# BRITISH COLUMBIA PROSPECTORS ASSISTANCE PROGRAM MINISTRY OF ENERGY AND MINES GEOLOGICAL SURVEY BRANCH

PROGRAM YEAR:1999/2000REPORT #:PAP 99-37NAME:ARNE BIRKELAND

#### BRITISH COLUMBIA PROSPECTORS ASSISTANCE PROGRAM PROSPECTING REPORT FORM (continued)

#### **B. TECHNICAL REPORT**

- One technical report to be completed for each project area.
- Refer to Program Requirements/Regulations 15 to 17, page 6.
- If work was performed on claims a copy of the applicable assessment report may be submitted in lieu of the supporting data (see section 16) required with this TECHNICAL REPORT.

BIRNELAND ARNE Reference Number 99/2000 P92 Name LOCATION/COMMODITIES Project Area (as listed in Part A) TAMBIER NORTH KEENNAMANICE MINFILE No. if applicable\_ Location of Project Area NTS Lat Long 130° 1035 54 Description of Location and Access KHAT 2 64 MATGEN ZNLET Boat access tion Poince Kupsot, Main Commodities Searched For 24 Known Mineral Occurrences in Project Area NONE WORK PERFORMED 10 km × 30 Km 1. Conventional Prospecting (area) 2. Geological Mapping (hectares/scale) 3. Geochemical (type and no. of samples) 45 Stream sediment 15 rock chip Samples 4. Geophysical (type and line km) 5. Physical Work (type and amount) 6. Drilling (no. holes, size, depth in m, total m) 7. Other (specify) SIGNIFICANT RESULTS Commodities ZA Claim Name 120007 1000 Location (show on map) Lat Long Elevation Sedimente Best assav/sample type Stream VIDAN and 410 ppm Best Rock Chin Description of mineralization, host rocks, anomalies vastu telsic gne154 noMai ecting Value med avesh Źи 1.6 1 com pany ing KEPORT

Supporting data must be submitted with this TECHNICAL REPORT Information on this form is confidential for one year from the date of receipt subject to the provisions of the Freedom of Information Act. PROSPECDTOR'S ASSISTANCE PROGRAM REPORT

#### GAMBIER NORTH RECONNAISSANCE PROJECT KHUTZEYMATEEN INLET AREA

#### SKEENA MINING DIVISION

#### NTS: 103I, 103J

#### LAT: 54°40' LONG: 130°00'

1	Y OF ENERGY & MINES
	000
)	SMITHERS, BC

Report by:

Arne Birkeland, P. Eng.

Report dated:

January 12, 2000

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#### **Prospectors Assistance Program Report Gambier North Reconnaissance Project**

#### 1. INTRODUCTION

#### 1.1. General

A Prospector's Assistance Program ("PAP") Grant in the amount of \$10,000 was approved dated May 27, 1999 (Reference No. 99/2000 P92). The following Technical Report documents Prospecting and Geochemical Sampling conducted on the Gambier North Reconnaissance program.

A 58.5 man-day exploration program was carried out by Arne Birkeland (the "Grantee") assisted by Stan Seney, an experienced prospector-geotechnical assistant between August  $2^{nd}$  and September 16<sup>th</sup>, 1999.

As reported in Part A. Summary of Prospecting Activity, Prospecting Report Form, total project expenditures including wages and rentals are \$18,783.55. Field Expenses, paid items documented by receipt, total \$10,048.55.

Analytical costs for the 60 samples taken total \$1,012.02. As shown by the chart in Appendix B, Statement of Expenditures, analytical costs equal 10% of direct Field Expenses even though they are 5% of total Expenditures. Analytical costs also equal 10% of the \$10,000 grant that was awarded.

The number of samples taken was considerably less than the number anticipated due to the following logistical difficulties:

- 1. Very bad storm conditions were present on the North Coast during August and September, 1999. Assess to the project area was by use of a 6m open boat to navigate approximately 80 km, much of which is open water exposed to Hecate Straight. Strong winds, tides and bad storms prevented access altogether on some days (as noted on the Summary of Prospecting activity) and only allowed partial workdays on others. There were no campsites with safe storm moorage anywhere near the project area. The participants were caught out in emergency fly-camp on three occasions during bad storms, with dangerously poor moorage.
- 2. The project area proved to by very rugged, with fjord walls rising steeply out of the ocean. Numerous traverses were very slow, and it often could take one manday's time to get only 2 or 3 samples.
- 3. Additional prospecting and geochemical sampling was planned for Somerville Island but could not be carried out because of rough seas.

4. The project was stopped earlier than planned because long-term storm conditions would not have allowed for continuing with the program.

Because of the weather and topography, the only way to work productively in this area is to have a large boat with sufficient amenities to live-aboard. Daily work access could then be provided by open run-about.

#### 1.2. Location and Access

The project area lies centered around Khutzeymateen Inlet, approximately 50 km northeast of Prince Rupert, BC. (See Figure 1A, 1b, Location Maps). The area is within the Skeena Mining Division, NTS 103I and 103J at approximately Latitude 54°40' and Longitude 130° 00'.

The project area includes the northwestern two thirds of Khutzeymateen Inlet outside of the park area at the head of the inlet, which has been protected as grizzly bear habitat (See Figure 5, Parks).

Access to the area is by boat to Khutzeymateen Inlet from Prince Rupert, a distance of approximately 80 km. A fixed-wing floatplane was also used to evacuate an emergency fly-camp that was set up at Kumeon Bay in Steamer Passage. Boat access was also used to access Quottoon Inlet from a truck/camper fly camp at the head of Work Channel.

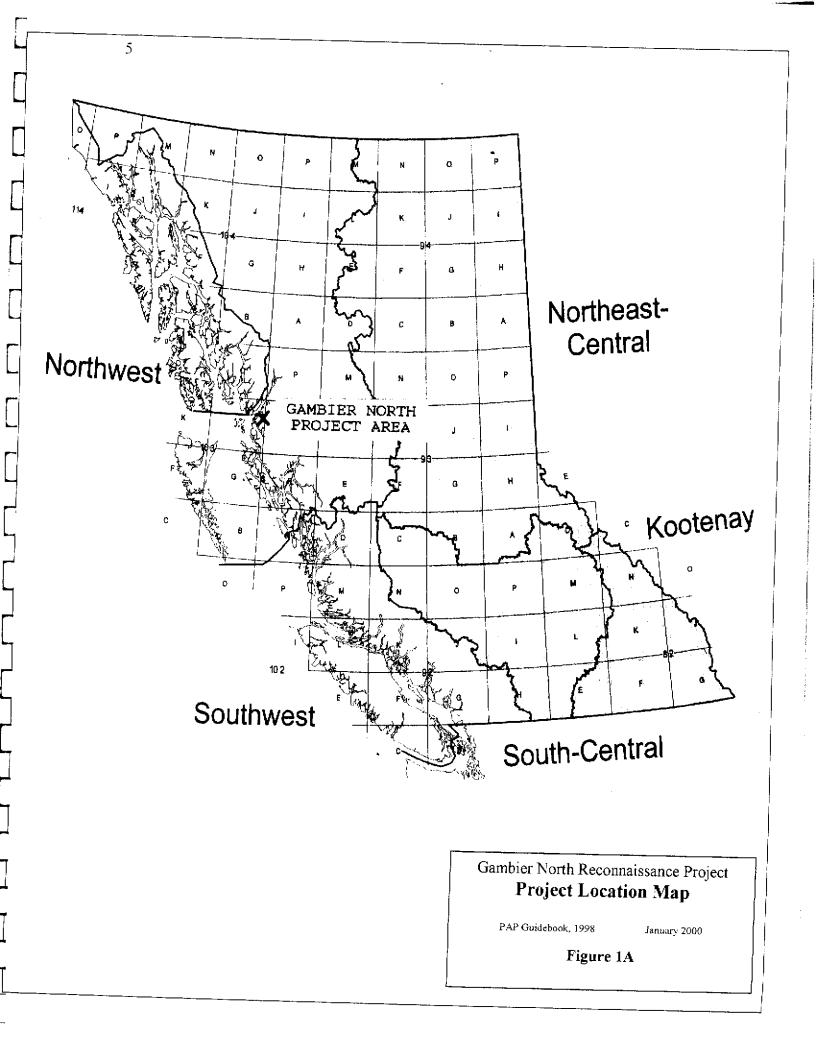
#### 2. HISTORY

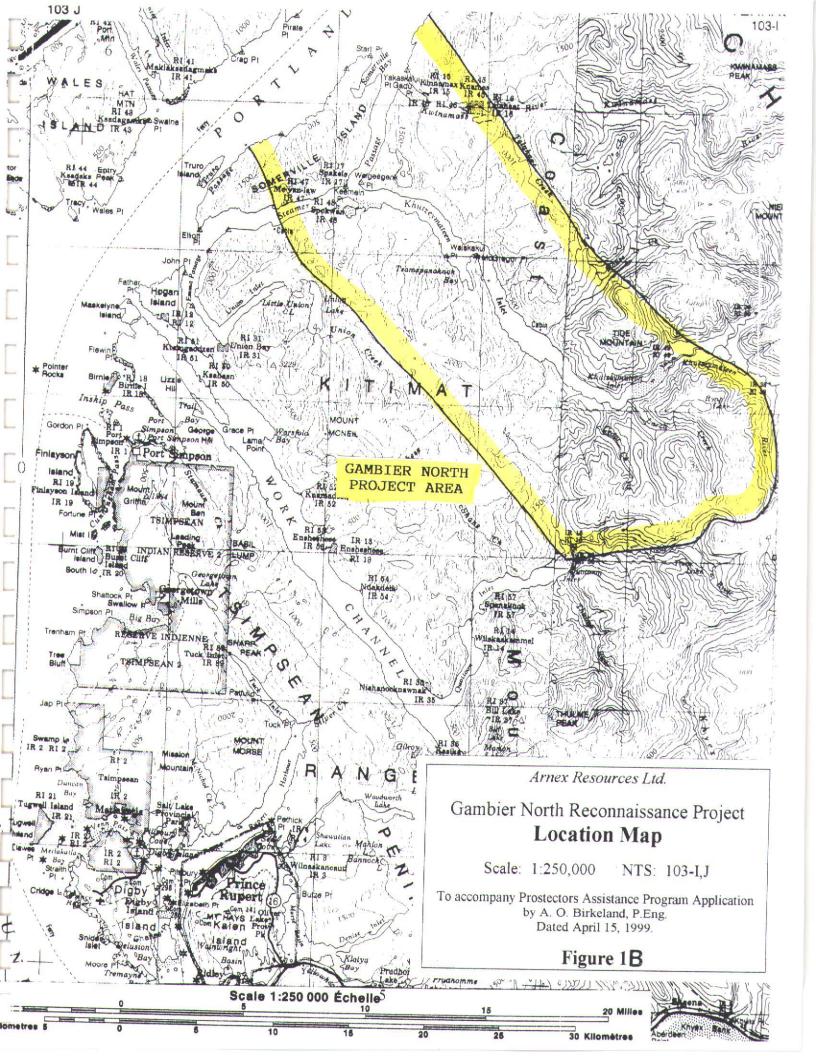
There is no record of any previous exploration activity by industry in the area. An RGS program was conducted by the B.C.G.S.B during the early 1990's, which identified base metal anomalies (primarily Zn), associated with Mesozoic rocks. Geology, Geochemistry and other data for the area was accessed through <u>WWW, EM, GOV, BC, CA/GEOLOGY</u>, the Map Place and Exploration Assistant was used to identify and document the exploration targets present in the selected area (Figure 3, Geology, Figure 6, RGS Zinc Geochemistry).

