.4	---	---	0
G	2622.8	S?	514964	5673760	0.4	4.7	3.5	20.5	23.4	141.3	---	---	0
LINE 20080			FLIGHT 15										
A	2765.6	S	513829	5674995	0.7	2.5	4.2	16.1	34.3	54.1	---	---	0
B	2773.9	S?	514048	5674775	0.9	2.9	2.7	26.0	43.1	156.6	---	---	133
C	2788.8	S?	514448	5674376	0.7	2.2	0.1	17.5	26.0	113.0	---	---	0
D	2813.6	S	515044	5673780	0.5	1.2	3.7	5.2	9.5	37.2	---	---	0
LINE 20090			FLIGHT 15										
A	2993.7	B	513838	5675077	0.8	2.9	14.3	8.5	22.6	47.6	---	---	0
B	2984.8	B	514058	5674882	3.7	4.1	11.0	37.2	55.9	137.4	---	---	234
C	2966.0	S	514492	5674454	0.6	1.6	0.2	11.1	9.4	73.4	---	---	0
D	2940.4	S	515089	5673846	1.3	1.8	2.0	3.9	2.9	27.2	---	---	0
E	2934.7	S	515220	5673710	0.8	1.1	1.2	2.5	2.4	16.7	---	---	0
LINE 20100			FLIGHT 15										
A	3479.8	D	514086	5674940	5.0	3.9	10.7	12.4	21.5	39.2	7.7	41	151

CX = COAXIAL
CP = COPLANAR

Note:EM values shown above are local amplitudes

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EM Anomaly List

Label	Fid	Interp	XUTM m	YUTM m	CX 900 HZ Real ppm	CX 900 HZ Quad ppm	CP 900 HZ Real ppm	CP 900 HZ Quad ppm	CP 7200 HZ Real ppm	CP 7200 HZ Quad ppm	Vertical Dike COND siemens	Vertical Dike DEPTH* m	Mag. Corr NT
LINE 20100			FLIGHT 15										
B	3462.9	S	514546	5674507	1.5	0.9	1.0	4.3	3.5	23.4	---	---	0
C	3439.1	S?	515143	5673895	1.0	0.6	1.0	4.1	2.1	23.0	---	---	0
D	3433.8	S	515273	5673764	0.4	0.5	2.7	3.5	4.2	21.9	---	---	0
LINE 20110			FLIGHT 15										
A	4294.0	S	514134	5675002	1.4	0.7	3.1	3.7	4.6	18.5	---	---	0
B	4311.3	S	514569	5674574	0.9	0.5	0.3	2.9	2.0	19.2	---	---	0
C	4326.3	S?	514947	5674196	0.3	0.8	1.6	4.2	2.6	27.8	---	---	69
D	4336.4	S?	515198	5673922	0.2	0.6	1.1	2.6	2.8	19.2	---	---	0
E	4340.6	S	515309	5673820	0.8	0.9	2.1	2.9	4.2	20.3	---	---	0
LINE 20120			FLIGHT 15										
A	4476.9	S	514480	5674779	0.5	0.9	0.7	4.7	3.4	31.1	---	---	0
B	4471.7	S	514604	5674642	0.5	0.7	1.6	6.7	4.9	40.0	---	---	0
C	4455.1	S?	515036	5674228	0.9	0.7	0.0	2.2	0.4	17.5	---	---	137
LINE 20130			FLIGHT 15										
A	4593.6	S?	514055	5675290	1.1	1.7	0.9	10.6	12.3	73.7	---	---	0
B	4612.9	S	514574	5674777	0.7	0.9	0.6	4.8	6.7	46.1	---	---	0
C	4615.4	S	514645	5674710	0.7	0.9	0.9	6.2	6.7	46.1	---	---	0
LINE 20140			FLIGHT 15										
A	4799.7	S?	514110	5675350	0.5	4.1	1.3	21.6	24.1	134.5	---	---	0
B	4797.2	B?	514179	5675288	1.0	3.3	1.3	21.6	24.1	134.5	---	---	0
C	4779.1	S	514669	5674810	2.2	0.7	1.4	14.3	23.6	94.1	---	---	0
LINE 20150			FLIGHT 15										
A	4895.5	S	514194	5675353	0.0	0.9	1.8	3.3	6.6	28.3	---	---	0
B	4916.9	S	514735	5674821	1.0	0.2	0.4	9.7	8.7	64.6	---	---	0
C	4949.4	S?	515513	5674044	1.4	3.1	0.5	18.3	19.3	120.8	---	---	0
D	4953.0	S?	515609	5673955	0.6	1.8	0.1	9.7	5.5	67.1	---	---	24
LINE 20160			FLIGHT 15										
A	5123.9	B	514176	5675523	0.0	0.4	3.5	5.9	13.1	8.0	---	---	0
B	5070.4	S	515587	5674086	0.7	0.6	1.3	11.8	17.2	79.5	---	---	0
C	5062.3	S?	515805	5673873	0.4	0.2	1.1	6.7	18.7	33.6	---	---	0

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EM Anomaly List

Label	Fid	Interp	XUTM m	YUTM m	CX 900 HZ Real ppm	CX 900 HZ Quad ppm	CP 900 HZ Real ppm	CP 900 HZ Quad ppm	CP 7200 HZ Real ppm	CP 7200 HZ Quad ppm	Vertical Dike COND siemens	Vertical Dike DEPTH* m	Mag. Corr NT
LINE	20170		FLIGHT 15										
A	5369.2	S?	514228	5675551	1.3	2.3	3.3	22.5	43.1	115.9	---	---	0
B	5378.8	D	514470	5675312	1.9	1.8	0.7	5.0	13.5	17.2	---	---	0
C	5421.2	S	515538	5674250	0.3	0.5	1.4	2.4	2.4	18.2	---	---	0
D	5434.5	S?	515869	5673920	0.9	3.8	5.4	62.7	216.2	309.5	---	---	0
LINE	20180		FLIGHT 15										
A	5595.8	B	514385	5675509	0.3	0.4	3.9	5.4	13.2	24.8	---	---	0
B	5538.7	S	515837	5674054	0.6	5.4	1.6	23.1	52.4	195.5	---	---	0
C	5529.2	S	516072	5673821	1.2	3.4	1.1	17.4	39.0	107.1	---	---	0
LINE	20190		FLIGHT 15										
A	5712.2	S	514719	5675274	0.3	0.6	1.4	2.3	2.1	14.9	---	---	0
B	5759.1	S?	515936	5674060	1.0	4.0	4.2	47.1	156.0	181.5	---	---	18
C	5766.4	S?	516125	5673876	0.1	1.5	1.7	7.6	30.2	19.0	---	---	0
LINE	20200		FLIGHT 15										
A	5907.3	S	514839	5675263	0.9	0.6	0.5	5.3	6.0	32.3	---	---	0
B	5864.1	S?	515965	5674120	0.4	0.8	2.8	35.1	114.4	169.5	---	---	22
C	5854.9	S?	516198	5673870	0.3	1.1	1.8	18.8	72.0	64.4	---	---	0
LINE	20210		FLIGHT 15										
A	6128.8	S	514890	5675312	0.6	1.1	0.5	10.6	12.2	75.6	---	---	10
B	6171.4	S	515957	5674244	0.0	2.6	1.5	25.4	62.6	145.5	---	---	0
C	6183.0	S?	516260	5673944	0.4	1.9	2.0	22.2	57.1	125.1	---	---	0
LINE	20220		FLIGHT 15										
A	6471.4	S	514921	5675388	1.0	0.9	1.6	9.8	14.6	65.0	---	---	0
B	6428.7	S?	515937	5674386	1.0	0.8	0.4	17.2	20.2	120.9	---	---	41
C	6421.5	S?	516104	5674204	0.7	4.4	2.2	31.3	52.5	198.2	---	---	15
D	6414.9	S?	516273	5674035	0.9	4.8	1.0	38.4	49.3	252.7	---	---	13
LINE	20230		FLIGHT 15										
A	6813.3	S	514983	5675434	0.5	0.3	0.8	3.2	4.8	25.0	---	---	0
B	6795.6	S?	515424	5675009	1.3	2.9	1.0	12.7	19.7	84.9	---	---	0
C	6793.0	S?	515482	5674938	0.7	2.5	1.0	12.7	19.7	84.9	---	---	38
D	6773.4	S?	515948	5674472	1.0	2.5	1.1	10.7	10.4	71.1	---	---	39
E	6765.3	S?	516142	5674286	1.1	3.5	0.5	10.6	5.7	72.0	---	---	13

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Label	Fid	Interp	XUTM m	YUTM m	CX 900 HZ Real ppm	CX 900 HZ Quad ppm	CP 900 HZ Real ppm	CP 900 HZ Quad ppm	CP 7200 HZ Real ppm	CP 7200 HZ Quad ppm	Vertical Dike COND siemens	Vertical Dike DEPTH* m	Mag. Corr NT
LINE 20230			FLIGHT 15										
F	6757.5	S?	516333	5674092	0.5	4.8	0.4	17.5	19.5	117.9	---	---	12
LINE 20240			FLIGHT 15										
A	7116.4	S	515024	5675512	1.1	0.7	0.5	4.1	1.9	25.6	---	---	0
B	7096.5	S	515487	5675053	2.1	9.7	1.7	71.4	184.8	415.6	---	---	13
C	7076.1	S?	515972	5674561	1.1	2.9	1.7	13.3	18.7	89.4	---	---	35
D	7066.5	S	516201	5674322	1.2	0.9	2.0	4.2	4.1	26.7	---	---	10
E	7060.2	S?	516351	5674154	0.2	3.4	0.2	9.6	12.4	69.5	---	---	13
F	7053.1	S	516538	5673993	0.4	0.8	0.5	3.1	4.8	21.9	---	---	0
G	7049.7	S?	516631	5673924	0.2	1.5	0.1	2.9	4.3	18.1	---	---	0
LINE 20250			FLIGHT 15										
A	7678.2	S?	515548	5675069	1.1	7.1	3.6	68.2	170.2	400.2	---	---	0
B	7661.0	S?	515972	5674661	0.3	2.0	0.8	12.7	21.0	88.5	---	---	22
C	7644.4	S?	516382	5674244	0.5	1.6	0.4	11.6	14.5	77.4	---	---	13
D	7637.0	B	516583	5674056	0.9	1.9	0.6	1.9	6.3	8.2	---	---	0
LINE 20260			FLIGHT 15										
A	7810.9	S?	515678	5675055	0.6	7.1	1.9	61.5	109.9	395.7	---	---	23
B	7827.3	S	516030	5674704	0.2	6.5	0.9	45.0	55.4	300.4	---	---	0
C	7843.7	S?	516371	5674369	1.1	5.3	2.0	19.3	19.9	130.5	---	---	14
D	7847.8	S	516465	5674275	0.8	3.2	1.8	18.5	19.9	125.6	---	---	11
E	7854.8	S?	516632	5674112	1.0	3.6	1.6	5.4	4.3	33.4	---	---	0
LINE 20270			FLIGHT 15										
A	8115.0	S?	515760	5675075	1.5	3.9	1.0	25.8	37.7	173.1	---	---	17
B	8112.5	S	515827	5675010	0.4	1.8	1.0	25.8	37.7	173.1	---	---	10
C	8107.4	S?	515965	5674884	0.4	1.5	0.8	14.6	15.8	102.5	---	---	31
D	8084.2	S	516509	5674334	0.2	2.4	1.4	14.9	18.3	97.6	---	---	0
LINE 20280			FLIGHT 15										
A	8430.1	S	515692	5675253	0.4	0.7	1.0	3.6	4.0	25.1	---	---	0
B	8439.8	S?	515939	5674987	1.4	3.6	0.4	23.8	36.2	159.7	---	---	32
C	8446.7	S?	516133	5674818	0.4	1.5	0.5	10.1	6.3	66.6	---	---	11
D	8465.1	S?	516565	5674384	1.0	7.2	3.1	67.3	179.6	360.0	---	---	0
E	8470.9	S?	516717	5674250	0.7	1.8	3.6	45.0	167.9	213.2	---	---	0

