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

PROGRAM YEAR:	2001/2002
REPORT #:	PAP 01-31
NAME:	MURRAY MCLAREN

D. TECHNICAL REPORT

BRITISH COLUMBIA

Ministry of Energy and Mines
Energy and Minerals Division

- One technical report to be completed for each project area.
- **Refer to Program Regulations 15 to 17, page 6.**

SUMMARY OF RESULTS

- This summary section must be filled out by all grantees, one for each project area

Information on this form is confidential for one year and is subject to the provisions of the *Freedom of Information Act*.

Name MURRAY McCLAREN Reference Number

LOCATION/COMMODITIES

Project Area (as listed in Part A) See Figure MINFILE No. if applicable

Location of Project Area NTS * Lat Long

Description of Location and Access East side of Lilloett Lake and River by road and traverse; Stokkes Cr. by helicopter, boat and traverse; Nahatlatch by road and Big Silver River by road and traverse.

Prospecting Assistants(s) - give name(s) and qualifications of assistant(s) (see Program Regulation 13, page 6)
DR. PAUL METCALFE

Main Commodities Searched For NICKEL; COPPER; COBALT; PGM

Known Mineral Occurrences in Project Area SCUZZY 92HNW072

WORK PERFORMED

1. Conventional Prospecting (area) APPROX. 160 sq. km
2. Geological Mapping (hectares/scale)
3. Geochemical (type and no. of samples) ROCK 28 SOIL 22 SILT 27
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)

FEEDBACK: comments and suggestions for Prospector Assistance Program

* HARRISON 92H 12W; 92H 13W; 92G 9E
PEMBERTON 92J1; 92J8; 92G16
NAHATLATCH 92J1; 92G16; 92I4 (KEEFER)

D. TECHNICAL REPORT (continued)

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REPORT ON RESULTS

- Those submitting a copy of an Assessment Report or a report of similar quality that covers all the key elements listed below are not required to fill out this section.
- Refer to Program Regulation 17D on page 6 for details before filling this section out (use extra pages if necessary)
- **Supporting data must be submitted with the following TECHNICAL REPORT or any report accepted in lieu of.**

Information on this form is confidential for one year from the date of receipt subject to the provisions of the *Freedom of Information Act*.

Name MURRAY McCLAREN Reference Number

1. LOCATION OF PROJECT AREA [Outline clearly on accompanying maps of appropriate scale.]

The project area encompasses an area east and west of Big Silver Creek; western Nahatlatch valley and the eastern flank of the Lilloett Lake and Lilloett River valley. SEE ACCOMPANYING MAP (Figures 1A, 1B, 1C)

2. PROGRAM OBJECTIVE [Include original exploration target.]

The program objective was to locate areas of nickel, copper, cobalt and platinum group metal concentrations within the project area. The deposit "type" sought is that of what has been denoted as a syntectonic-synvolcanic (gabbroid) model. The Giant Mascot Mine is cited as an example of this deposit type.

3. PROSPECTING RESULTS [Describe areas prospected and significant outcrops/float encountered. Mineralization must be described in terms of specific minerals and how they occur. These details must be shown on accompanying map(s) of appropriate scale; prospecting traverses should be clearly marked.]

HARRISON 1/ Boulder Train (~150 m x 50 m) of angular to rounded pyroxenites with net textured sulfides; disseminated sulfides in pyroxenites (magmatic textures) and semi-massive sulfides (approx 60% sulphides) ~~was~~ located in Stokkes Cr. valley. Geochem and mineralized float in westerly stream tributaries indicates a northwesterly source area.
2/ Sable Mineral Claim - yielded anomalous soil values in nickel, cobalt and copper but no new significant sulfide zones were located.
3/ Nahatlatch - float boulder with disseminated sulfides gave encouraging values in nickel; cobalt and copper. Three creeks draining area yielded anomalous geochemical results. 4/ Pemberton - a weakly mineralized (pyrrhotite) pyroxenite body was located but not considered significant. Unmineralized float of pyroxenite located but no significant geochemical results.

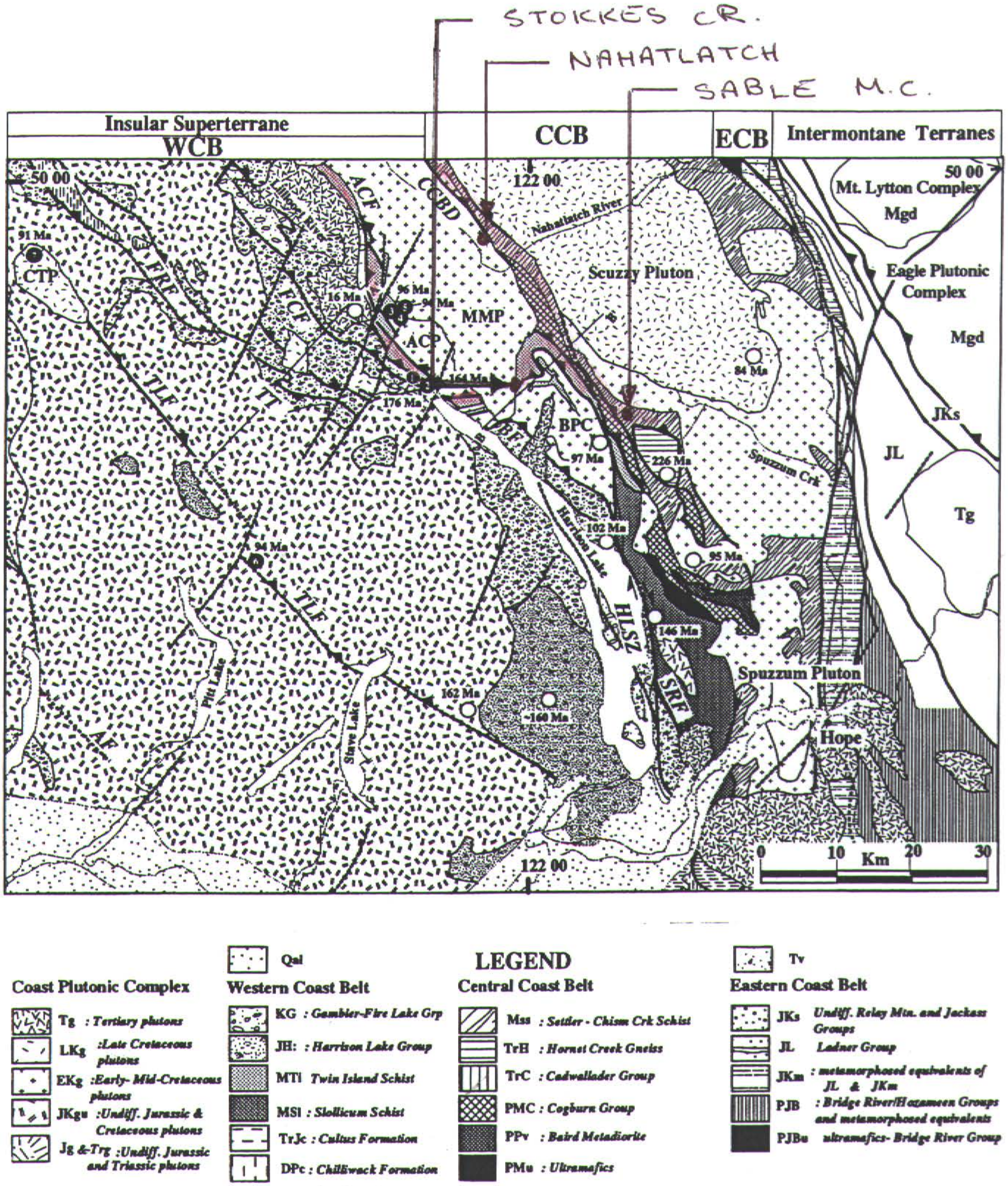


Figure 14. Geological map of the Coast Belt thrust system near Harrison Lake, and index to U-Pb sample locations and interpreted dates cited in the text. Solid circles with numbers are keyed to concordia plots in Figure 9. Open circles summarize the results of previous geochronologic studies cited in the text. See Figure 1 for legend to map units. Abbreviations: Ascent Creek Fault (ACF), Ascent Creek Pluton (ACP), Ashlu Creek Fault (AF), Breakenridge Fault (BF), Breakenridge plutonic complex (BPC), Castle Towers Pluton (CTP), Central Coast Belt detachment (CCBD), Fire Creek Fault (FCF), Fitzsimmons Range Fault (FRF), Harrison Lake shear zone (HLSZ), Mt. Manson Pluton (MMP), Slollicum Creek Fault (SCF) Terrarosa Thrust (TT), and Thomas Lake Fault (TLF).

TECHNICAL REPORT - Prospecting Report

The 2001 exploration project area can be subdivided into three components:

Harrison; Pemberton and Nahatlatch. see Fig. 1A; 1B; 1C

HARRISON

The Harrison component of the exploration consisted of
1/ The examination of a large magnetic anomaly located at the headwaters of Big Silver Creek

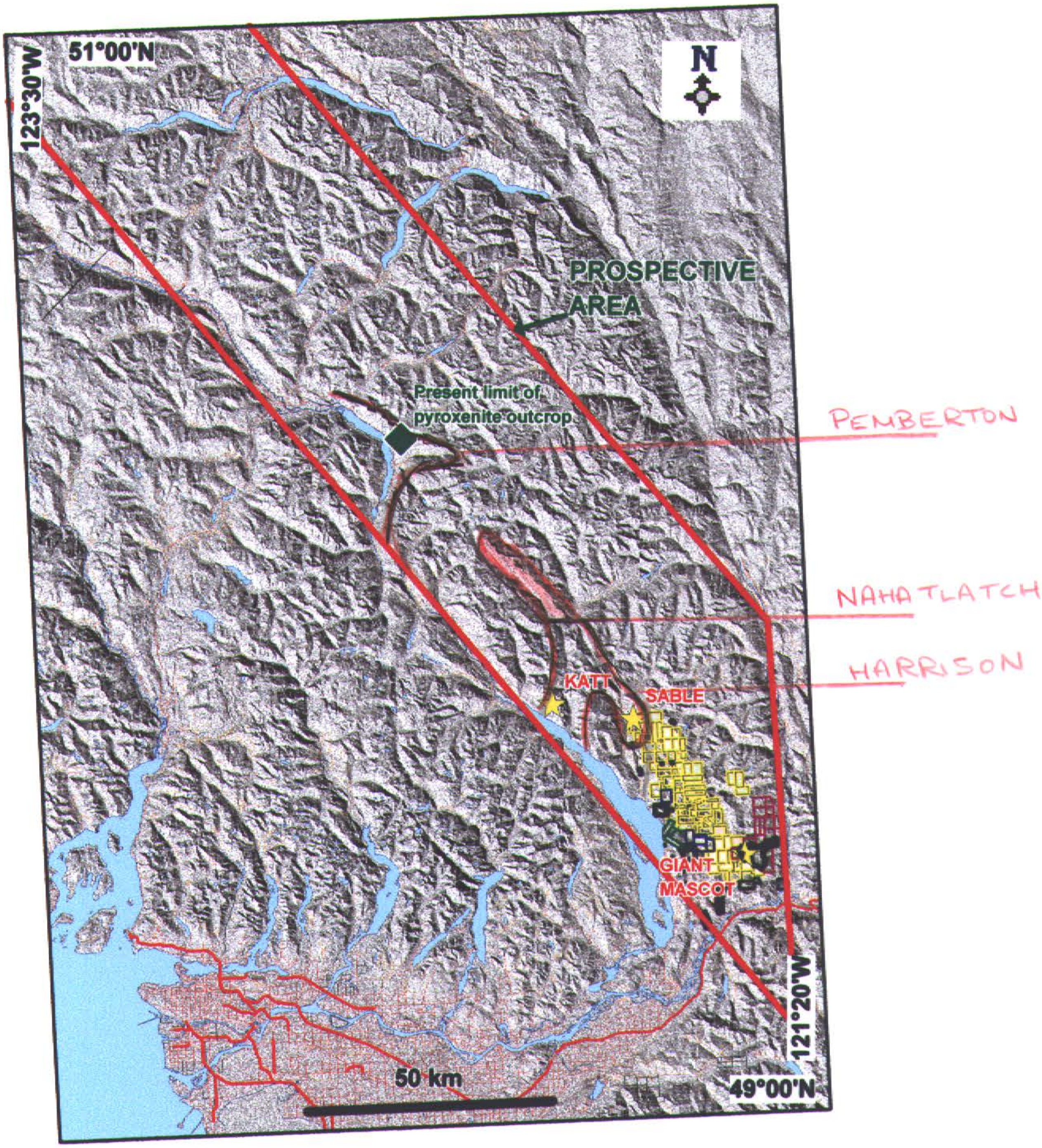
2/ A splay of metasedimentary rocks that outcrop in the Stokkes Creek area.

3/ Examination of small areas left unstaked within the Clear Creek and Hornet Creek drainages.

4/ Traversing logging roads that had not previously been examined.

1
The magnetic anomaly that lies at the headwaters of Big Silver Creek was found to be due to granodiorites and quartz monzonites that post-date the Late Cretaceous Scuzzy Pluton (see minfile 92HNW072). The mineralization consists of pyrrhotite as disseminations and fracture fillings within the intrusive rocks. Basic dykes cut the intrusive and breccia zones are developed adjacent to the dykes. The breccia consists of a mixture of intrusive and basic fragments that are cemented by a magnetic groundmass. The dyke system can be found as far south as Butter Creek.

2
The splay of pyritic metasedimentary rock found in Stokkes Creek lies to the south of gneissic rocks that are located in the Stokkes Creek itself.
Prospecting within the area is a difficult undertaking due to the rugged nature of the region and the thick undergrowth found at lower elevations. Mineralized boulders were located on a gravel bar along the margin of Stokkes Creek and were found to contain net-textured sulfides (predominately pyrrhotite); disseminated sulphides (pentlandite and



51°00'N
123°30'W
N
PROSPECTIVE AREA
Present limit of pyroxenite outcrop
PEMBERTON
NAHATLATCH
HARRISON
KATT
SABLE
GIANT MASCOT
121°20'W
50 km
49°00'N

Figure 1A

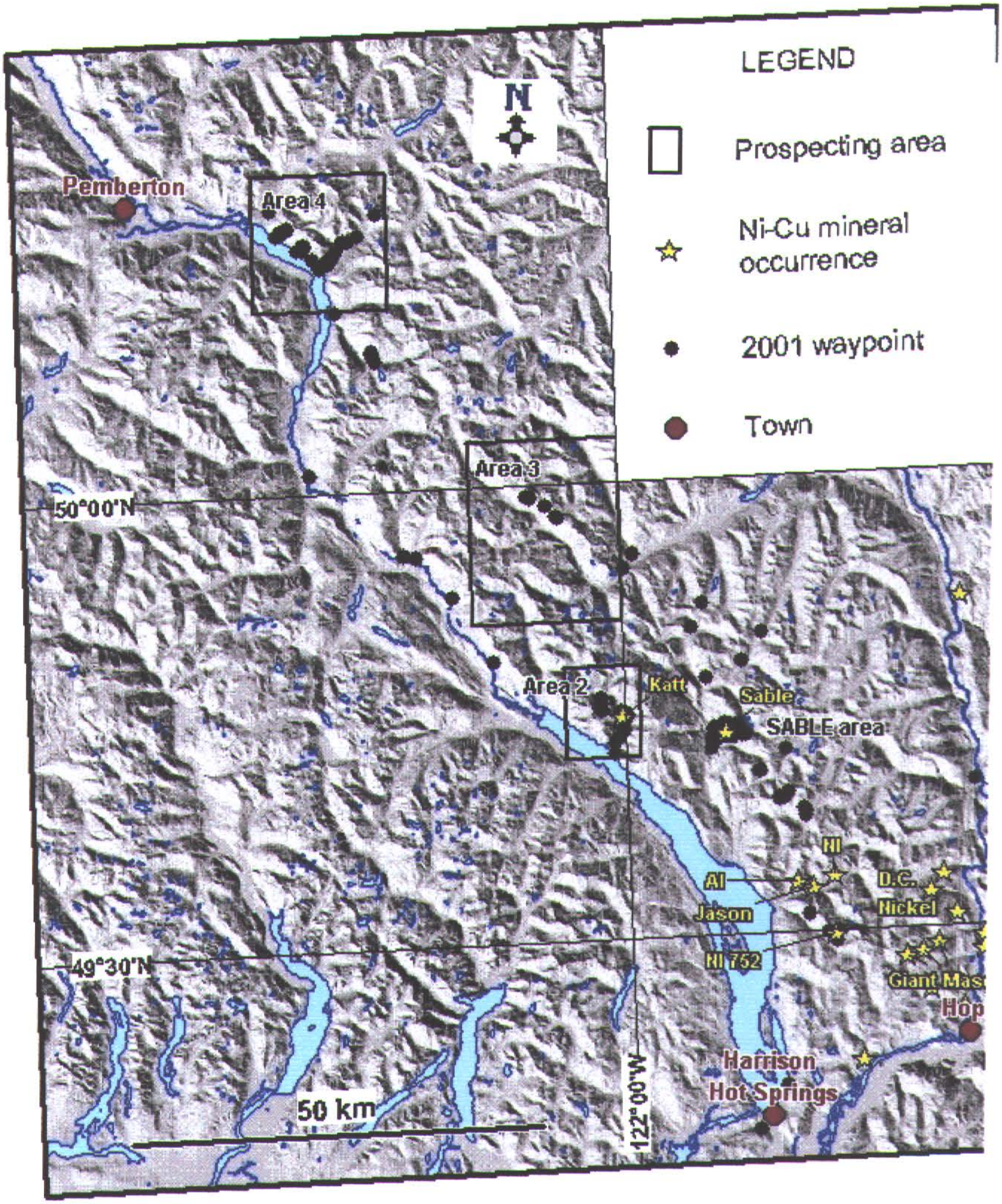
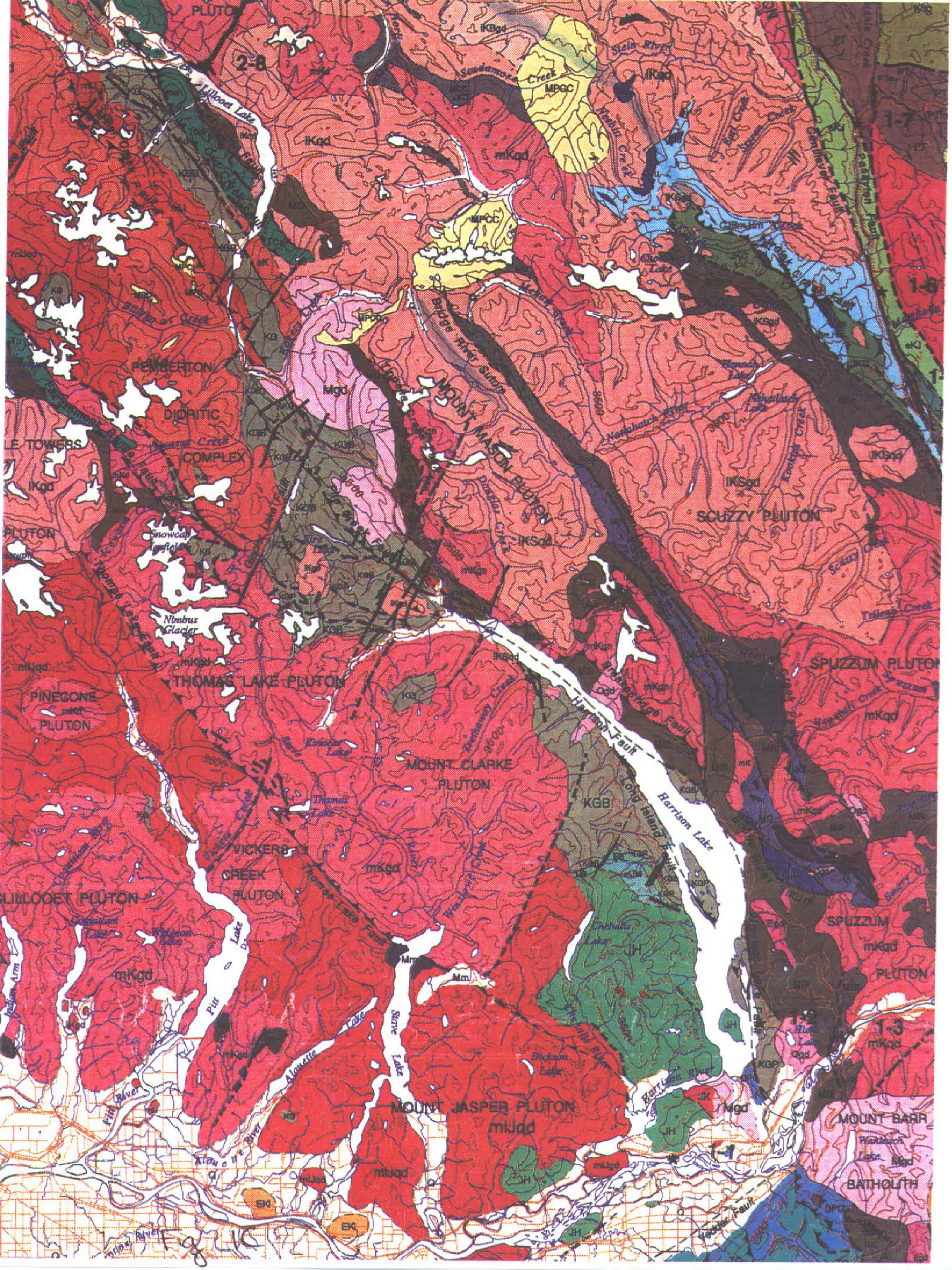

LEGEND
Prospecting area
Ni-Cu mineral occurrence
2001 waypoint
Town
N
Pemberton
Area 4
Area 3
Area 2
50°00'N
49°30'N
122°00'W
Katt
Sable
SABLE area
NI
Al
Jason
D.C.
Nickel
NI 752
Giant Mas
Hop
Harrison Hot Springs
50 km

Fig. 1B



PLUTON
2-8
Lillooet Lake
Stein River
Scudamore Creek
MPGC
lKqd
mKqd
1-7
1-6
PEMBERTON
DIORITIC
COMPLEX
LE TOWERS
PLUTON
Mgd
MOUNT MASON PLUTON
Bridge River Suture
Nahatlatch River
lKSqd
SCUZZY PLUTON
Scuzzy Creek
Snowcap Icefield
Nimbus Glacier
THOMAS LAKE PLUTON
PINECONE
PLUTON
SPUZZUM PLUTON
MOUNT CLARKE
PLUTON
KGB
Harrison Fault
Long Island Fault
Harrison Lake
Thomas Lake
VICKERS
CREEK
PLUTON
LILLOOET PLUTON
Pitt Lake
Chehalis Lake
JH
SPUZZUM
PLUTON
1-3
1-2
Mm
Stave Lake
Alouette Lake
Harrison River
MOUNT JASPER PLUTON
mlJqd
MOUNT BARR
BATHOLITH
1-1
EKl
Pitt River
Alouette River

Fig 1C

pyrrhotite in pyroxenite; as well as semi-massive sulphides consisting of pyrrhotite; pentlandite and minor chalcopyrite.
The source of the mineralization has been indicated by finding mineralized float and obtaining anomalous geochemical results from drainages that lie slightly north and west of the 150M by 50M boulder field located on Stokkes Creek.

The best mineralization found on Stokkes Creek came from a semi-massive sulfide sample found in the boulder field and assayed the following: .57 % Ni; .035 % Co; and .38% Cu (Sample PR 1-2).
A similar massive sulphide sample was analyzed (Sample SK -2) and returned values of .44% Ni; .027% Co and .14% Cu.
There appears to be a large variation in the PGM content of samples as can be seen from PR 1 -2 and SK - 2 in that PR 1-2 returned 110.5 ppb in Pt + Pd while sample SK -2 returned only 7 ppb in Pt + Pd. This may be in part due to a nugget effect.