#### 3. GEOLOGY

#### 3.1. Regional Geology

The prospecting area lies within undifferentiated Metamorphic Terrane of the Coast Belt. The Coast Metamorphic Belt is adjacent to, and partially overlies Alexander Terrane directly to the west.





The area is underlain by rocks mapped as unit 2b, feldspathic schist, impure quartzite and hornblende schist, Figure 2, Geology, Prince Rupert, Skeena. Rocks in this area are also mapped as unit JKG, lower Cretaceous Gambier group, as illustrated in Figure 4, Digital Geology Map, Mineral Potential Block CP21.

Unit 2b schistose metasedimentary and metavolcanic rocks lie along a northwestern trending synclinorium best exposed along the eastern shore of Khutzeymateen Inlet. The foliation dips vertical in the core of the synclinorium, with dips flattening to the west and east of the synclinal structure. The Gambier group "pendant" is hosted within the Central Gneiss Complex of uncertain Paleozoic age. The Quottoon pluton, mainly quartz diorite and granodiorite in composition, flanks the Gambier group and Central Gneiss complex to the west. The Quottoon pluton is interpreted to be a less evolved equivalent of the Devonian? Ecstall pluton to the southwest.

Major northwest trending strike slip faults control the physiography of Work Channel, Khutzeymateen Inlet and many inlets on Somerville and Whales Islands. These transcurrent faults are generally steeply dipping and show right lateral movement. Northeastern dipping high angle normal faults area also present as reflected by Portland Inlet, Steamer Passage, Ensheshese River-Mouse Creek, and upper Quottoon Inlet.

Hutchinson (1982) interprets northeast normal faults to be ancient features while northwest strike slip faults are younger structures related to current plate tectonics.

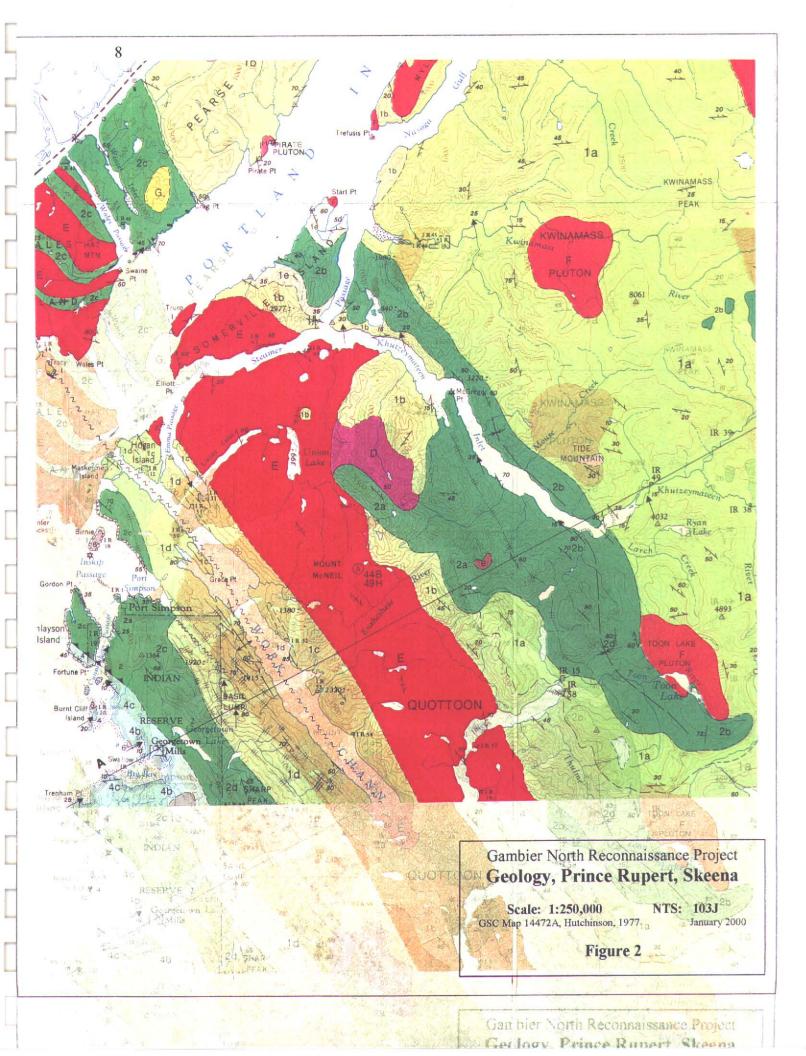
#### 3.2. Local Geology

The prospecting area is centered on a belt of layered Mesozoic rocks in a northwest trending belt extending 50 km by 10 km wide. (See Figures 2, 3, 4).

Rocks in this area were originally mapped as the Middle Jurassic to Lower Cretaceous Gravina Assemblage. The rocks are described as being marine argillite and greywacke containing interbedded andesitic to basaltic volcanic and volcanoclastic rocks that have been metamorphosed to amphibolite grade. This rock assemblage depositionally overlies Alexander Terrane.

The rocks have more recently been re-classified by the tectonic assemblage mapping as belonging to the Lower Cretaceous Gambier Group. The Gambier group is characterized by thick-bedded andesite to rhyolite flows, tuff and breccia, with minor clastic sedimentary rocks. The Gambier Group is Hauterivian in age in southwestern BC (NTS 93E).

Rusty weathering, pyritic felsic schists and micaceous gneissic rocks trend in a belt from southwest of McGreggor Point, passing through McGreggor peninsula, and trending northwestwards along the eastern shore of Khutzeymateen Inlet. Numerous gossanous outcrops are associated with this unit. The rocks are interpreted as being metamorphosed altered pyritic felsic volcanics. Local distributions of large relict breccia fragments



F	Grai quai
E	Qua gran

nodiorite. minor quartz diorite, rtz monzonite



rtz diorite, minor diorite, odiorite



Diorite, minor quartz diorite



Gabbro and diorite



Ultrabasic rock

#### LATE JURASSIC BOWSER LAKE GROUP (?)



Greywacke and argillite

#### EARLY MESOZOIC (?) and/or PALEOZOIC (?)

4	

Metasedimentary rocks of greenschist facies: 4a, Black to dark grey graphite schist; 4b, Intercalated pale and dark schist; 4c, Intercalated chlorite and sericite schist



Weakly metamorphosed volcanic rocks: 3a, Tuff; 3b, Agglomerate and volcanic breccia; 3c, Rhyolite tuffs and flows; 3d, Schistose metavolcanic rocks; 3e, Mixed volcanic and plutonic rocks; 3f, Limestone, quartzite and sericite schist; minor graphite schist (These are mappable intercalations in the metavolcanic rocks)



Metasedimentary rocks of amphibolite facies: 2a, Rusty weathering muscovite ± biotite ± garnet ± amphibole schist; minor amphibolite and micaceous quartzite; 2b, Feldspathic schist, impure quartzite and hornblende schist; 2c, Dark greenish grey hornblende ± biotite ± garnet schist and impure quartzite with rare intercalated marble; 2d, Black to dark grey graphite schist with local interbedded conglomerate, greywacke and marble; 2e, Mt. Morse felsic rocks of uncertain origin; 2f, Marble

#### PALEOZOIC(?)

CENTRAL GNEISS COMPLEX



Dominantly buff grey leucogneiss and migmatite



1b, Dominantly grey biotite ± hornblende gneiss, amphibolite, minor sillimanite ± garnet gneiss; 1c, Work Channel amphibolite; 1d, Dominantly biotite hornblende gneiss, amphibolite and minor migmatite, rare biotite ± muscovite ± garnet ± kyanite schist and gneiss



Older plutonic rocks

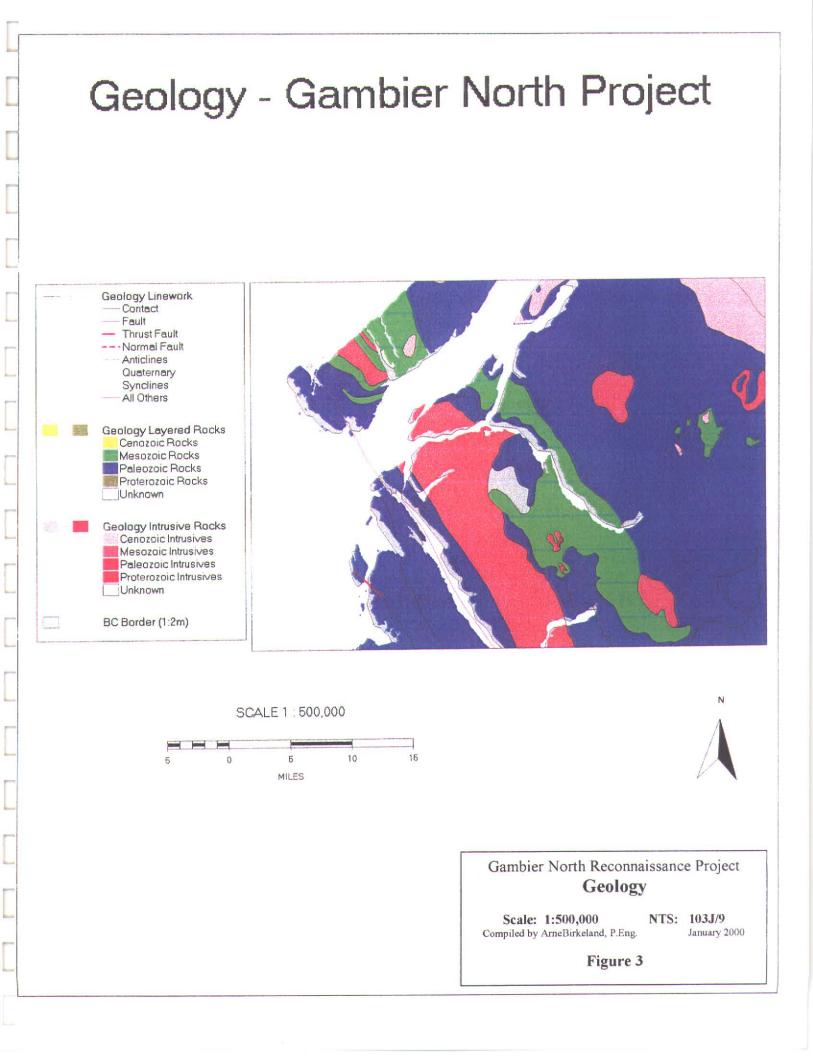
#### Gambier North Reconnaissance Project Geology, Prince Rupert, Skeena