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LINE	20290		FLIGHT 15										
A	8602.5	S?	515748	5675302	0.4	2.0	0.1	5.1	4.5	36.0	---	---	16
B	8592.9	S?	515969	5675094	1.1	5.1	0.1	24.5	27.1	167.4	---	---	33
C	8562.0	S?	516690	5674362	1.0	2.5	4.1	50.3	158.9	251.7	---	---	0
LINE	20300		FLIGHT 15										
A	8865.0	S	515499	5675670	0.6	1.1	4.7	2.3	1.2	17.5	---	---	0
B	8878.3	S	515811	5675363	0.4	1.2	0.6	4.0	5.4	26.4	---	---	0
C	8888.2	S?	516043	5675124	1.5	3.7	1.0	12.0	11.2	80.7	---	---	47
D	8919.6	S	516793	5674364	0.9	0.1	1.7	25.5	96.8	63.0	---	---	0
LINE	20310		FLIGHT 15										
A	9059.9	S	515552	5675717	0.5	1.6	1.6	5.8	3.6	41.8	---	---	0
B	9037.1	S?	516106	5675182	0.7	1.7	1.5	7.5	7.4	50.5	---	---	27
C	9013.1	S?	516676	5674588	0.8	3.0	1.8	28.2	81.1	151.7	---	---	27
D	9003.9	S	516912	5674355	1.0	2.2	0.7	4.6	25.8	38.7	---	---	0
LINE	20320		FLIGHT 15										
A	9177.1	S	515612	5675775	0.3	1.6	0.3	3.3	2.1	26.3	---	---	0
B	9198.0	S	516124	5675251	0.8	3.3	0.5	6.4	8.1	41.9	---	---	0
C	9225.5	S?	516751	5674623	0.8	3.0	2.1	25.1	89.2	112.0	---	---	24
D	9234.8	S?	516976	5674382	1.2	5.3	0.9	14.3	46.9	92.7	---	---	0
LINE	20330		FLIGHT 15										
A	9355.5	S	516147	5675329	0.2	2.7	1.9	7.5	7.9	49.9	---	---	0
B	9339.6	S?	516548	5674939	0.6	2.3	0.2	26.8	54.1	163.9	---	---	0
C	9331.8	S?	516750	5674719	0.7	2.0	3.3	29.5	100.9	124.1	---	---	24
D	9322.7	S?	516989	5674475	0.9	6.3	1.9	22.8	49.3	140.6	---	---	0
LINE	20340		FLIGHT 15										
A	9491.9	S?	516197	5675407	1.2	1.4	3.7	16.9	34.3	105.3	---	---	0
B	9507.2	S	516535	5675032	0.5	2.2	1.4	31.3	62.2	198.3	---	---	0
C	9514.5	B?	516720	5674865	2.1	11.4	1.6	8.5	23.4	171.7	---	---	0
D	9518.0	S?	516805	5674782	0.7	2.7	4.0	38.7	117.2	170.4	---	---	0
E	9528.7	S?	517039	5674527	0.5	1.6	0.8	21.4	54.3	108.6	---	---	0
LINE	20351		FLIGHT 16										
A	716.6	S?	516212	5675453	0.2	1.6	2.7	20.2	47.3	115.4	---	---	0

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Label	Fid	Interp	XUTM m	YUTM m	CX 900 HZ Real ppm	CX 900 HZ Quad ppm	CP 900 HZ Real ppm	CP 900 HZ Quad ppm	CP 7200 HZ Real ppm	CP 7200 HZ Quad ppm	Vertical Dike COND siemens	Vertical Dike DEPTH* m	Mag. Corr NT
LINE 20351			FLIGHT 16										
B	705.0	S	516530	5675147	0.0	1.1	1.7	13.8	33.3	81.7	---	---	0
C	695.0	S	516784	5674893	0.6	2.2	1.9	24.4	73.4	108.8	---	---	0
D	688.6	S	516942	5674730	0.6	1.2	2.5	9.0	32.6	26.9	---	---	0
E	684.0	S	517057	5674617	0.4	1.6	2.8	30.7	82.6	158.6	---	---	0
LINE 20360			FLIGHT 16										
A	839.7	S	516073	5675725	0.6	1.2	1.0	8.0	9.6	47.0	---	---	0
B	849.4	S	516332	5675458	0.6	1.4	3.9	36.2	129.7	112.3	---	---	0
C	861.7	S	516661	5675129	0.6	1.4	0.2	13.3	23.5	82.4	---	---	20
D	877.3	S	517084	5674699	0.2	1.2	2.5	22.7	93.0	95.9	---	---	0
LINE 20370			FLIGHT 16										
A	1165.8	S?	516322	5675548	0.8	1.8	3.7	31.9	112.5	131.3	---	---	22
B	1151.4	S	516677	5675219	0.4	0.2	0.7	4.0	4.5	25.9	---	---	0
C	1135.2	S?	517080	5674809	0.4	1.2	2.7	28.3	99.1	67.4	---	---	13
LINE 20380			FLIGHT 16										
A	1613.0	S?	516306	5675694	1.4	1.1	3.9	23.8	56.5	28.6	---	---	33
B	1588.0	B?	516920	5675077	0.5	2.4	0.9	11.0	13.0	50.5	---	---	0
C	1583.7	S	517026	5674967	0.7	2.3	0.1	24.5	73.6	127.8	---	---	0
D	1577.3	S?	517195	5674808	0.2	2.3	2.3	23.7	84.6	108.9	---	---	18
LINE 29010			FLIGHT 13										
A	9315.1	S	513689	5673894	0.2	0.2	0.5	7.2	7.4	43.3	---	---	0
B	9307.4	S	513889	5674072	0.9	4.6	4.3	24.0	33.8	145.8	---	---	0
C	9300.4	D	514051	5674250	14.4	18.9	34.0	46.7	125.3	34.0	6.0	9	126
D	9296.3	B	514142	5674354	7.4	7.6	44.8	77.7	207.7	227.5	6.2	31	109
E	9279.1	S	514599	5674801	1.0	2.2	1.0	13.8	16.2	91.6	---	---	0
F	9244.1	S	515522	5675715	0.6	1.0	1.5	2.4	2.2	16.0	---	---	0
G	9217.3	S	516183	5676341	0.8	3.1	2.7	30.7	86.0	144.2	---	---	0
H	9212.6	S	516297	5676453	1.0	1.0	2.5	18.0	63.4	52.5	---	---	0
LINE 29021			FLIGHT 13										
A	9044.9	S	514613	5673047	0.0	0.7	0.7	3.3	4.2	20.3	---	---	0
B	9060.5	S	515026	5673450	0.9	0.4	1.1	7.3	9.9	43.8	---	---	0
C	9082.6	S?	515617	5674030	1.1	1.6	1.7	11.1	17.1	75.6	---	---	40
D	9093.7	S?	515937	5674323	0.9	2.6	2.4	22.4	36.0	150.2	---	---	17
E	9117.4	S?	516569	5674973	1.0	3.1	3.3	20.7	53.1	111.8	---	---	78

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Label	Fid	Interp	XUTM m	YUTM m	CX 900 HZ Real ppm	CX 900 HZ Quad ppm	CP 900 HZ Real ppm	CP 900 HZ Quad ppm	CP 7200 HZ Real ppm	CP 7200 HZ Quad ppm	Vertical Dike COND siemens	Vertical Dike DEPTH* m	Mag. Corr NT
LINE	29021		FLIGHT 13										
F	9122.1	S?	516696	5675108	1.0	4.3	0.4	21.0	42.8	128.3	---	---	0
G	9134.3	S?	516991	5675404	0.8	1.0	1.5	7.5	11.1	56.2	---	---	37

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APPENDIX VI

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Robert Falls do hereby state:

1) That I am a geologist with Fronteer Development Group Inc., with offices at 1640-1066 West Hastings Street, Vancouver, British Columbia, Canada.

2) That I am a graduate of the University of Toronto with a Bachelor of Science Degree in geology.

3) That I have worked in mineral exploration and related fields since 1982 and that I am familiar with a wide variety of mineral deposit types and exploration techniques.

4) That this report is based on exploration work carried out by myself and others on the property described herein.

Dated at Vancouver, B.C., this 5th day of December, 2002.