In addition to the rock types previously mentioned it should be noted that a large amount of coarse grained pyroxenites can be found in the boulder field. These have pyroxene crystals up to 1.5 cm in length (and greater) and commonly an abraded texture to the outer rim of the pyroxene crystals can be seen. In addition to these rock types there is a heterolithic breccia; composed of intrusive(?) fragments and gneissic fragments cemented by pyroxenitite with a weak dissemination of pyrrhotite.

3
Re-examination of propective areas that were not staked during the previous staking campaign did not yield any positive results.

4
Reconnaissance of logging roads that had not been previously examined did not yield any positive results (English Main, Big Silver North etc.)

PEMBERTON

The area from the north end of Lilloett Lake to Port Douglas was explored for the possibility of mineralized pyroxenite bodies. As in the Harrison area, access is difficult and the terrane is rugged with thick vegetation at lower elevations.

Geochemical sampling in the area yielded no significant results. A small pyroxenite body was located on the Twin One creek road and a minor amount of pyrrhotite (4%) was associated with this pyroxenite. The extent of the pyroxenite was found to be limited to approximately 100 meters in width and was weakly mineralized. Geological evidence suggests that the amphibolized pyroxenite was intruded into the surrounding granodiorites.
Boulders of coarse grained pyroxenites (up to 3cm crystal grains) were noted in several creek drainages (Gowan Cr., Twin One Creek; Twin Two Cr.; Lizzie and Frank Creek).
The source of these boulders appears to be from Alpine glaciers originating to the east of the headwaters of these creeks.
None of the boulders contained any sulphide mineralization.

NAHATLATCH

The Nahatlatch valley was examined in a reconnaissance fashion. The area where Kookipi Creek enters into the Nahatlatch was found to be the beginning of a eastern belt of metasedimentary rocks that extend to the Fraser River. This eastern belt of metasedimentary rocks contains slivers of ultramafics, however, the metasedimentary rocks appear to be predominately of greenschist metamorphic facies.
The Keefers showing was (minifile: 0921SW071)located and consists of several small cuts and pits cut into silicified argillites that have been severely tectonically disrupted. The rocks are heavily limonite stained and minor pyrrhotite can be seen on fresh surfaces. The showings do not display any continuity and at no place could any significant mineralization be found to have been developed.

The western end of the Nahatlatch valley was examined and mineralized pyroxenite float taken from the alluvial fan of a creek with abundant pyroxenites (similar to those found in the Harrison area). A mineralized sample of pyroxenite (approx. 3% sulphides) gave the following results:

SB -01 - NH   Ni = 1010 ppm   Co= 116 ppm Cu = 793 ppm

Silts taken both from the creek with the mineralized float and those draining two adjacent drainages gave anomalous results in nickel, cobalt and copper as compared to other silts taken from the area. (see: SB - 01 - NH to SB - 05 - NH).

Follow-up in this area was not possible after the access to the area became impassible for 4 wheel drive vehicles in the fall of 2001.

GEOCHEMISTRY

A total of 22 soil samples; 28 rock chip samples; 4 pan concentrates; and 23 silts were collected during the 2001 field season.
The breakdown of samples according to their location and type is as follows:

HORNET CREEK

Soil
Sample # 74557
Rock
Sample #74558

STOKKES CREEK

Rock
Sample # PR 1-2
PR 1-3
PR 1-4
PR 1-5
PR 1-6
PR 1-8
PR 1-13
PR 1-14
LR 2-1
PR 2-3
PR 2-5
PR 2-12
SK 1
SK 2

Pan Concentrates
Sample # PH 1-7
PH 1-8
PH 1-9
PH 1- 13

Silts
Sample # PT 1-1
PT 1-8
PT 1-9
PT 1-10
PT 1-11
PT 1-13

SABLE MINERAL CLAIM

Soil
Sample # L1-1
L1-2
L1-3
L1-4
L1-5
L1-6
L1-7
L1-8
L1-9
L1-10
L1-11
L1-12
L1-13
L1-14
L1-15
L1-16
L1-17
L1-18
L1-19
L1-20
L1-21

Silts
Sample #SBSL-1
SB-01-17
SB-01-18
SB-01-19
PT-27-9-3

Sable Continued

Rock Chip
Sample # SB-01-01
SB-01-02
SB-01-03
SB-01-04
SB-01-05b
SB-01-06
SB-01-07
SB-01-13
SB-01-15
SB-01-16
SB-01-22
SB-01-23

PEMBERTON

Silt
Sample #A4-01/PT 1-4
A4-01/PT 1-5
A4-01/PT 1-6
A4-01/PT 1-9
A4-01/PT 2-4
A4-01/PT 2-5
A4-01/PT 3-4

NAHATLATCH

Silt
Sample# SB-01-NH
SB-02-NH
SB-03-NH
SB-04-NH
SB-05-NH

Rock
Sample# SB-01-NH

Discussion of Results

Geochemical results for nickel,copper and cobalt appear to be the most reliable elements to detect areas that may have mineral deposits of similar elements. The platinum group elements appear to be more useful in soil and rock samples in locating areas anomalous in these elements. Pan concentrate and silt samples analysed for these elements yield inconclusive results.

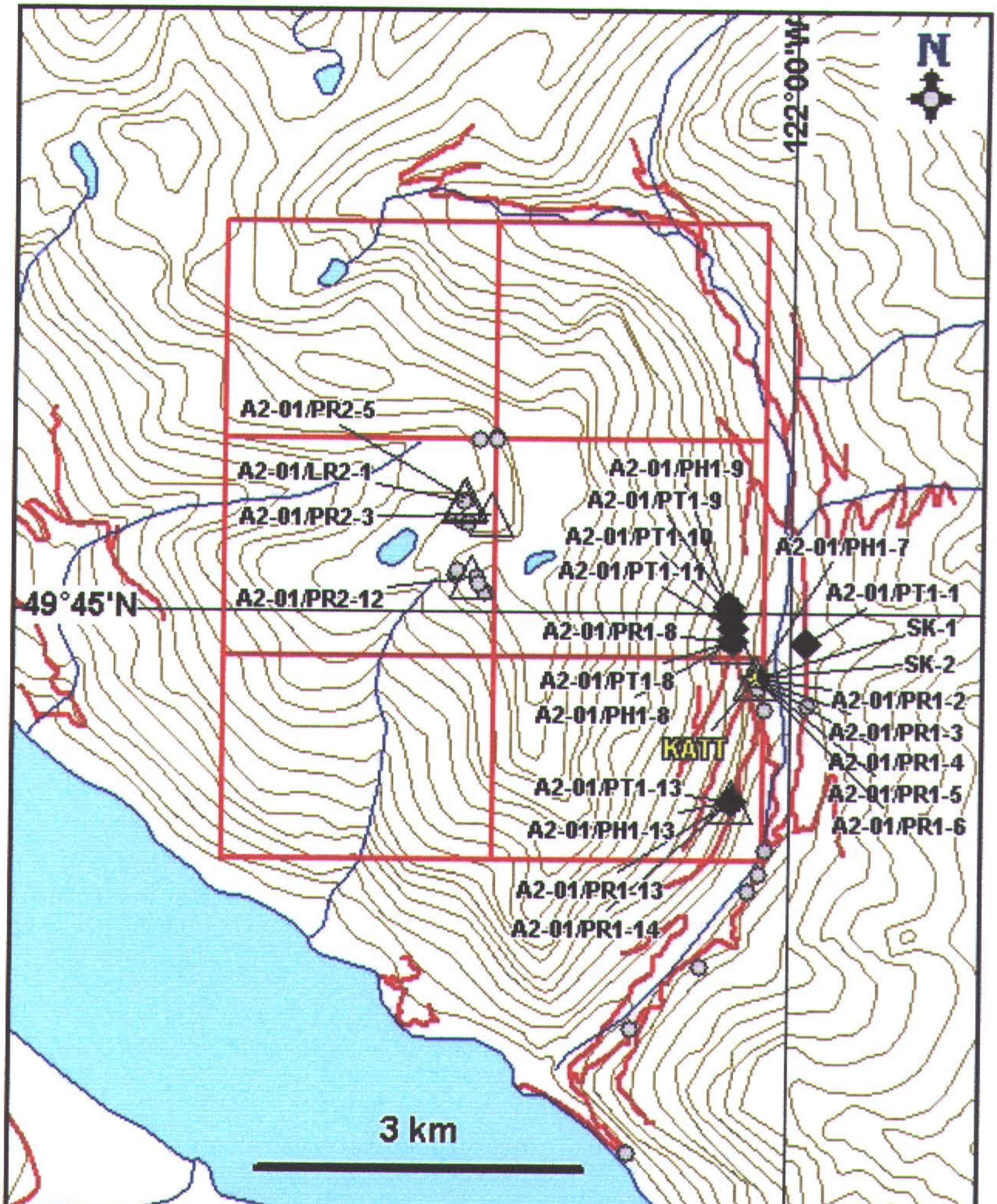
SILT SAMPLE RESULTS

A review of the results of the silt sampling indicates that values above the following can be considered anomalous:

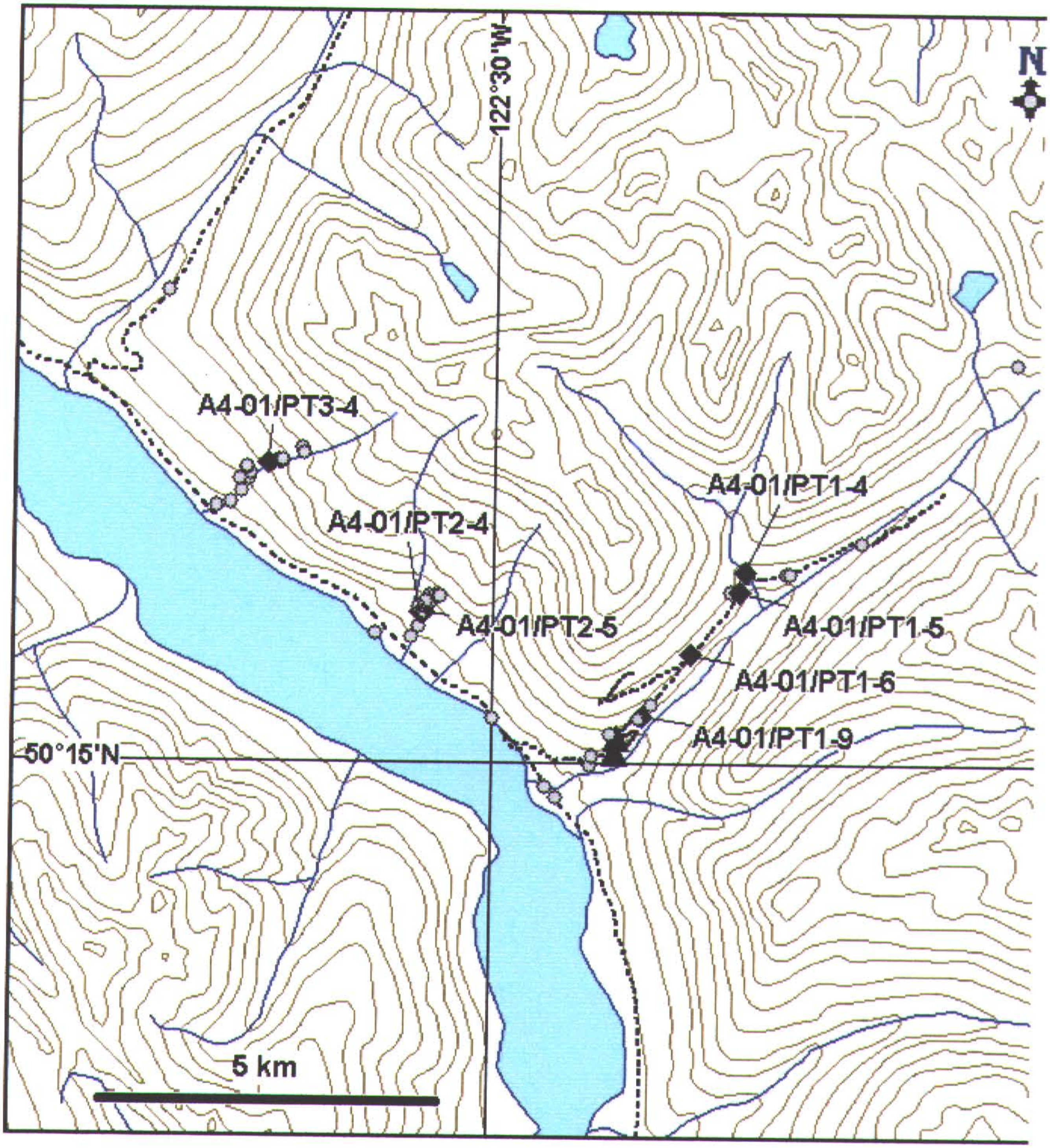
Copper > 40 ppm
Cobalt > 18 ppm
Nickel > 40 ppm

The evaluation of the silt data gives the following areas of anomalous results:

	Cu	Co	Ni
STOKKES CREEK			
PT 1-8	155	31	73
PT 1-9	86	28	70
PT 1-10	77	28	66
PT 1-11	88	34	81
PT 1-13	148	35	90
PEMBERTON			
A4-01 PT2-5	39	12	46
NAHATLATCH			
SB-01-NH	43	18	30
SB-02-NH	38	26	44
SB-03-NH	37	14	44
SABLE			
PT 27-9-13	18	20	52
SB-01-17	28	18	52
SB-01-19	32	16	56



STOKKES CREEK


122°30'W
N
A4-01/PT3-4
A4-01/PT1-4
A4-01/PT2-4
A4-01/PT2-5
A4-01/PT1-5
A4-01/PT1-6
A4-01/PT1-9
50°15'N
5 km

PEMBERTON

Silts taken from drainages into Stokkes Creek returned the most significant anomalies with 5 silt samples returning anomalous results in all three elements. These results are considered highly significant as they probably indicate the source area for the mineralized boulders found in Stokkes Creek.

One silt taken from the northwestern portion of the Sable mineral claim returned anomalous results in two elements. This result is considered significant as the silt is derived from a drainage originating to the north of the Sable Mineral Claim.

One silt from Nahatlatch returned one silt anomalous in two elements. (It is considered significant that the above silts contained anomalous cobalt). The anomalous results from the Nahatlatch area are considered significant abundant coarse grained pyroxenites were noted as well as obtaining anomalous values in nickel, copper and cobalt from a pyroxenite float sample found in the alluvial deposits in creek SB-01-NH.

One silt from the Pemberton area returned an anomalous nickel result. This result is not considered to be of significance due to the fact that examination of float in the creek drainage was unmineralized pyroxenite.

PAN CONCENTRATE RESULTS

Four (4) pan concentrates were taken in the Stokkes Creek area; PH 1-7;PH 1-8;PH 1-9 and PH1-13. These samples were analysed for their gold,platinum and palladium contents. The results for all four samples yielded similar values and the significance of the pan concentrate results is dubious.

ROCK GEOCHEMISTRY

HARRISON

STOKKES CREEK

	ppb Au	ppb Pt	ppb Pd	ppm Cu	ppm Co	ppm Ni
PR 1-2	31	46.5	64	3840	356	5690

Semi-massive sulphide with phenocrysts of pyroxene within sulphide matrix. (sulphides @ 70%)

PR 1-3	26	3.0	4	796	168	808
PR 1-4	10	1.4	4	1840	255	1845
PR 1-5	2	19.0	10.0	1410	143	956
PR 1-6	<1	0.5	<1	14	91	44
PR 1-8	2	9.5	5	602	165	1815
PR 1-13	5	2.0	1	976	126	740
PR 1-14	7	52	50	723	95	857
SK 1	30	2.0	5	0.14%	.027%	.17%

Pyroxenite with disseminated pyrrhotite (and pentlandite) (sulphides @5%)

SK 2	13	4.5	23	0.18%	.068%	.44%	

Semi-massive sulphides with accompanying silicates. Magmatic textures to sulphide-silicate boundaries.(sulphides @ 60%)

	ppb Au	ppb Pt	ppb Pd	ppm Cu	ppm Co	ppm Ni	ppm Cr
LR 2-1	13	2.5	3	1465	86	145	67

Horfelsic appearance;fine grained (1mm) with 60% spinels. Pyrrhotite noted.

PR 2-3	9	2.0	4	1750	77	215	402

Coarse grained gabbro with 5% sulphides and 5% magnetite. Strongly magnetic.

PR 2-5	1	0.5	<1	100	33	36	145

Hornfelsic appearance; fine grained (1 mm) with 10% pyrrhotite. Magnetitic.

PR 2-12	2	3.5	7	406	52	140	704

Gabbro(?)

HORNET CREEK

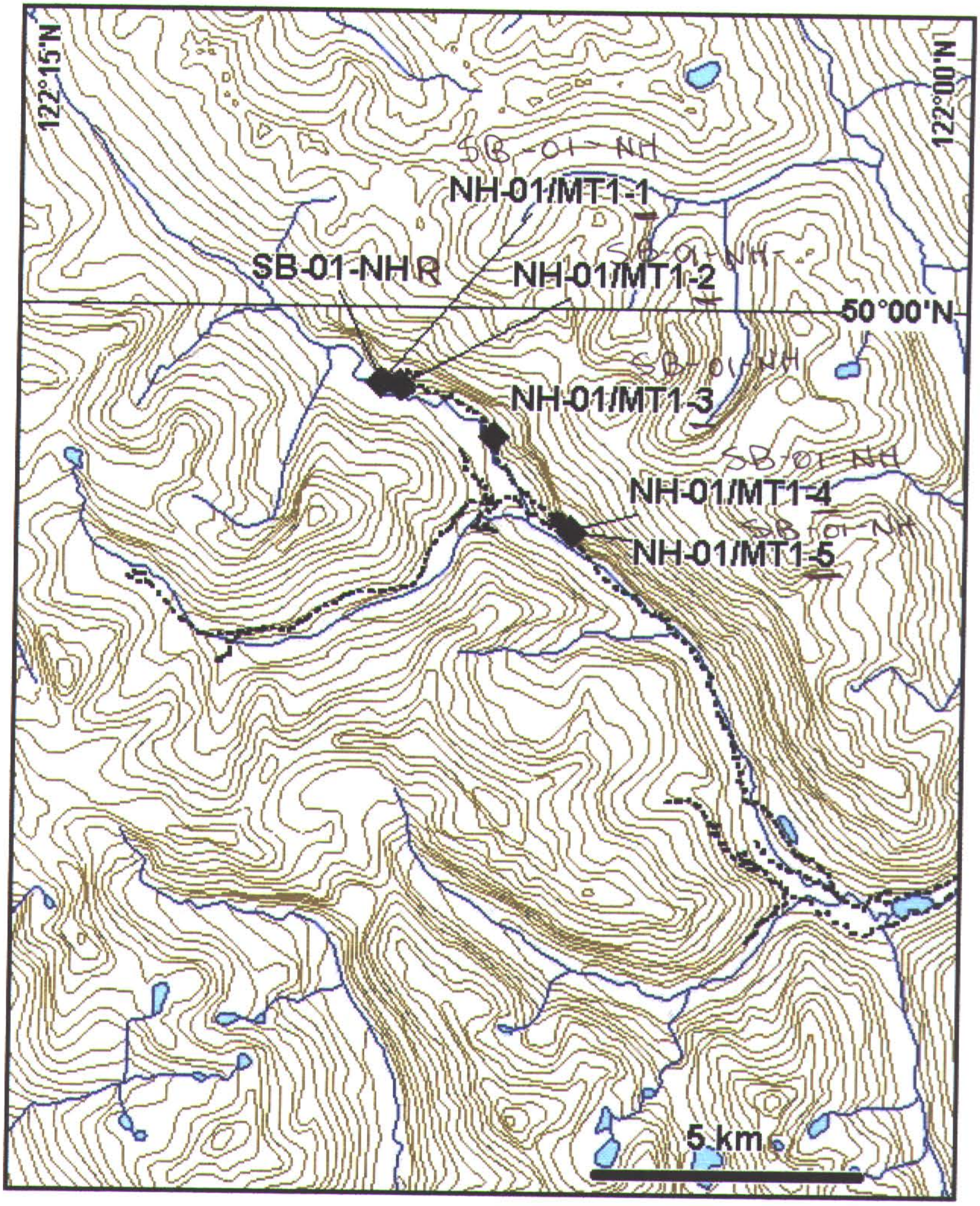
#74558	81	1	2	41	3	15	76

Fine grained, hematite and manganese stained highly weathered mafic(?)

NAHATLATCH

SB-01-NHR	4	1.5	1	793	116	1010

Pyroxenite; dark green with 1cm orthopyroxene crystals set in a fine grained matrix. (3% sulphides - pyrrhotite and pentlandite(?))