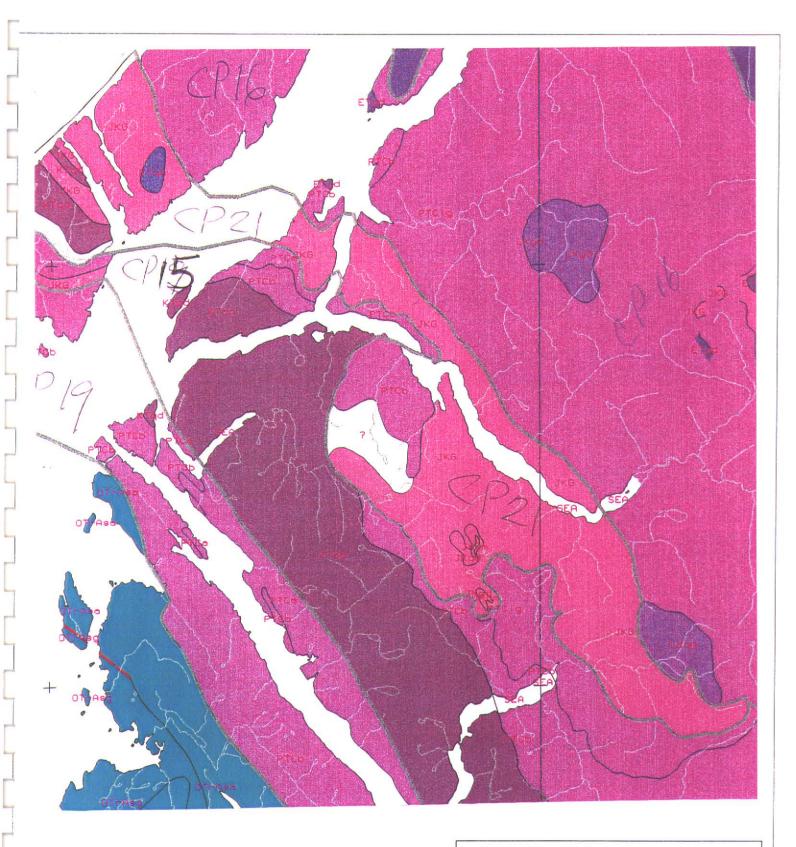
Scale: 1:250,000 GSC Map 14472A, Hutchinson, 1977 NTS: 103J January 2000

1e

Migmatitic plutonic rock

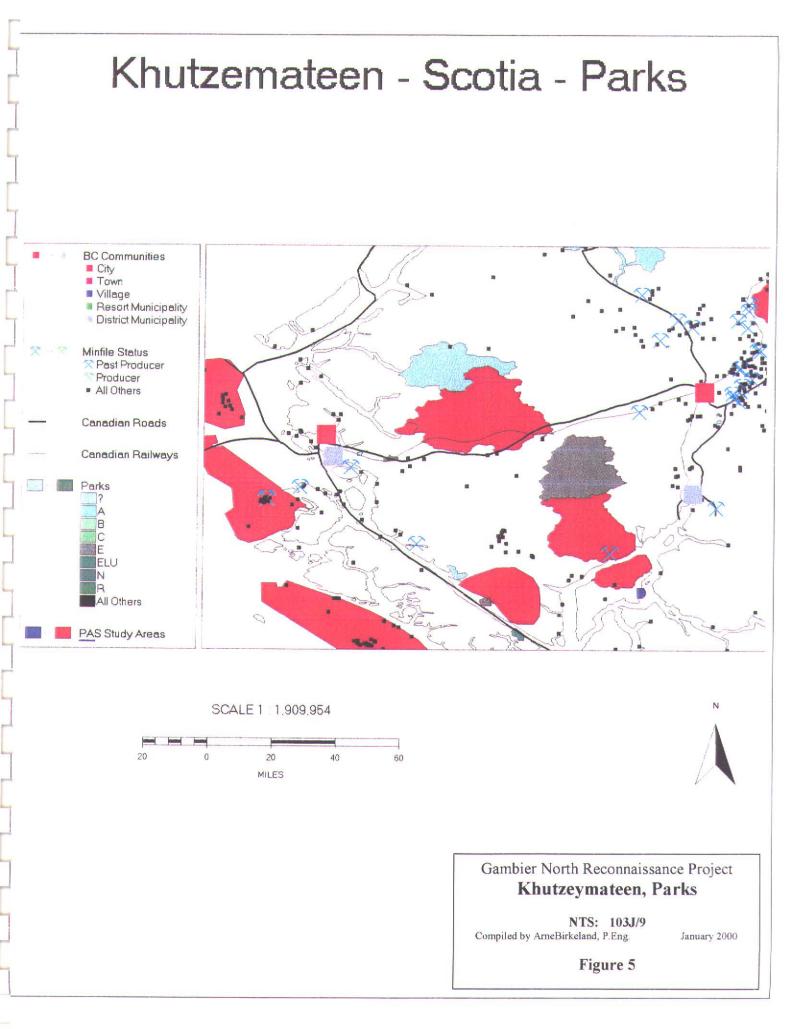
Legend





Gambier North Reconnaissance Project Digital Geology Map Mineral Potential Block CP21 Scale: 1:250,000 NTS: 103J Compiled by BCDM, GSB February 1995

Figure 4



indicate some of the rocks may be vent proximal pyroclastic (rhyolite) breccias hosted in felsic tuffs and domes.

The Gambier group constitutes an economically important Island Arc Belt and related distal basinal rocks that occur as discontinuous belts and pendants marginal to the Coast Plutonic Complex extending from southwestern BC and trending northwestward into southeast Alaska. The Gambier Group equivalent rocks host the Britania Mine where 50 million tons of historical base metal production came from several associated and stacked polymetallic VMS deposits. Important VMS occurrences have been discovered in the Alaska *Panhandle* in correlative rocks.

#### 3.3. Geochemistry

As can be seen on the accompanying Figure 6, RGS Geochemistry, the Gambier group in this belt is highly anomalous in Zinc on a regional basis. Numerous values >95<sup>th</sup> percentile are present and range between 200 and 350 ppm. Threshold values of 100 ppm zinc (or less) are usually associated with Greenstone Island Arc belts in the Cordillera. There are also isolated copper and lead anomalies coincident with some zinc anomalies. There are no RGS gold values analyzed for in this area.

#### 4. 1999 RECONNAISSANCE PROGRAM

#### 4.1. Introduction

The objective of the 1999 program was to follow-up the RGS program and to establish and evaluate geochemical anomalies and related base metal mineralization. Specifically, prospecting and examination of float in anomalous drainages was conducted in an attempt to determine the host rocks and classification of mineralization reflected by the RGS geochemical anomalies.

Prospecting and an extensive stream sediment survey were carried out in drainages that are underlain by the favourable felsic meta-volcanic unit. Fifteen rock chip and forty five stream sediment samples were taken over the 40 km by 10 km belt. Prospecting and sampling was concentrated around the McGreggor Point area where numerous gossans in the cliff faces can be seen from the water.

Selected Stream Sediment Geochemical Values are tabulated in Table 1, and Rock Chip values are contained in Table 2. All samples and base metal values are plotted on either Figure 7, Regional Sample Location Map, or Figure 8, Detailed Sample Location Map. Analytical Procedures and Certificates are contained in Appendix C. All samples taken are described in Appendix D, Geochemical Data Sheets.

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## Table 1GNR Reconnaissance ProgramKhutzeymateen Inlet Project Area

#### Selected Stream Sediment Geochemical Values

A9928268 - CERTIFIED CLIENT : "ARNEX RESOURCES LIMITED " # of SAMPLES : 45 DATE RECEIVED : 08-SEP-1999 PROJECT : "GNR " CERTIFICATE COMMENTS : "ATTN: ARNE BIRKELAND"

Sample	Au	Ag	As	Ba	Cd	Cu	Fe	Hg	Mn	Мо	Ni	Pb	Zn
No	ppb	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm
99601	<5	<0.2	<2	90	<0.5	23	2.64	<1	235	5	17	2	90
99602	<5	<0.2	<2	150	0.5	33	2.69	<1	325	5	28	<2	126
99603	<5	<0.2	<2	70	1	20	3.57	<1	325	3	15	<2	112
99604	<5	<0.2	2	90	1.5	31	3.02	<1	405	7	25	6	224
99605	<5	<0.2	2	110	<0.5	31	2.33	<1	240	4	21	6	98
99606	<5	<0.2	<2	140	0.5	36	2.77	<1	300	4	26	<2	136
99607	<5	<0.2	2	90	<0.5	20	4.24	<1	400	1	16	2	68
99608	<5	<0.2	<2	80	<0.5	22	4.37	<1	400	4	14	2	- 54
99609	<5	<0.2	2	180	<0.5	29	3.81	<1	410	3	17	2	58
99610	<5	<0.2	<2	200	<0.5	16	2.91	<1	350	2	15	2	76
99611	<5	<0.2	<2	200	<0.5	21	3.17	<1	365	4	14	2	76
99612	<5	<0.2	<2	210	<0.5	19	3.15	<1	380	4	16	2	74
99613	<5	<0.2	<2	220	<0.5	15	2.79	<1	340	4	15	<2	74
99614	<5	0.2	<2	250	3	63	4.23	<1	455	10	40	<2	318
99615	<5	<0.2	<2	230	3.5	26	2.69	<1	465	6	36	<2	238
99616	<5	0.2	<2	250	2.5	48	3.75	<1	460	6	39	<2	288
99617	<5	0.2	<2	240	3	60	4.13	<1	505	8	44	<2	314
99618	<5	<0.2	<2	270	4	31	3.26	<1	835	5	34	<2	304
99619	<5	0.2	<2	270	3	70	4.6	<1	565	7	51	<2	338
99620	<5	0.4	<2	330	3.5	74	4.77	<1	735	8	62	4	410
99621	<5	<0.2	<2	120	<0.5	13	2.73	<1	380	3	26	6	62
99622	<5	<0.2	<2	190	0.5	19	3.2	<1	1130	2	41	6	82

#### **Selected Stream Sediment Geochemical Values**

A9928268 - CERTIFIED CLIENT : "ARNEX RESOURCES LIMITED " # of SAMPLES : 45 DATE RECEIVED : 08-SEP-1999 PROJECT : "GNR " CERTIFICATE COMMENTS : "ATTN: ARNE BIRKELAND"