Robert Falls

Robert Falls

Work Report Summary

Transaction No: W0320.00261 **Status:** APPROVED
Recording Date: 2003-FEB-12 **Work Done from:** 2002-APR-28
Approval Date: 2003-FEB-26 **to:** 2002-SEP-01

Client(s):

400281 FRONTEER DEVELOPMENT GROUP INC.

Survey Type(s):

AEM AMAG ASSAY GCHEM
GEOL

Work Report Details:

Claim#	Perform	Perform Approve	Applied	Applied Approve	Assign	Assign Approve	Reserve	Reserve Approve	Due Date
KRL 1244533	$6,036	$6,036	$3,200	$3,200	$2,836	2,836	$0	$0	2005-FEB-07
KRL 1247997	$19,461	$19,461	$6,400	$6,400	$13,061	13,061	$0	$0	2005-FEB-07
KRL 3002002	$1,841	$1,841	$0	$0	$1,841	1,841	$0	$0	2004-APR-15
KRL 3002003	$1,238	$1,238	$0	$0	$1,238	1,238	$0	$0	2004-APR-15
KRL 3002006	$1,207	$1,207	$0	$0	$1,207	1,207	$0	$0	2004-APR-15
KRL 3002007	$573	$573	$0	$0	$573	573	$0	$0	2004-APR-15
KRL 3002010	$2,630	$2,630	$0	$0	$2,630	2,630	$0	$0	2004-APR-15
KRL 3002020	$1,805	$1,805	$0	$0	$1,805	1,805	$0	$0	2004-APR-15
KRL 3002030	$2,194	$2,194	$0	$0	$2,194	2,194	$0	$0	2004-APR-15
KRL 3002032	$5,074	$5,074	$3,600	$3,600	$1,474	1,474	$0	$0	2005-APR-15
KRL 3002037	$1,114	$1,114	$1,114	$1,114	$0	0	$0	$0	2004-APR-15
KRL 3002038	$1,114	$1,114	$0	$0	$1,114	1,114	$0	$0	2004-APR-15
KRL 3002039	$2,383	$2,383	$0	$0	$2,383	2,383	$0	$0	2004-APR-15
KRL 3002040	$1,207	$1,207	$0	$0	$1,207	1,207	$0	$0	2004-APR-15
KRL 3002041	$1,114	$1,114	$6,400	$6,400	$0	0	$0	$0	2005-APR-15
KRL 3002042	$1,114	$1,114	$6,400	$6,400	$0	0	$0	$0	2005-APR-15
KRL 3002043	$2,413	$2,413	$6,400	$6,400	$0	0	$0	$0	2005-APR-15
KRL 3002044	$2,722	$2,722	$3,200	$3,200	$0	0	$0	$0	2005-APR-15
KRL 3002052	$3,598	$3,598	$6,400	$6,400	$0	0	$0	$0	2005-APR-15
KRL 3002053	$573	$573	$2,000	$2,000	$0	0	$0	$0	2005-APR-15
KRL 3002054	$1,810	$1,810	$4,800	$4,800	$0	0	$0	$0	2005-APR-15
KRL 3002055	$1,731	$1,731	$6,400	$6,400	$0	0	$0	$0	2005-APR-15
KRL 3002056	$573	$573	$4,800	$4,800	$0	0	$0	$0	2005-APR-15
KRL 3002058	$1,780	$1,780	$2,400	$2,400	$0	0	$0	$0	2004-APR-15
KRL 3002059	$603	$603	$2,394	$2,394	$0	0	$0	$0	2004-APR-15
	$65,908	$65,908	$65,908	$65,908	$33,563	$33,563	$0	$0	

External Credits: $0

Reserve:

$0 Reserve of Work Report#: W0320.00261

$0 Total Remaining

Status of claim is based on information currently on record.

52N07SW2001 2.25014 SHABU LAKE



Ministry of
Northern Development
and Mines

Ministère du
Développement du Nord
et des Mines

Ontario

Date: 2003-FEB-26

GEOSCIENCE ASSESSMENT OFFICE
933 RAMSEY LAKE ROAD, 6th FLOOR
SUDBURY, ONTARIO
P3E 6B5

Tel: (888) 415-9845
Fax:(877) 670-1555

FRONTEER DEVELOPMENT GROUP INC.
SUITE 1640-1066 WEST HASTINGS STREET,
OCEANIC PLAZA
VANCOUVER, BRITISH COLUMBIA
V6E 3X1 CANADA

Submission Number: 2.25014
Transaction Number(s): W0320.00261

Dear Sir or Madam

Subject: Approval of Assessment Work

We have approved your Assessment Work Submission with the above noted Transaction Number(s). The attached Work Report Summary indicates the results of the approval.

At the discretion of the Ministry, the assessment work performed on the mining lands noted in this work report may be subject to inspection and/or investigation at any time.

An excellent report accompanies this submission.

NOTE: For future submissions please remember that it is important to be able to locate the airborne flight lines on the claims disposition.

If you have any question regarding this correspondence, please contact BRUCE GATES by email at bruce.gates@ndm.gov.on.ca or by phone at (705) 670-5856.

Yours Sincerely,

Ron Gashinski
Senior Manager, Mining Lands Section

Cc: Resident Geologist

Fronteer Development Group Inc.
(Claim Holder)

Robert Bruce Falls
(Agent)

Assessment File Library

Fronteer Development Group Inc.
(Assessment Office)

ONTARIO CANADA — MINISTRY OF NORTHERN DEVELOPMENT AND MINES — PROVINCIAL MINING RECORDER'S OFFICE

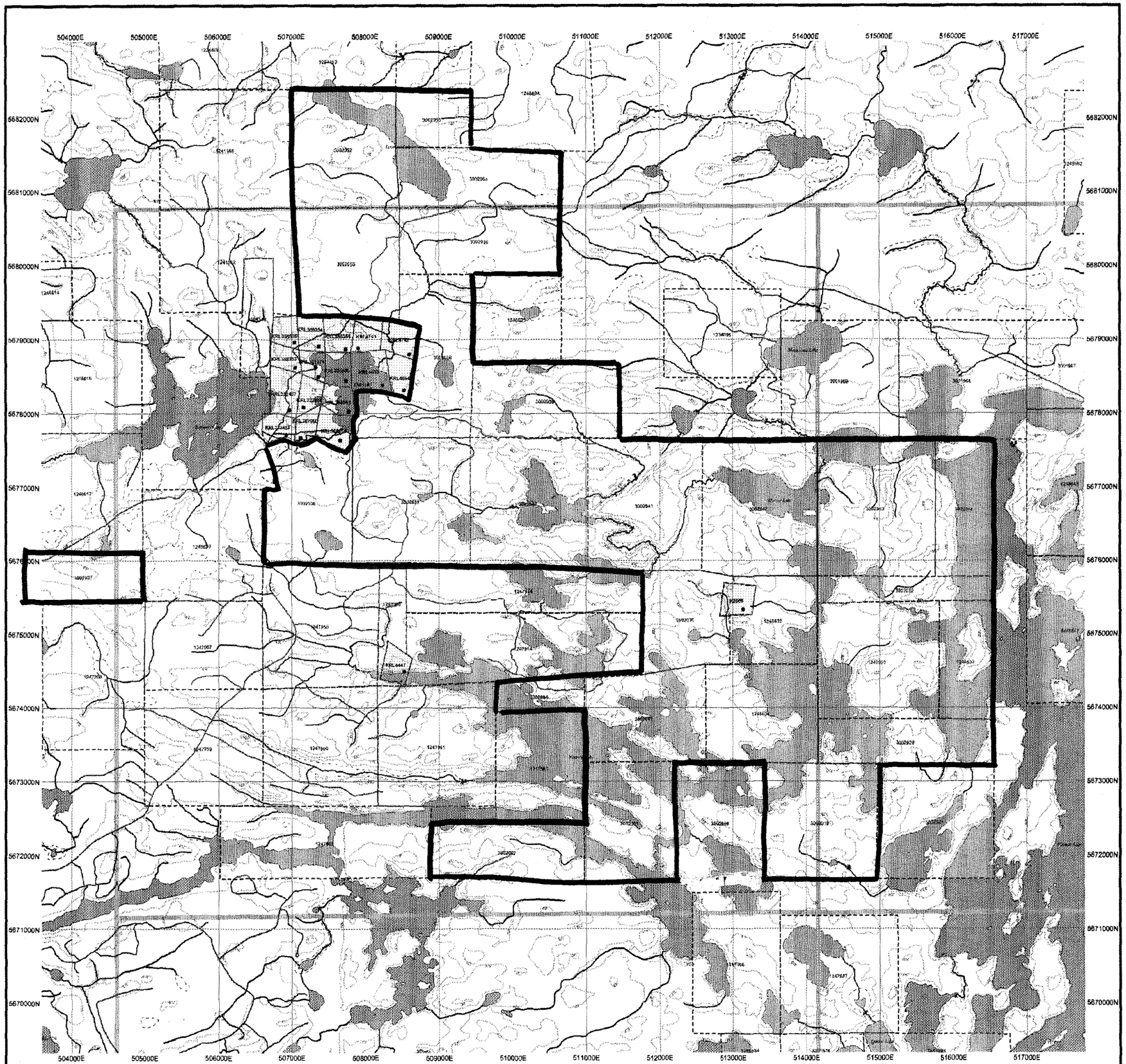
Mining Land Tenure Map

Date / Time of Issue: Wed Feb 26 13:02:52 EST 2003

TOWNSHIP / AREA	PLAN
SKINNER	G-3758

ADMINISTRATIVE DISTRICTS / DIVISIONS

Mining Division	Red Lake
Land Titles/Registry Division	KENORA
Ministry of Natural Resources District	RED LAKE



TOPOGRAPHIC

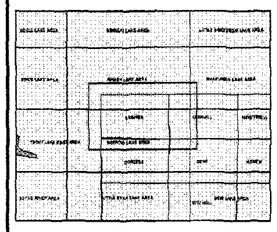
- Administrative Boundaries
- Township
- Concession, Lot
- Provincial Park
- Indian Reserve
- Cliff, Rock Fill
- Shoreline
- Mine Shafts
- Mine Headframe
- Railway
- Road
- Trail
- Natural Gas Pipeline
- Utilities
- Tower

Land Tenure

Freehold Patent
- Surface And Mining Rights
- Surface Rights Only
- Mining Rights Only

Leasehold Patent
- Surface And Mining Rights
- Surface Rights Only
- Mining Rights Only

Licence of Occupation
- Uses Not Specified
- Surface And Mining Rights
- Surface Rights Only
- Mining Rights Only
- Land Use Permit
- Order In Council (Not open for staking)
- Water Power Lease Agreement
- Mining Claim
- Filed Only Mining Claims



LAND TENURE WITHDRAWAL

- Areas Withdrawn from Disposition
- Mining Act Withdrawal Types
  - Wsm — Surface And Mining Rights Withdrawn
  - Ws — Surface Rights Only Withdrawn
  - Wm — Mining Rights Only Withdrawn
- Order In Council Withdrawal Types
  - W*sm — Surface And Mining Rights Withdrawn
  - W*s — Surface Rights Only Withdrawn
  - W*m — Mining Rights Only Withdrawn

IMPORTANT NOTI

Scale 1:20000

0m — 2.1km

2.25014

AEM
AMAG
GCHEM
GEOL
ASSAY

General Information and Limitations

Those wishing to stake mining claims should consult with the Provincial Mining Recorders' Office of the Ministry of Northern Development and Mines for additional information on the status of the lands shown hereon. This map is not intended for navigational, survey, or land title determination purposes as the information shown on this map is compiled from various sources. Completeness and accuracy are not guaranteed. Additional information may also be obtained through the local Land Titles or Registry Office, or the Ministry of Natural Resources.