122°15'N
122°00'N
SB-01-NH
NH-01/MT1-1
SB-01-NH
SB-01-NH R
NH-01/MT1-2
50°00'N
SB-01-NH
NH-01/MT1-3
SB-01-NH
NH-01/MT1-4
SB-01-NH
NH-01/MT1-5
5 km

NAHATLATCH

SABLE MINERAL CLAIM (see Ass. Rept.)

	ppb Au	ppb Pt	ppb Pd	ppm Cu	ppm Co	ppm Ni
SB-01-01	2	1.5	4	77	15	15
Limonite stained pyroxenite						
SB-01-02	1	<.5	<1	75	56	185
Pyroxenite with feldspars ; pyrrhotite noted						
SB-01-03	5	2.0	3	274	51	202
Coarse grained pyroxenite (chalcopyrite and pyrrhotite noted)						
SB-01-04	1.5	1.5	6	127	7	18
Heavy limonite stained pyritic shear zone (1meter)						
SB-01-05B	4	3.5	4	74	7	7
Gabbro with minor sulphides						
SB-01-06	<1	0.5	1	42	34	59
Medium grained pyroxenite; no sulphides noted						
SB-01-07	1	1.5	<1	141	78	264
Megacrystic pyroxenite with sulphides						
SB-01-10	1	14.5	2	90	28	36
Coarse grained bladed pyroxene-feldspar unit						
SB-01-13	1	11	10	692	46	371
1 meter sample of shear zone in pyroxenite						
SB-01-15	<1	0.5	1	189	53	81
1 meter chip sample of pyrrhotite in fracture zone.						
SB-01-16	<1	5.5	4	793	116	1010
Pyroxenite with gabbro zenoliths; magnetic with sulphides						
SB-01-22	<1	2.5	2	884	112	768
"cobble and pebble" pyroxenite with 3% pyrrhotite; highly magnetic						

SB-01-23	< 1	<0.5	<1	53	108	42

Pyrrhotite (3%) disseminated in pyroxenite

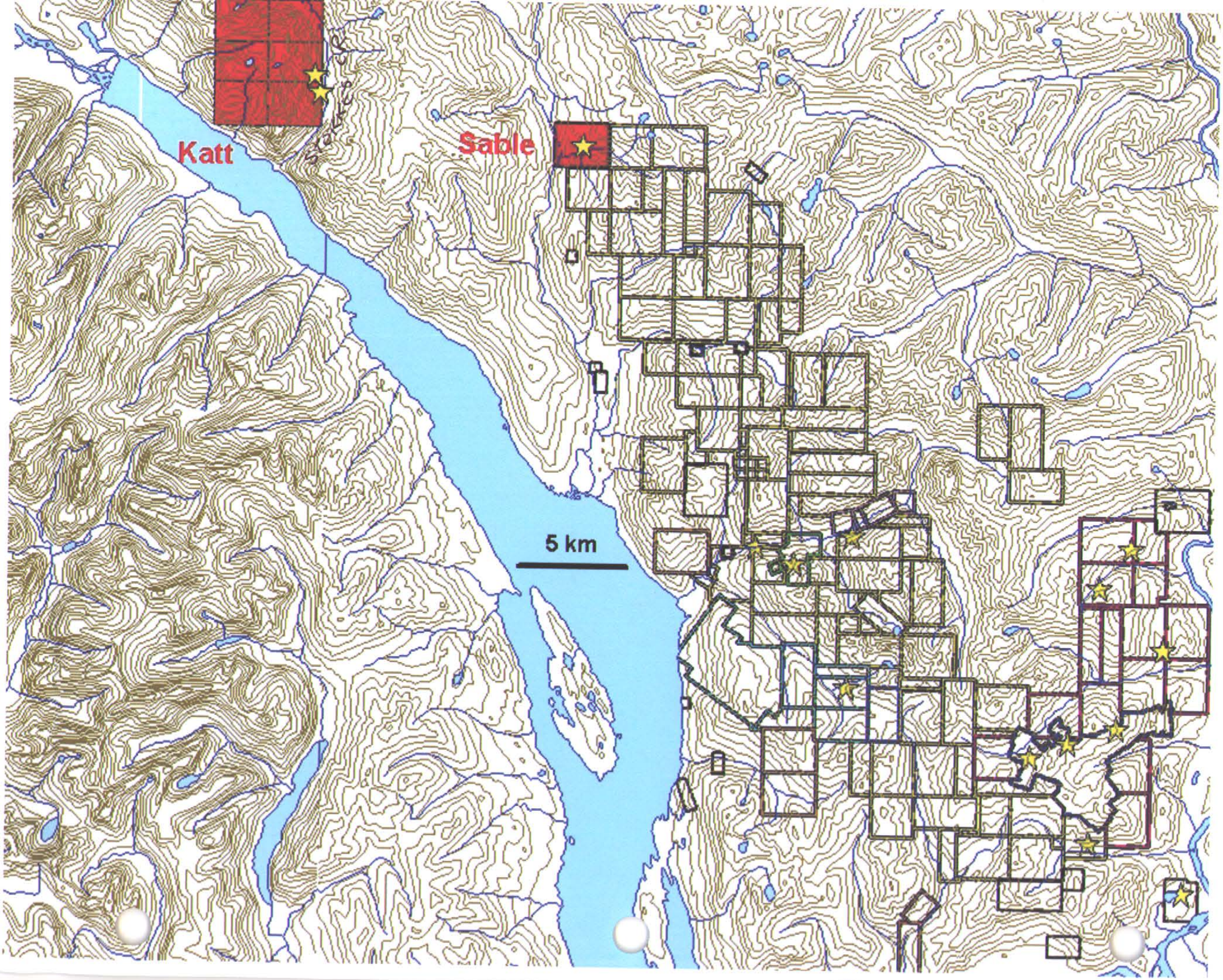
SOIL GEOCHEMISTRY

	Co	Ni	Cu
L1-1	40	371	135
L1-2	40	120	45
L1-3	40	239	75
L1-4	25	108	25
L1-5	20	72	30
L1-6	20	39	50
L1-7	20	82	185
L1-8	55	413	35
L1-9	25	72	190
L1-10	25	113	95
L1-11	50	131	315
L1-12	25	54	45
L1-13	25	89	55
L1-14	125	687	505
L1-15	30	121	85
L1-16	20	48	25
L1-17	20	78	35
L1-18	25	41	25
L1-19	15	22	25
L1-20	20	60	45
L1-21	20	54	65

Soil samples collected at 25 meter intervals along an east-west line across the strike of the mafic complex.
40 and greater is considered anomalous for cobalt
100 and greater is considered anomalous for nickel
75 and greater is considered anomalous for copper

Discussion of Rock and Soil Geochemical Results

Both the soil and rock geochemistry indicate that concentration of nickel; copper and cobalt occurs at the contact of the mafic intrusive complex and the metasedimentary rock boundary. Sporadic highs within the mafic complex occur within coarse grained (>1cm. pyroxene crystals) pyroxenites. The soil geochemistry has a distinct western boundary and is open with anomalous results to the east. Highs bounded by the eastern anomalous area and the western boundary are attributed to zones of metal concentration in coarse grained pyroxenite units. Remobilization of sulphides has occurred along shear zones that occur at or near to the contact of the mafic intrusive contact and the metasedimentary rock boundary.


Katt
Sable
5 km

P57

PRELIMINARY GEOLOGICAL AND GEOCHEMICAL ASSESSMENT

SABLE MINERAL CLAIM

49°43'21.4"N, 121°50'3.9"W

New Westminster Mining Division

for

Murray McLaren, Owner

by

Paul Metcalfe P.Geo. and Murray McClaren

Operators

13 January 2002

Summary

The SABLE mineral claim, to the northwest of Harrison Lake in the New Westminster mining division, lies along the outcrop trend of the Pacific Nickel Complex. This basic-ultramafic complex hosts the past-producing deposits of the Giant Mascot nickel-copper mine; these deposits also contain anomalous values of platinum-group metals.

The Sable showing, at the centre of the mineral claim, is hosted by an undeformed mafic intrusion of presumed Late Cretaceous or Eocene age, comprising very coarse-grained pyroxenite, altered dunite and olivine gabbronorite. These lithologies contain microscopic textures identical to those at the Giant Mascot mine, indicating that both areas represent parts of a comagmatic system.

The Pacific Nickel Complex on the SABLE claim has intruded garnet and kyanite-bearing quartzofeldspathic and hornblendic Custer Gneiss and Settler Schist. The contacts of the intrusion are parallel to the subvertical regional metamorphic foliation and banding, which has a strike of 330 in this area. Small asymmetric folds in the metamorphic wallrock on either side verge towards their intrusive contacts, suggesting that the intrusion lies at the core of an isoclinal antiform with subvertical limbs; b-lineations of amphibole-rich bands indicate that the fold plunges to the north-northwest at an angle of between 20° and 30°.

The shape of the intrusion is that of a large subvertical dyke, with cleaved, finer-grained margins. This intrusion is open to the southeast, within the limits of mapping. To the north, the intrusion is not exposed, except as an isolated outcrop of gabbronorite and its aeromagnetic signature is truncated. It is possible that the intrusion is displaced by a buried, east-west fault or faults.

Mineralization occurs as intersertal grains of nickeliferous pyrrhotite and chalcopyrite which are intergrown with the later-formed coarse pyroxene phenocrysts. Grab samples from the mineralized western margin of the intrusion returned values as high as 0.19% Cu, 0.31% Ni, 0.029% Co, 0.032% Cr and 0.08 g/tonne Pd. Samples taken of 1 m^2 panels and 1 m channels to the north and south of the showing returned values only as high as 0.09% Cu, 0.10% Ni, 0.011% Co, 0.0145 g/tonne Pt and 0.011 g/tonne Pd. However, soil samples taken at 25 m intervals along a 500 m line perpendicular to the western contact returned values as high as 585 ppm Cu, 687 ppm Ni and 125 ppm Co. At least three anomalous zones are present, the most easterly zone being open to the east.

Five stream sediment samples taken from the claim returned moderately elevated values of Cu, Ni and Co, but samples spaced close together did not return consistent results. While these base metal elements are effective tracers of copper-nickel mineralization, the method requires that a significant number of field replicates be taken in order to be effective in locating sources of mineralization.

It is concluded that soil geochemical sampling should be continued on a soil grid with 100 m line spacing and a 25 m sample spacing. The grid should be sampled outward from the initial line at 200 m intervals, filling in the alternate lines as required by logistics and contingent on favourable results. The soil sampling program can be carried out at the same time as prospecting and mapping to constrain the outcrop area of the intrusion to the north and south. A ground geophysical survey, comprising use of a magnetometer and VLF-EM will be contingent on favourable results from the extended sampling.

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Introduction

A new nickel-copper occurrence was discovered by Murray McClaren in the autumn of 2000. The mineral occurrence (MINFILE 092HNW077) is located on an old logging road cut along Fir Creek, a tributary of Big Silver Creek in the northwestern part of the Harrison Lake watershed. A grab sample taken from a 100 metre-wide outcrop of variably sulphidic quartz hornblende schist subsequently yielded 0.19% copper (Cu), 0.31% nickel (Ni), 0.029% cobalt (Co), 0.032 % chromium and 0.08 g/tonne palladium, with trace values of platinum (Pt). On the basis of this discovery, the SABLE mineral claim was staked by Murray McClaren on October 15th, 2000.

The host rocks found on the Sable Mineral Claim are identical to those hosting the past-producing Giant Mascot nickel-copper mine located near Hope, B.C. The latter comprises a number of magmatic sulphide deposits, hosted by the Pacific Nickel Complex and which produced 4,319,976 tonnes of ore grading about 0.77% Ni and 0.34% Cu. Renewed interest in the belt is the result of its potential for magmatic platinum group element (PGE) deposits. The Ni-Cu mineralization at Giant Mascot is intimately associated with the intrusion and fractional crystallization of a mafic magma. Many such intrusions are also prospective for platinum group element (PGE) occurrences. The Sable mineral occurrence, occurring in identical rocks, has similar potential. In order to assess this potential more fully, a program consisting of geological mapping; rock, soil and silt geochemistry and prospecting was carried out during September of 2001.

Location and Access

The location of the SABLE mineral claim within the Giant Mascot - Cogburn Creek Ni-Cu-(?PGE) belt is shown in Fig.1. The claim lies at the north end of the belt and encloses the only presently known mineral occurrence north of the Al mineral occurrence (MINFILE 092HNW040), which lies 20 km to the south.

The Legal Corner Post (LCP) of the SABLE claim is located at latitude 49°42'49.0"N, longitude 121°51'6.5"W, in New Westminster Mining Division, 540 m south-southwest of the confluence of Big Silver Creek and Fir Creek and approximately 9.5 km northeast of Harrison Lake (Figs. 1 and 2). The claim comprises 20 units, 4N x 5E; its centre lies 1100 m east-northeast of the same confluence. The ground covered by the mineral claim lies within the National Topographic System (NTS) map-area 92H12E and the Terrain Resources Integrated Management (TRIM) map 092H071. The latter map was used as a basis for the text figures in this report. Grid references will be given either as latitude and longitude (above) or as Universal Transverse Mercator (UTM) coordinates, based upon the North American Datum of 1983 (NAD83).

The property is accessed from the town of Harrison Hot Springs by a well-maintained logging haulage road, a distance of 46 kilometres . A spur road in poor condition crosses Big Silver Creek via a bridge, the latter in good condition. The 2 kilometre road provides 4 wheel drive access to a network of roads across the property which are traversable by vehicle and/or on foot.

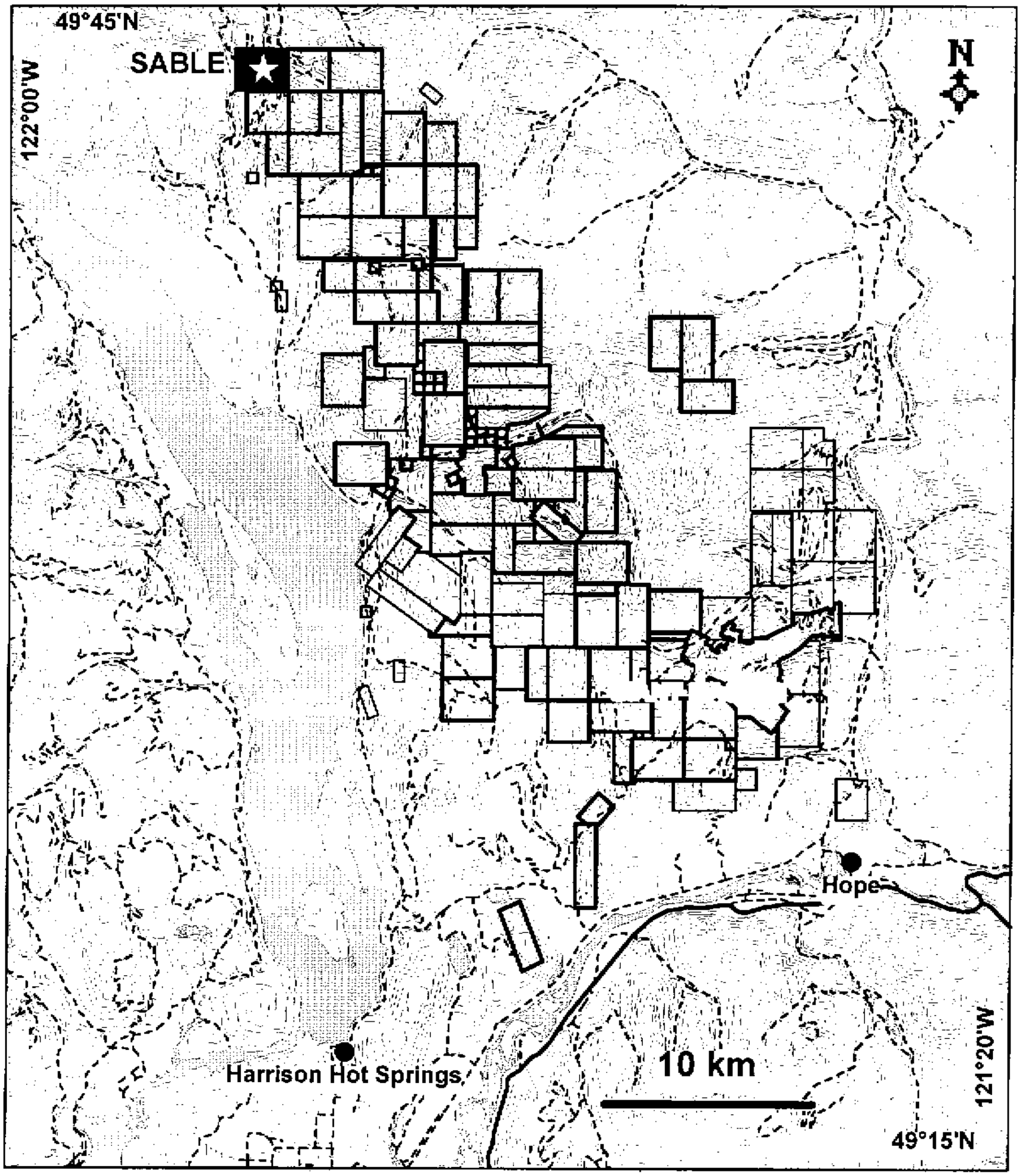

Fig.1. Location of the SABLE mineral claim at the north end of the Giant Mascot-Cogburn Creek Ni-Cu ±PGE belt. The claim is easily reached by logging roads from Harrison Hot Springs.

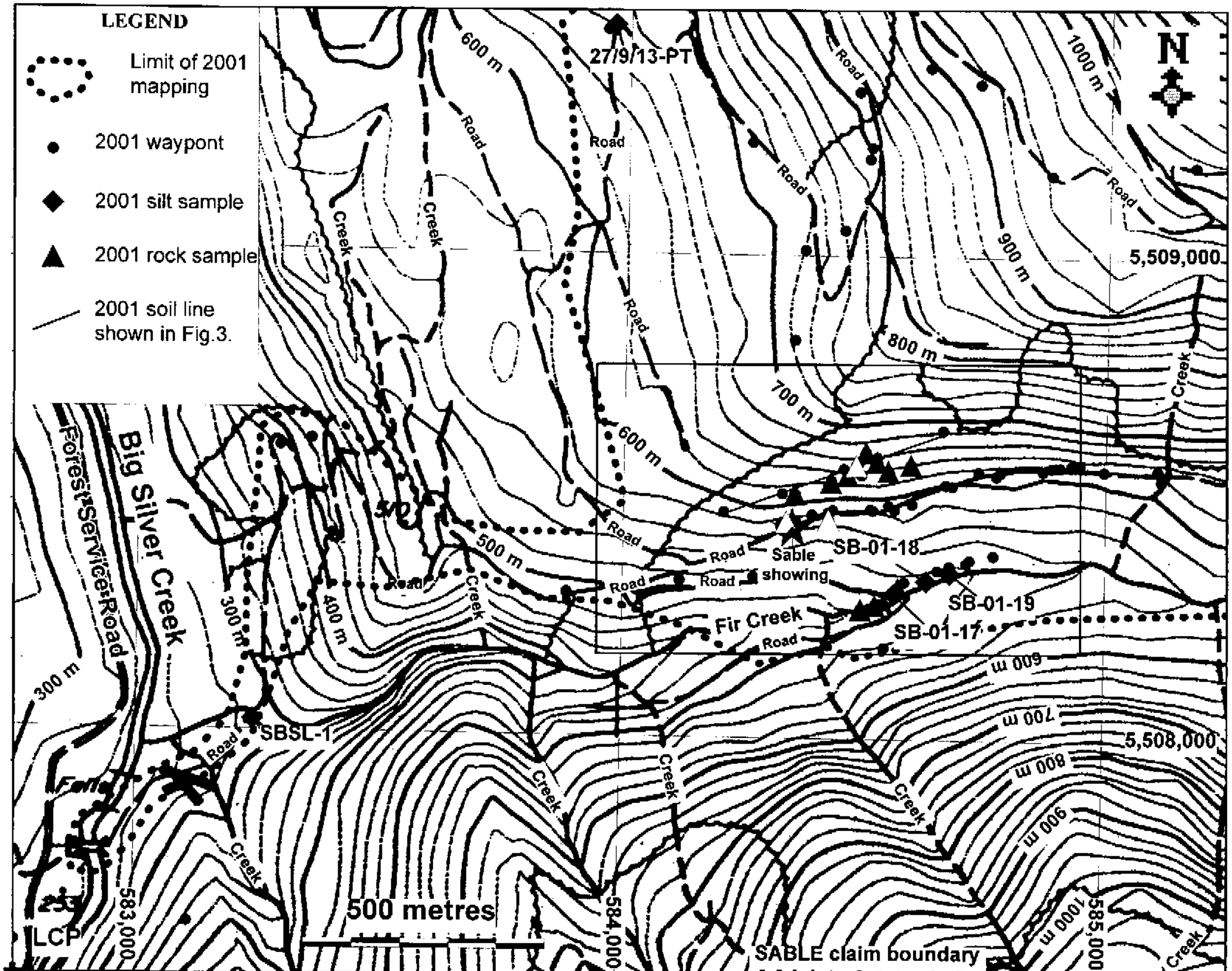

Fig.2. 1:12,000 map of the SABLE mineral claim, based on a Universal Transverse Mercator projection (North American Datum 1983).

Claim Status

The particulars of the property are as follows:

Claim Name	Tenure Number	Number of Units	Claim Type	Location Date	Registered Owner
SABLE	381663	20	4 post	15/10/2000	Murray McClaren (100%)

Physiography, Climate and Vegetation

The Sable mineral claim lies in the eastern part of the Coast Ranges of southwestern British Columbia, an area of valleys deeply incised by glaciers and by watercourses. The claim is located in moderate to steep topography with elevations ranging from 300 m above sea level (a.s.l.) In the west of the property to as much as 1100 m in its northeastern corner. The terrain is characterized by a steep slope from the valley of Big Silver Creek, to an elevation of 500 m a.s.l. At the top of the slope, in the west-central part of the property the terrain flattens to a terrace with deranged drainage, ponds and swampy areas. The ground rises more steeply to the northeast from the terrace to a height of over 1100 m a.s.l. beyond the claim boundary. To the south of Fir Creek, the terrain slopes steeply upward to a elevations of over 1000 m. However, despite locally steep slopes, avalanche chutes and hazardous cliff areas, most of the property is accessible on foot.

The annual precipitation is over 1.6 m, at least 70% of which falls as snow during the period between September and April. Snow accumulations of several metres can be expected during these months. Moderate to (locally) thick growth of subalpine conifers and alder occurs over most of the property and logging roads are lined by poplar and alders. In swampy areas and on north-facing slopes, locally thick growths of slide alder and devil's club occur.

Previous work

The SABLE mineral tenure is a newly-located claim in an area hitherto without mineral occurrences. Previously known in the area is restricted to the Scuzzy showing and GEM property, both Cu-Mo porphyry occurrences (MINFILE numbers 092HNW072 and 092HNW001 respectively), the Wren showing, a gold-bearing quartz vein (MINFILE 092HNW006), Harrison Lake Garnet, a garnet-kyanite mineral occurrence (MINFILE 092HNW051) and the vein-hosted gold-silver mineralization at Doctors Point (MINFILE 092HNW071). None of these are of immediate relevance to the mineralization on the SABLE claim. The only recent additions to mineral tenure in the area are the mineral claims immediately to the south, for which publications are pending at the time of writing.

Claims further to the south along the belt enclose the three deposits composing the Giant Mascot nickel-copper mine (MINFILE 092HSW004, 092HSW093, 092HSW125; Aho 1954, 1956, Muir 1971, Rote 1974, Christopher 1975, MacLeod 1975, McLeod *et al.*1976), the Settler Creek ,COG, NI and DAIOFF prospects (MINFILE 092HSW081, 092HNW045; Berg and Gonzalez 1971, Rote 1975, Sookochoff and Boitard 1992) and the JASON prospect (MINFILE 092HNW076), for which no assessment work has been made public.

The regional geology has been mapped and studied by a considerable number of researchers, including Reamsbottom (1972, 1974), Monger (1969, 1989, 1991), Journeay (1990), Journeay and Monger (1990, 1995, 1998), Monger and Journeay (1994), Journeay and Csontos (1989), Journeay and Friedman(1993), Umhoefer (1990), Lapen (1998) and Umhoefer and Miller (1996). An overview of earlier work is presented by Woodsworth and Monger (1992) and by Woodsworth et al. (1992). The area is presently being remapped, with focus on the Cogburn Creek area, by C. Ash of the B.C. Geological Survey Branch. This continues work carried out by the Geological Survey Branch on the potential of ultramafic rocks to host magmatic ore deposits in British Columbia (Hancock 1990, Nixon and Hammack 1990).

Assessment work

Scope

Assessment work was carried out on the SABLE claim during September of 2001. The area covered by the work was mainly in the western part of the property, centred around the Sable mineral showing (Fig.2). The purpose of this work was to determine the extent of anomalous nickel and copper mineralization on the property and to determine the extent of the host intrusion. To this end, the work comprised geochemical sampling of soil and stream sediment and rock samples, together with geological mapping. A detailed statement of expenditures is given in Appendix 1.

Soil sampling

A single soil line was constructed across regional strike, using hip chain and compass, with stations marked by flagging. The location of the soil line is shown in Figs.2 and 3. The line was extended from the western contact of the pyroxenite with the gneiss to subcrop of gneiss on the other side of a loss of exposure parallel to that seen on the logging road prior to staking. The gneissic outcrops were interpreted by the authors to be the wallrock beyond the western contact of the pyroxenite/gabbronorite intrusion. This interpretation proved to be erroneous.

Five control points were measured using the E-Trex GPS unit; each station was located to a precision of ±8 m. The soil line was constructed on a bearing of 250. The location of each control point falls within error of such a line. Locations given for each soil sample were calculated using a least-squares fit of the 250 line through all control points. Sample locations, together with analytical results are listed in Table 1 and are shown on Fig.3.

The results may be compared with those cited by Hasek (1971) for the NI claims to the south; Hasek, on the basis of a sample population considerably greater than that obtained on SABLE, noted that Ni values above 300 ppm and Cu values greater than 150 ppm in soil were considered anomalous. Based upon this statistical analysis, the soil line described herein transects two zones anomalous in Cu and Ni and a third which is anomalous in Ni, with elevated Cu concentrations. The highest value returned for the soil line was 505 ppm Cu, 687 ppm Ni and 125 ppm Co. Concentrations of all three elements decrease sharply across the projected contact of the intrusion with the Settler gneisses (Fig.3).