Sample	Au	Ag	As	Ba	Cd	Cu	Fe	Hg	Mn	Мо	Ni	Pb	Zn
No	ppb	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm
99801	<5	<0.2	2.	70	<0.5	23	1.76	<1	190	3	15	<2	38
99802	<5	<0.2	<2	130	<0.5	31	2.44	<1	260	3	22	<2	50
99803	<5	<0.2	2	140	<0.5	19	3.49	<1	465	2	28	<2	70
99804	<5	<0.2	<2	50	<0.5	4	6.98	<1	200	1	7	<2	22
99805	<5	<0.2	<2	50	<0.5	5	2.15	<1	135	<1	6	<2	18
99806	<5	<0.2	<2	180	<0.5	11	2.98	<1	425	3	-12	<2	62
99807	<5	<0.2	<2	210	<0.5	12	3.3	<1	435	2	13	<2	62
99808	<5	<0.2	<2	210	<0.5	24	3.44	<1	425	1	18	<2	92
99809	<5	<0.2	<2	320	<0.5	29	2.93	<1	380	4	25	<2	68
99810	<5	<0.2	<2	160	<0.5	18	3.44	<1	575	4	19	<2	84
99811	<5	<0.2	<2	150	<0.5	21	3.23	<1	570	3	24	<2 -	48
99812	<5	<0.2	<2	90	<0.5	19	3.98	<1	415	3	16	2	60
99813	<5	<0.2	<2	160	<0.5	39	3.93	<1	725	5	28	16	130
99814	<5	<0.2	<2	330	1	49	4.29	<1	760	7	47	<2	198
99815	<5	<0.2	<2	300	0.5	39	3.66	<1	615	5	39	2	146
99816	<5	<0.2	<2	330	1	53	4.46	<1	790	8	45	2	194
99817	<5	<0.2	<2	300	1.5	70	4.98	<1	980	7	52	2	206
99818	<5	<0.2	<2	280	1	43	3.94	<1	640	7	42	<2	162
99819	<5	<0.2	<2	320	1.5	61	4.99	<1	1130	8	48	<2	202
99820	<5	<0.2	<2	340	1	63	4.99	<1	1010	8	57	<2	208
99821	<5	<0.2	<2	370	0.5	49	3.34	<1	380	5	61	2	158
99822	<5	<0.2	<2	260	<0.5	19	4.78	<1	1095	2	41	2	68
99823	<5	<0.2	<2	270	<0.5	14	3.41	<1	650	2	47	2	60

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## Table 2GNR Reconnaissance ProgramKhutzeymateen Inlet Project Area

#### Selected Rock Chip Geochemical Values

A9928273 - CERTIFIED CLIENT : "ARNEX RESOURCES LIMITED " # of SAMPLES : 16 DATE RECEIVED : 08-SEP-1999 PROJECT : "SCOTIA NORTH " CERTIFICATE COMMENTS : "ATTN: ARNE BIRKELAND"

Zn	Pb	Ni	Мо	Μα	Hg	Fe	Cu	Cd	Ba	As	Ag	Au	Sample
ppm	ppm	ррт	ppm	ppm	ррт	%	ppm	ppm	ppm	ppm	ppm	ppb	No
42	2	26	4	540	2	4.78	86	2	130	<2	1	<5	301651
32	<2	1	4	215	<1	1.59	25	<0.5	140	<2	<0.2	<5	301652
38	<2	13	3	335	<1	3.12	22	<0.5	180	<2	<0.2	<5	301653
38	<2	10	3	440	<1	3.5	41	<0.5	140	2	<0.2	<5	301654
1360	20	68	3	185	1	3.33	27	4.5	50	18	4.2	<5	301655
76	<2	23	3	790	1	4.9	41	<0.5	80	<2	0.6	<5	301656
112	<2	49	17	890	<1	3.45	50	1	100	<2	0.8	<5	301657
84	<2	25	4	550	<1	3.64	39	<0.5	100	<2	0.6	<5	301658
82	<2	70	28	30	<1	2.35	45	2	60	<2	0.6	<5	301659
22	<2	42	3	265	<1	2.01	30	<0.5	140	<2	<0.2	<5	301660
200	<2	50	11	285	<1	2.87	42	4	10	<2	0.6	<5	301661
166	<2	64	13	420	<1	7.97	128	2	30	24	2	<5	301662
672	<2	34	23	470	<1	2.21	42	16	440	<2	0.6	<5	301663
154	2	45	3	1085	<1	7.73	32	2.5	70	<2	<0.2	<5	301664
194	<2	24	11	460	<1	3.98	34	2	210	2	0.6	<5	301665
834	<2	28	14	860	<1	4.58	84	21.5	120	<2	2.6	<5	301666

Moss mat sampling was employed whenever possible. Moss mat sampling has been conducted by the author taking hundreds of moss mat and active stream sediment samples in West Coast mountainous terrane over the past ten years. Moss mat sampling generally returns the same values as active stream sediments for the hydromorphically transported elements such as Zn, Cu and Ag. Moss mats give higher values and better anomaly contrasts for mechanically transported metals such as Au, Pb and W. In many steep West Coast drainage's, there is no active stream sediment to sample while moss mats are generally always abundant within the freshet level of the drainage. Within the mat roots

Threshold values for determining anomalies for various elements are presented in Table 3. Threshold values were determined utilizing RGS statistical data combined with personal experience from West Coast sampling with similar underlying geology. The 95% anomalies are highlighted on Figure 8.

## Table 3Stream Sediment Threshold Values

is trapped sediment that provides an ideal sampling median.

Percentile		Three	hold V	alues (p	opm)
	Ag	Ba	Cu	<u>Pb</u>	Zn
95%ile	.04	330	45	6	200
<u>98%ile</u>			60		300

#### 4.2. Results

#### 4.2.1. Regional Results

No anomalous stream sediment values were present for samples taken in the southeastern region of the project area (See Regional Map, Figure 8). Two samples had elevated Ag, but this is considered due to the geologic setting as opposed to reflecting a mineralized source.

In the northern end of the project area, rock sample 301659 returned an elevated value for Cu. This may be significant in that those anomalies from the Detailed Sample area to the southeast trend in this direction. The sample is described as being a meta-argillite containing pyrite laminations.

#### 4.2.2. McGreggor Point - "Wal" Point ("Walskakul" Point) Area

Twelve stream sediment samples and four rock chip samples are anomalous in base metals over a distance of 6 kms in the Wal Point area (See Figure 8).

Two drainages directly east of McGreggor point contain Zn anomalies (99614-99616). A quartz pyrite "stockwork feeder" type vein 1 km to the south contained visible chalcopyrite and sample 301662 returned a value of 128 ppm Cu over a 0.6 m true width.

Numerous gossans are present in the two creeks flanking Wal Point. Both drainages are anomalous in Zn with elevated Cu values. Pb values are also present in samples 99605 and more importantly, 16 ppm from sample 99813 indicating these samples may be proximal to the mineralizing source.

It was difficult to prospect in this area because of steep terrane. The most significant rock chip result was from sample 301655, which ran 1360 ppm Zn, 20 ppm Pb and 4.2 ppm Ag over a 0.3 m true width. The rock is described as being a silicified pyritic felsic gneiss containing pyrite laminations concordant with foliation. Mariposite was thought to have been identified. This rock unit is thought to be a metamorphosed exhalite unit consisting predominantly of chert and pyrite.

On trend 800 m to the south, sample 301663 contained 672 ppm Zn and 440 ppm Ba within a 1.4 m thick meta-rhyolite containing stratiform sulphides and barite. Elevated Ba values in the 300 ppm range and Cd values in the 3 ppm range are present in many of the anomalous samples from the Wal Point area.

Three hundred and fifty m to the east on the east face of Wal Point ridge, sample 301666 returned values of 834 ppm Zn, 84 ppm Cu and 2.6 ppm Ag. The sample was taken across a 1.4 m wide rusty felsic meta-volcanic unit containing stratiform massive sulphide laminae. Disseminated sphalerite was notes associated with pyrite laminae. Sediment sample 99604 reflects the downslope dispersion from 301666.

Three drainages contain five Zn - Cu anomalies over a strike length of 1500 m approximately 3 km north of Wal Point. High values of 410 ppm Zn are reported from site 99620, with the down-stream sample at 99619 returning 338 ppm Zn. A very limited amount of prospecting was done in this area.

Substantial gossanous outcrops occur on the western flank of McGreggor Peninsula at rock chip sites 302658 and 301664. Rocks are described as being a pyritic meta-rhyolite unit containing up to 10% pyrite locally. Sample 301664 contained 8% Fe, indicating high pyrite content but base metal values were not anomalous.

Stream sediment sampling in the southeastern part of the project area in the vicinity of Mouse Creek did not return any anomalous values. Samples taken from the Central Gneiss Unit south of Khutzeymateen Inlet were likewise not anomalous.

#### 4.3. Conclusions and Recommendations

A predominately felsic pyritic meta-volcanic unit is present from at least McGreggor Peninsula extending in a northerly direction for at least 8 km to 99620 creek. Numerous stream sediment and "country rock" samples are anomalous in principally Zn.

Creek float and outcrop indicates that geochemical anomalies are associated with VMS style mineralization as evidenced by the following:

- Mineralization occurs as disseminated stratabound pyritic volcanic units and as pyrite laminae stratiform to foliation and hosting volcanic stratigraphy.
- Although all the rocks are intensely metamorphosed, a mineralized felsic volcanic geological environment appears to be present along the 8 km belt.
- The presence of elevated Ba (note, Ba values are "partials" due to incomplete digestion) and Cd and associated exhalite layers indicates white smokers are present in the Wal Point area. Black smoker pipes are considered responsible for the regional distribution of pyrite along the belt.
- Physiography indicates that major reactivated structures are present in the two creeks flanking Wal Point and extending to the south forming the boundaries of McGreggor Peninsula. It is considered that these structures and coarse pyroclastic rhyolite breccias observed in outcrop are vent proximal.

Twenty claim units were located in the field in the Wal Point Area. Although a mineralized VMS belt appears to be present, no massive sulphide float or showings were found during a limited amount of prospecting. As such, the claims were not recorded because no specific mineralized target has yet been found.

Much more detailed prospecting, sampling and geologic mapping is recommended for the Wal Point area. It is recommended that stream sediment sample spacing done at approximately 100 m intervals. Gossanous areas should be prospected and soil or talus-fine sampling should be applied where possible to isolate base metal centers within the sulphide belt.

Airborne magnetic data available through <u>WWW.EM.GOV.BC.CA/GEOLOGY</u> shows the Gambier group rocks at Khutzeymateen Inlet occur in a north trending magnetic low. Additional reconnaissance prospecting and geochemical sampling are recommended to the north of the Wal Point trend along Steamer Passage and on Somerville Island.

Because of the logistical difficulties of operating in the area, it is highly recommended that a live-abroad boat be positioned in Tsamspanaknok Bay, or ideally in Croix Lagoon if tide conditions permit. Exploration activities could then be conducted relatively safely utilizing small boat access. It is recommended tat mountaineering equipment be appropriately employed when prospecting in steep areas.

Because of the digestion technique used, Ba values for the samples taken area only partial values. It is recommended that all pulps be analyzed for total Ba as Ba is expected to be associated with exhalites in this area.

Report dated at North Vancouver, British Columbia,

This <u>12</u> day of <u>January</u>, 2000

Richland

Arne O. Birkeland, P. Eng.