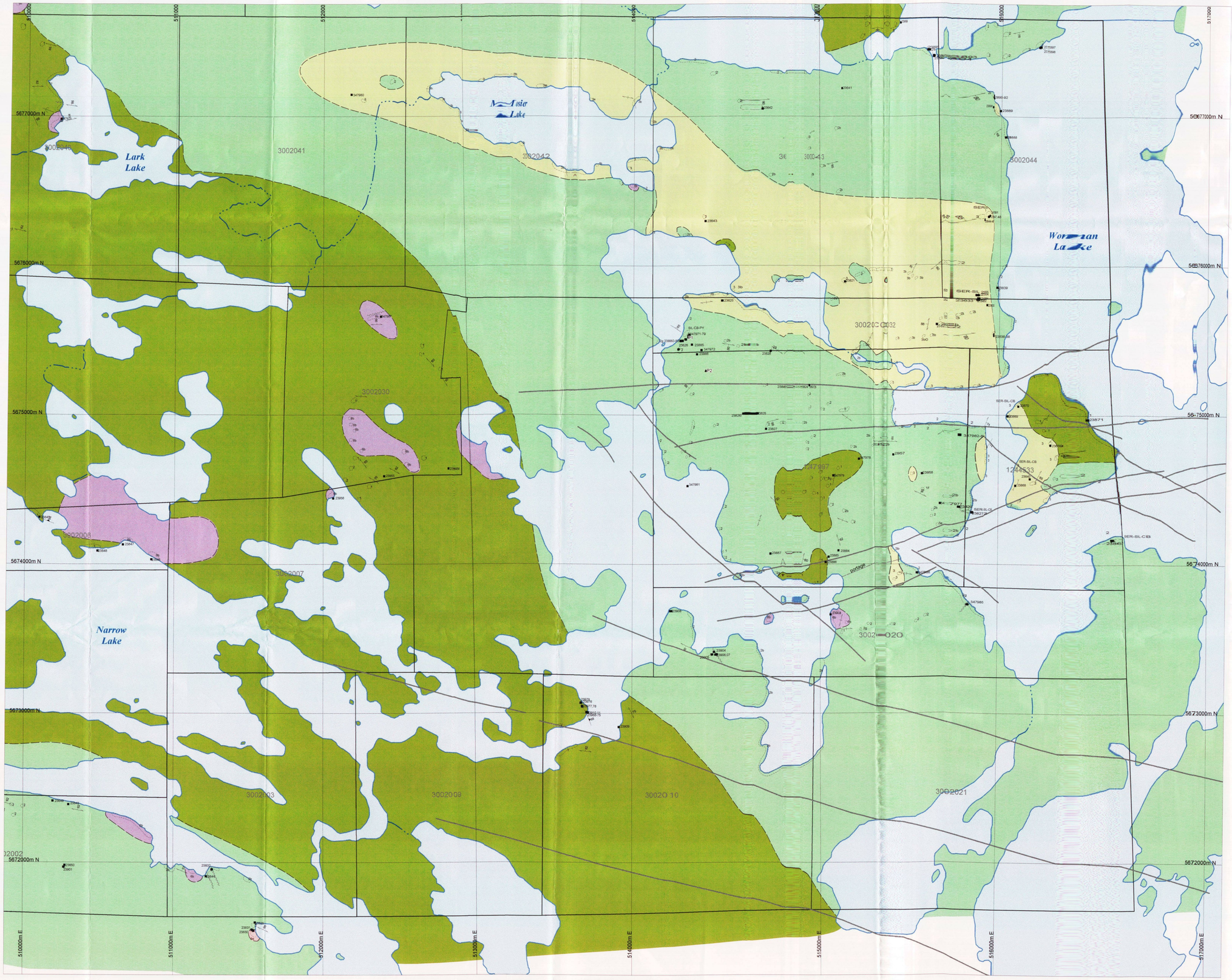
Contact Information
Provincial Mining Recorders' Office
Willet Green Miller Centre 502 Re[illegible] Lake Road

Toll Free
Tel: 1 (888) 415-9845 ext 5562 (outside toll free 807)
Fax: 1 (877) 670-1444

Map Datum: NAD 83
Township Data (Source): Land Information Ontario

This map may not show unregistered land tenure and interests in land including certain patents, leases, easements, right of ways, flooding rights, licenses, or other forms of disposition of rights and interest from the Crown. Also certain land tenure and land uses that restrict or prohibit free entry or staking claims may not be displayed.

52N07SW2001 2.25014 SHABU LAKE 200



52N07SW2001 2.25014 SHABU LAKE 210

LEGEND

Precambrian

Early Precambrian (Archean)

Unmetamorphosed Felsic to intermediate intrusive Rocks

8 — 8 Unsubdivided; 8a Porphyritic amphibole diorite, syenodiorite; 8b Porphyritic amphibole tonalite/trondhjemite, qtz diorite; 8c Biotite tonalite/trondhjemite, qtz diorite; 8d Porphyritic biotite qtz monzonite, granodiorite; 8e Porphyritic biotite qtz monzonite, granodiorite; 8h Porphyritic biotite diorite, syenodiorite (plagioclase phenocrysts)

Metamorphosed Felsic to intermediate intrusive Rocks

7 — 7a Quartz porphyry; 7b Quartz feldspar porphyry; 7c Felsic feldspar porphyry; 7d Granophyric granodiorite; 7e Granite; 7f Biotite-aerolo granodiorite

Metamorphosed Mafic to ultramafic intrusive Rocks

6 — 6a Gabbro; 6b Diorite; 6c Biotite diorite; 6d Serpentinized pyroxenite

Metavolcanics and Metasediments

Metasediments

Chemical Metasediments

5 — 5a Oxide facies chert (>15% iron); 5c Magnetite-chert ironstone (>15% iron); 5d Marble, calc-silicate

Clastic Metasediments

4 — 4a Undubdivided; 4a Sandstone; 4b Wacke; 4c Slate, argilite; 4d Reworked felsic tuff; 4e Conglomerate; 4f Paraconglomerate; 4g Orthoconglomerate; 4h Granule, pebble conglomerate; 4k Boulder conglomerate; 4n Granule, pebble conglomerate

Metavolcanics

Felsic metavolcanics (may include some intermediate metavolcanics Unit 2)

3 — 3a Flow; 3b Tuff; 3c Lapillistone; 3d Pyroclastic breccia; 3e Lapilli-tuff; 3f Ash-tuff; 3g Autoclastic breccia; 3h Sphenulitic; 3i Porphyritic flow (qtz phenocrysts); 3k Porphyritic flow (amphibole phenocrysts); 3m Porphyritic (phenoclastic) unit (feldspar phenocryst); 3n Thin bedded (<5cm); 3o Medium bedded (5-15cm); 3p Thick bedded (>15cm); 3r Carbonatized; 3s Agglomerate

Intermediate Metavolcanics(may include some felsic volcanics Unit 3)

2 — 2a Flow; 2b Tuff; 2c Lapillistone; 2d Pyroclastic breccia; 2f Tuffaceous; 2g Lapilli-tuff; 2h Ash-tuff breccia; 2i Spherulitic flow; 2j Porphyritic unit (qtz phenocrysts); 2m Thin bedded (<5cm); 2n Medium bedded (5-15cm); 2o Thick bedded (>15cm); 2p Pillowed flow

Mafic Metavolcanics

1 — 1a Flow; 1b Porphyritic flow (amphibole phenocrysts); 1c Porphyritic flow (feldspar phenocrysts); 1d Pillowed flow; 1e Autoclastic breccia; 1f Pyroclastic breccia; 1g Flow breccia; 1h Episite rich, mafic to intermediate metavolcanic breccia; 1k Hyaloclastite and/or hyaloclastic breccia; 1m Cloncatized; 1n Metaclastic; 1s Actie; 1t Chlorite schist

ALTERATION/MINERALS

Sil. silica quartz; SER sericite; Chl. chlorite; Cb carbonate; Py pyrite

SYMBOLS

- Rockstorop
- Geological contact
- Glacial direction
- Foliation
- Bedding
- Quartz-vein
- Mineheat zone or fault
- Marker (interpreted from regional magnetic data)
- Rockample
- Sdample with gold value in ppb
- Hoist branch
- Hole diamond drill hole with dip
- Rist
- Prote
- Geological site of interest

NB: Geology based on field mapping by Fronteer geologists and on interpretation ofgno magnetic data by Fronteer geologists.

0 100 200 300 500 metres

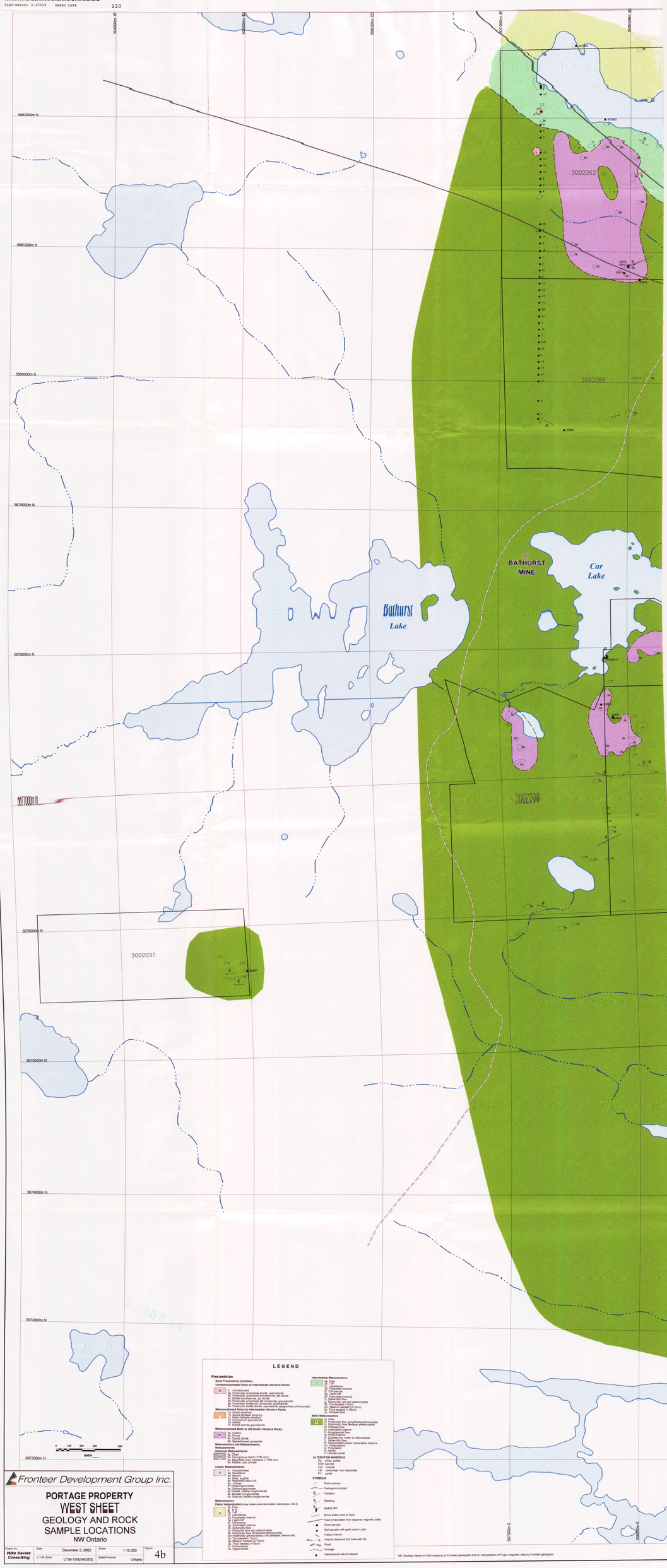
2.25014

Fronteer Development Group Inc.