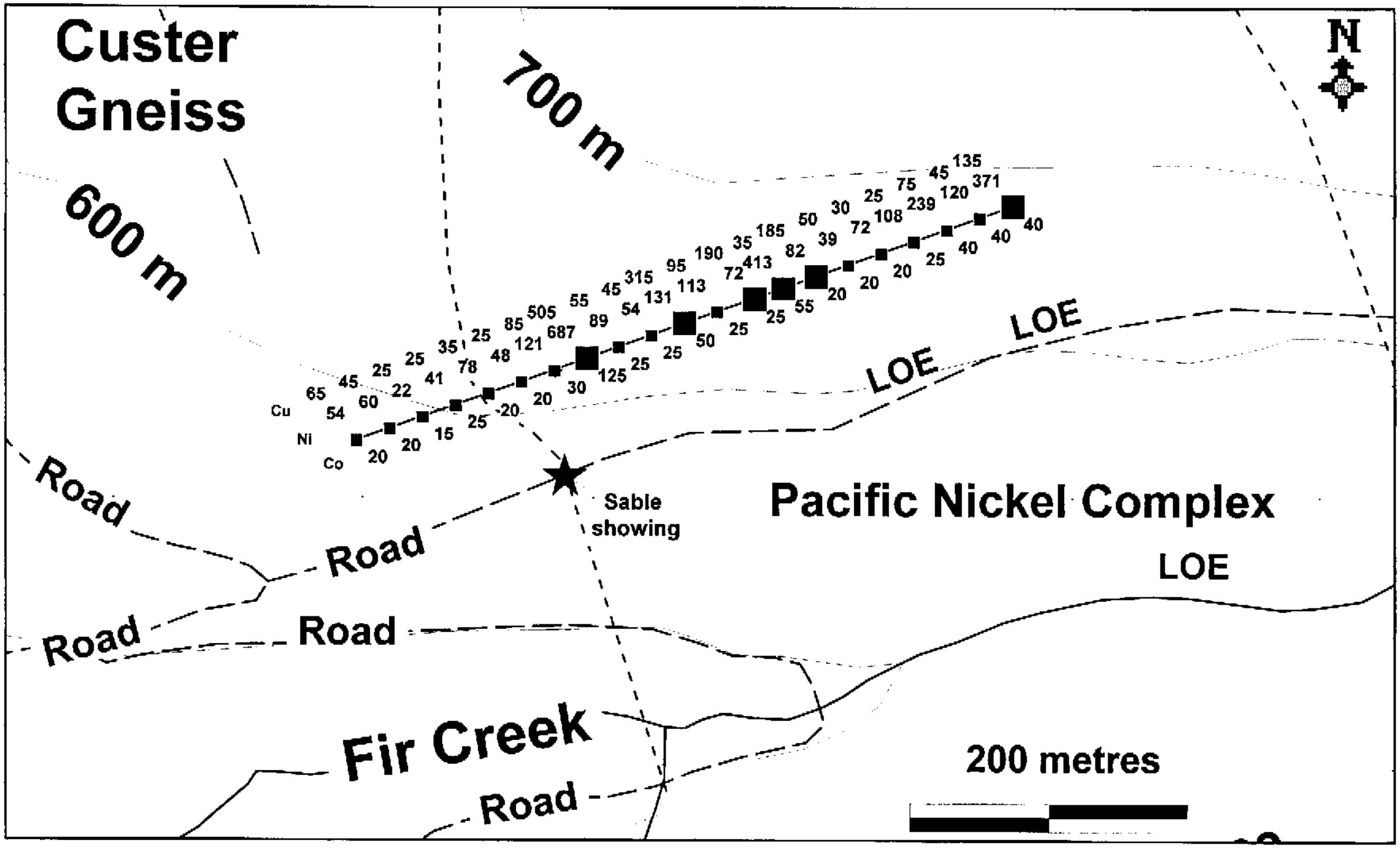

Fig.3. Results of soil sampling, also listed in Table 1. Large squares are anomalous samples, small, non-anomalous. ★ = Sable showing (MINFILE 092HNW077). Two northwesterly-trending contacts are shown by short-dashed lines. Map scale 1:4500.

Table 1. List of analytical results and locations for soil samples.

Sample	Latitude	Longitude	UTMN83	UTME83	Waypoint	Depth (cm)	Horizon	Colour	Co	Ni	Cu
L1-1	49.723732	-121.825048	5508577.21	584685.95	268	65	"C"	Sandy brown	40	371	135
L1-2	49.723656	-121.825375	5508568.39	584662.51	X	50	C	Dark sandy brown	40	120	45
L1-3	49.723580	-121.825703	5508559.58	584639.00	X	50	C	Dark sandy brown	40	239	75
L1-4	49.723504	-121.826030	5508550.76	584615.57	X	70	Mixed B/C	Mixed grey/sandy brown	25	108	25
L1-5	49.723428	-121.826357	5508541.94	584592.13	X	40	C	Sandy brown	20	72	30
L1-6	49.723352	-121.826685	5508533.12	584568.62	X	40	C	Reddish brown	20	39	50
L1-7	49.723276	-121.827012	5508524.30	584545.19	267	30	C	Ochre/rust	20	82	185
L1-8	49.723200	-121.827339	5508515.49	584521.75	X	45	C	Ochre	55	413	35
L1-9	49.723129	-121.827625	5508507.27	584501.26	269	65	"C"	Ochre	25	72	190
L1-10	49.723048	-121.827994	5508497.85	584474.80	X	15	"C"	Ochre	25	113	95
L1-11	49.722972	-121.828321	5508489.03	584451.37	X	15	"C"	Sandy brown	50	131	315
L1-12	49.722896	-121.828648	5508480.22	584427.93	X	40	C	Sandy brown	25	54	45
L1-13	49.722820	-121.828976	5508471.40	584404.42	X	40	C	Sandy brown	25	89	55
L1-14	49.722744	-121.829303	5508462.58	584380.98	X	65	C	Sandy brown	125	687	505
L1-15	49.722668	-121.829630	5508453.76	584357.55	271	70	C	Sandy brown	30	121	85
L1-16	49.722592	-121.829958	5508444.95	584334.04	X	25	"C"	Sandy brown	20	48	25
L1-17	49.722516	-121.830285	5508436.13	584310.60	X	100	C	Light sand	20	78	35
L1-18	49.722440	-121.830612	5508427.31	584287.16	X	25	C	Sandy brown	25	41	25
L1-19	49.722364	-121.830940	5508418.50	584263.65	X	50	C	Sandy brown	15	22	25
L1-20	49.722288	-121.831267	5508409.68	584240.22	X	25	C	Sandy brown	20	60	45
L1-21	49.722212	-121.831594	5508400.86	584216.78	272	45	C	Sandy brown	20	54	65

Samples were taken , where possible, from just above bedrock.
"C" denotes a rubble zone or possible landslide.
In all undisturbed profiles a whitish leached zone was present at the top of the C horizon. This was sampled only at station 1-4.
X = no waypoint

Detailed geological mapping, described below, was carried out subsequent to analysis of the soil samples. The mapping indicated that the gneiss outcrops exposed to the east along the road are in fact screens or pendants within the intrusion; outcrops further to the east are of basic and ultramafic intrusive rock. The soil line, therefore, does not extend sufficiently to the east to constrain the possible eastward extent of the mineralization. In the western half of the intrusion, the mineralization appears to be confined to the projected subcrop of gabbronorite and pyroxenite. It is probable that the mineralization is similarly bounded to the east.

Rock sampling

Rock sampling was carried out by McClaren on outcrops along and immediately to the south of the soil line. Sample locations and analytical results are shown in Table 2 and in Figs.4 and 5.

The initial results of the lithogeochemical sampling returned only subeconomic grades. It may be noted, however, that three of the thirteen samples of outcrop returned combined base-metal values in excess of 0.1%. Rocks with similar or greater concentrations of base metals, in this area of the Cordillera, weather recessively, particularly in areas of moderate topography (Metcalfe, unpubl. data). In the main area of sampling, bedrock is exposed over approximately 25% of the total surface; these exposures will consist, logically, of less mineralized material.

The results from soil sampling include one sample in excess of 0.1% aggregated base metal values and two other samples with half those concentrations. These values, when dilution in soil is considered, suggest that recessively weathering areas are probably underlain by rocks with more anomalous mineralization. The area sampled therefore remains prospective for magmatic Ni-Cu mineralization, although no new showings were discovered during the course of assessment work.

As noted above, the authors were in error in their initial estimate of the eastern contact of the Pacific Nickel intrusion, owing to the presence of gneissic screens within the intrusion. As a consequence, the eastern part of the intrusion was not adequately sampled. At least two hundred metres across the true width of the intrusion remain open. More sampling is required.

Geological mapping

Detailed geological mapping was carried out after essential soil and rock geochemical sampling, using a topographic map and a stereopair of aerial photographs. Two traverses were carried out near the Sable showing, along the showing road and along Fir Creek beneath the showing (Fig.2). A third traverse was carried out across the northeast part of the claim to test the existence of Ni-Cu mineralization. Figs.6 and 7 are geological maps based on these observations and showing, respectively, lithological and structural information.

Metamorphic country rocks

The country rock underlying the SABLE claim and surrounding area comprises schistose and gneissic rocks assigned to the Settler Schist and Custer Gneiss (Monger 1991); Monger (pers. comm. December 2001) considers these units equivalent. On the SABLE claim, the distinction between schist and gneiss is based mainly on their degree of metamorphic banding and their mica content.

Table 2. List of analytical results and locations for rock samples.

Sample #	Panel/ Channel	Length/ Area	Rock type	Latitude	Longitude	Zone	UTME83	UTMN83	Au ppb	Pt ppb	Pd ppb	Co ppm	Cu ppm	Ni ppm
SB-01-01	P	1 m x 1 m	Limonite stained pyroxenite	49.72303212	-121.82674357	10U	584565	5508497	2	1.5	4	15	77	15
SB-01-02	P	1 m x 1 m	Pyroxenite with feldspars; pyrrhotite noted	49.72320378	-121.82706543	10U	584541	5508516	1	<.5	<1	56	75	185
SB-01-03	P	1 m x 1 m	Coarse grained pyroxenite (chalcopyrite and pyrrhotite noted)	49.72337600	-121.82738600	10U	584518	5508535	5	2	3	51	274	202
SB-01-04	C	1 m	Heavy limonite stained pyritic shear zone (1 m)	49.72312400	-121.82766700	10U	584498	5508507	1.5	1.5	6	7	127	18
SB-01-05	P	1 m x 1 m	Gabbro with minor sulphides	49.72294629	-121.82791301	10U	584481	5508487	4	3.5	4	7	74	7
SB-01-06	P	1 m x 1 m	Medium grained pyroxenite; no sulphides noted	49.72282291	-121.82840117	10U	584446	5508472	<1	0.5	1	34	42	59
SB-01-07	P	1 m x 1 m	Megacrystic pyroxenite with sulphides	49.72259760	-121.82944723	10U	584371	5508446	1	1.5	<1	78	141	264
SB-01-10	P	1 m x 1 m	Coarse grained bladed pyroxenite	49.72314477	-121.82608374	10U	584612	5508511	1	14.5	2	28	90	36
SB-01-13	C	1 m	Chip sample of shear zone in pyroxenite	49.72208700	-121.82968500	10U	584355	5508389	1	11	10	46	692	371
SB-01-15	C	1 m	Chip sample of pyrrhotite in fracture zone.	49.72211480	-121.82847627	10U	584442	5508394	<1	0.5	1	53	189	81
SB-01-16	P	1 m x 1 m	Pyroxenite with gabbro zenoliths; magnetic with sulphides	49.72084880	-121.82646998	10U	584588	5508255	<1	5.5	4	116	793	1010
SB-01-22	P	1 m x 1 m	Cobble and pebble+ pyroxenite with 3% pyrrhotite; highly magnetic	49.72052200	-121.82714400	10U	584540	5508218	<1	2.5	2	112	884	768
SB-01-23	P	1 m x 1 m	Pyrrhotite (3%) disseminated in pyroxenite	49.72044900	-121.82755300	10U	584511	5508209	< 1	<0.5	<1	108	53	42

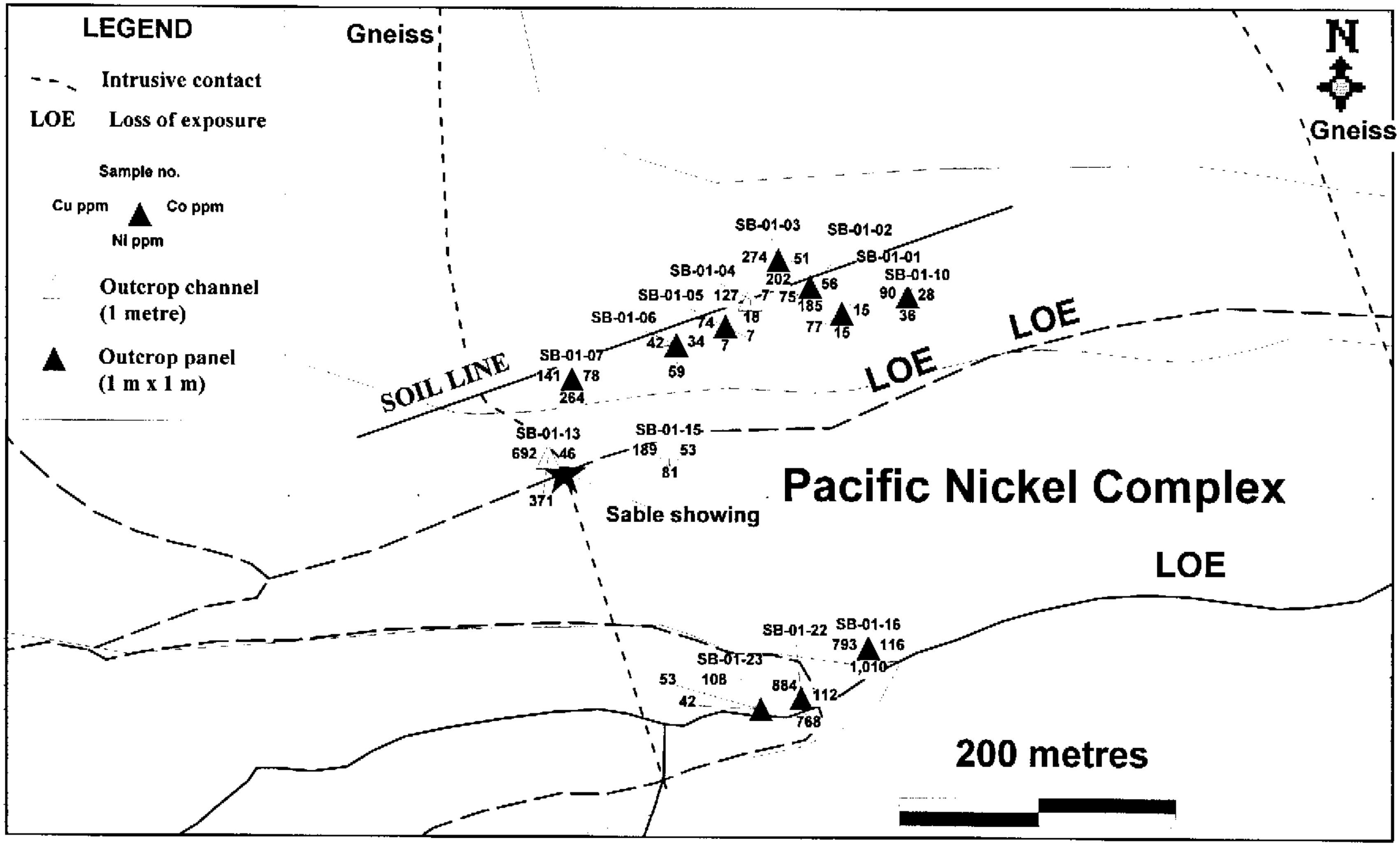

Fig.4. Base metal values returned for rock samples taken near the Sable mineral occurrence (star). All rock samples are of pyroxenite and are also listed in Table 2. Map scale 1:4500.

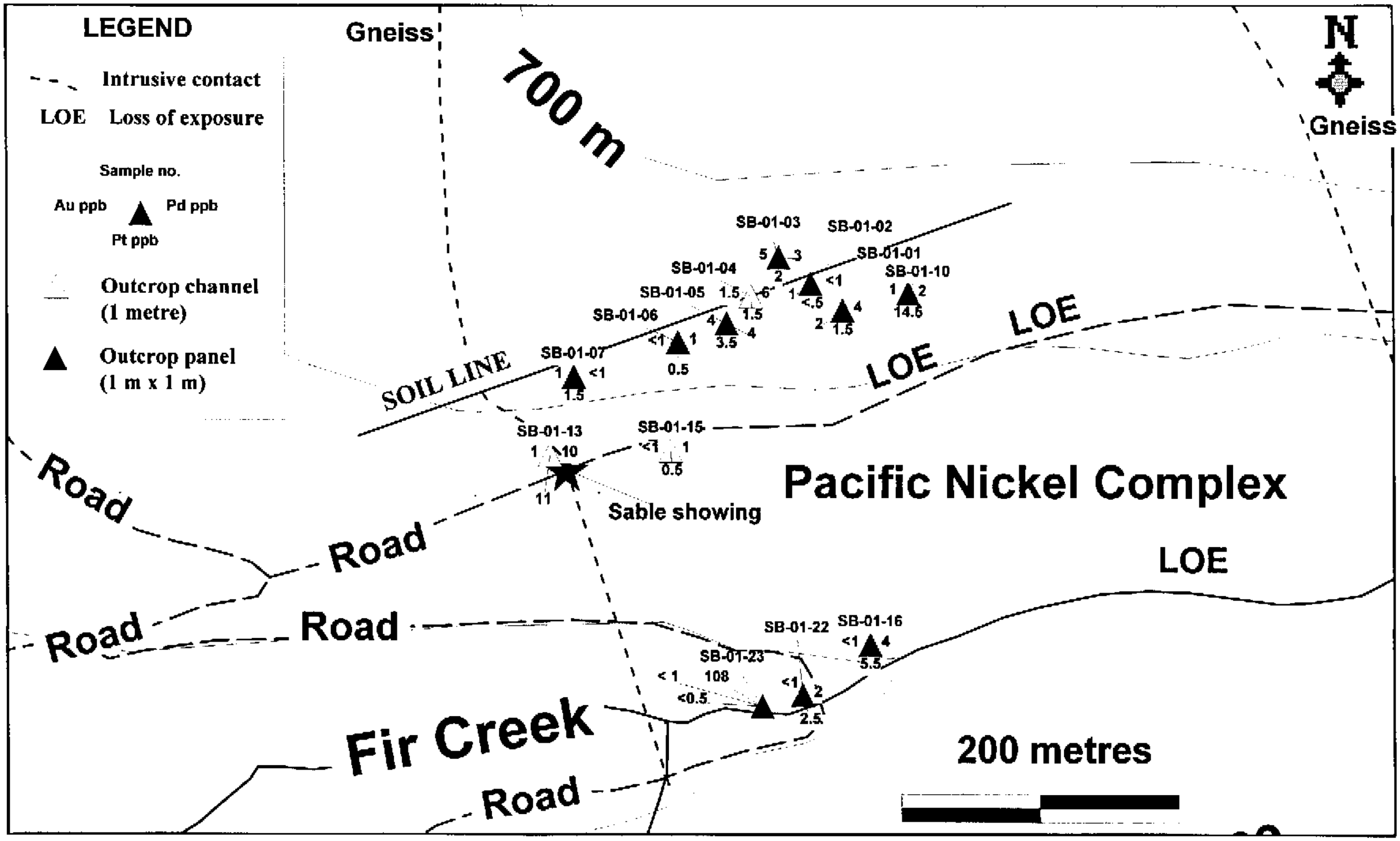

Fig.5. Precious metal values returned for rock samples taken near the Sable mineral occurrence (star). All rock samples are of pyroxenite and are also listed in Table 2. Map scale 1:4500.

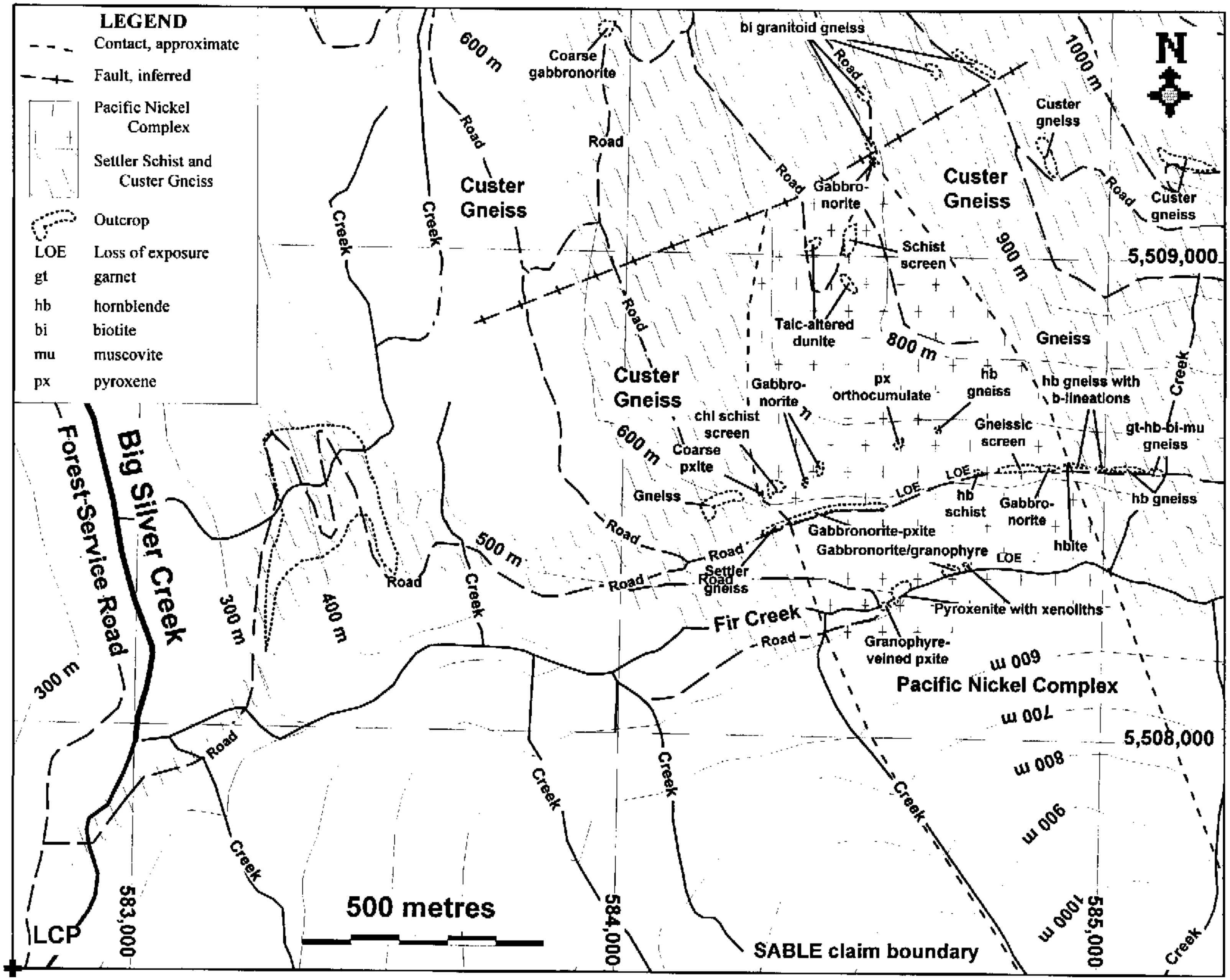

Fig.6. Geological map, at a scale of 1:12,000, showing rock outcrops and lithologies mapped during the present study.