#### 5. BIBLIOGRAPHY, SELECTED REFERENCES

BC RGS 42, Regional Geochemical Survey, NTS 103I/J – Prince Rupert/Terrace, Matysek and Jackaman, May, 1995

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Skeena -- Nass Mineral Potential Workshop, March 1995

WWW.EM.GOV.BC.CA/GEOLOGY

### APPENDIX A

## **Certificate of Qualification**

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#### **Certificate of Qualification**

I, Arne O. Birkeland, do hereby certify that:

- 1. I am a Geological Engineer in the employ of Arnex Resources Ltd. with offices at 2069 Westview Drive, North Vancouver, British Columbia.
- 2. I am a 1972 graduate of the Colorado School of Mines with a Bachelor of Science Degree in Geological Engineering.
- 3. I have been a registered Professional Engineer with the Association of Professional Engineers Association of British Columbia since 1975, Registration Number 9870.
- 4. My primary employment since 1966 has been in the field of mineral exploration and development, namely as a Geological Engineer.
- 5. My experience has encompassed a wide range of geological environments including extensive experience in classification of deposit types as well as considerable familiarization with geochemical and geophysical survey techniques and diamond drilling procedures.

Dated at North Vancquver, British Columbia,

12th day of January, 2000 This

KELAND 0.8 Arne O. Birkeland, P. Eng.

### **APPENDIX C**

### **Analytical Procedures and Certificates**

To: ARNEX RESOURCES LIMITED

2069 WESTVIEW DR. NORTH VANCOUVER, BC V7M 3B1

A9928268

Comments: ATTN: ARNE BIRKELAND

## CERTIFICATE

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A9928268

212 Brooksbank Ave., British Columbia, Canada

Chemex Labs Ltd.

North Vancouver

V7J 2C1

Analytical Chemists \* Geochemists \* Registered Assayers

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

(AN) - ARNEX RESOURCES LIMITED

Project: SCOTIA NORTH P.O. # :

Samples submitted to our lab in Vancouver, BC. This report was printed on 17-SEP-1999.

	SAMPLE PREPARATION							
CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION						
201 202 229	45 45 45	Dry, sieve to ~80 mesh save reject ICP - AQ Digestion charge						
	1.							

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Ha, Sr, Ti, Tl, W.

		ANALYTICAL P	ROCEDURE	S	
	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	upper Limit
983 2118 2119 2120 557 2121 2122 2123 2124 2125 2126 2127 2128 2126 2130 2131 2132 2151 2134 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144 2145 2146 2147 2148 2149	45 45 45 45 45 45 45 45 45 45 45 45 45 4	Au ppb: Fuse 30 g sample Ag ppm: 32 element, soil & rock Al %: 32 element, soil & rock B ppm: 32 element, soil & rock B ppm: 32 element, soil & rock B ppm: 32 element, soil & rock Ca %: 32 element, soil & rock Ca ppm: 32 element, soil & rock Mg ppm: 32 element, soil & rock Mg ppm: 32 element, soil & rock Mg %: 32 element, soil & rock Mn ppm: 32 element, soil & rock Mi ppm: 32 element, soil & rock Pf ppm: 32 element, soil & rock Mi ppm: 32 element, soil & rock	FA-AAS ICP-ARS	$\begin{array}{c} 5\\ 0.2\\ 0.01\\ 2\\ 10\\ 10\\ 0.5\\ 2\\ 0.01\\ 0.5\\ 1\\ 1\\ 0.5\\ 1\\ 0.01\\ 10\\ 0.01\\ 5\\ 1\\ 0.01\\ 10\\ 2\\ 0.01\\ 1\\ 10\\ 2\\ 1\\ 1\\ 0.01\\ 10\\ 10\\ 10\\ 10\\ 1\\ 10\\ 2\\ \end{array}$	$10000 \\ 100.0 \\ 15.00 \\ 1000$

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99601	201	202	< 5	< 0.2	1.23	< 2	< 10	90	< 0.5	< 2	0.74	< 0.5		30	23	2.64	< 10	< 1	0.15	< 10	0.65
9602 9603		202		< 0.2	1.69	< 2	< 10	150	< 0.5	< 2	0.81	0.5	13	41	33	2.69	< 10	< 1	0.23	< 10	0.96
9604	201 201			< 0.2 < 0.2	1.07 2.15	< 2	< 10 < 10	70 90	< 0.5	< 2	0.85	1.0	8	22	20	3.57	< 10	< 1	0.15	< 10	0.44
9605	201			< 0.2	1.38	2	< 10	110	< 0.5 < 0.5	< 2 < 2	1.12 0.84	1.5 < 0.5	11 10	29 31	31 31	3.02 2.33	< 10 < 10	< 1 < 1	0.14 0.17	< 10 < 10	0.76 0.68
9606	201			< 0.2	1.71	< 2	< 10	140	< 0.5	< 2	0.80	0.5	13	39	36	2.77	< 10	< 1	0.22	< 10	0.93
9607 9608	201 201	202 202		< 0.2 < 0.2	1.25	< 2	< 10	90	< 0.5	< 2	0.54	< 0.5	13	40	20	4.24	< 10	< 1	0.17	< 10	0.93
9609	201			< 0.2	1.08 1.50	< 2 < 2	< 10 < 10	80 180	< 0.5	< 2	0.58 0.46	< 0.5 < 0.5	13 15	37 57	22	4.37	< 10	< 1	0.15	< 10	0.78
9610	201		_	< 0.2	1.54	< 2	< 10	200	< 0.5	< 2		< 0.5	10	38	29 16	3.81 2.91	< 10 < 10	< 1 < 1	0.27 0.49	< 10 < 10	1.31 0.73
9611	201			< 0.2	1.69	< 2	< 10	200	< 0.5	< 2	0.56	< 0.5	9	36	21	3.17	< 10	< 1	0.48	< 10	0.78
9612 9613	201	202		< 0.2	1.56	< 2	< 10	210	< 0.5	< 2	0.53	< 0.5	11	37	19	3.15	< 10	< 1	0.51	< 10	0.72
9614	201		< 5 < 5	< 0.2	1.53 2.02	< 2	< 10 < 10	220 250	< 0.5	< 2 < 2	0.44 0.84	< 0.5	9 11	34	15	2.79	< 10	< 1	0.52	< 10	0.75
9615	201			< 0.2	1.67	< 2	< 10	230	< 0.5	< 2	0.79	3.0 3.5	10	77 57	63 26	4.23 2.69	< 10 < 10	< 1 < 1	0.58 0.49	< 10 < 10	1.15
9616	201		< 5	0.2	1.92	< 2	< 10	250	< 0.5	< 2	0.79	2.5	12	74	48	3.75	< 10	< 1	0.57	< 10	1.13
9617 9618	201		< 5 < 5	0.2	1.91	< 2	< 10	240	< 0.5	< 2	0.84	3.0	14	72	60	4.13	< 10	< 1	0.53	< 10	1.09
9619	201		< 5	< 0.2	1.89 2.29	< 2 < 2	< 10 < 10	270 270	< 0.5 < 0.5	< 2	0.67 0.90	4.0	18	52	31	3.26	< 10	< 1	0.55	< 10	0.87
9620			< 5	0.4	2.62	< 2	< 10	330	< 0.5	< 2	0.79	3.5	15 24	87 95	70 74	4.60 4.77	< 10 < 10	< 1 < 1	0.56 0.69	< 10 < 10	1.28
9621	201			< 0.2	1.49	< 2	10	120	< 0.5	< 2	0.35	< 0.5	13	74	13	2.73	< 10	< 1	0.18	< 10	0.83
9622 9801		202 202		< 0.2 < 0.2	1.79 0.93	< 2	< 10	190	< 0.5	< 2	0.60	0.5	27	59	19	3.20	< 10	< 1	0.13	< 10	0.69
9802	201			< 0.2	1.27	< 2	< 10 < 10	70 130	< 0.5	< 2 < 2	0.33 0.48	< 0.5	9 12	33 46	23 31	1.76	< 10	< 1	0.17	< 10	0.73
9803	201	202		< 0.2	1.91	< 2	< 10	140	< 0.5	< 2		< 0.5	15	49	19	3.49	< 10 < 10	< 1 < 1	0.22 0.28	< 10 < 10	0.98 1.09
9804	201			< 0.2	0.29	< 2	< 10	50	< 0.5	< 2	0.43	< 0.5	6	32	4	6.98	< 10	< 1	005	< 10	0.17
9805 9806	201		_	< 0.2 < 0.2	0.36	< 2	< 10	50	< 0.5	< 2		< 0.5	4	13	5	2.15	< 10	< 1	0.08	< 10	0.21
9807	201		_	< 0.2	1.29 1.41	< 2 < 2	< 10 < 10	180 210	< 0.5 < 0.5	< 2		< 0.5 < 0.5	13 14	24 23	11	2.98	< 10	< 1	0.27	< 10	0.73
9808	201			< 0.2	1.80	< 2	< 10	210	< 0.5	< 2		< 0.5	15	37	12 24	3.30 3.44	< 10 < 10	< 1 < 1	0.29 0.45	< 10 < 10	0.77 1.18
9809	201			< 0.2	1.91	< 2	< 10	320	< 0.5	< 2	0.33	< 0.5	15	81	29	2.93	< 10	< 1	0.63	< 10	1.60
9810 9811	201 201	202		< 0.2	1.82	< 2	< 10	160	< 0.5	< 2	<b>.</b>	< 0.5	16	48	18	3.44	< 10	< ī	0.30	< 10	1.35
9812	201	202		< 0.2 < 0.2	1.26 1.37	< 2 < 2	< 10 < 10		< 0.5	< 2	0.42 0.51		16	50	21	3.23	< 10	< 1	0.21	< 10	0.83
9813	201	202		< 0.2	1.71	< 2	< 10		< 0.5	< 2	0.84		13 17	39 33	19 39	3.98 3.93	< 10 < 10	< 1 < 1	0.17 0.24	< 10 10	0.99 0.78
9814	201			< 0.2	2.68	< 2	< 10	330	< 0.5	< 2	1.10	1.0	17	52	49	4.29	< 10	< 1	0.86	< 10	1.09
9815 9816	201 201			< 0.2	2.31	< 2	< 10		< 0.5	< 2	0.83	0.5	14	46	39	3.66	< 10	< 1	0.77	< 10	0.93
9817	201			< 0.2 < 0.2	2.78 2.74	< 2 < 2	< 10 < 10		< 0.5 < 0.5	< 2 < 2	1.09 1.05	1.0	18	50	53	4.46	< 10	< 1	0.87	< 10	1.08
9818	201	202		< 0.2	2.28	22	< 10		< 0.5	< 2	0.91	1.5 1.0	23 15	51 45	70 43	4.98 3.94	< 10 < 10	ふ	0.76 0.73	< 10 < 10	1.02
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99601	201 20		5	0.05	17	990	2	0.04	< 2	4	34	0.11	< 10	< 10	59	< 10	90
9602 9603	201 203		5	0.06	28	<b>B4</b> 0	< 2	0.04	2	5	41	0.13	< 10	< 10	67	< 10	126
9604	201 202 201 202		3 7	0.04 0.05	15 25	1180 800	< 2	0.04	< 2	3	35	0.10	< 10	< 10	64	< 10	112
9605	201 20		4	0.06	25	1320	6	0.07 0.07	< 2	5	81 41	0.11 0.10	< 10 < 10	< 10 < 10	60 54	< 10 < 10	224 98
9606	201 202		4	0.07	26	910	< 2	0.07	< 2	5	42	0.13	< 10	< 10	68	< 10	136
9607 9608	201 202 202 202		1	0.02	16	990	2	0.09	2	5	15	0.18	< 10	< 10	93	< 10	68
9609	201 202 202		4	0.02 0.05	14 17	1060 890	< 2	0.10	< 2	4	14	0.14	< 10	< 10	89	< 10	54
9610	201 20		2	0.05	15	880	< 2	0.10 0.15	< 2	4	15 30	0.21 0.16	< 10 < 10	< 10 < 10	85 82	< 10 < 10	58 76
611	201 202		4	0.06	14	1020	< 2	0.13	2	7	37	0.17	< 10	< 10	84	< 10	76
9612 9613	201 202 202		<u>+</u>	0.05	16	980	2	0.17	2	6	33	0.16	< 10	< 10	84	< 10	74
9614	201 202		4 10	0.05 0.08	15 40	770 1 <b>49</b> 0	< 2	0.14	2	.6	29	0.16	< 10	< 10	76	< 10	74
9615	201 202		-6	0.06	36	990	< 2	0.27 0.05	< 2 2	10 8	58 48	0.18 0.15	< 10 < 10	< 10 < 10	116 96	< 10 < 10	318 238
9616	201 202		6	0.07	39	1310	< 2	0.21	2	9	52	0.17	< 10	< 10	115	< 10	288
9617 9618	201 202 201 202		8	0.07	44	1520	< 2	0.22	2	9	54	0.16	< 10	< 10	114	< 10	314
9619	201 202 201 202		5 7	0.04 0.08	34 51	930 1370	< 2 < 2	0.07	2	9	33	0.18	< 10	< 10	88	< 10	304
9620	201 202		8	0.08	62	1120	1	0.20	2	11 12	67 61	0.19 0.21	< 10 < 10	< 10 < 10	129 132	< 10 < 10	338 410
9621	201 202		3	0.04	26	690	6	0.05	< 2	- 4	34	0.18	< 10	< 10	65	< 10	62
9622 9801	201 202 201 202		23	0.03	41	770	6	0.10	2	4	28	0.21	< 10	< 10	65	< 10	82
9802	201 202		3	0.07 0.03	15 22	620 880	< 2	0.03	< 2	2	12	0.12	< 10	< 10	45	< 10	38
9803	201 202		2	0.05	28	760	< 2	0.01	< 2 < 2	5	11 21	0.15 0.25	< 10 < 10	< 10 < 10	63 84	< 10 < 10	50 70
9804	201 202		1	0.02	7	1110	< 2	0.01	< 2	1	8	0.08	< 10	< 10	112	< 10	22
9806	201 202 201 202		< 1	0.02	6 12	820		< 0.01	< 2	1	.7	0.06	< 10	< 10	39	< 10	18
9807	201 202	435	2	0.03	12 13	680 770	< 2 < 2	0.01 0.01	< 2 < 2	3	11 11	0.23 0.26	< 10	< 10	79	< 10	62
9808	201 202		ī	0.04	18	910	< 2	0.02	< 2	5	17	0.27	< 10 < 10	< 10 < 10	90 106	< 10 < 10	62 92
9809	201 202		4	0.03	25	560	< 2	0.03	2	5		0.23	< 10	< 10	85	< 10	68
9810 9811	201 202 201 202		4	0.04	19	780	< 2	0.04	2	5	14	0.26	< 10	< 10	97	< 10	84
9812	201 202		3	0.03 0.02	24 16	580 860	< 2	0.04	2	3	13	0.15	< 10	< 10	65	< 10	48
9813	201 202	725	5	0.04	28	1820	16	0.08	< 2 < 2	5 8	15 27	0.19 0.12	< 10 < 10	< 10 < 10	88 75	< 10 < 10	60 130
9814 9815	201 202		7	0.08	47	920	< 2	0.60	2	11	76	0.20	< 10	< 10	95	< 10	198
9816	201 202 201 202		5	0.07 0.08	39	870	2	0.49	< 2	9	57	0.19	< 10	< 10	80	< 10	146
9817	201 202	980	, 7	0.08	45 52	940 1300	2	0.66 0.52	4 < 2	11 11	77 76	0.20 0.20	< 10	< 10	95	< 10	194
9818	201 202	640	Ż	0.07	42	870	< 2	0.62	2 2	9	61	0.19	< 10 < 10	< 10 < 10	91 76	< 10 < 10	206 162 ( )
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SAMPLE		EP De	Mn ppm	No ppa	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppn	Tİ X	ti Ppa	U PPE	V ppm	W mqq	Zn ppm		
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## **Chemex Labs Ltd.**