PORTAGE PROPERTY
EAST SHEET
GEOLOGY AND ROCK SAMPLE LOCATIONS
NW Ontio

Drawn by:	Date	Scale	Figure
Mike Davies Consulting 807-467-2508	December 2, 2002	1:10,000	4a
	UTM Zone UTM-15N(NAD83)	Province Ontario	

52N07SW2001 3.25014 SHARO LAKE 220



LEGEND

Precambrian

Early Precambrian (Archean)

Unmetamorphosed Felsic to Intermediate Intrusive Rocks

8 — E Unsubdivided
8a Porphyritic amphibolite diorite, syenodiorite
8b Porphyritic amphibolite trondhjemite, qtz diorite
8c Amphibolite diorite, syenodiorite
8d Porphyritic amphibolite qtz monzonite, granodiorite
8e Porphyritic biotite monzonite, granodiorite, granite
8h Porphyritic biotite diorite, syenodiorite (plagioclase phenocrysts)

Metamorphosed Felsic to Intermediate Intrusive Rocks

7 — 7a Quartz feldspar porphyry
7b Quartz feldspar granite
7d Granophyric granodiorite
7e Felsic
7f Quartz syenite granodiorite

Metamorphosed Mafic to Ultramafic Intrusive Rocks

6 — 6a Gabbro
6b Diorite
6c Quartz diorite
6d Gabbro/diorite pyroxenite

Metavolcanosedimentic and Metasedimentic Metasediments

Chemical Metasediments

5 — 5a Chert
5b Ferruginous chert (>15% iron)
5c Iron formation (banded >15% iron)
5d Mafic, calc-silicate

Clastic Metasediments

4 — 4a Greywacke
4b Sandstone
4c Wacke
4d Mud, pelite
4e Feldspathic lapilli tuff
4f Arkose
4g Paraconglomerate
4h Pebble conglomerate
4i Pebble - cobble conglomerate
4k Boulder conglomerate
4l Tectonic breccia, pebble conglomerate

Metavolcanics

Felsic metavolcanics (may include some intermediate metavolcanics Unit 2)

3 — 3a Flow
3b Tuff
3c Lapilli tuff
3d Fragmental breccia
3e Lapilli tuff
3f Autoclastic breccia
3g Autoclastic breccia
3h Porphyritic flow (qtz phenocrysts)
3i Porphyritic flow (feldspar phenocrysts)
3k Porphyritic flow/subvolcanic unit (feldspar phenocrysts)
3m Thin-bedded (<10cm)
3n Thick-bedded (>10cm)
3q Carbonatized
3s Agglomerate

Intermediate Metavolcanics

2 — 2a Flow
2b Tuff
2c Fragmental breccia
2d Lapilli tuff
2f Autoclastic breccia
2g Autoclastic breccia
2h Porphyritic unit (qtz phenocrysts)
2m Thin-bedded (<10cm)
2n Thick-bedded (>10cm)

Mafic Metavolcanics

1 — 1a Flow
1b Porphyritic flow (amphibole phenocrysts)
1h Porphyritic flow (feldspar phenocrysts)
1i Autoclastic breccia
2 Amygdaloidal flow
1j Pillowed flow
1k Epidote rich, mafic to intermediate
1l Sphaerulitic flow
1m Fragmental and/or hyaloclastic breccia
1n Carbonatized
1o Tuff
1s Apatite
1t Chlorite schist

ALTERATION MINERALS

SER sericite
SER+ sericite
CHL chlorite
CC+ carbonate, iron carbonate
PY pyrite

SYMBOLS

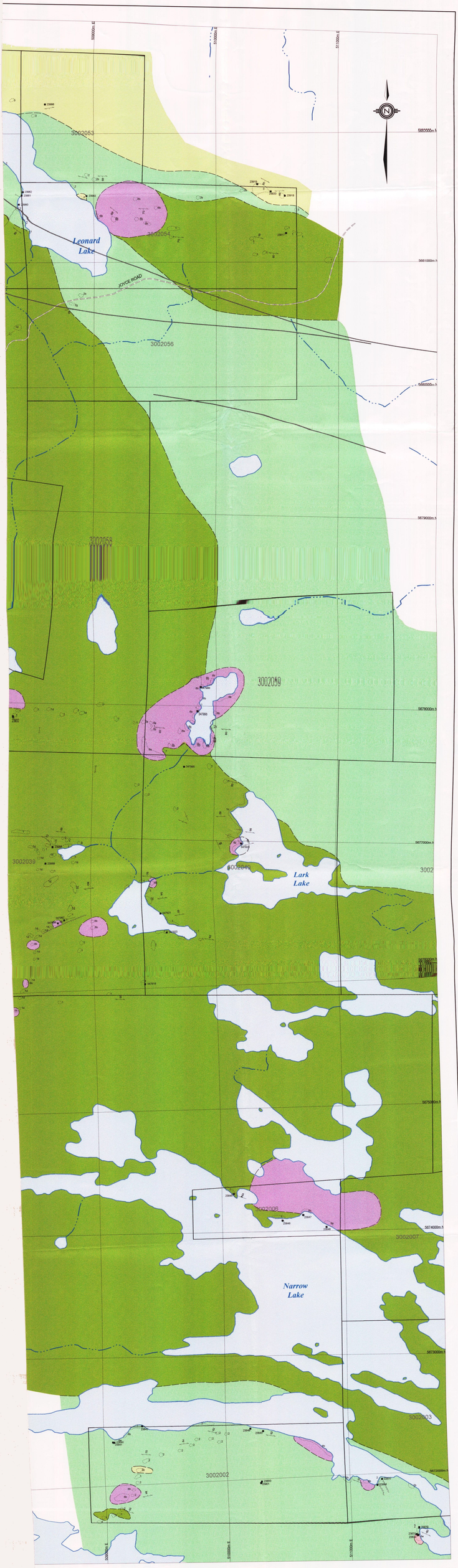
Rock outcrop
Geological contact
Foliation
Bedding
Quartz vein
Minor shear zone or fault
Fault (interpreted from regional magnetic data)
Rock sample
Soil sample with gold value in ppb
Historic trench
45 Historic diamond drill hole with dip
Road
Portage
Geophysical site of interest

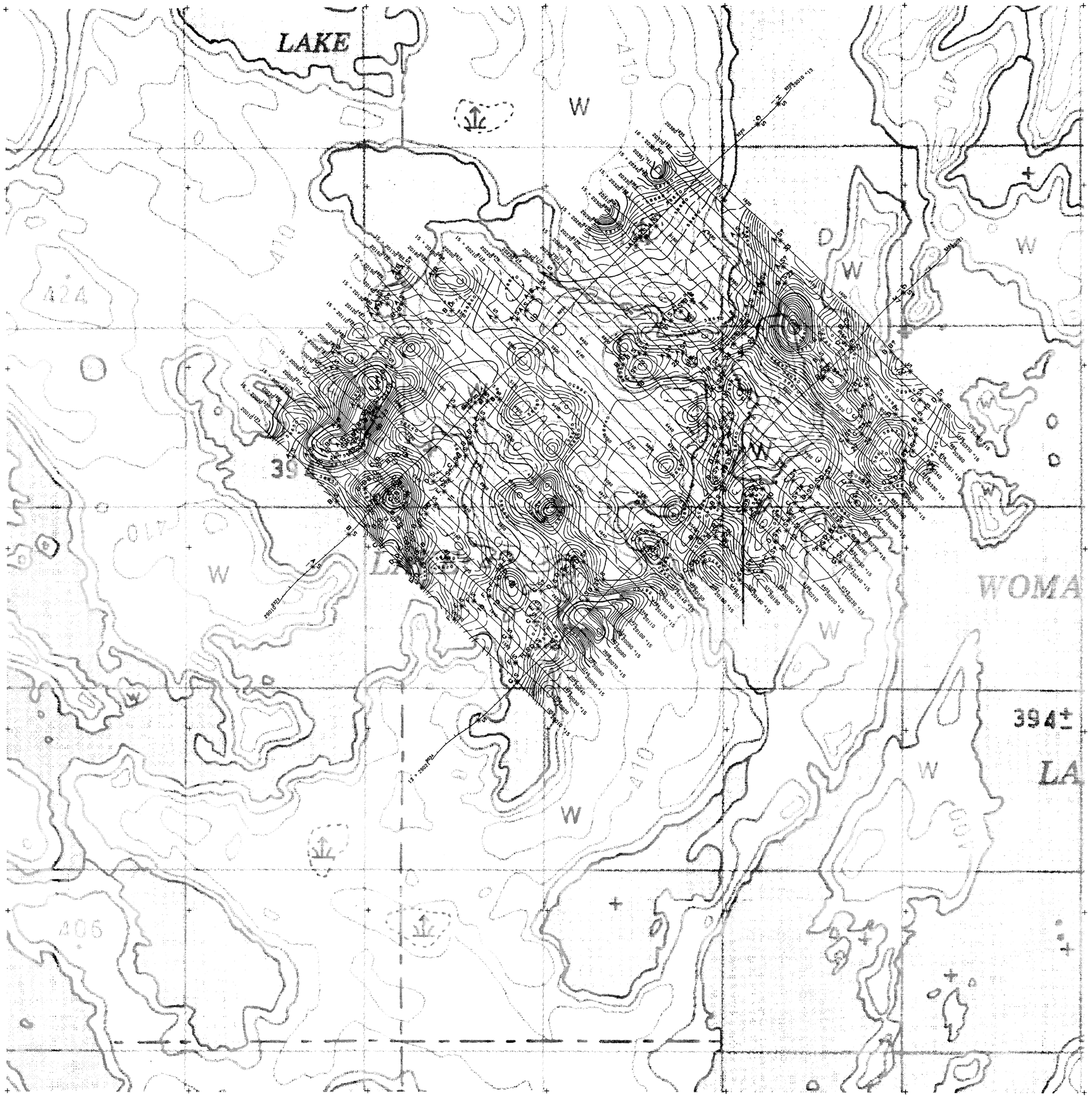
NB: Geology based on field mapping by Frontéer geologists and on interpretation of Fugro magnetic data by Frontéer geologists.