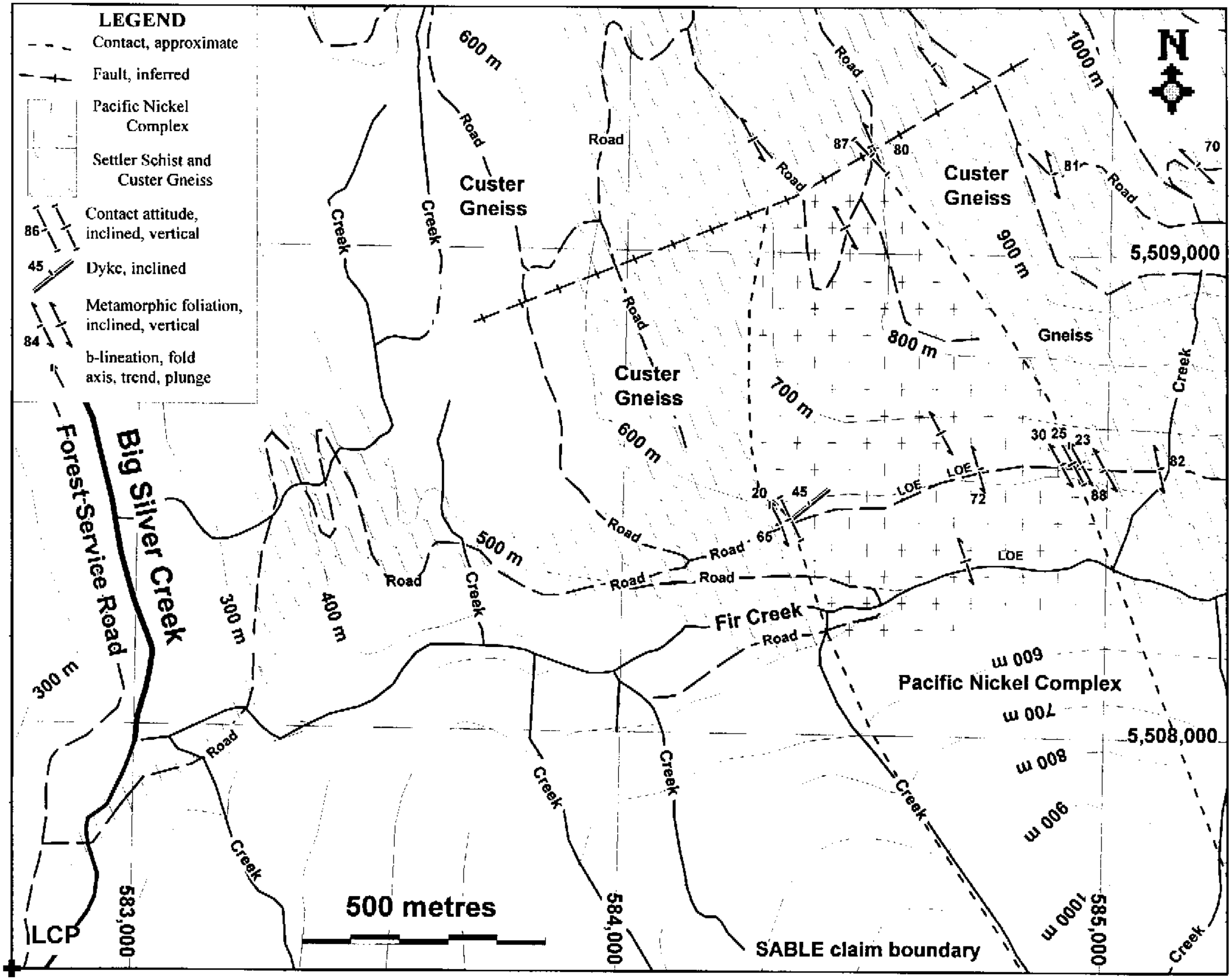

Fig.7. Geological map, at a scale of 1:12,000, showing structural orientations mapped during the present study.

The rocks are light grey in colour, weathering to light grey or light rusty brown. Their pyrite content varies from trace amounts to, more commonly, 5-10%. The common rock-forming mineral assemblage comprises quartz, feldspar biotite and muscovite. Hornblende is less common but may occur to the exclusion of other phases. Kyanite and euhedral garnet were observed half a kilometre east of the claim boundary, the former oriented in b-lineation. Garnet also occurs some tens of metres west of the Sable showing. Staurolite and sillimanite are reported in the area (Reamsbottom 1974) but were not noted during mapping.

The metamorphic rocks are dominantly gneissic with banding developed parallel to the regional foliation. The quartzofeldspathic zones also contain biotite and muscovite in varying proportions. The mafic zones are often monomineralic hornblendite. The rocks contain between 2% and 15% subhedral pyrite, but pyrrhotite is absent except near intrusive contacts.

Structures

Structural features were noted in the metamorphic rocks, in xenoliths within the intrusion and at its margins. The interior of the intrusion hosting the mineralization exhibits no metamorphic fabric, therefore structural measurements were taken from outcrops of metamorphic rock only to determine the extent to which the intrusion's contacts are constrained by regional structure. At each station where a structural measurement was recorded, the orientation represents the mean of at least two and usually three measurements taken of the plane or line at that outcrop. A map including these structural measurements is shown in Fig.7.

The structures in metamorphic rocks examined along the Sable showing road are typical of those in the area. These comprise a single penetrative vertical or near-vertical foliation, defined by phyllosilicate minerals, with a dominant northwesterly strike between 330 and 340; minor variations occur locally. Hornblende and kyanite are oriented parallel to the foliation, with a penetrative lineation plunging to the northwest at angle between 20° and 30°. This lineation is interpreted as a b-lineation and lies parallel to parasitic folds in the foliation. These folds were observed to the east and west of the intrusive rocks hosting the mineralization, in both cases verging towards a contact. It is possible therefore that the core of a small, northwesterly-plunging antiform crosses the eastern part of the SABLE claim.

Intrusive rocks

The SABLE claim encloses the contacts of an intrusion of unknown shape but suspected NNW elongation. Lithologies associated with this intrusion received most detailed examination along the road to the Sable mineral occurrence (MINFILE 092HNW077) and in exposures along Fir Creek, to the south and downhill from the showing. Contact attitudes, where exposed, are near-vertical, with strikes close to 330. Outcrop dispositions of both intrusive and metamorphic rocks are consistent with this contact orientation.

The intrusive lithologies exposed on the SABLE claim have been patchily to pervasively metamorphosed to greenschist facies, with the formation of talc and actinolitic or hornblendic amphibole after pyroxene and (probably) with albitization of plagioclase. Despite the metamorphism, deformation is confined to the contacts and to small shears within the intrusion, subparallel to the contacts. Pending detailed petrographic examination, hand specimens representative of this assemblage will therefore be described in terms of their primary mineralogy.

Three lithologies compose the mafic intrusive assemblage exposed on the SABLE claim. All are typically coarse-grained, pyroxene-phyric and mafic to ultramafic in composition and are identical in texture and mineralogy to lithologies exposed at Giant Mascot and which compose the Pacific Nickel Complex (Aho 1954, 1956, Muir 1971). The minimal, localized deformation permits identification of both orthorhombic and monoclinc relic phenocrysts; the assemblage is a two-pyroxene system and therefore subalkaline in chemical composition. The name "bronzitite" has been used to describe several pyroxenites in the area to the south of the SABLE claim, although it is unclear as to whether the name assignation is based on detailed petrography. Gonzalez (1973) in a geological, geochemical and geophysical assessment report on the Ni 336 claim group along Cogburn Creek noted that clinopyroxene and orthopyroxene are present in the gabbros of the suite in proportions of roughly 2:1. On the SABLE claim, although discrete, coarse (7- 10 mm), euhedral to subhedral monoclinic and orthorhombic pyroxene phenocrysts are visible in hand specimen, an accurate mode was not obtained. The more leucocratic intrusive rocks are therefore assigned the name "gabbronorite" until more detailed petrographic information is available

The most common intrusive rocks on the SABLE claim are coarse-grained pyroxenites, black to dark green on fresh surfaces and weathering to dark green or rusty brown, depending upon the contained sulphide. The pyroxenites comprise 20-30% euhedral to anhedral crystal forms particular to olivine, 1-2 mm in size and pseudomorphically replaced by bronze-black pyroxene. These pseudomorphs are poikilitically enclosed by subhedral to anhedral crystals of bronze-black pyroxene and 15% subhedral to anhedral crystals of jet-black pyroxene, probably clinopyroxene. The two later-formed pyroxene phases are subhedral and 7-10 mm in size in most samples, although their grain size may be as coarse as 20 mm. These pyroxene crystals exhibit a mutually interpenetrant and interlocking texture with 5-15% pyrrhotite, the latter often exhibiting small amounts of exsolved chalcopyrite. This rock type is interpreted as a sulphide-bearing adcumulate.

Intersertal plagioclase occurs in the pyroxenites in amounts that vary from trace to as much as 55% of the whole rock, at the expense of the other phases in their respective proportions. Where plagioclase forms a significant part of the mode, the rock has been assigned the name gabbronorite. Sulphide is less abundant, often absent, from the gabbronorites and sparse, fine-grained, anhedral and possibly xenocrystic quartz is an accessory phase.

Plagioclase in the gabbronorites is usually white and, presumably, albitic. One sample of float, from the Stokke Creek area west of Mount Breakenridge, contains plagioclase which darkens in colour across the width of a 10 cm sample, from an albitic white to the distinctive light purplish brown of calcic plagioclase. It is probable therefore that much of the plagioclase-bearing rock in the area has undergone lower greenschist metamorphism, with consequent albitization of plagioclase, during the waning stages of regional metamorphism. Much of the "diorite" and "quartz diorite" identified from this part of the Canadian Cordillera may, therefore, be weakly metamorphosed gabbronorite.

The third lithology exposed on the SABLE claim underlies a small area in the north-central part of the claim (Fig.6). It is a fine-grained, dense, dark greenish grey, medium grey-weathering rock containing abundant talc and subordinate amounts of magnetite. A preliminary petrographic examination showed that the rock is a talc-altered peridotite, probably a dunite and identical to a lithology exposed in Talc Creek, at the NI-NI 752 showing (MINFILE 092HSW081). The exposures there were examined by the author interpreted the lithology there as altered or metamorphosed peridotite or dunite.

The microscopic and macroscopic petrographic features observed in pyroxenite and gabbronorite on the SABLE claim are common to all pyroxenite samples from the Pacific Nickel Complex, including those hosting the Ni-Cu occurrences at Choate, Giant Nickel, Giant Mascot, Star of Emory, Pride of Emory (MINFILE occurrences 092HSW125 092HSW093 092HSW004) and at Settler Creek and Ni Zone 4 (MINFILE occurrence 092HNW045). In addition, identical petrographic features are present in pyroxenites on the KATT claim group, 15 km to the west of SABLE. The identity in microtextures, over distances of more than 40 km, suggests very strongly that all pyroxene-bearing intrusive rocks in this area of the Cordillera are comagmatic. It is considered highly probable, therefore, that the segments of Pacific Nickel Complex discovered to date are part of a very large subalkaline magmatic system with high potential for hosting significant nickel-copper (Ni-Cu) deposits, and with moderate potential for hosting platinum group element (PGE) deposits. Although cumulates are well-represented in the system, the absence of sheeted dykes, submarine volcanic features (*e.g.* pillows) and submarine sedimentary rocks strongly suggest that the system is not part of an ophiolite complex. If not sea floor, the potential for the subalkaline parent magma to sample a relatively undepleted mantle source is greater, as is the potential to host base and precious metal deposits.

Textural variations in the pyroxenite on the SABLE claim are best exposed in the watercourse of Fir Creek (Fig.6). The pyroxenite is, typically, coarse-grained but at this locality also contains abundant inclusions of hornblendite and of foliated and banded Settler Gneiss. The latter are clearly xenoliths and exhibit various stages of dissolution, soaking and absorption by the enclosing pyroxenite. Peripheral to the gneissic inclusions are areas of pyroxene-phyric gabbronorite, with coarse intersertal plagioclase and sparse anhedral quartz. Pyroxene subhedra transect the boundary between the gabbronorite and the enclosing pyroxenite; the areas are interpreted as the result of contamination of a pyroxenite adcumulate mush by anatexis of the gneiss.

Both the pyroxenite and the areas of "contaminant gabbronorite" adjacent to gneissic xenoliths are crosscut by thin dykes or sills of pyroxene- or hornblende-bearing, medium grained granodiorite. These in turn are cut by dykes and sills of progressively finer-grained and more leucocratic granodiorite or granophyre, as wide as 50 cm. These later, more leucocratic intrusions are non-porphyritic, allotriomorphic and contain10-15% anhedral quartz, 1-3 mm in size and 85-90% anhedral untwinned feldspar, with mafic minerals scarce or absent. These latest intrusions generally have sharper, contacts with the pyroxenite, although there is no evidence of chilling at the margins in the outcrops examined. Beneath the old logging bridge across Fir Creek, a volume of granophyre was injected sufficient to brecciate the enclosing pyroxenite and to heal the subangular breccia with a network of anastomosing granophyric "veins". The closest analogy to this texture observed by either of the present authors is the Quartz Dolerite of Sgurr nam Meann in the Ardnamurchan ring-dyke complex of northwestern Scotland (Richey and Thomas 1930, Metcalfe, unpubl. data). The ring dyke described is veined extensively by granophyre, possibly as a result of remelting of country rock by the large (in excess of 100 km^3) basic intrusion. The intrusive sequence exposed on the SABLE claim is interpreted as the result of melting of the wallrock at progressively lower temperatures, as the pyroxenite body cooled, followed by brecciation and veining of the subsolidus pyroxenite by these melted metamorphic rocks.

The hornblendite inclusions exposed along Fir Creek contain a planar fabric, which is also oriented generally north-northwest. Although rounding and/or plastic deformation of these inclusions has taken place, they do not exhibit the same degree of resorption as do the quartzofeldspathic gneiss xenoliths. Some fining in the grain size of the enclosing pyroxenites was observed in borders of 0.5-2 cm width around the inclusions. Our preliminary interpretation of this texture is that the hornblendites are fragments of the first-cooled border phase of the mafic intrusion which were stoped into the magma or crystal mush.

In the northern part of the SABLE claim, a small valley crosses the claim with a trend of roughly 055 (Figs.6 and 7). The structure is not exposed and its existence is hypothetical, but the lineament marks the northernmost occurrence of ultramafic rocks discovered on the SABLE claim, although an area of gabbronorite float or subcrop was observed at the claim's northern boundary. If present, the displacement which has occurred along the fault is unknown. The intrusion is open to the south.

Mineralization

Mineralization on the SABLE claim has hitherto been noted only within the Pacific Nickel intrusion and a narrow zone immediately adjacent to its intrusive contacts with the metamorphic wallrock. The sulphide mineral phases are nickeliferous pyrrhotite and chalcopyrite, which commonly exhibit intersertal and partial net textures. The sulphide phases poikilitically enclose earlier-formed pyroxene/olivine phenocrysts and are intergrown with later-formed coarse pyroxene crystals. Little or no pyrite was observed within the intrusion; pyrrhotite is equally rare in the metamorphic wallrock.

Sulphide concentrations are increased at the intrusion's western margin and in the immediate vicinity of the abundant xenoliths of pyritiferous schist and gneiss enclosed by the gabbronorite and pyroxenite. In these areas, anhedral globular aggregates of segregated sulphide, as large as 3 cm, occur, usually enclosed by pyroxenite.

Age of the intrusion and related mineralization

The timing of the mafic intrusion has received some recent attention. Several workers have identified the nickeliferous ultramafic rocks of the Pacific Nickel Complex with the Permo-Triassic Bridge-River assemblage. This is impossible. Potassium-argon ages from the Pacific Nickel Complex range from about 120 to 95 million years. The Pacific Nickel Complex is truncated by diorite of the Late Cretaceous Spuzzum intrusions, at 79 to 89 Ma (McLeod *et. al.* 1976). On this basis, Journeay (December 2001 pers. comm to M. McClaren) cites the age of closure of the Coast Range metamorphism as roughly 86 Ma. Metamorphic mineral development in the Pacific Nickel Complex on the SABLE claim is limited to development of talc and uralitic actinolite in the main body of the intrusions, with formation of foliated hornblendite at the contacts. Metamorphic fabrics are absent, except within 2 m of a contact or within 10 cm of rare, small fractures which cut the intrusive rocks. The earliest age at which the intrusions crystallized must therefore postdate both dynamic metamorphism and all but the retrograde stages of metamorphic mineral formation. The age of the mineralization on the SABLE claim is therefore late Cretaceous and represents, as part of the Pacific Nickel Complex a separate and distinct metallogenic event in the evolution of the Canadian Cordillera.

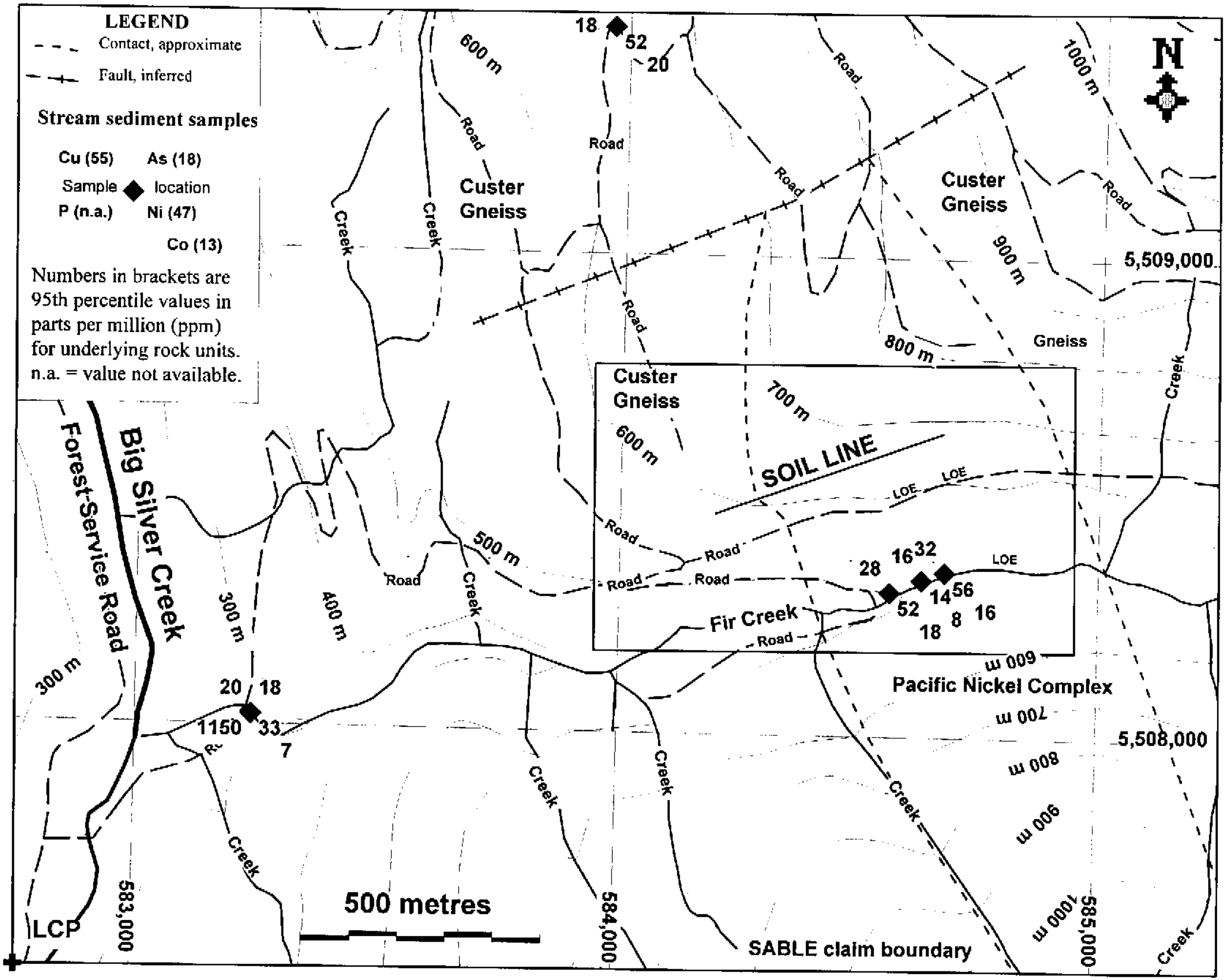

Fig.8. Map, at a scale of 1:12,000, showing base metal values returned for stream sediment samples taken during the present study.

Conclusions and recommendations

Assessment work carried out by these authors on the SABLE mineral claim during the summer of 2001 confirmed that the western part of the claim is underlain in part by a mineralized, mafic-rich intrusion comagmatic with the Pacific Nickel Complex. This latter complex hosts the past-producing Ni-Cu deposits of the Giant Mascot Mine, which also contain zones anomalous in platinum group elements. This discovery of mineralized, comagmatic rocks 40 km to the northeast of the established outcrop of the Pacific Nickel Complex suggests strongly that the size of its magmatic system and its consequent potential for hosting magmatic sulphide deposits have both been greatly underestimated.

The total area of Pacific Nickel Complex subcrop on the SABLE claim is at least 0.45 km^2, over an elevation difference of 0.3 km. This intrusion is apparently displaced an unknown distance north of a fault in the northern part of the claim, but lies open to the south. The southern part of the property underlain by the projected extension of the intrusion is as yet unexplored.

Anomalous values of nickel, copper and platinum group elements were returned from assay of 1 m^2 outcrop panel samples and 1 m outcrop channel samples, dominantly of pyroxenite and gabbronorite, taken during fieldwork. None of the samples taken contained economic grades of Cu, Ni or Co, nor were consistently anomalous values of Pt and Pd returned. The single analysis of a sample taken by Houle (*c.f.* MINFILE), which returned 80 ppb Pd, may be the result of a nugget effect. The base metal values from this grab sample exceed those returned from the panel sampling by a factor of three, but this is not unusual, given the disparity of the sampling methods.

The minimal amount of stream sediment sampling carried out on the SABLE claim confirms data from the Regional Geochemical Sampling (RGS) program carried out by the federal and provincial governments (BCGSB/GSC 1994). Similar results from stream sediment sampling have been associated with the discovery of mineralized float elsewhere in the Coast Ranges of British Columbia (Metcalfe and McClaren, unpubl. data). The tracer elements for Cu-Ni mineralization are, unsurprisingly, Cu, Ni and Co.

Analysis of soil samples produced the most promising results. At least three anomalous areas are present along the incomplete soil line 1. The most prominent of these lies near the western contact of the intrusion and comprises combined base metal values in excess of 0.1 %, greater than all but two of the rock samples taken from outcrop. It is highly probable therefore, based on the limited amount of information available, that recessively weathering, mineralized parts of the Pacific Nickel Complex occur on the SABLE claim. The third of the anomalies lies at the eastern end of the soil line and is presently open to the east. The intrusion extends a further 300 m beyond a large gneissic screen; this extension was only discovered after sampling of the soil line.

Mineralization is restricted to the Pacific Nickel intrusion and a narrow zone within the wallrock. The sulphide minerals are pyrrhotite and chalcopyrite. Both sulphide phases exhibit intersertal ant partial net textures, poikilitically enclose early-formed pyroxene/olivine phenocrysts and are intergrown with later-formed coarse pyroxene crystals. In areas of higher sulphide content, segregated aggregates of pyrrhotite, as coarse as 3 cm occur in pyroxenite.