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

ARNEX RESOURCES LIMITED To:

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2069 WESTVIEW DR. NORTH VANCOUVER, BC V7M 3B1

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Comments: ATTN: ARNE BIRKELAND

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		OURCES LIMITE NORTH	D	CHEMEX	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	upper Limit
		d to our lab printed on 1	in Vandouwer, BC. 5-sep-1999.	983 2118 2119 2120 557 2121 2122	16 16 16 16 16 16 16	Au ppb: Fuse 30 g sample Ag ppm: 32 element, soll & rock Al %: 32 element, soll & rock As ppm: 32 element, soll & rock B ppm: 32 element, rock & soll Ba ppm: 32 element, soll & rock Be ppm: 32 element, soil & rock	Fà-aas ICP-aes ICP-aes ICP-aes ICP-aes ICP-aes ICP-aes	5 0.2 0.01 2 10 10 0.5	10000 100.0 15.00 10000 10000 10000 10000
	SAMI	PLE PREPA		2123 2124 2125	16 16 16	Bi ppm: 32 element, soil & rock Ca %: 32 element, soil & rock Cd ppm: 32 element, soil & rock	ICP-AES ICP-AES ICP-AES	2 0.01 0.5	10000 15.00 500
HEMEX XODE	NUMBER		DESCRIPTION	2126 2127 2128 2150 2130	16 16 16 16 16	Co ppm: 32 element, soil & rock Cr ppm: 32 element, soil & rock Cu ppm: 32 element, soil & rock Fe %: 32 element, soil & rock Ga ppm: 32 element, soil & rock	îcp-aes Icp-aes Icp-aes Icp-aes Icp-aes Icp-aes	0.5 1 1 0.01 10	10000 10000 10000 15.00 10000
205 226 3202 229	16 16 16 16	0-3 Kg crush Rock - save	to approx 150 mesh and split entire reject restion charge	2131 2132 2151 2154 2134 2135	16 16 16 16 16	Eg pon: 32 element, soil & rock K %: 32 element, soil & rock La pom: 32 element, soil & rock Mg %: 32 element, soil & rock Mn pom: 32 element, soil & rock	ICP-АВ# ICP-АВ# ICP-АВ# ICP-АВ# ICP-АВ# ICP-АВ#	1 0.01 10 0.01 5	10000 10.00 10000 15.00 10000
				2136 2137 2138 2139 2140 2140	16 16 16 16	Mo ppm: 32 element, soil & rock Na %: 32 element, soil & rock Ni ppm: 32 element, soil & rock P ppm: 32 element, soil & rock Pb ppm: 32 element, soil & rock	ICP <b>-NES</b> ICP <b>-NES</b> ICP <b>-NES</b> ICP <b>-NE#</b> ICP <b>-NE#</b>	1 0.01 1 10 2	10000 10.00 10000 10000 10000
NOTE	1.			551 2141 2142 2143 2144	16 16 16 16 16	S %: 32 element, rock & soll Sb ppm: 32 element, soll & rock Sc ppm: 32 elements, soll & rock Sr ppm: 32 element, soll & rock Ti %: 32 element, soll & rock	ICP-NR# ICP-NRS ICP-NRS ICP-NRS ICP-NRS ICP-NRS	0.01 2 1 1 9.01	5.00 10000 10000 10000 10.00
a 32 a	setals i	n soil and	s suitable for rock samples. ric-aqua regia	2145 2146 2147 2148	16 16 16 16	Tl ppm: 32 element, soil & rock U ppm: 32 element, soil & rock V ppm: 32 element, soil & rock W ppm: 32 element, soil & rock	ICP-AES ICP-AES ICP-AES ICP-AES	10 10 1 10	10000 10000 10000 10000
L, 30,			lete are: Ål, 7, Næ, Sr, Ti,	2149	16	In ppm: 32 element, soil & rock	ICP- <b>AE</b> 5	2	10000
a, Be, 1, W.	Ca, Cr,	Ga, K, La, M	5, Na, Sr, Ti,						



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## **Chemex Labs Ltd.**

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Analytical Chemists \* Geochemists \* Registered Assayers 212 Brooksbank Ave., North Vancouver British Columbia, Canada V7J 2C1 PHONE: 604-984-0221 FAX: 604-984-0218 To: ARNEX RESOURCES LIMITED

2069 WESTVIEW DR. NORTH VANCOUVER, BC V7M 3B1

Project : SCOTIA NORTH Comments: ATTN: ARNE BIRKELAND Page Number : 1-A Total Pages : 1 Certificate Date: 16-SEP-1999 Invoice No. : 19928273 P.O. Number : Account : AN