Frontéer Development Group Inc.

PORTAGE PROPERTY
WEST SHEET
GEOLOGY AND ROCK SAMPLE LOCATIONS
NW Ontario

Drawn by	Date	Scale	Figure
Mike Davies Consulting	December 2, 2002	1:10,000	4b
U.T.M. Zone	UTM-15N(NAD83)	State/Province	Ontario


Leonard Lake
JOYCE ROAD
Lark Lake
Narrow Lake
3002053
3002054
3002056
3002058
3002059
3002039
3002040
3002026
3002007
3002003
3002002
5682000m N
5681000m N
5680000m N
5679000m N
5678000m N
5677000m N
5676000m N
5675000m N
5674000m N
5673000m N
5672000m N
5000000m E
5100000m E
5110000m E



TECHNICAL SUMMARY

Navigation	Differentially-corrected GPS
Data reduction grid interval	15 metres
Terrain clearance	Helicopter 57 m Electromagnetic sensor 30 m Magnetometer 30 m
Data sampling interval	0.1 second
Magnetometer / sensitivity	Cesium / 0.01 nT
Electromagnetic system	DIGHEM^V

Frequency	Sensitivity	Coil Orientation
1000 Hz	.06 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

ELECTROMAGNETIC ANOMALIES

Grade	Anomaly	Conductance
7	●	>100 siemens
6	◕	50–100 siemens
5	⊕	20–50 siemens
4	⊕	10–20 siemens
3	⊕	5–10 siemens
2	○	1–5 siemens
1	◌	< 1 siemens
–	✳	Questionable anomaly

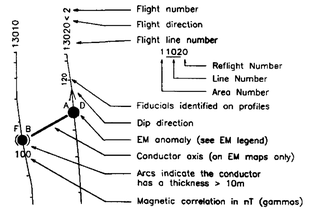
Anomaly identifier (e.g. C H) — Interpretive symbol — Inphase and Quadrature of coaxial coil is greater than

Depth is greater than:
- 15 m
- 30 m
- 45 m
- 60 m

Inphase: .5 ppm, 10 ppm, 15 ppm, 20 ppm

Interpretive symbol	Conductor ("model")
B	Bedrock conductor
D	Narrow bedrock conductor ("thin dike")
S	Conductive cover ("horizontal thin sheet")
H	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E	Edge of broad conductor ("edge of half space")
L	Culture, e.g. power line, metal building or fence

FLIGHT LINES WITH EM ANOMALIES

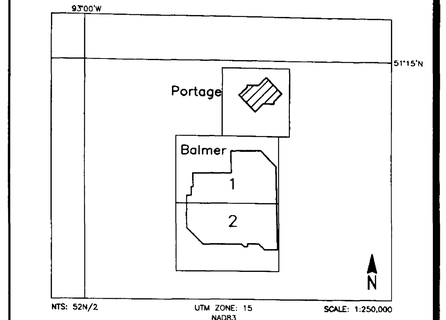


TOTAL MAGNETIC FIELD CONTOURS

- ——— ..... 250 nT
- ——— ..... 50 nT
- ——— ..... 10 nT
- — — — ..... 5 nT
- ⬭ ..... magnetic low

Magnetic inclination within the survey area: 77 degrees N
Magnetic declination within the survey area: 0.2 degrees E

LOCATION MAP



FRONTEER DEVELOPMENT GROUP INC.

PORTAGE AREA, ONTARIO

TOTAL MAGNETIC FIELD

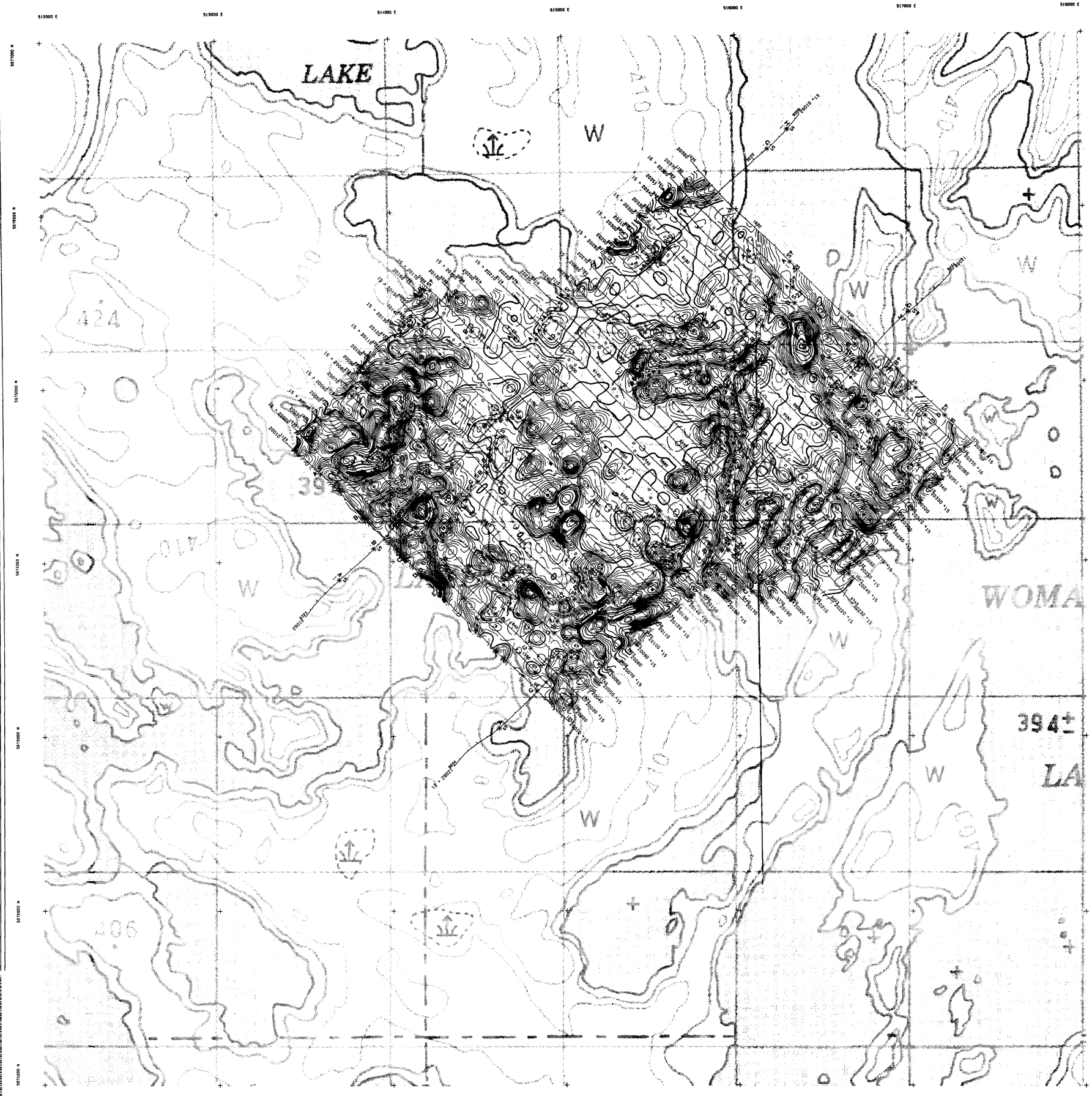
FUGRO DIGHEM^V SURVEY	NTS: 52N/2	GEOPHYSICIST:
DATE: MAY, 2002	JOB: 2101	SHEET: 1

Fugro Airborne Surveys

0 0.5 1.0 Km
0 0.5 Mi
Scale 1:10 000

FUGRO AIRBORNE SURVEYS

52M07SW2001 2.25914 GRANT LAKE



TECHNICAL SUMMARY

Navigation	Differentially-corrected GPS
Data reduction grid interval	15 metres
Terrain clearance	Helicopter 57 m Electromagnetic sensor 30 m Magnetometer 30 m
Data sampling interval	0.1 second
Magnetometer / sensitivity	Cesium / 0.01 nT
Electromagnetic system	DIGHEM^V

Frequency	Sensitivity	Coil Orientation
1000 Hz	.06 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

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6	◕	50–100 siemens
5	◒	20–50 siemens
4	◔	10–20 siemens
3	⊕	5–10 siemens
2	○	1–5 siemens
1	◌	< 1 siemens
–	✳	Questionable anomaly

Anomaly identifier — interpretive symbol — Inphase and Quadrature of coaxial coil is greater than: . 5 ppm, .. 10 ppm, ... 15 ppm, ... 20 ppm

Depth is greater than: . 15 m, .. 30 m, ... 45 m, ... 60 m

Interpretive symbol	Conductor ("model")
B	Bedrock conductor
D	Narrow bedrock conductor ("thin dike")
S	Conductive cover ("horizontal thin sheet")
H	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E	Edge of broad conductor ("edge of half space")
L	Culture, e.g. power line, metal building or fence

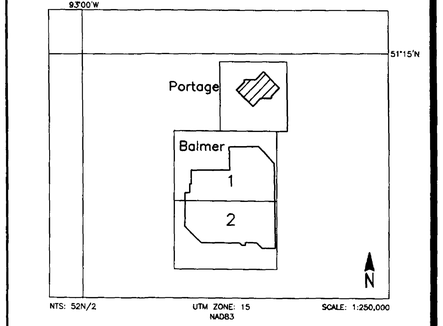
FLIGHT LINES WITH EM ANOMALIES

Flight number
Flight direction
Flight line number
11020 — Reflight Number, Line Number, Area Number
Fiducials identified on profiles
Dip direction
EM anomaly (see EM legend)
Conductor axis (on EM maps only)
Arcs indicate the conductor has a thickness > 10m
Magnetic correlation in nT (gammas)