Based upon the abundance of sulphide-rich xenolithic material (at all scales) within the Pacific Nickel intrusion and upon the proximity of at least part of the mineralization to intrusive contacts, it is probable that some of the sulphur is exogenic. However, little, if any, of the mineralization appears to have extended beyond the intrusions and a narrow zone in the contact aureole. Future exploration should prioritize the outcrop area of the Pacific Nickel intrusion, unless contradictory evidence becomes available from prospecting work.

On the basis of the findings summarized above, it is recommended that further exploration be carried out on the SABLE property. The purpose of this exploration is twofold:

1. To constrain the area of outcrop of the Pacific Nickel Complex on the SABLE property;
2. To establish the presence or absence of areas of anomalous lithochemistry, soil geochemistry and geophysical response as targets for trenching.

It is recommended that the first soil line be extended to the east-northeast along the same bewaring, in order to sample the part of the intrusion to the northeast of the thick gneiss screen or pendant. The total line length would be approximately 800 m, in order to establish a baseline value of samples from the wallrock. At the same time a soil grid should be constructed with a line spacing of 100 m, with lines running parallel to that already sampled. The latter would become Line 1N of the grid, with Line 0 running subparallel to the Sable showing road. Stations should be marked at 25 m intervals on each line. Grid spacing should not be corrected for slope.

Initial sampling of the soil grid should be carried out on soil lines 3N, 5N and 7N, that is: at a line spacing of 200 m, with a sample interval of 25 m. Prospecting and geological mapping should be carried out during this initial phase of sampling, to trace the contact of the Pacific Nickel intrusion northward and southward from the Sable showing road. .Contingent on favourable results from this phase, the soil sampling can be extended further to the north and south and the central areas filled in to a 100 m line spacing.

The SABLE claim is "overlain" by a moderate, sharp aeromagnetic anomaly (BCDMPR / GSC 1973), which attenuates rapidly to the north. This may be the result of rapid attenuation of the magnetic signal through plunging of the mafic/ultramafic intrusion down the axis of an isoclinal fold or it may be due to an offset of the body by a fault.

The magnetic response of the Pacific Nickel intrusion of the SABLE claim is shown by its aeromagnetic signature (BCDMPR / GSC 1973). It is recommended that a ground geophysical survey be carried out, employing a combined magnetometer and VLF/EM. In addition, the density contrast of the ultramafic intrusion with the host Settler Schist and Custer Gneiss suggests that a gravity survey would provide valuable information, if the method is logistically feasible for this area. It is, however, recommended that these methods only be employed contingent upon favourable results from prospecting, further mapping and the first two phases of soil sampling.

At present, a single, disjointed occurrence of coarse, unmineralized gabbronorite has been noted in the northern part of the SABLE claim. The acquisition of more ground to the north of the claim should be considered, but only if favourable geochemical results are returned from samples taken near the claim's northern boundary. At present, the Sable showing is the most northerly mineral occurrence along the outcrop trend of the Pacific Nickel Complex; any extension of the belt would therefore have important implications for the size of its mineralizing, magmatic system.

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Appendix B: Statement of qualifications

I, Paul Metcalfe, do hereby state:

3. That I am a resident of British Columbia, with a business address of PO Box T-9, RR#1, 1733 Bowen Bay Road, Bowen Island, British Columbia V0N 1G0.
4. That I am a member of the Association of Professional Engineers and Geoscientists of the Province of British Columbia.
5. That I am a graduate of the University of Durham (B.Sc. Hon., 1977) and that my honours thesis research comprised mapping of the Ardnamurchan mafic igneous complex in northwestern Scotland.
6. That I am a graduate of the University of Manitoba (M.Sc. 1981).
7. That I am a graduate of the University of Alberta (Ph.D. 1987) and that my thesis research comprised the geochemistry and isotopic compositions of mafic igneous rocks.
8. That my experience since graduation from Durham has been entirely within the western cordillera of North, Central and South America and has given me considerable knowledge of Cordilleran geology, in geological and geochemical exploration techniques ands in the planning, execution and evaluation of exploration diamond drilling programs.
9. That I was employed as a postdoctoral research fellow by the Mineral Deposits Research Unit at the University of British Columbia and at the Geological Survey of Canada.
10. That I have gained considerable experience in regional and detailed geological mapping and in the geology of magma-related ore deposits
11. That I have visited and am familiar with the SABLE property.
12. That the program described in this report was performed by myself, by geologist Murray McClaren and by others under our supervision and that the costs of the program are accurately stated.
13. That the geological work was performed exclusively by myself and by geologist Murray McClaren, B.Sc., in whose work I have complete confidence.
14. That I am in an informal business partnership with Murray McClaren and therefore have an interest in the SABLE property.

Signed and sealed on the 12th day of January, 2002.

Paul Metcalfe, B.Sc. (Hon. *Dunelm.*) M.Sc. PhD. P.Geo.

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P53

To: MCLAREN, MURRAY

283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

A0120804

Comments: ATTN: MURRAY MCLAREN CC: PAUL METCALFE

CERTIFICATE A0120804

(JVP) - MCLAREN, MURRAY

Project: SABLE
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 25-JUL-2001.

SAMPLE PREPARATION

METHOD CODE	NUMBER SAMPLES	DESCRIPTION
PUL-31	8	Pulv. <250g to >85%/-75 micron
STO-21	8	Reject Storage-First 90 Days
LOG-22	8	Samples received without barcode
CRU-31	8	Crush to 70% minus 2mm
SPL-21	8	Splitting Charge

ANALYTICAL PROCEDURES

METHOD CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
1433	8	Weight of received sample	BALANCE	0.01	1000.0
Au-MS23	8	Au ppb: Fuse 30g - ICPMS Finish	FA-ICPMS	1	1000
Pt-MS23	8	Pt ppb: Fuse 30g - ICPMS Finish	FA-ICPMS	0.5	1000
Pd-MS23	8	Pd ppb: Fuse 30g - ICPMS Finish	FA-ICPMS	1	1000
Cu-AA63	8	Cu ppm: HF-HNO3-HClO4 digestion	AAS	5	10000
Co-AA63	8	Co ppm: HClO4-HNO3-HF digestion	AAS	5	10000
Ni-AA63	8	Ni ppm: HClO4-HNO3-HF digestion	AAS	5	10000

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To: MCLAREN, MURRAY
283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

Stokkes Cr.

Project : SABLE
Comments: ATTN: MURRAY MCLAREN CC: PAUL METCALFE

Page Number : 1
Total Pages : 1
Certificate Date: 25-JUL-2001
Invoice No. : I0120804
P.O. Number :
Account : JVP

CERTIFICATE OF ANALYSIS A0120804

SAMPLE	PREP CODE	Weight Kg	Au ppb ICP-MS	Pt ppb ICP-MS	Pd ppb ICP-MS	Cu ppm	Co ppm	Ni ppm			
PR 1-2	941 39402	0.24	31	46.5	64	3840	356	5690			
PR 1-3	941 39402	0.92	26	3.0	4	796	168	808			
PR 1-4	941 39402	0.40	10	6.5	4	1840	255	1845			
PR 1-5	941 39402	0.48	2	19.0	10	1410	143	956			
PR 1-6	941 39402	0.58	< 1	0.5	< 1	14	91	44			
PR 1-8	941 39402	0.66	2	9.5	5	602	165	1815			
PR 1-13	941 39402	0.46	5	2.0	1	976	126	740			
PR 1-14	941 39402	1.04	7	52.0	50	723	95	857			

ROCK - STOKKES CR.

Rocks from creek

CERTIFICATION: [signature]

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

To: CROCKITE RESOURCES LTD.

283 WOODDALE RD.
NORTH VANCOUVER, BC
V7N 1S6

Comments: ATTN: M. MCLAREN

Included for reference (Hornet Cr.)

A0115996

CERTIFICATE A0115996

(JUU) - CROCKITE RESOURCES LTD.

Project:
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 04-MAY-2001.

SAMPLE PREPARATION

METHOD CODE	NUMBER SAMPLES	DESCRIPTION
255	1	RUSH Geo ring to approx 150 mesh
295	1	RUSH crush and split (0-3 Kg)
3202	1	Rock - save entire reject
229	1	ICP - AQ Digestion charge

* NOTE 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, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES 1 of 2

METHOD CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
Au-MS24	1	Au ppb: Fuse 50g - ICPMS Finish	FA-ICPMS	1	1000
Pt-MS24	1	Pt ppb: Fuse 50g - ICPMS Finish	FA-ICPMS	1	1000
Pd-MS24	1	Pd ppb: Fuse 50g - ICPMS Finish	FA-ICPMS	1	1000
Ag-ICP41	1	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	100.0
Al-ICP41	1	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
As-ICP41	1	As ppm: 32 element, soil & rock	ICP-AES	2	10000
B-ICP41	1	B ppm: 32 element, rock & soil	ICP-AES	10	10000
Ba-ICP41	1	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
Be-ICP41	1	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
Bi-ICP41	1	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
Ca-ICP41	1	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
Cd-ICP41	1	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	500
Co-ICP41	1	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
Cr-ICP41	1	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
Cu-ICP41	1	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
Fe-ICP41	1	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
Ga-ICP41	1	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
Hg-ICP41	1	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
K-ICP41	1	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
La-ICP41	1	La ppm: 32 element, soil & rock	ICP-AES	10	10000
Mg-ICP41	1	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
Mn-ICP41	1	Mn ppm: 32 element, soil & rock	ICP-AES	5	10000
Mo-ICP41	1	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
Na-ICP41	1	Na %: 32 element, soil & rock	ICP-AES	0.01	10.00
Ni-ICP41	1	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
P-ICP41	1	P ppm: 32 element, soil & rock	ICP-AES	10	10000
Pb-ICP41	1	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
S-ICP41	1	S %: 32 element, rock & soil	ICP-AES	0.01	10.00
Sb-ICP41	1	Sb ppm: 32 element, soil & rock	ICP-AES	2	10000
Sc-ICP41	1	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
Sr-ICP41	1	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
Ti-ICP41	1	Ti %: 32 element, soil & rock	ICP-AES	0.01	10.00
Tl-ICP41	1	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
U-ICP41	1	U ppm: 32 element, soil & rock	ICP-AES	10	10000
V-ICP41	1	V ppm: 32 element, soil & rock	ICP-AES	1	10000
W-ICP41	1	W ppm: 32 element, soil & rock	ICP-AES	10	10000

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: CROCKITE RESOURCES LTD.

283 WOODDALE RD.
NORTH VANCOUVER, BC
V7N 1S6

Comments: ATTN: M. MCLAREN

CERTIFICATE A0115996

(JUU) - CROCKITE RESOURCES LTD.

Project:
P.O. #:

Samples submitted to our lab in Vancouver, BC.
This report was printed on 04-MAY-2001.

SAMPLE PREPARATION

METHOD CODE	NUMBER SAMPLES	DESCRIPTION
255	1	RUSH Geo ring to approx 150 mesh
295	1	RUSH crush and split (0-3 Kg)
3202	1	Rock - save entire reject
229	1	ICP - AQ Digestion charge

* NOTE 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, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES 2 of 2

METHOD CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
Zn-ICP41	1	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

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To: CROCKITE RESOURCES LTD.

283 WOODDALE RD.
NORTH VANCOUVER, BC
V7N 1S6

Project :
Comments: ATTN: M. MCLAREN

Certificate Date: 04-MAY-2001
Invoice No. : I0115996
P.O. Number :
Account :JUU

CERTIFICATE OF ANALYSIS A0115996

SAMPLE	PREP CODE		Au ppb ICP-MS	Pt ppb ICP-MS	Pd ppb ICP-MS	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %
74557	255	295	5	< 1	3	2.8	0.07	< 2	10	40	< 0.5	< 2	0.07	< 0.5	4	109	91	3.59	< 10	1	0.03

SOIL - HORNET CREEK

CERTIFICATION: [signature]

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To: CROCKITE RESOURCES LTD.

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NORTH VANCOUVER, BC
V7N 1S6

Project :
Comments: ATTN: M. MCLAREN

Certificate Date: 04-MAY-2001
Invoice No. : I0115996
P.O. Number :
Account : JUU

CERTIFICATE OF ANALYSIS A0115996

SAMPLE	PREP CODE		La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
74557	255	295	< 10	0.01	5330	4	0.01	11	330	< 2	0.12	< 2	< 1	6	< 0.01	< 10	10	25	< 10	24

CERTIFICATION: ______________

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To: CROCKITE RESOURCES LTD. **

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Project :
Comments: ATTN: M. MCLAREN

Page Number : 1-A
Total Pages : 1
Certificate Date: 04-MAY-01
Invoice No. : 10115997
P.O. Number :
Account : JUU

CERTIFICATE OF ANALYSIS A0115997

SAMPLE	PREP CODE		Au ppb ICP-MS	Pt ppb ICP-MS	Pd ppb ICP-MS	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %
74558 rock	241	202	81	1	2	0.6	4.89	204	< 10	60	< 0.5	< 2	0.10	0.5	3	76	41	4.82	10	< 1	0.06

ROCK - HORNET CREEK

CERTIFICATION:

CHEMEX LABS Alpha-FAX2 PAGE 002

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To: CROCKITE RESOURCES LTD

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Project :
Comments: ATTN: M. MCLAREN

Certificate Date: 04-MAY-01
Invoice No. : 10115997
P.O. Number :
Account : JUU

CERTIFICATE OF ANALYSIS A0115997

SAMPLE	PREP CODE		La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
74558	241	202	< 10	0.24	90	9	0.01	15	1410	6	0.06	< 2	5	3	0.14	< 10	< 10	103	< 10	30

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

To: MCLAREN, MURRAY

283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

A0124833

Comments: ATTN: MURRAY McCLAREN CC: PAUL METACALFE

CERTIFICATE A0124833

(JVP) - MCLAREN, MURRAY

Project: SABLE
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 26-SEP-2001.

SAMPLE PREPARATION

METHOD CODE	NUMBER SAMPLES	DESCRIPTION
SCR-42	21	-180 micron screen - Save Minus
SCR-01	21	Screen - Save Plus Charge
LOG-22	21	Samples received without barcode

ANALYTICAL PROCEDURES

METHOD CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
WEI-21	21	Weight of received sample	BALANCE	0.01	1000.0
Co-AA63	21	Co ppm: HClO4-HNO3-HF digestion	AAS	5	10000
Ni-AA63	21	Ni ppm: HClO4-HNO3-HF digestion	AAS	5	10000
Cu-AA63	21	Cu ppm: HF-HNO3-HClO4 digestion	AAS	5	10000

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To: MCLAREN, MURRAY

283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

Sable Samples

Project : SABLE
Comments: ATTN: MURRAY McCLAREN CC: PAUL METACALFE

Page Number :1
Total Pages :1
Certificate Date: 24-SEP-2001
Invoice No. : I0124833
P.O. Number :
Account : JVP

CERTIFICATE OF ANALYSIS A0124833

SAMPLE	PREP CODE	Weight Kg	Co ppm	Ni ppm	Cu ppm
L1-1	9406 9407	0.32	40	371	135
L1-2	9406 9407	0.36	40	120	45
L1-3	9406 9407	0.44	40	239	75
L1-4	9406 9407	0.40	25	108	25
L1-5	9406 9407	0.36	20	72	30
L1-6	9406 9407	0.36	20	39	50
L1-7	9406 9407	0.30	20	82	185
L1-8	9406 9407	0.36	55	413	35
L1-9	9406 9407	0.30	25	72	190
L1-10	9406 9407	0.26	25	113	95
L1-11	9406 9407	0.36	50	131	315
L1-12	9406 9407	0.32	25	54	45
L1-13	9406 9407	0.38	25	89	55
L1-14	9406 9407	0.42	125	687	505
L1-15	9406 9407	0.44	30	121	85
L1-16	9406 9407	0.30	20	48	25
L1-17	9406 9407	0.40	20	78	35
L1-18	9406 9407	0.32	25	41	25
L1-19	9406 9407	0.32	15	22	25
L1-20	9406 9407	0.34	20	60	45
L1-21	9406 9407	0.40	20	54	65

SOIL - SABLE M.C.

CERTIFICATION: ____________

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To: MCLAREN, MURRAY

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NORTH VANCOUVER, BC
V7N 1S6

A0124835

Comments: ATTN: MURRAY McCLAREN CC: PAUL METACALFE

CERTIFICATE A0124835

(JVP) - MCLAREN, MURRAY

Project: CATHOUSE
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 28-SEP-2001.

SAMPLE PREPARATION

METHOD CODE	NUMBER SAMPLES	DESCRIPTION
SCR-42	5	-180 micron screen - Save Minus
SCR-01	5	Screen - Save Plus Charge
LOG-22	5	Samples received without barcode
229	5	ICP - AQ Digestion charge

* NOTE 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, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES

METHOD CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
WEI-21	5	Weight of received sample	BALANCE	0.01	1000.0
Ag-ICP41	5	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	100.0
Al-ICP41	5	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
As-ICP41	5	As ppm: 32 element, soil & rock	ICP-AES	2	10000
B-ICP41	5	B ppm: 32 element, rock & soil	ICP-AES	10	10000
Ba-ICP41	5	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
Be-ICP41	5	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
Bi-ICP41	5	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
Ca-ICP41	5	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
Cd-ICP41	5	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	500
Co-ICP41	5	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
Cr-ICP41	5	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
Cu-ICP41	5	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
Fe-ICP41	5	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
Ga-ICP41	5	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
Hg-ICP41	5	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
K-ICP41	5	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
La-ICP41	5	La ppm: 32 element, soil & rock	ICP-AES	10	10000
Mg-ICP41	5	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
Mn-ICP41	5	Mn ppm: 32 element, soil & rock	ICP-AES	5	10000
Mo-ICP41	5	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
Na-ICP41	5	Na %: 32 element, soil & rock	ICP-AES	0.01	10.00
Ni-ICP41	5	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
P-ICP41	5	P ppm: 32 element, soil & rock	ICP-AES	10	10000
Pb-ICP41	5	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
S-ICP41	5	S %: 32 element, rock & soil	ICP-AES	0.01	10.00
Sb-ICP41	5	Sb ppm: 32 element, soil & rock	ICP-AES	2	10000
Sc-ICP41	5	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
Sr-ICP41	5	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
Ti-ICP41	5	Ti %: 32 element, soil & rock	ICP-AES	0.01	10.00
Tl-ICP41	5	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
U-ICP41	5	U ppm: 32 element, soil & rock	ICP-AES	10	10000
V-ICP41	5	V ppm: 32 element, soil & rock	ICP-AES	1	10000
W-ICP41	5	W ppm: 32 element, soil & rock	ICP-AES	10	10000
Zn-ICP41	5	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

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: MCLAREN, MURRAY

283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

Project : CATHOUSE
Comments: ATTN: MURRAY McCLAREN CC: PAUL METACALFE

Page Number :1-A
Total Pages :1
Certificate Date: 28-SEP-2001
Invoice No. :I0124835
P.O. Number :
Account :JVP

CERTIFICATE OF ANALYSIS A0124835

SAMPLE	PREP CODE	Weight Kg	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %
SBSL-1	94069407	0.42	< 0.2	0.62	18	< 10	80	< 0.5	< 2	0.35	< 0.5	7	17	20	1.09	< 10	< 1	0.14	< 10	0.54
A4-01/PT 1-4	94069407	0.40	< 0.2	1.13	6	< 10	60	< 0.5	6	0.44	< 0.5	12	39	38	2.24	< 10	1	0.09	< 10	0.59
A4-01/PT 1-5	94069407	0.24	< 0.2	1.28	6	< 10	120	< 0.5	< 2	0.47	< 0.5	8	20	27	1.71	< 10	< 1	0.19	< 10	0.55
A4-01/PT 1-6	94069407	0.50	< 0.2	0.84	2	< 10	60	< 0.5	< 2	0.29	< 0.5	7	20	19	1.67	< 10	< 1	0.09	< 10	0.36
A4-01/PT 1-9	94069407	0.50	< 0.2	1.36	8	< 10	100	< 0.5	6	0.52	< 0.5	10	17	33	1.87	< 10	1	0.17	< 10	0.60

SILT SBSL - SABLE M.C.

SILT - PEMBERTON

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: MCLAREN, MURRAY

283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

Project : CATHOUSE
Comments: ATTN: MURRAY McCLAREN CC: PAUL METACALFE

Page Number :1-B
Total Pages :1
Certificate Date: 28-SEP-2001
Invoice No. : I0124835
P.O. Number :
Account :JVP

CERTIFICATE OF ANALYSIS A0124835

SAMPLE	PREP CODE		Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
SBSL-1	940	69407	125	1	< 0.01	33	1150	2	0.03	2	1	20	0.04	< 10	< 10	26	< 10	32
A4-01/PT 1-4	940	69407	240	2	0.02	15	940	2	0.01	< 2	< 1	44	0.05	< 10	< 10	83	< 10	44
A4-01/PT 1-5	940	69407	280	1	< 0.01	11	440	< 2	0.03	2	< 1	45	0.08	< 10	< 10	53	< 10	38
A4-01/PT 1-6	940	69407	145	1	< 0.01	7	310	2	0.03	6	< 1	34	0.05	< 10	< 10	67	< 10	24
A4-01/PT 1-9	940	69407	265	5	0.01	9	560	2	0.03	4	1	44	0.08	< 10	< 10	59	< 10	48

CERTIFICATION: ____________________

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To: MCLAREN, MURRAY

283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

A0124837

Comments: ATTN: MURRAY McCLAREN

CERTIFICATE A0124837

(JVP) - MCLAREN, MURRAY

Project: SABLE
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 01-OCT-2001.

SAMPLE PREPARATION

METHOD CODE	NUMBER SAMPLES	DESCRIPTION
PUL-31	10	Pulv. <250g to >85%/-75 micron
STO-21	10	Reject Storage-First 90 Days
LOG-22	10	Samples received without barcode
CRU-31	10	Crush to 70% minus 2mm
SPL-21	10	Splitting Charge

ANALYTICAL PROCEDURES

METHOD CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
WEI-21	10	Weight of received sample	BALANCE	0.01	1000.0
Au-MS24	10	Au ppb: Fuse 50g - ICPMS Finish	FA-ICPMS	1	1000
Pt-MS24	10	Pt ppb: Fuse 50g - ICPMS Finish	FA-ICPMS	0.5	1000
Pd-MS24	10	Pd ppb: Fuse 50g - ICPMS Finish	FA-ICPMS	1	1000
Co-AA63	10	Co ppm: HClO4-HNO3-HF digestion	AAS	5	10000
Ni-AA63	10	Ni ppm: HClO4-HNO3-HF digestion	AAS	5	10000
Cu-AA63	10	Cu ppm: HF-HNO3-HClO4 digestion	AAS	5	10000

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212 Brooksbank Ave., North Vancouver
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PHONE: 604-984-0221 FAX: 604-984-0218

To: MCLAREN, MURRAY

283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

Project : SABLE
Comments: ATTN: MURRAY McCLAREN

Page Number :1
Total Pages :1
Certificate Date: 01-OCT-2001
Invoice No. : I0124837
P.O. Number :
Account : JVP

CERTIFICATE OF ANALYSIS A0124837

SAMPLE	PREP CODE		Weight Kg	Au ppb ICP-MS	Pt ppb ICP-MS	Pd ppb ICP-MS	Co ppm	Ni ppm	Cu ppm
SB-01-01	9413	9402	0.96	2	1.5	4	15	15	77
SB-01-02	9413	9402	1.74	1	< 0.5	< 1	56	185	75
SB-01-03	9413	9402	2.00	5	2.0	3	51	202	274
SB-01-04	9413	9402	1.22	1	1.5	6	7	18	127
SB-01-05B	9413	9402	0.40	4	3.5	4	7	7	74
SB-01-06	9413	9402	1.80	< 1	0.5	1	34	59	42
SB-01-07	9413	9402	1.66	1	1.5	< 1	78	264	141
SB-01-10	9413	9402	0.82	1	14.5	2	28	36	90
SB-01-13	9413	9402	1.14	1	11.0	10	46	371	692
SB-01-15	9413	9402	1.42	< 1	0.5	1	53	81	189
SB-01-08	--	--	-----	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd

ROCK CHIP - SABLE M.C.