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										CE	RTIFI	CATE	OF A	NAL	YSIS	1	19928	273		
	PREP CODE	Au ppb FA+AA	λg ppm	A1 %	λs ppm	B PPm	Ba ppm	Be ppm	Bi ppm	Ca %	Cā ppa	Со	Cr ppm	Cu ppm	Fe X	Ga ppm	Eg	к %	La	Mg
301652 20   301653 20   301654 20   301655 20	105 226 105 226 105 226 105 226 105 226 105 226	< 5 < 5 < 5 < 5 < 5 < 5	1.0 < 0.2 < 0.2 < 0.2 < 0.2 4.2	1.09 0.69 2.10 1.92 2.31	< 2 < 2 < 2 < 2 < 2 18	< 10 < 10 < 10 < 10 < 10 < 10	130 140 180 140 50	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5	< 2 < 2 < 2 < 2 < 2 < 2	13.25 0.20 0.89 0.95 1.30	2.0 < 0.5 < 0.5 < 0.5 4.5	27 3 11 14 36	20 109 228 74 156	86 25 22 41 27	4.78 1.59 3.12 3.50 3.33	< 10 < 10 < 10 < 10 10 < 10	2 < 1 < 1 < 1 < 1	0.48 0.39 0.65 0.58 0.15	< 10 < 10 < 10 < 10 < 10 < 10	0.62 0.31 1.70 1.59 0.01
301657 20 301658 20 301659 20 301660 20	105 226 105 226 105 226 105 226 105 226 105 226	< 5 < 5 < 5 < 5 < 5	0.6 0.8 0.6 0.6 < 0.2	1.72 0.97 1.71 1.51 1.39	< 2 < 2 < 2 < 2 < 2 < 2 < 2	< 10 < 10 < 10 < 10 < 10 < 10	80 100 100 60 140	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5	< 2 < 2 < 2 < 2 < 2 < 2 < 2	0.08 0.22 0.35 1.08 0.87	< 0.5 1.0 < 0.5 2.0 < 0.5	18 24 14 11 15	97 99 97 90 87	41 50 39 45 30	4.90 3.45 3.64 2.35 2.01	< 10 < 10 < 10 < 10 < 10 < 10	1 < 1 < 1 < 1 < 1 < 1	0.72 0.60 0.27 0.08 0.49	< 10 < 10 < 10 < 10 < 10 < 10	1.07 0.86 0.58 0.04 1.38
301662 20 301663 20 301664 20	05 226 05 226 05 226 05 226 05 226	< 5 < 5 < 5 < 5 < 5 < 5	0.6 2.0 0.6 < 0.2 0.6	3.06 4.23 1.49 2.62 1.74	< 2 24 < 2 < 2 2 2	< 10 < 10 < 10 < 10 < 10 < 10		< 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5	< 2 < 2 < 2 < 2 < 2 < 2	7.22 6.05 0.17 2.07 0.43	4.0 2.0 16.0 2.5 2.0	7 15 5 38 14	87 62 231 49 194	42 128 42 32 34	2.87 7.97 2.21 7.73 3.98	< 10 10 < 10 10 < 10	< 1 < 1 < 1 < 1 < 1 < 1	0.06 0.07 0.89 0.25 0.96	< 10 < 10 < 10 < 10 10 < 10	0.07 0.13 1.25 1.96 1.25
301666 20	05 226	< 5	2.6	1.20	< 2	< 10	120	< 0.5	< 2	0.23	21.5	10	204	84	4.58	< 10	< 1	0.74	< 10	0.80

CERTIFICATION:

C		An	<b>hen</b> 212 Brook British Cole PHONE: 6	nista * Ge sbank Av umbia, C	ochemists /e., lanada	* Registe North Ve	red Assaye Incouver V7.1.201					VANCO SCOTIA	uver, 8 North	IC IKELANE	)			C I F	Total Page Certificate nvoice No P.O. Numi Account	Date: 16-SEP 199282;
SAMPLE	PRE		Nn ppm	No	Na X	Ni	P	Pb	3	sb	ßc	Sr	Tİ	- T1	NAL)	YSIS v	ע א	A99282	273	
		_		ppm		ppa	DDE	ppm	*	ppm	ppa	ppn	- *	ррш	ppm	ррш	ррш	ppm		
1651 1652	205		540	4	0.05	26	470	2	2.33	< 2	< 1	289	0.12	< 10	10	41	< 10	42		
1653	205		215 335	4	0.08	1	480	< 2	0.16	< 2	2	17	0.12	< 10	< 10	19	< 10	32		
1654	205	226	440	3	0.21 0.38	13 10	390	< 2	0.37	< 2	9	41	0.20	< 10	< 10	84	< 10	38		
1655	205	226	185	3	0.06	68	1270 120	< 2 20	0.01	< 2	16	12	0.21	< 10	< 10	162	< 10	38		
				•	0100	00	140	40	2.33	< 2	3	13	0.10	< 10	< 10	41	< 10	1360		
1656	205		790	3	0.05	23	100	< 2	2.89	< 2	8	12	- 0.04	4 10						
1657	205	226	890	17	0.09	49	410	< 2	1.95	< 2	14	8	0.04 0.18	< 10 < 10	< 10	37	< 10	76		
1658	205	226	550	4	0.07	25	170	< 2	2.33	< 2	3	23	0.01	< 10	< 10 < 10	126	< 10	112		
L659	205	226	30	28	0.18	70	460	< 2	2.01	< 2	< 1	84	0.08	< 10	< 10	21 21	< 10 < 10	84		
1660	205	226	265	3	0.22	42	730	< 2	0.11	< 2	6	11	0.14	< 10	< 10	72	< 10	82 22		
661	205	226	285	11	<u> </u>											••				
1662	205	226	420	13	0.46 0.66	50 64	870 740	< 2	1.87	< 2	< 1	206	0.09	< 10	10	34	< 10	200		
1663	205	226	470	23	0.09	34	460	< 2 < 2	>5.00 0.66	< 2	< 1	275	0.10	< 10	10	45	< 10	166		
L664	205	226	1085	3	0.31	45	2150	2	0.14	< 2 < 2	15	6	0.22	< 10	< 10	185	< 10	672		
1665	205	226	460	11	0.11	24	1140	< 2	1.05	22	10	179 22	0.66 0.30	< 10 < 10	< 10 < 10	189 122	< 10	154		
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			860	14	0.08	28	980	< 2	2.67	< 2	16	9	0.16	< 10	< 10	289	< 10	834		
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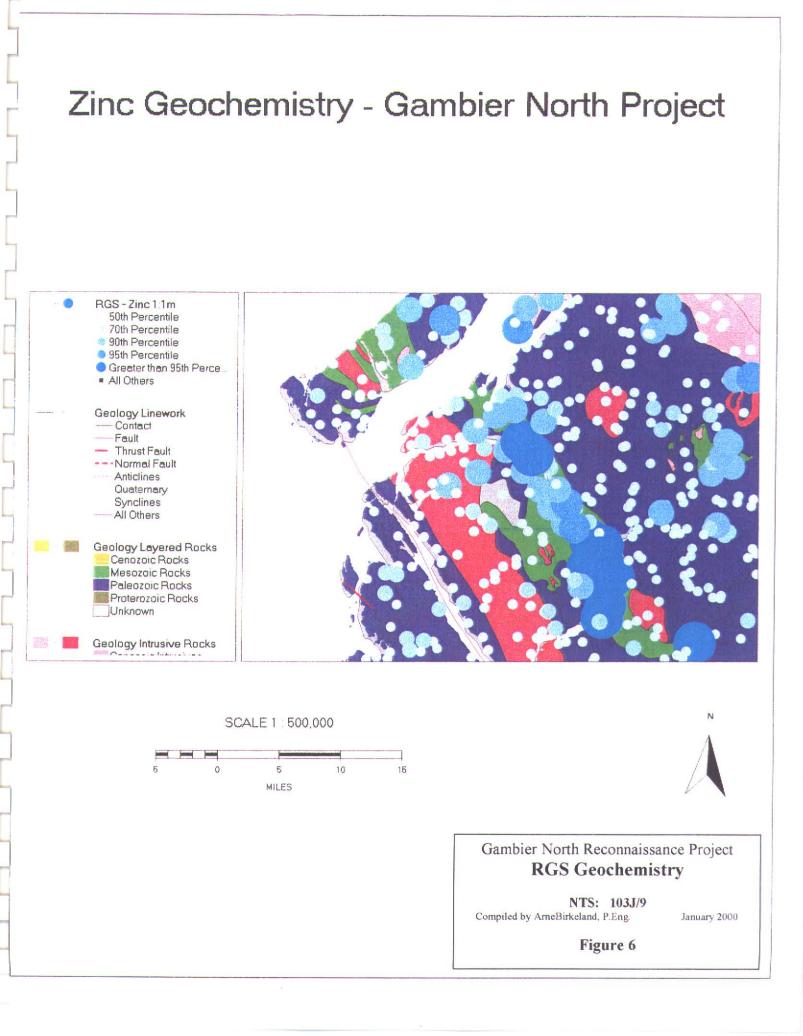
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**Geochemical Data Sheets** 



#### GEOCHEMICAL DATA SHEET - STREAM SEDIMENT GEOCHEMISTRY

NTS: 103J/9

#### Khutzeymateen Inlet Project Area

PROJECT: GNR

Sample Volume (m) Drainage Type of Colour Texture % Organic Petrography Observations Number Width Depth Gradient Sample Bedrock/Float Remarks 99601 3.0 1.0 Steep ΜM ₿r Silt Low JKG "Gambier" Gp - Meta-volc, seds 99602 2.0 1.0 Steep "Gambier" Gp - Meta-volc, seds MM 8r Silt LOW JKG 99603 1.0 0.3 Steep "Gambier" Gp - Meta-volc, seds MM Gr-br Sift Low JKG 99604 1.0 0.3 Steep "Gambier" Gp - Meta-volc, seds MM βr Silt Low JKG 99605 2.0 0.3 Steep "Gambier" Gp - Meta-volc,seds ΜM 8г Silt Low JKG 99606 2.0 0.3 Steep MM Br Silt JKG "Gambier" Gp - Meta-volc seds Low "Gambier" Gp - Meta-volc seds 99607 10.0 Gr-br 3.0 FI-Mod MM Silt Low JKG 99608 2.0 2.0 Steep "Gambier" Gp - Meta-volc,seds MM Вг Silt Low JKG 99609 6.0 2.0 Fl-Mod MM Br Sift Low JKG "Gambier" Gp - Meta-volc seds "Gambier" Gp - Meta-volc seds 99610 4.0 1.0 Mod JKG MM ₿r Silt Low 99611 2.01.0 Steep MM Silt JKG "Gambier" Gp - Meta-volc,seds Br Low 99612 10.0 3.0 FI-Mod MM Sand Unit 1b "Central Gneiss Complex" Br Low 99613 10.0 2.0 FI-Mod MM Br Sand Low Unit 1b "Central Gneiss Complex" 99614 1.0 0.3 Steep MM Lt br Silt JKG "Gambier" Gp - Meta-volc,seds Low 99615 0.6 0.3 Steep MM Dk br Silt JKG "Gambier" Gp - Meta-volc seds Low 99616 1.0 0.3 Steep ΜM 8r Silt Low JKG "Gambier" Gp - Meta-volc, seds 99617 1.0 0.3 Steep MM Br Sift Low JKG "Gambier" Gp - Meta-volc seds 99618 0.3 3.0 Steep MM Br Silt Low JKG "Gambier" Gp - Meta-volc seds 99619 0.3 0.5 Steep MM Br Silt Low JKG "Gambier" Gp - Meta-volc,seds 99620 2.0 0.3 Steep MM Br Silt Low JKG "Gambier" Gp - Meta-volc seds 99621 2.0 1.0 Mod-st MM Unit 1b "Central Gneiss Complex" Br Silt Low 99622 3.0 1.0 Mod-st ΜM Br Silt Unit 1b "Central Gneiss Complex" Low