CALCULATED VERTICAL GRADIENT CONTOURS

2.5 nT/metre
0.5 nT/metre
0.1 nT/metre
0.05 nT/metre

LOCATION MAP



FRONTEER DEVELOPMENT GROUP INC.
PORTAGE AREA, ONTARIO

CALCULATED VERTICAL MAGNETIC GRADIENT

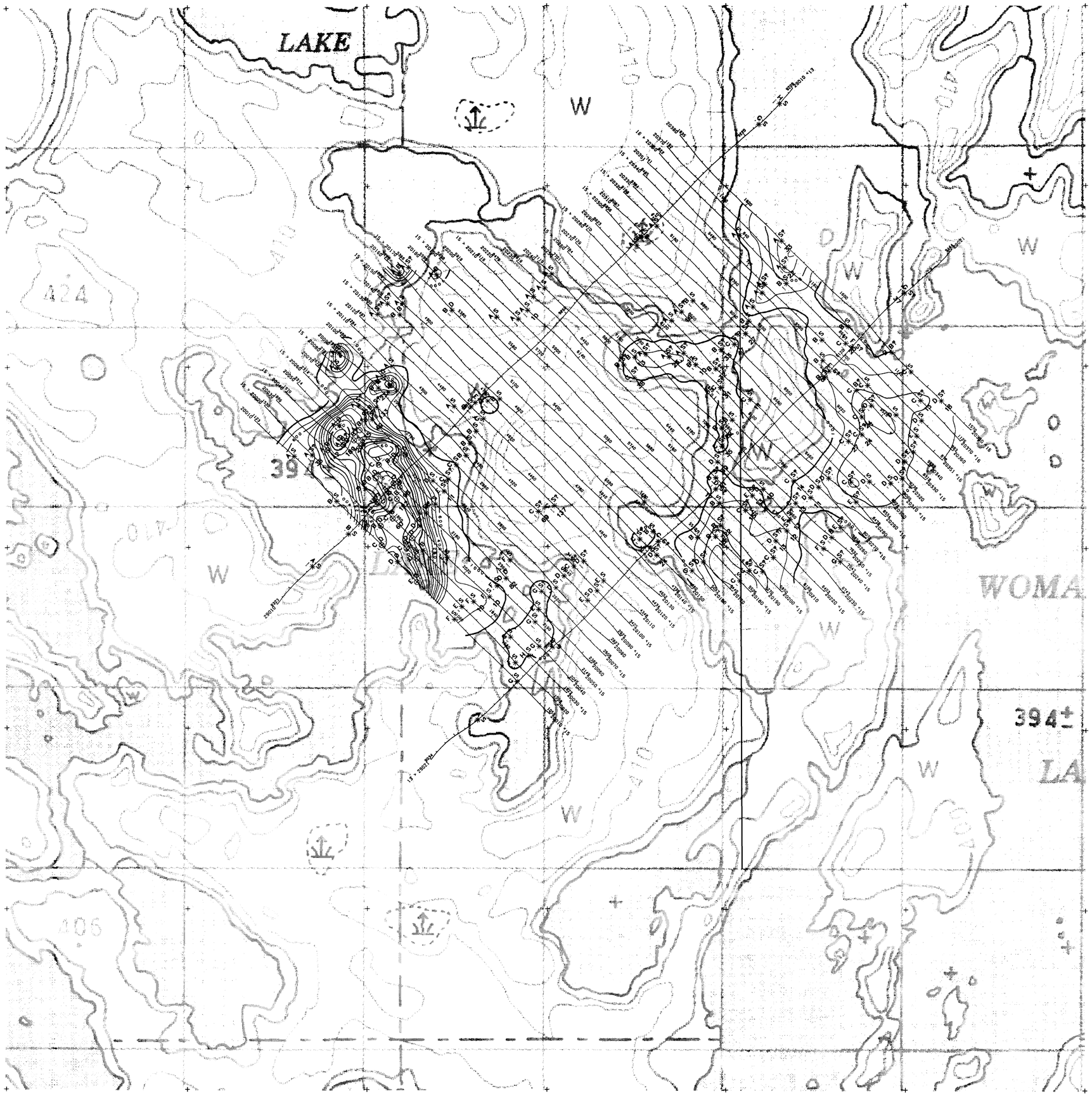
FUGRO DIGHEM^V SURVEY	NTS: 52N/2	GEOPHYSICIST:
DATE: MAY, 2002	JOB: 2101	SHEET: 1

Fugro Airborne Surveys

0 0.5 1.0 Km
0 0.5 Mi
Scale 1:10 000

FUGRO AIRBORNE SURVEYS

S52N2P2101 2.25514 SURB EAST



TECHNICAL SUMMARY

Navigation	Differentially-corrected GPS
Data reduction grid interval	15 metres
Terrain clearance	Helicopter 57 m Electromagnetic sensor 30 m Magnetometer 30 m
Data sampling interval	0.1 second
Magnetometer / sensitivity	Cesium / 0.01 nT
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56000 Hz	.60 ppm	Horizontal coplanar

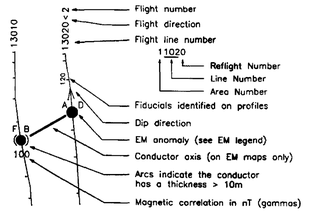
ELECTROMAGNETIC ANOMALIES

Grade	Anomaly	Conductance
7	●	>100 siemens
6	◕	50–100 siemens
5	◑	20–50 siemens
4	◔	10–20 siemens
3	⊕	5–10 siemens
2	○	1–5 siemens
1	◌	< 1 siemens
–	✳	Questionable anomaly

Anomaly identifier — Interpretive symbol — Depth is greater than: 15 m, 30 m, 45 m, 60 m — Inphase and Quadrature of coaxial coil is greater than: 5 ppm, 10 ppm, 15 ppm, 20 ppm

Interpretive symbol	Conductor ("model")
B	Bedrock conductor
D	Narrow bedrock conductor ("thin dike")
S	Conductive cover ("horizontal thin sheet")
H	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E	Edge of broad conductor ("edge of half space")
L	Culture, e.g. power line, metal building or fence

FLIGHT LINES WITH EM ANOMALIES

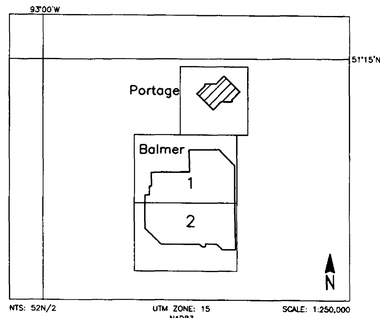


RESISTIVITY CONTOURS

1000 — 800 — 600 — 500 — 400 — 300 — 250 — 200 — 150 — 125 — 100

Contours in ohm-m at 10 intervals per decade. Apparent resistivity calculated using a pseudo-layer half-space model (Fraser 1978).

LOCATION MAP



FRONTEER DEVELOPMENT GROUP INC.
PORTAGE AREA, ONTARIO

APPARENT RESISTIVITY
900 Hz COPLANAR

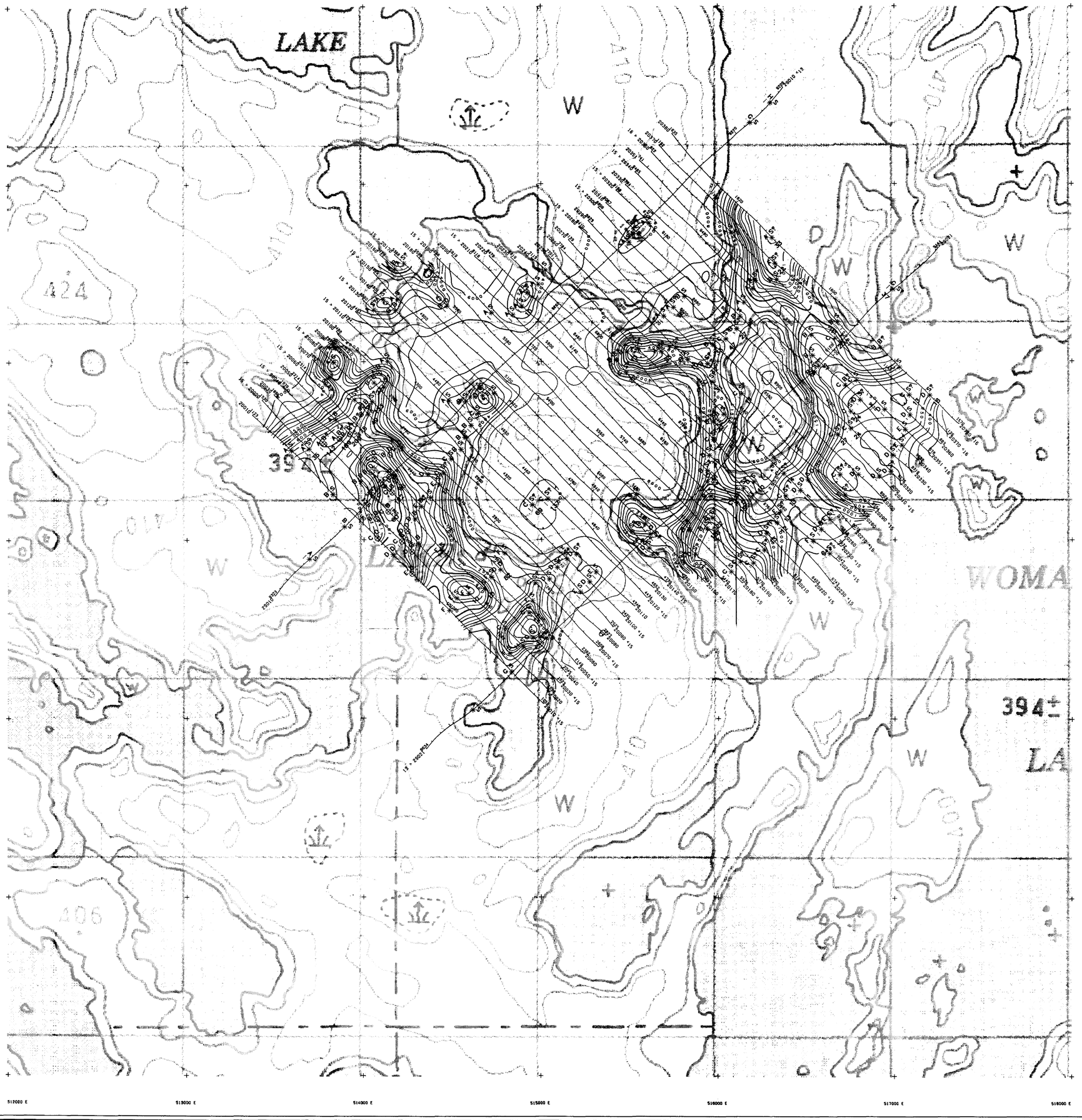
FUGRO DIGHEM^V SURVEY	NTS: 52N/2	GEOPHYSICIST:
DATE: MAY, 2002	JOB: 2101	SHEET: 1
Fugro Airborne Surveys		