CERTIFICATION:

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

To: MCLAREN, MURRAY

283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

A0125982

Comments: ATTN: MURRAY McCLAREN

CERTIFICATE A0125982

(JVP) - MCLAREN, MURRAY

Project:
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 10-OCT-2001.

SAMPLE PREPARATION

METHOD CODE	NUMBER SAMPLES	DESCRIPTION
SCR-42	10	-180 micron screen - Save Minus
SCR-01	10	Screen - Save Plus Charge
LOG-22	10	Samples received without barcode

ANALYTICAL PROCEDURES

METHOD CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
WEI-21	10	Weight of received sample	BALANCE	0.01	1000.0
Ni-AA61	10	Ni ppm: HClO4-HNO3-HF digestion	AAS	2	10000
Co-AA61	10	Co ppm: HClO4-HNO3-HF digestion	AAS	2	10000
Cu-AA61	10	Cu ppm: HClO4-HNO3-HF digestion	AAS	1	10000

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To: MCLAREN, MURRAY

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Project :
Comments: ATTN: MURRAY McCLAREN

Page Number : 1
Total Pages : 1
Certificate Date: 10-OCT-2001
Invoice No. : I0125982
P.O. Number :
Account : JVP

CERTIFICATE OF ANALYSIS A0125982

SAMPLE	PREP CODE	Weight Kg	Ni ppm	Co ppm	Cu ppm
SB-01-NH	9406 9407	1.06	30	18	43
SB-02-NH	9406 9407	0.76	44	26	38
SB-03-NH	9406 9407	0.78	44	14	37
SB-04-NH	9406 9407	0.92	16	8	18
SB-05-NH	9406 9407	0.32	22	6	20
SB-01-15	9406 9407	0.50	94	18	33
SB-01-17	9406 9407	0.74	52	18	28
SB-01-18	9406 9407	0.90	14	8	16
SB-01-19	9406 9407	0.70	56	16	32
PT 27-9-13	9406 9407	0.32	52	20	18

Nahatlatch
Rock
Sable SL
SL
SL

SILT 5 NAHATLATCH
SILT 4 SABLE
ROCK - 1 SABLE

CERTIFICATION: [signature]

ALS Chemex
Aurora Laboratory Services Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
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To: MCLAREN, MURRAY

283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

A0125980

Comments: ATTN: MURRAY McCLAREN

CERTIFICATE A0125980

(JVP) - MCLAREN, MURRAY

Project:
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 09-OCT-2001.

SAMPLE PREPARATION

METHOD CODE	NUMBER SAMPLES	DESCRIPTION
PUL-31	4	Pulv. <250g to >85%/-75 micron
STO-21	4	Reject Storage-First 90 Days
LOG-22	4	Samples received without barcode
CRU-31	4	Crush to 70% minus 2mm
SPL-21	4	Splitting Charge

ANALYTICAL PROCEDURES

METHOD CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
WEI-21	4	Weight of received sample	BALANCE	0.01	1000.0
Ni-AA61	4	Ni ppm: HClO4-HNO3-HF digestion	AAS	2	10000
Co-AA61	4	Co ppm: HClO4-HNO3-HF digestion	AAS	2	10000
Cu-AA61	4	Cu ppm: HClO4-HNO3-HF digestion	AAS	1	10000

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: MCLAREN, MURRAY

283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

Project :
Comments: ATTN: MURRAY McCLAREN

Page Number :1
Total Pages :1
Certificate Date: 09-OCT-2001
Invoice No. : I0125980
P.O. Number :
Account :JVP

CERTIFICATE OF ANALYSIS A0125980

SAMPLE	PREP CODE		Weight Kg	Ni ppm	Co ppm	Cu ppm						
SB-01-NH	9413	9402	0.34	1010	116	793	Rock Nahatlatch					
SB-01-016	9413	9402	0.58	768	112	884	Sable					
SB-01-022	9413	9402	1.36	992	110	50						
SB-01-023	9413	9402	1.36	108	42	53						

ROCK - NAHATLATCH SB-01-NH

ROCK - 16, 22, 23 SABLE

CERTIFICATION: [signature]

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To: MCLAREN, MURRAY

283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

Comments: ATTN: MURRAY McCLAREN

CERTIFICATE A0126434

(JVP) - MCLAREN, MURRAY

Project:
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 18-OCT-2001.

SAMPLE PREPARATION

METHOD CODE	NUMBER SAMPLES	DESCRIPTION
244	4	Pulp; prev. prepared at Chemex

ANALYTICAL PROCEDURES

METHOD CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
Au-MS23	4	Au ppb: Fuse 30g - ICPMS Finish	FA-ICPMS	1	1000
Pt-MS23	4	Pt ppb: Fuse 30g - ICPMS Finish	FA-ICPMS	0.5	1000
Pd-MS23	4	Pd ppb: Fuse 30g - ICPMS Finish	FA-ICPMS	1	1000

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Project :
Comments: ATTN: MURRAY McCLAREN

Page Number : 1
Total Pages : 1
Certificate Date: 18-OCT-2001
Invoice No. : I0126434
P.O. Number :
Account : JVP

CERTIFICATE OF ANALYSIS A0126434

SAMPLE	PREP CODE		Au ppb ICP-MS	Pt ppb ICP-MS	Pd ppb ICP-MS	
SB-01-NH	244	--	4	1.5	1	} Malahat Hill
SB-01-016	244	--	< 1	5.5	4	} Sahtla
SB-01-022	244	--	< 1	2.5	2	
SB-01-023	244	--	< 1	< 0.5	< 1	

CERTIFICATION: [signature]

RERUNS from A0125980

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To: MCLAREN, MURRAY

283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

A0127939

Comments: ATTN: MURRAY McCLAREN CC: PAUL METACALFE

CERTIFICATE A0127939

(JVP) - MCLAREN, MURRAY

Project: SABLE
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 12-NOV-2001.

SAMPLE PREPARATION

METHOD CODE	NUMBER SAMPLES	DESCRIPTION
PUL-31	2	Pulv. <250g to >85%/-75 micron
STO-21	2	Reject Storage-First 90 Days
LOG-22	2	Samples received without barcode
CRU-31	2	Crush to 70% minus 2mm
SPL-21	2	Splitting Charge

ANALYTICAL PROCEDURES

METHOD CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
WEI-21	2	Weight of received sample	BALANCE	0.01	1000.0
Au-MS24	2	Au ppb: Fuse 50g - ICPMS Finish	FA-ICPMS	1	1000
Pt-MS24	2	Pt ppb: Fuse 50g - ICPMS Finish	FA-ICPMS	0.5	1000
Pd-MS24	2	Pd ppb: Fuse 50g - ICPMS Finish	FA-ICPMS	1	1000
Cu-AA62	2	Cu %: HNO3-HClO4-HF-HCl dig'n	AAS	0.01	50.0
Ni-AA62	2	Ni %: HClO4-HNO3-HF digestion	AAS	0.01	50.0
Co-AA62	2	Co %: HNO3-HClO4-HF-HCl dig'n	AAS	0.001	50.0

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Project : SABLE
Comments: ATTN: MURRAY McCLAREN CC: PAUL METACALFE

Certificate Date: 12-NOV-2001
Invoice No. : I0127939
P.O. Number :
Account : JVP

CERTIFICATE OF ANALYSIS A0127939

SAMPLE	PREP CODE		Weight Kg	Au ppb ICP-MS	Pt ppb ICP-MS	Pd ppb ICP-MS	Cu %	Ni %	Co %			
SK-1	941	3 9402	0.38	30	2.0	5	0.14	0.17	0.027			
SK-2	941	3 9402	0.16	13	4.5	23	0.18	0.44	0.068			

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To: MCLAREN, MURRAY

283 WOODALE RD.
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A0125093

Comments: ATTN: MURRAY McCLAREN CC: PAUL METACALFE

CERTIFICATE A0125093

(JVP) - MCLAREN, MURRAY

Project: CATHOUSE
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 05-OCT-2001.

SAMPLE PREPARATION

METHOD CODE	NUMBER SAMPLES	DESCRIPTION
SCR-42	3	-180 micron screen - Save Minus
SCR-01	3	Screen - Save Plus Charge
LOG-22	3	Samples received without barcode
229	3	ICP - AQ Digestion charge

* NOTE 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, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES

METHOD CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
WEI-21	3	Weight of received sample	BALANCE	0.01	1000.0
Ag-ICP41	3	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	100.0
Al-ICP41	3	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
As-ICP41	3	As ppm: 32 element, soil & rock	ICP-AES	2	10000
B-ICP41	3	B ppm: 32 element, rock & soil	ICP-AES	10	10000
Ba-ICP41	3	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
Be-ICP41	3	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
Bi-ICP41	3	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
Ca-ICP41	3	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
Cd-ICP41	3	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	500
Co-ICP41	3	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
Cr-ICP41	3	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
Cu-ICP41	3	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
Fe-ICP41	3	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
Ga-ICP41	3	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
Hg-ICP41	3	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
K-ICP41	3	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
La-ICP41	3	La ppm: 32 element, soil & rock	ICP-AES	10	10000
Mg-ICP41	3	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
Mn-ICP41	3	Mn ppm: 32 element, soil & rock	ICP-AES	5	10000
Mo-ICP41	3	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
Na-ICP41	3	Na %: 32 element, soil & rock	ICP-AES	0.01	10.00
Ni-ICP41	3	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
P-ICP41	3	P ppm: 32 element, soil & rock	ICP-AES	10	10000
Pb-ICP41	3	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
S-ICP41	3	S %: 32 element, rock & soil	ICP-AES	0.01	10.00
Sb-ICP41	3	Sb ppm: 32 element, soil & rock	ICP-AES	2	10000
Sc-ICP41	3	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
Sr-ICP41	3	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
Ti-ICP41	3	Ti %: 32 element, soil & rock	ICP-AES	0.01	10.00
Tl-ICP41	3	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
U-ICP41	3	U ppm: 32 element, soil & rock	ICP-AES	10	10000
V-ICP41	3	V ppm: 32 element, soil & rock	ICP-AES	1	10000
W-ICP41	3	W ppm: 32 element, soil & rock	ICP-AES	10	10000
Zn-ICP41	3	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

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To: MCLAREN, MURRAY
283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

Project : CATHOUSE
Comments: ATTN: MURRAY McCLAREN CC: PAUL METACALFE

Certificate Date: 05-OCT-2001
Invoice No. : I0125093
P.O. Number :
Account : JVP

CERTIFICATE OF ANALYSIS A0125093

SAMPLE	PREP CODE	Weight Kg	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %
A4-01 PT2-4	9406 9407	0.58	< 0.2	1.70	6	< 10	60	< 0.5	< 2	0.65	< 0.5	12	18	36	2.85	< 10	< 1	0.17	< 10	0.92
A4-01 PT2-5	9406 9407	0.30	< 0.2	1.67	2	< 10	70	< 0.5	< 2	0.66	< 0.5	18	47	39	2.60	< 10	< 1	0.14	< 10	1.27
A4-01 PT3-4	9406 9407	0.44	< 0.2	0.77	2	< 10	60	< 0.5	< 2	0.21	< 0.5	4	7	8	1.19	< 10	< 1	0.13	< 10	0.40

CERTIFICATION:

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To: MCLAREN, MURRAY

283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

Project : CATHOUSE
Comments: ATTN: MURRAY McCLAREN CC: PAUL METACALFE

Certificate Date: 05-OCT-2001
Invoice No. : I0125093
P.O. Number :
Account :JVP

CERTIFICATE OF ANALYSIS A0125093

SAMPLE	PREP CODE	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
A4-01 PT2-4	9406 9407	400	1	0.01	8	430	< 2	0.01	< 2	5	47	0.10	< 10	10	95	< 10	60
A4-01 PT2-5	9406 9407	400	< 1	0.01	46	590	< 2	0.02	< 2	3	48	0.09	< 10	< 10	63	< 10	56
A4-01 PT3-4	9406 9407	235	< 1	< 0.01	4	160	< 2	< 0.01	< 2	1	22	0.08	< 10	< 10	28	< 10	38

CERTIFICATION: ________

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To: MCLAREN, MURRAY

283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

Project : SABLE
Comments: ATTN: MURRAY MCLAREN CC: PAUL METCALFE

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Page Number :1
Total Pages :1
Certificate Date: 27-JUL-2001
Invoice No. : I0120811
P.O. Number :
Account : JVP

CERTIFICATE OF ANALYSIS A0120811

SAMPLE	PREP CODE		Weight Kg	Au ppb ICP-MS	Pt ppb ICP-MS	Pd ppb ICP-MS	Cu ppm	Co ppm	Ni ppm			
PT1-1	9406	9407	0.50	9	< 0.5	< 1	15	5	2			
PT1-8	9406	9407	0.48	2	0.5	< 1	155	31	73			
PT1-9	9406	9407	0.44	1	0.5	< 1	86	28	70			
PT1-10	9406	9407	0.78	< 1	0.5	< 1	77	28	66			
PT1-11	9406	9407	0.44	1	0.5	< 1	88	34	81			
PT1-13	9406	9407	0.64	1	1.0	1	148	35	90			

SILTS - STOKES CR.

CERTIFICATION: ________________

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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: MCLAREN, MURRAY

283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

A0120811

Comments: ATTN: MURRAY MCLAREN CC: PAUL METCALFE

CERTIFICATE A0120811

(JVP) - MCLAREN, MURRAY

Project: SABLE
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 27-JUL-2001.

SAMPLE PREPARATION

METHOD CODE	NUMBER SAMPLES	DESCRIPTION
SCR-42	6	-180 micron screen - Save Minus
SCR-01	6	Screen - Save Plus Charge
LOG-22	6	Samples received without barcode

ANALYTICAL PROCEDURES

METHOD CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
1433	6	Weight of received sample	BALANCE	0.01	1000.0
Au-MS23	6	Au ppb: Fuse 30g - ICPMS Finish	FA-ICPMS	1	1000
Pt-MS23	6	Pt ppb: Fuse 30g - ICPMS Finish	FA-ICPMS	0.5	1000
Pd-MS23	6	Pd ppb: Fuse 30g - ICPMS Finish	FA-ICPMS	1	1000
Cu-AA63	6	Cu ppm: HF-HNO3-HClO4 digestion	AAS	5	10000
Co-AA63	6	Co ppm: HClO4-HNO3-HF digestion	AAS	5	10000
Ni-AA63	6	Ni ppm: HClO4-HNO3-HF digestion	AAS	5	10000

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To: MCLAREN, MURRAY

283 WOODALE RD.
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V7N 1S6

A0120809

Comments: ATTN: MURRAY MCLAREN CC: PAUL METCALFE

CERTIFICATE A0120809

(JVP) - MCLAREN, MURRAY

Project: SABLE
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 27-JUL-2001.

SAMPLE PREPARATION

METHOD CODE	NUMBER SAMPLES	DESCRIPTION
DRY-21	4	Drying Charge DRY-21
235	4	Pan con ring to approx 150 mesh
LOG-22	4	Samples received without barcode
SPL-21	4	Splitting Charge

ANALYTICAL PROCEDURES

METHOD CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
1433	4	Weight of received sample	BALANCE	0.01	1000.0
Au-MS23	4	Au ppb: Fuse 30g - ICPMS Finish	FA-ICPMS	1	1000
Pt-MS23	4	Pt ppb: Fuse 30g - ICPMS Finish	FA-ICPMS	0.5	1000
Pd-MS23	4	Pd ppb: Fuse 30g - ICPMS Finish	FA-ICPMS	1	1000

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To: MCLAREN, MURRAY

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Project : SABLE
Comments: ATTN: MURRAY MCLAREN CC: PAUL METCALFE

Certificate Date: 27-JUL-2001
Invoice No. : I0120809
P.O. Number :
Account :JVP

CERTIFICATE OF ANALYSIS A0120809

SAMPLE	PREP CODE		Weight Kg	Au ppb ICP-MS	Pt ppb ICP-MS	Pd ppb ICP-MS						
PH1-7	296	235	0.20	3	2.0	< 1						
PH1-8	296	235	0.22	1	1.0	< 1						
PH1-9	296	235	0.16	1	0.5	< 1						
PH1-13	296	235	0.24	1	1.0	< 1						

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To: MCLAREN, MURRAY

283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

A0122973

Comments: ATTN: MURRAY MCLAREN CC: PAUL METCALFE

CERTIFICATE A0122973

(JVP) - MCLAREN, MURRAY

Project: KATT
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 28-AUG-2001.

SAMPLE PREPARATION

METHOD CODE	NUMBER SAMPLES	DESCRIPTION
PUL-31	4	Pulv. <250g to >85%/-75 micron
STO-21	4	Reject Storage-First 90 Days
LOG-22	4	Samples received without barcode
CRU-31	4	Crush to 70% minus 2mm
SPL-21	4	Splitting Charge
3285	4	ICP-587 Tri Acid Dig'n Charge

ANALYTICAL PROCEDURES

METHOD CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
WEI-21	4	Weight of received sample	BALANCE	0.01	1000.0
Au-MS23	4	Au ppb: Fuse 30g - ICPMS Finish	FA-ICPMS	1	1000
Pt-MS23	4	Pt ppb: Fuse 30g - ICPMS Finish	FA-ICPMS	0.5	1000
Pd-MS23	4	Pd ppb: Fuse 30g - ICPMS Finish	FA-ICPMS	1	1000
Ag-ICP61	4	Ag ppm:Tri Acid Dig. ICP Package	ICP-AES	0.5	100
Al-ICP61	4	Al %:Tri Acid Dig. ICP Package	ICP-AES	0.01	25.00
As-ICP61	4	As ppm:Tri Acid Dig. ICP Package	ICP-AES	5	10000
Ba-ICP61	4	Ba ppm:Tri Acid Dig. ICP Package	ICP-AES	10	10000
Be-ICP61	4	Be ppm:Tri Acid Dig. ICP Package	ICP-AES	0.5	1000
Bi-ICP61	4	Bi ppm:Tri Acid Dig. ICP Package	ICP-AES	2	10000
Ca-ICP61	4	Ca %: Tri Acid Dig. ICP Package	ICP-AES	0.01	25
Cd-ICP61	4	Cd ppm:Tri Acid Dig. ICP Package	ICP-AES	0.5	500
Co-ICP61	4	Co ppm:Tri Acid Dig. ICP Package	ICP-AES	1	10000
Cr-ICP61	4	Cr ppm:Tri Acid Dig. ICP Package	ICP-AES	1	10000
Cu-ICP61	4	Cu ppm:Tri Acid Dig. ICP Package	ICP-AES	1	10000
Fe-ICP61	4	Fe %:Tri Acid Dig. ICP Package	ICP-AES	0.01	25.00
K-ICP61	4	K %:Tri Acid Dig. ICP Package	ICP-AES	0.01	10.00
Mg-ICP61	4	Mg %:Tri Acid Dig. ICP Package	ICP-AES	0.01	15.00
Mn-ICP61	4	Mn ppm:Tri Acid Dig. ICP Package	ICP-AES	5	10000
Mo-ICP61	4	Mo ppm:Tri Acid Dig. ICP Package	ICP-AES	1	10000
Na-ICP61	4	Na %:Tri Acid Dig. ICP Package	ICP-AES	0.01	10.00
Ni-ICP61	4	Ni ppm:Tri Acid Dig. ICP Package	ICP-AES	1	10000
P-ICP61	4	P ppm:Tri Acid Dig. ICP Package	ICP-AES	10	10000
Pb-ICP61	4	Pb ppm:Tri Acid Dig. ICP Package	ICP-AES	2	10000
S-ICP61	4	S %:Tri Acid Dig. ICP Package	ICP-AES	0.01	10.00
Sb-ICP61	4	Sb ppm:Tri Acid Dig. ICP Package	ICP-AES	5	10000
Sr-ICP61	4	Sr ppm:Tri Acid Dig. ICP Package	ICP-AES	1	10000
Ti-ICP61	4	Ti %:Tri Acid Dig. ICP Package	ICP-AES	0.01	10.00
V-ICP61	4	V ppm: Tri Acid Dig. ICP Package	ICP-AES	1	10000
W-ICP61	4	W ppm: Tri Acid Dig. ICP Package	ICP-AES	10	10000
Zn-ICP61	4	Zn ppm:Tri Acid Dig. ICP Package	ICP-AES	2	10000

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To: MCLAREN, MURRAY

283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

Project : KATT
Comments: ATTN: MURRAY MCLAREN CC: PAUL METCALFE

Certificate Date: 28-AUG-2001
Invoice No. : I0122973
P.O. Number :
Account : JVP

CERTIFICATE OF ANALYSIS A0122973

SAMPLE	PREP CODE		Weight Kg	Au ppb ICP-MS	Pt ppb ICP-MS	Pd ppb ICP-MS	Ag ppm (ICP)	Al % (ICP)	As ppm (ICP)	Ba ppm (ICP)	Be ppm (ICP)	Bi ppm (ICP)	Ca % (ICP)	Cd ppm (ICP)	Co ppm (ICP)	Cr ppm (ICP)	Cu ppm (ICP)	Fe % (ICP)	K % (ICP)	Mg % (ICP)	Mn ppm (ICP)
LR 2-1	9413	9402	0.56	13	2.5	3	< 0.5	10.14	5	70	< 0.5	< 2	9.7	< 0.5	86	67	1465	5.61	0.08	1.67	490
PR 2-3	9413	9402	0.62	9	2.0	4	< 0.5	7.00	< 5	80	< 0.5	6	4.0	< 0.5	77	402	1750	11.53	0.07	4.70	1300
PR 2-5	9413	9402	1.06	1	0.5	< 1	< 0.5	8.68	< 5	80	< 0.5	10	4.1	< 0.5	33	145	100	14.51	0.34	1.08	830
PR 2-12	9413	9402	1.02	2	3.5	7	< 0.5	4.46	< 5	60	< 0.5	8	4.7	0.5	52	704	406	10.31	0.09	6.02	1580

ROCK · STOKKES CR.