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#### GEOCHEMICAL DATA SHEET - STREAM SEDIMENT GEOCHEMISTRY

#### Khutzeymateen Inlet Project Area

PROJECT: GNR

NTS: 103J/9

Sample	Volume (m)	Drainage	Type of	Colour	Texture	% Organic	Petrography	Observations
Number	Width Depti	Gradient	Sample				Bedrock/Float	Remarks
99801	3.0	1.0 Steep	ASS	Dk gr	Sand - mud	Viow	JKG	Rusty py gn
99802	2.0	1.0 Steep	MM	Mgr	Silt	Low	JKG	Rusty py gn in meta-seds
99803	2.0	0.3 FI	ASS	Gr-br, rusty	Silt	Low	JKG	Rusty py meta-volc
99804	1.0	0.3 Steep	MM	Lt gr	Silt	Low	JKG	Rusty py meta-volc with amph, meta-seds
99805	2.0	0.5 Steep	ASS	Lt gr	Sandy sift	Low	JKG	"Gambier" Gp - Meta-volc,seds
99806	1.5	0.3 Steep	MM	Br	Silt	Mod	JKG	Meta sed, amph
99807	1.0	0.3 Steep	MM	Gr-br	Sift	Low	JKG	Rusty py meta-volc
99808	2.0	1.0 Steep	MM	Dk br	Sandy sift	Low-mod	JKG	Thin bed arg-siltstone
99809	1.0	0.3 Steep	MM	Dk br	Silt	Low	JKG	"Gambier" Gp - Meta-volc, seds
99810	3.0	1.0 Mod	MM	Dk gr br	Sandy silt	Low	JKG	Mafic gn
99811	2.0	1.0 Steep	MM	Br	Silt	Low	JKG	"Gambier" Gp - Meta-volc,seds
99812	4.0	1.0 Steep	MM	lt gr	Sand	Low	JKG	Rusty py meta-volc
99813	2.0	0.3 Steep	MM	Br	Silt	Low	JKG	>75% creek fl rusty fel, gn, sch
99814	1.0	0.3 Steep	MM	Br	Silt	Mod	JKG	"Gambier" Gp - Meta-volc,seds
99815	0.6	0.3 Steep	ASS	Gr br	Sandy silt	Low	JKG	Meta sed, amph
99816	1.0	0.1 Steep	MM + ASS	Gr	Sand, mus	Low	JKG	Rusty py hifs
99817	2.0	0.1 Steep	MM	Br	Silt	Low	JKG	Rusty py meta-voic
99818	1.5	0.3 Steep	MM	Br	Silt	Low	JKG	>85% creek fi rusty fei, gn, sch
99819	1.0	0.3 Steep	MM	Br	Sift	Low	JKG	>85% creek fi rusty fel, gn, sch
99820	4.0	1.0 Mod	ASS	Gr br	Sandy silt	Low	Unit 1b	"Central Gneiss Complex"
99821	1.0	0.1 Steep	MM	Br	Silt	Low	JKG	Rusty py hfts
99822	8.0	1.5 F) Mod	MM	Br	Silt	Low	Սոն 15	"Central Gneiss Complex"
99823	5.0	1.0 Fl Mod	ASS	Gr	Sand	Low	Unit 1b	"Central Gneiss Complex"

#### GEOCHEMICAL DATA SHEET - STREAM SEDIMENT GEOCHEMISTRY

#### Khutzeymateen Inlet Project Area

#### PROJECT: GNR

NTS: 103J/9

Sample Number	Location	Rock Type	Sample Type	App/True Width	Alteration	Weathering Leaching	Mineralization	Observations, Remarks
301659	99610	Meta-arg	Grab, Creek float	.2 m A\V	Bio	Weathered	Py lams to mm's, to 10% py	Dark grey-black py meta-arg
301660		Meta-arg, amp	Chip	5 m TW	Bio, sil	Fresh	None noted	"Country Rock"
301661	500 m SW from 301660	Meta-arg, amp	Chip	4 m TW	Bio, sil	Fresh	Minor des py, minor sph lams?	Check for Sedex Zn
301662	Steep hillside, cliff	Qtz-py vein in Felsic meta- volc	Chip	.6 m TWV ·	Sil	Mod	Pyrite vein and stockwork?, py locally to 15% over 10 cm, tr cpy	Stockwork "feeder" zone?
301663	Steep hillside, cliff	Py felsic meta- volc, rhyolite?	Chip	1.4 m T₩	Sil, mus, py	Mod	Py, mìnor sph, trace opy, Ba?	Mineralized rusty felsic meta-volc unit, sulphides concordant with follation
301664	McGreggor Point, 800 m S of 301658	Gossaneous Meta-volc Rhyolite oc	Rep chip	3.5 m AW	Sil, py, mus	Weathered	Py locally to 10%	Rusty bluff, scarp face, thick py meta-rhyolite
301665	Headwaters, 99604 Creek	Py felsic meta- voic, rhyolite?	Chip	1 m TW	Sil, mus, py	Mod - Weathøred	Py < 3% trace Ba?	Mineralized rusty felsic meta-volc unit, sulphides concordant with foliation
301666	Ridge Treverse	Py felsic meta- volc, sulphide layer	Chip	1.1 m TW	Sil, mus, py	Mod - Weathered	Py = 15% total, mass py lam to .2 m, des sph	Mineralized rusty felsic meta-volc unit, sulphide layer concordant with foliation

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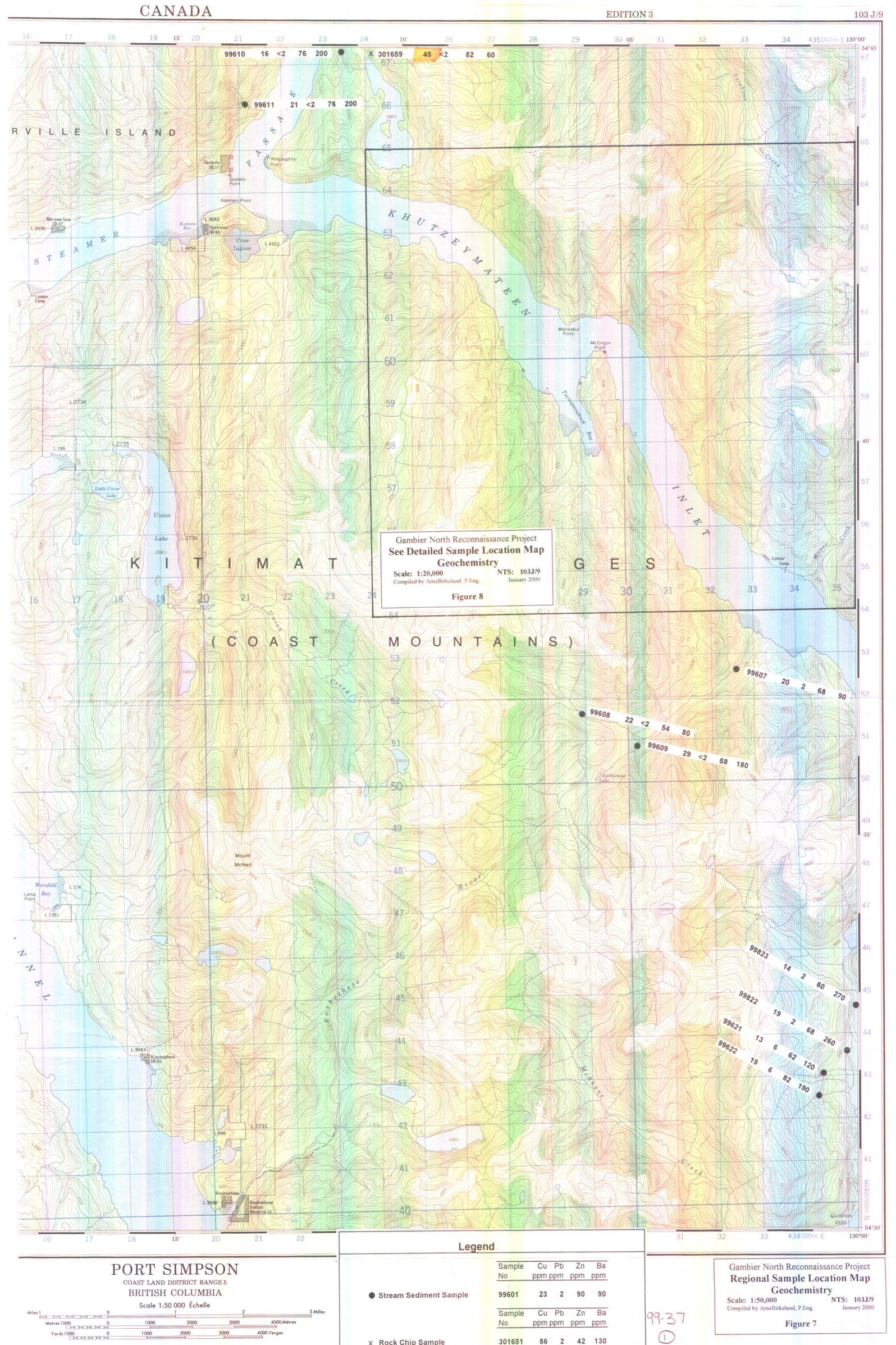
#### GEOCHEMICAL DATA SHEET - STREAM SEDIMENT GEOCHEMISTRY

#### Khutzeymateen inlet Project Area

PROJECT: GNR

NTS: 103J/9

Sample Number	Location	Rock Type	Sample Type	App/True Width	Alteration	Weathering Leaching	Mineralization	Observations, Remarks
301651	99801	Siltstone Meta-exhalite?	Greb Creek float	30 mm	Sil, calcite	V leached Boxworks	Py +/- wk des Sph	Calcite, qtz, barite? Layer in meta-siltstone or tuff, Recrystalized chert-calcite band?
301652	99808	Gneiss	Grab, Creek float, Angular	20 cm	Sil, mica, Hbld	V leached	Ру	Py dess and as remnent fragments? Up to 25 mm
301653	98111	Phyllite, Felsic meta-tuff	Chip	.4 m TW	Sił, mica, Hbld	V leached Boxworks	Py<5%	Thin meta-felsic volcanic band
301654	Above 98111	Meta Sed, Siltstone	Chip	Зт	Sil, py	Mod	Py locally to 5%	Thick pyritic meta-sed package, "Country Rock"
301655	99818	Pyritic Felsic Gneiss	Chip	.3 m TW	Sil	Weathered	Py lams to mm's, dess py, py to 5%	Rusty py felsite w/ mirror specs of green mariposite?, mirror Cu stain?
301656	99819	Thinly lam qtz py fel	Grab, Creek float, Angular	.3 m AW	Sil, biotite	Mod	Py lams to mm's	"Country Rock"
301657	99817	Thin bed meta- siltstone	Grab, Creek float, Angular	.3 m AW	Sil, mus	Weathered	Py larns to mm's, dess py, py to 5%	Lg blocks of qtx bio gn as mega breccia blocks
301658	McGreggor Point	Gossaneous Meta-volc Rhyolite oc	Rep chip	10 m AW	Sil, py, mus	Weathered	Py locally to 10%	Rusty bluff, scarp face, thick py meta-rhyolite



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