0 — 0.5 — 1.0 Km
0 — 0.5 Mi
Scale 1:10 000

2 25014

FUGRO AIRBORNE SURVEYS

52N07B02101 2.25014 SKYAID LAKER



TECHNICAL SUMMARY

Navigation	Differentially-corrected GPS
Data reduction grid interval	15 metres
Terrain clearance	Helicopter 57 m Electromagnetic sensor 30 m Magnetometer 30 m
Data sampling interval	0.1 second
Magnetometer / sensitivity	Cesium / 0.01 nT
Electromagnetic system	DIGHEM^V

Frequency	Sensitivity	Coil Orientation
1000 Hz	.06 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

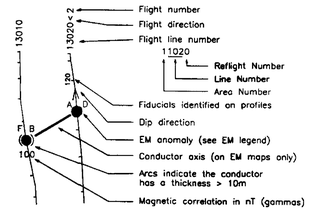
ELECTROMAGNETIC ANOMALIES

Grade	Anomaly	Conductance
7	●	>100 siemens
6	⊕	50–100 siemens
5	⊕	20–50 siemens
4	⊕	10–20 siemens
3	⊕	5–10 siemens
2	○	1–5 siemens
1	◌	< 1 siemens
–	✳	Questionable anomaly

Anomaly identifier — Interpretive symbol — Depth is greater than: 15 m, 30 m, 45 m, 60 m — Inphase and Quadrature of coaxial coil is greater than: 5 ppm, 10 ppm, 15 ppm, 20 ppm

Interpretive symbol	Conductor ("model")
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FLIGHT LINES WITH EM ANOMALIES

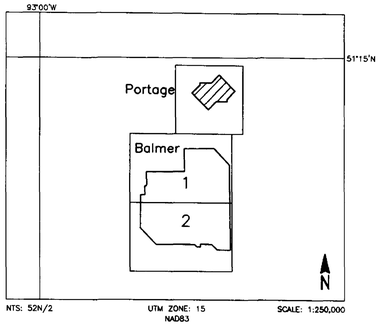


RESISTIVITY CONTOURS

1000 — 800 — 600 — 500 — 400 — 300 — 250 — 200 — 150 — 125 — 100

Contours in ohm-m at 10 intervals per decade. Apparent resistivity calculated using a pseudo-layer half-space model (Fraser 1978).

LOCATION MAP



FRONTEER DEVELOPMENT GROUP INC.

PORTAGE AREA, ONTARIO

APPARENT RESISTIVITY 7200 Hz COPLANAR

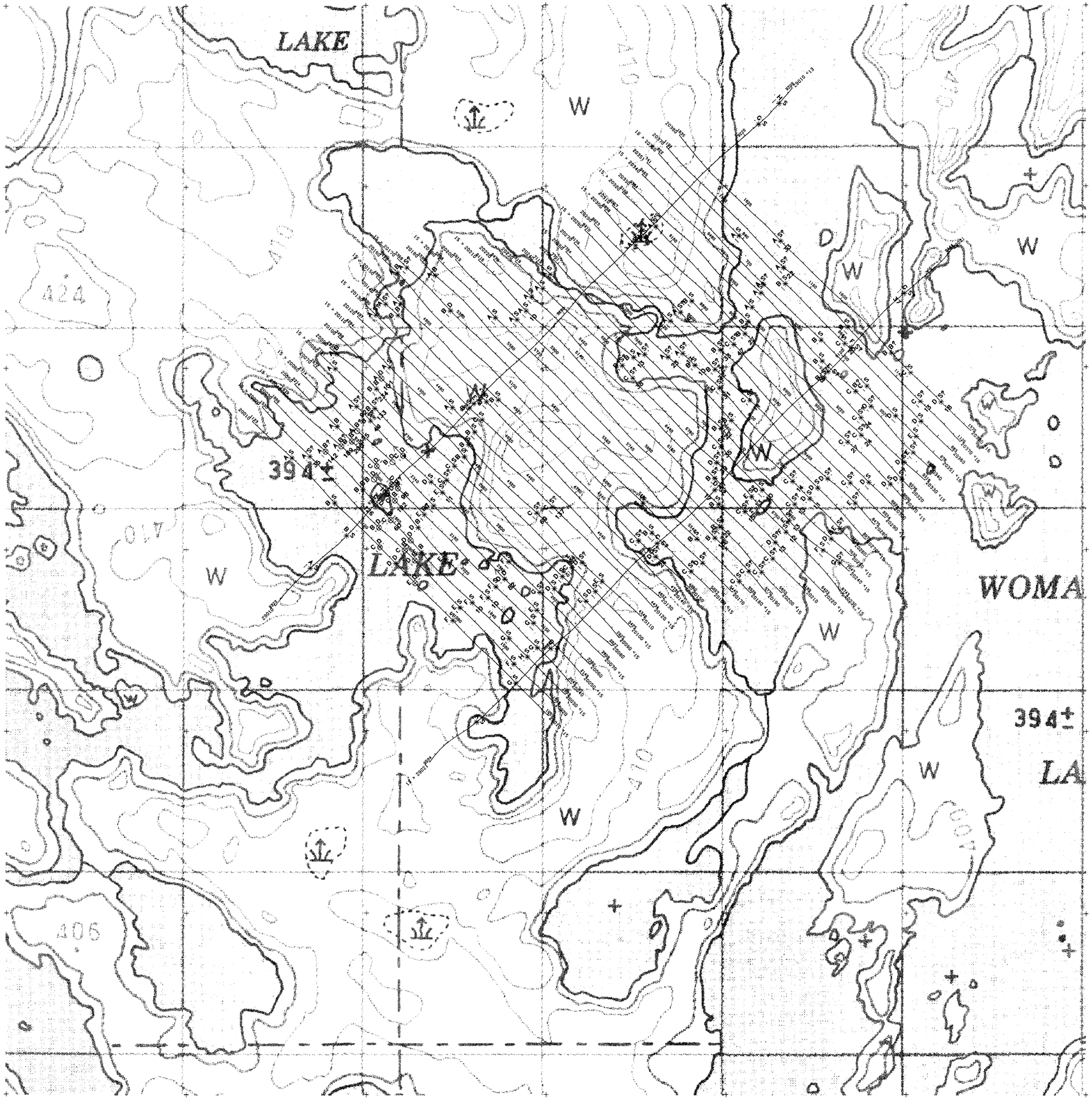
FUGRO DIGHEM^V SURVEY	NTS: 52N/2	GEOPHYSICIST:
DATE: MAY, 2002	JOB: 2101	SHEET: 1

Fugro Airborne Surveys

0 — 0.5 — 1.0 Km
0 — 0.5 Mi
Scale 1:10 000

FUGRO AIRBORNE SURVEYS

52N/02D01 2.25514 SHAKU LAKE



TECHNICAL SUMMARY

Navigation	Differentially-corrected GPS
Data reduction grid interval	15 metres
Terrain clearance	Helicopter 57 m Electromagnetic sensor 30 m Magnetometer 30 m
Data sampling interval	0.1 second
Magnetometer / sensitivity	Cesium / 0.01 nT
Electromagnetic system	DIGHEM^V

Frequency	Sensitivity	Coil Orientation
1000 Hz	.06 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

ELECTROMAGNETIC ANOMALIES

Grade	Anomaly	Conductance
7	●	>100 siemens
6	◕	50–100 siemens
5	◑	20–50 siemens
4	◔	10–20 siemens
3	⊕	5–10 siemens
2	○	1–5 siemens
1	○	< 1 siemens
–	✳	Questionable anomaly

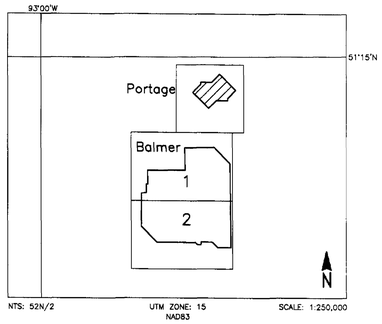
Anomaly identifier
Interpretive symbol
Depth is greater than
. 15 m
.. 30 m
... 45 m
.... 60 m
Inphase and Quadrature of coaxial coil is greater than
. 5 ppm
.. 10 ppm
... 15 ppm
.... 20 ppm

Interpretive symbol	Conductor ("model")
B	Bedrock conductor
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E	Edge of broad conductor ("edge of half space")
L	Culture, e.g. power line, metal building or fence

FLIGHT LINES WITH EM ANOMALIES

Flight number
Flight direction
Flight line number
1020
Reflight Number
Line Number
Area Number
Fiducials identified on profiles
Dip direction
EM anomaly (see EM legend)
Conductor axis (on EM maps only)
Arcs indicate the conductor has a thickness > 10m
Magnetic correlation in nT (gammas)

LOCATION MAP



FRONTEER DEVELOPMENT GROUP INC.
PORTAGE AREA, ONTARIO

ELECTROMAGNETIC ANOMALIES

FUGRO DIGHEM^V SURVEY	NTS: 52N/2	GEOPHYSICIST:
DATE: MAY, 2002	JOB: 2101	SHEET: 1

Fugro Airborne Surveys

0 0.5 1.0 Km
0 0.5 MI
Scale 1:10 000

FUGRO AIRBORNE SURVEYS

52N2101MAG01 2.55514 SHEET LAYER

514250m E
514500m E
514750m E
515000m E
515250m E
515500m E
515750m E

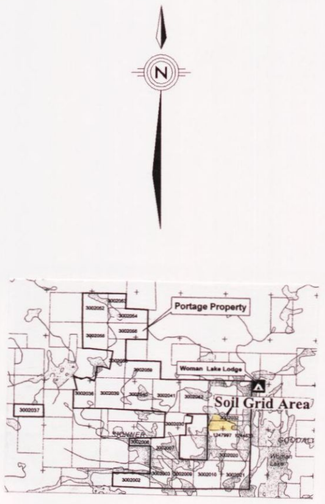
5675750m N
5675500m N
5675250m N
5675000m N
5674750m N
5674500m N

Narrow Lake

3002032

Woman Lake

1247997



2002 soils
Gold (ppb)

95th percentile ⩾8.2 ppb
85th percentile ⩾4 to 8.2 ppb
75th percentile ⩾2 to 4 ppb

0 50 100 150 250
metres

2.25014

Fronteer Development Group Inc.

PORTAGE PROPERTY

SOIL GEOCHEMISTRY
GOLD (ppb)

Drawn by:	Date	Scale	Figure
Mike Davies Consulting (604) 484-2535	December 2, 2002	1:5,000	5
	U.T.M. Zone: UTM-15N(NAD83)	State/Province: Ontario	

52N07SW2001 2.25014 SHABU LAKE 280