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: MCLAREN, MURRAY

283 WOODALE RD.
NORTH VANCOUVER, BC
V7N 1S6

Project : KATT
Comments: ATTN: MURRAY MCLAREN CC: PAUL METCALFE

Certificate Date: 28-AUG-2001
Invoice No. : I0122973
P.O. Number :
Account :JVP

CERTIFICATE OF ANALYSIS A0122973

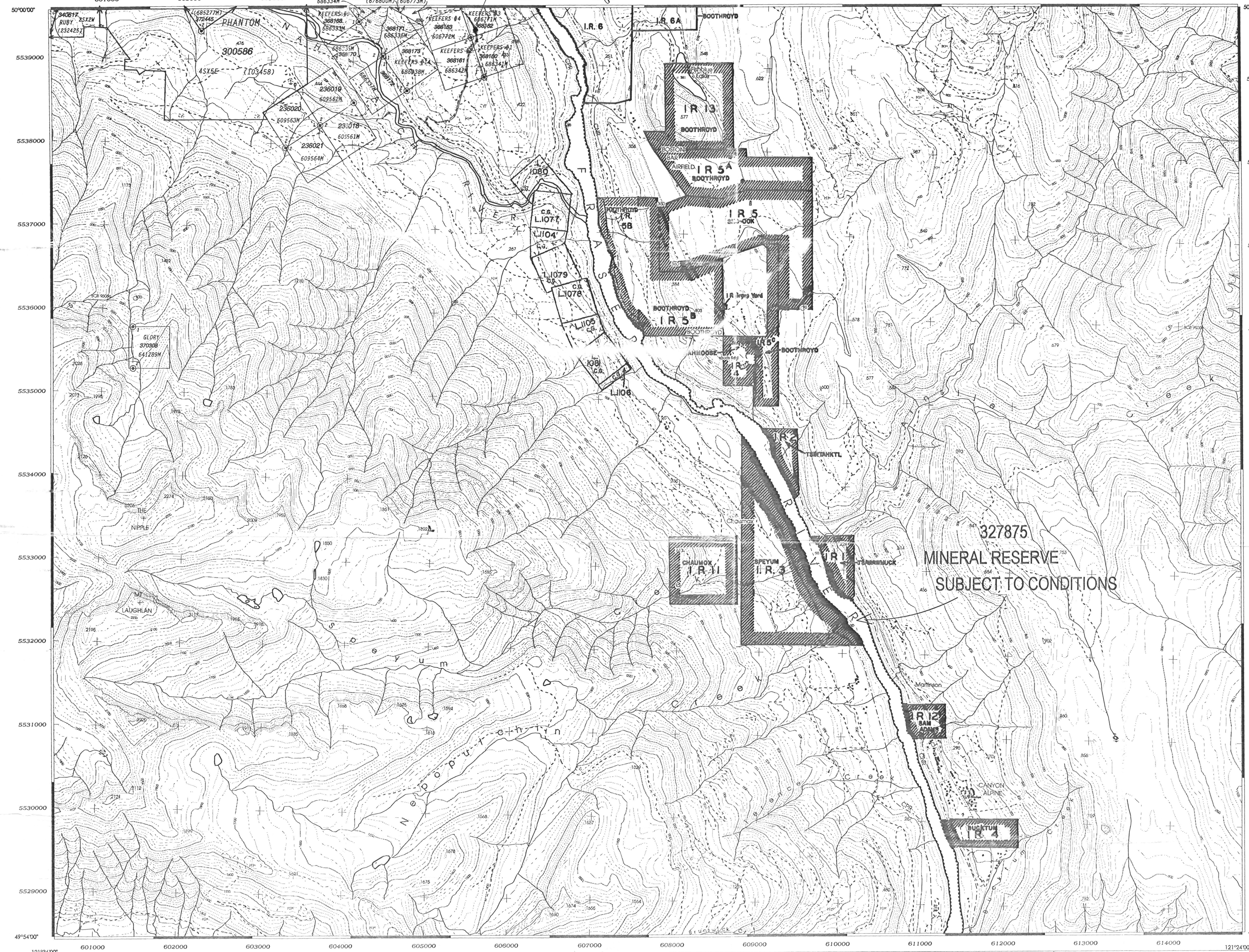
SAMPLE	PREP CODE	Mo ppm (ICP)	Na % (ICP)	Ni ppm (ICP)	P ppm (ICP)	Pb ppm (ICP)	S % (ICP)	Sb ppm (ICP)	Sr ppm (ICP)	Ti % (ICP)	V ppm (ICP)	W ppm (ICP)	Zn ppm (ICP)
LR 2-1	241 3P402	< 1	1.51	145	2270	< 2	1.52	< 5	485	0.58	257	< 10	30
PR 2-3	241 3P402	< 1	1.29	215	100	< 2	0.88	< 5	532	1.01	815	< 10	140
PR 2-5	241 3P402	< 1	2.34	36	1210	< 2	3.35	< 5	591	0.65	450	< 10	112
PR 2-12	241 3P402	< 1	0.89	140	140	< 2	0.25	< 5	266	0.79	693	< 10	150

CERTIFICATION:

KEEFERS

PITS

silicified and quartz veined metaseds. (black grey) with cleavs. min imbricated overturned isoclinal folds



M092H093
MINERAL LEGEND

ADMINISTRATIVE AREAS

MINING DIVISION(S):
NEW WESTMINSTER

LAND DISTRICT(S):
YALE DIVISION OF YALE

ADMINISTRATIVE BOUNDARIES

MINING DIVISION
LAND DISTRICT
PROVINCIAL BOUNDARY
INTERNATIONAL BOUNDARY
NO STAKING RESERVE
ECOLOGICAL RESERVE, PARK, OR RECREATION AREA
INDIAN RESERVE I.R. 11
(SEE NOTES 1)
CONDITIONAL AREA
SUBJECT TO CONDITION RESERVE,
RELEASE REQUIRED RESERVE,
SECTION 23 RECREATION AREA,
(SEE NOTES 2)
OR URANIUM / THORIUM REGULATION
(SEE NOTES 3)

MINERAL TENURES

MINERAL CLAIM
MINING LEASE
INDUSTRIAL MINERAL TITLE
MINING LEASE ML
INDUSTRIAL MINERAL IM
CLAIM NAME EXAMPLE
TENURE NUMBER 234567
TAG NUMBER 243765
CLAIM SIZE (UNITS) 4NX3W
LEGAL POST
WITNESS POST WP
TENURE HOOK
VERIFIED VER
SURVEYED SUR
GLOBAL POSITIONING SYSTEM GPS
CROWN GRANTED 2 POST CLAIM CG
F LOT (Real Estate Lot) F
REVERTED C.G. 2 POST CLAIMS
Reverted C.G. (Not Open for Staking) RCG
BID LOT BID
R.C.G. (Issued under a former Act) FA

PLANIMETRIC LEGEND

DRAINAGE AND RELATED FEATURES
COASTLINE, DEFINITE
INDEFINITE
RIVER / STREAM, DEFINITE
INDEFINITE
LAKE, DEFINITE
LAKE, INDEFINITE
DAM
DYKE
SAND / GRAVEL BAR
FLOODED LAND
SWAMP / MARSH
FALLS / RAPIDS Falls
ICE FIELD / GLACIER
RESERVOIR, DEFINITE Reservoir
RESERVOIR, INDEFINITE Reservoir

CLIFF / SCARP
ESKER
SLIDE

LANDMARK FEATURE
MINE
PIER / WHARF
PIPELINE
QUARRY
TRANSMISSION LINE

TRANSPORTATION FEATURES
AIRFIELD
CUTLINE / SEISMIC LINE
RAIL LINE
RAIL LINE (ABANDONED)
ROAD, SURFACE PAVED
ROAD, SURFACE LOOSE
ROAD, SURFACE ROUGH / TRAIL
BRIDGE

CONTROL DATA
HORIZONTAL CONTROL POINT, MARKED
VERTICAL CONTROL POINT, MARKED
MAJOR CONTOUR
MINOR CONTOUR
CONTOUR INTERVAL - 20 METRES

DISCLAIMER

This map is prepared only as a guide to the location of mineral tenure as shown on the locator's sketches. For current or more specific information, application should be made to the appropriate Gold Commissioner.

SOURCES OF INFORMATION

Planimetric and topographic information is obtained from the Terrain Resource Information Management (TRIM) base mapping program. For more information contact Geographic Data BC, Ministry of Environment, Lands and Parks. Source Date: 1998 AUG 05

Cadastre produced from spatial data is obtained from the Cadastral Data Management System (CDMS). For more information contact the Surveyor General Branch, Ministry of Environment, Lands and Parks.
Source Date: 2000 MAR 06

This map depicts only the mineral tenure theme. For the placer tenure theme see appropriate placer map and for the coal tenure theme see appropriate coal map.

Additional tenure information is available on the Internet:
http:// www.em.gov.bc.ca /mida

NOTES FROM MINERAL LEGEND

1. Staking is not permitted within Indian Reserves.
2. Staking is not permitted over Section 23 Recreation Areas due to a No Staking Reserve. (B.C. Reg. 97 / 97)
3. For Uranium and Thorium Regulations, please refer to Mines Act.

MISCELLANEOUS NOTES

Staking is not permitted over all Crown Granted Lots issued since August 15, 1988. (B.C. Reg. 138 / 94)

Staking is not permitted within tidal waters. (B.C. Reg. 100 / 68)

Surface lots with mineral rights are not shown.

Please refer to the Mineral Tenure Act , Mineral Tenure Act Regulation, Mines Act, and the Guide to Staking in British Columbia for more complete information.

GOLD COMMISSIONER OFFICES

CARIBOO
102 350 Barlow Street
Quesnel BC V2J 2C1
Public Query: (250) 992-4301
FAX: (250) 992-4314
Mining Division: Cariboo

VANCOUVER ISLAND
3001 1810 Blanshard Street
P O Box 9322 Stn Prov Govt
Victoria BC V8W 9N3
Public Query: (250) 952-0542
FAX: (250) 952-0541
Mining Divisions: Alberni, Nanaimo, and Victoria

OMINECA
1020 Murray Street Bag 5000
Smithers BC V0J 2N0
Public Query: (250) 847-7207
FAX: (250) 847-7232
Mining Division: Omineca

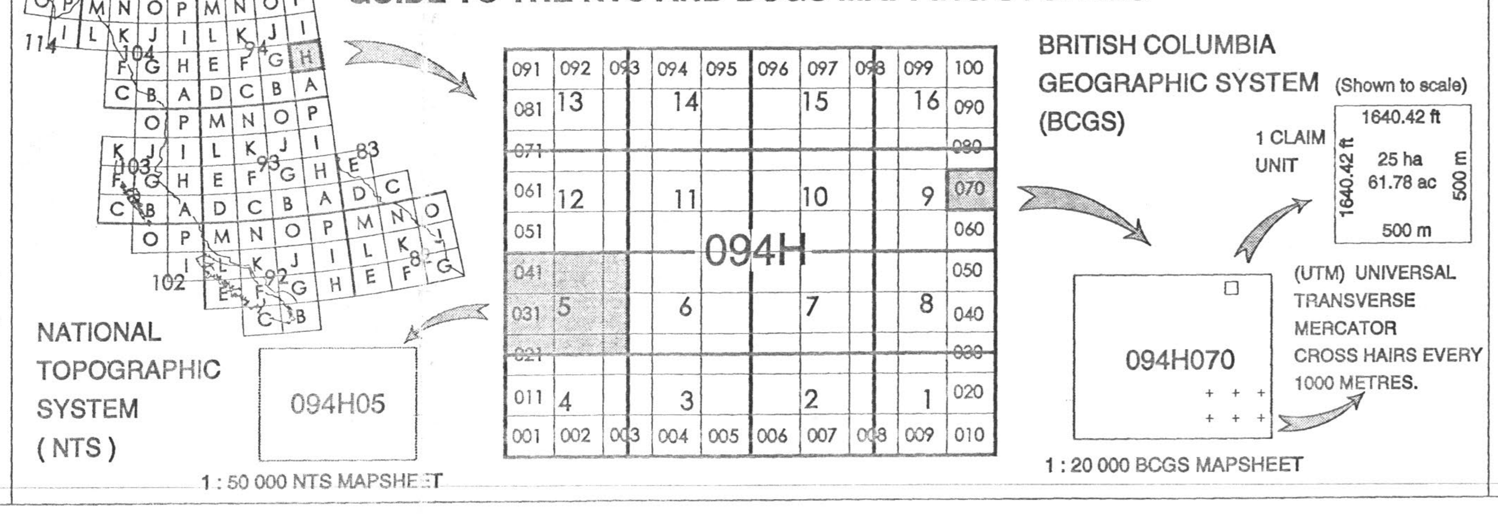
COAST / LIARD
302 865 Hornby Street
Vancouver BC V6Z 2G3
Public Query: (604) 660-2672
FAX: (604) 660-2653
Mining Divisions: Atlin, Clinton, Liard, Lillooet, Skeena, New Westminster, and Vancouver

KAMLOOPS / OKANAGAN
250 455 Columbia Street
Kamloops BC V2C 6K4
Public Query: (250) 828-4540
FAX: (250) 828-4233
Mining Divisions: Kamloops, Nicola, Osoyoos, Revelstoke, Similkameen, and Vernon

EAST KOOTENAY
100 Cranbrook Street North
Cranbrook BC V1C 3P9
Public Query: (250) 426 1211
FAX: (250) 426-1253
Mining Divisions: Fort Steele and Golden

KOOTENAY
310 Ward Street
Nelson BC V1L 5S4
Public Query: (250) 354-6103
FAX: (250) 354-6407
Mining Divisions: Greenwood, Nelson, Slocan, and Trail Creek

GUIDE TO THE NTS AND BCGS MAPPING SYSTEMS



T.N. 19° 32'
Magnetic North
MAGNETIC DECLINATION AS OF 2000

092I002	092I003	092I004
092H092	092H093	092H094
092H082	092H083	092H084

INDEX TO ADJOINING MAPS

1000 m 0 1 km

ORIGINAL PRODUCED AT 1: 20 000

LAST MAP UPDATE: 2000 JUN 16
Version Number:0001

01-31 1

BRITISH COLUMBIA
MINISTRY OF ENERGY AND MINES

ENERGY AND MINERALS DIVISION
MINERAL TITLES BRANCH

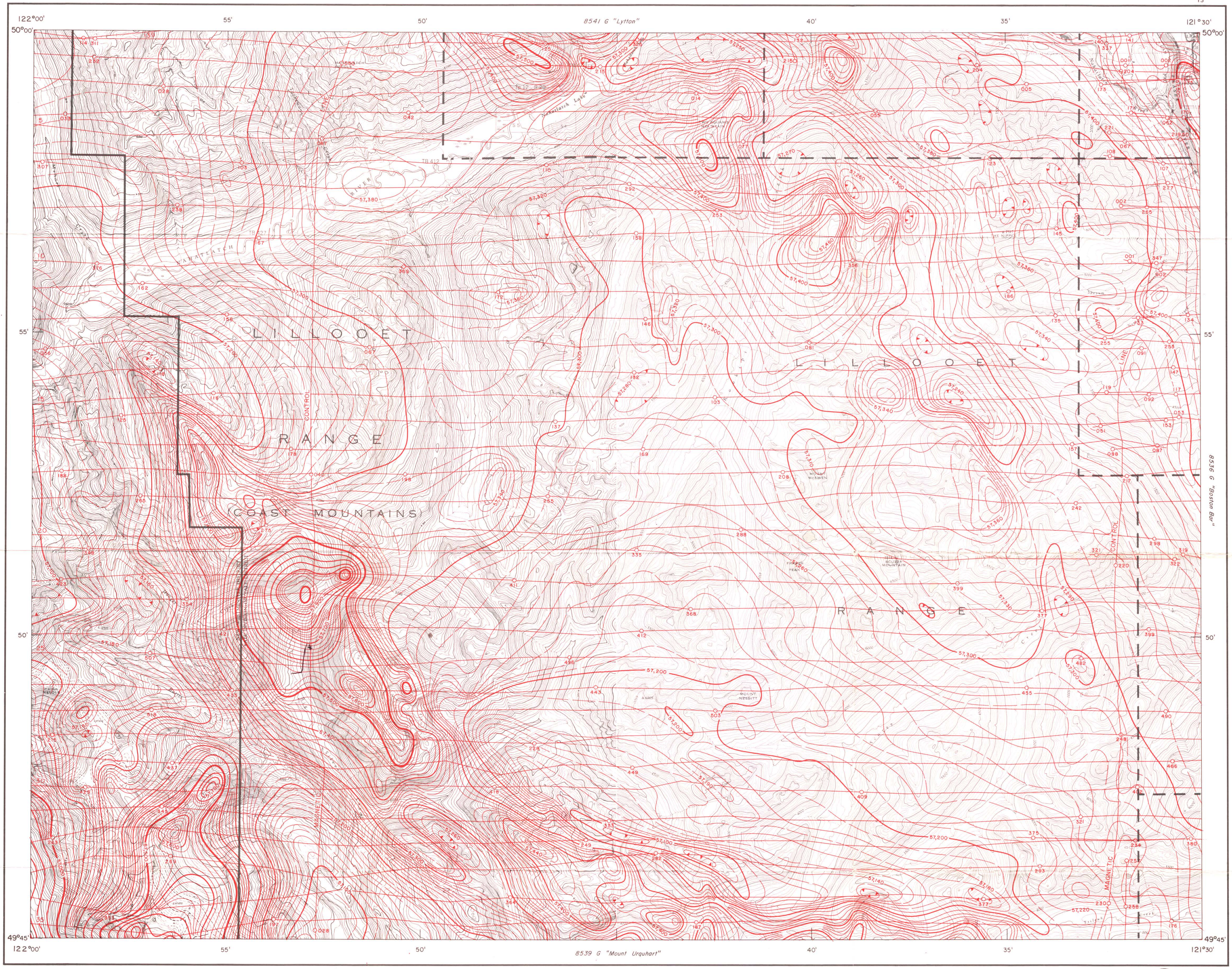
MINERAL TITLES REFERENCE MAP
M092H093
1983 North American Datum
U.T.M. Coordinate System - Zone 10
Compilation Date: 2000 JUN 09

GEOPHYSICAL SERIES (Aeromagnetic)

PROVINCE
OF
BRITISH COLUMBIA
DEPARTMENT OF MINES AND PETROLEUM RESOURCES

DEPARTMENT
OF
ENERGY, MINES AND RESOURCES
GEOLOGICAL SURVEY OF CANADA

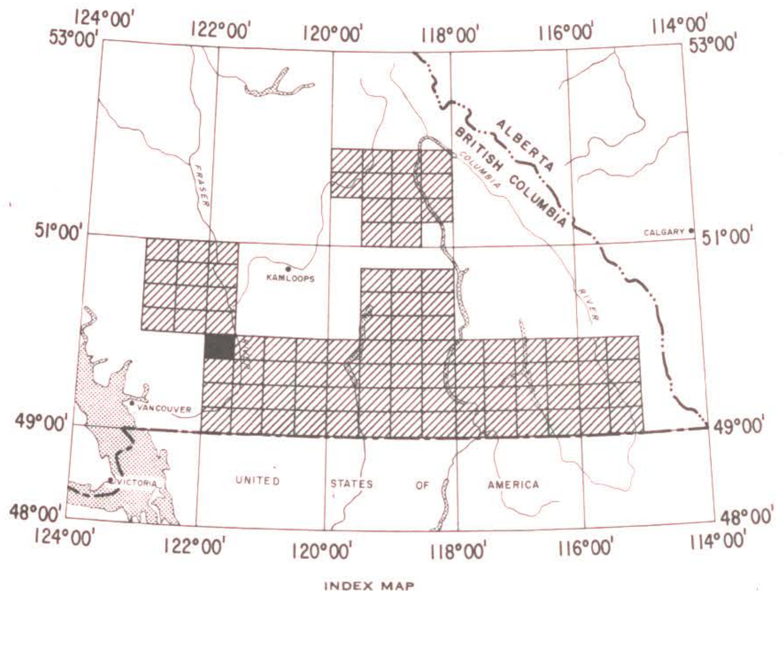
SHEET 92 H/13



"CASCADE PORPHYRY"

PUBLISHED 1973

01-31 (2)



*'CASCADE PORPHYPY"

MAP 8540G

SCUZZY MOUNTAIN

BRITISH COLUMBIA

ISOMAGNETIC LINES (absolute total field)

500 gammas
100 gammas
20 gammas
10 gammas
Magnetic depression

Flight lines 15 687
Flight altitude 1000 feet above ground level

Scale: One Inch to One Mile = $\frac{1}{63,360}$

Miles

1 1/2 0 1 2 3

Airborne Magnetic Survey by Geoterrex Limited, from October 1969 to April 1972.

Survey flown with a helicopter owned by Klondike Helicopters at an average speed of 90 m.p.h.

The topography for this map was obtained from topographical map sheets published by the Department of Energy, Mines and Resources, Ottawa.

No correction has been made for regional variation.

The magnetic data on this map were compiled from information recorded along the flight lines shown. The anomalies expressed by the magnetic contours are dependent on the variable magnetic intensities of the underlying rocks, and may be due to conditions near, or at unknown depths below the surface. High magnetic anomalies normally indicate the presence of basic rocks, such as diabase, gabbro, or serpentinite, which have a relatively high iron content, but in special instances may be due, or partly due, to concentrations of magnetic minerals. By means of the magnetic anomalies, various rock bodies or structural features, such as faults or folds, may be traced into, or across, areas of few or no outcrops. In many instances, however, no interpretation of particular anomalies may be possible without further geological information.

MAP 8540 G
SCUZZY MOUNTAIN
BRITISH COLUMBIA
SHEET 92 H/13

P53

PAUL METCALFE

Box T-9, RR#1

Bowen Island, British Columbia
V0N 1G0
CANADA
Telephone: +1 (604) 947-0339
E-Mail: Paul_Metcalfe@telus.net

MAIN AREAS OF EXPERTISE

1. Regional and local geological mapping of volcanic and associated rocks in areas near metalliferous mineral deposits, especially those of magmatic origin, or hosted by igneous rocks. Previous experience of mapping in epithermal, porphyry, and transitional vein-type targets.
2. Detailed exploration, mainly diamond drilling but including all levels from grass roots to mine planning.
3. Synthesis of geological data at a regional and local level. This includes:

d. Several years' experience producing geological maps from own or third-party mapping using AutoCAD (11, 12, 13) and spreadsheet / dxf programming. More recently producing maps and sections synthesizing geological and geophysical data using MapInfo. Last project included synthesis of data from Cuale, a Kuroko-type volcanogenic massive sulphide deposit in Jalisco, México.

e. Treatment of lithochemical data from ICP analysis using conserved (Pearce) element ratios; have produced a spreadsheet for construction of correlated error ellipses used with Pearce element ratio analysis

f. Experience in resource inventory for a mine in a transitional vein-type deposit (Stonehouse deposit).

Employment locations have been mainly within the Canadian Cordillera but also in tropical (southern Jalisco), desert (Baja, southern Perú) and Altiplano (southwestern Bolivia) environments. Physically fit and comfortable at elevations as high as 4600 m. Speak Spanish and some French. Willing and eager to travel.

PAUL METCALFE

Box T-9, RR#1

Bowen Island, British Columbia
V0N 1G0
CANADA

Telephone: +1 (604) 947-0339

E-Mail: Paul_Metcalfe@telus.net

QUALIFICATIONS

- Professional Geoscientist (B.C.), September 14th 1998 (Registration # 23944).
- Ph.D. in Geology, University of Alberta - November 1987.
  Thesis: Petrogenesis of alkali basalts in Wells Gray Provincial Park, east-central B.C.
- M.Sc. in Geology, University of Manitoba - November 1981.
  Thesis: Petrogenesis of the Klondike Schist, Yukon Territory.
- B.Sc. (Honours) in Geology, University of Durham - June 1977.
  Thesis: Northwestern part of the Ardnamurchan mafic intrusive complex, Scotland.

EMPLOYMENT

INTERNATIONAL CROESUS VENTURES CORP. September 2000 - March 2001

- Compilation of 87 cross-sections of the Cuale volcanogenic massive sulphide district, México, based upon Industrias Peñoles diamond drill logs and underground geological maps, September 2000 - February 2001
- Compilation of revised geological map for the Cuale VMS district, January-February 2000.
- Speaker and and leader of 1-day field trip to the Cuale district at Randol mining conference in Puerto Vallarta, February 2001.
- Assessment of La Boa property, southern Jalisco, February 2001.

INDEPENDENT RESEARCH August 1999 - August 2000

- Prospecting based upon independent research in the Canadian Cordillera, March-August 2000; included staking of two properties in southwestern BC. One property (Raven) optioned to Cream Minerals, June 2000.
- Development of a spreadsheet to facilitate use of Pearce element ratio analysis in lithogeochemical exploration; application of technique to data set from central British Columbia, January-February 2000.
- Expansion of a volcano web page for the Canadian Cordillera created for the Geological Survey of Canada; September -December 1999.
- Job search and data acquisition followed by independent prospecting in southern Perú; August 1999.

GEOLOGICAL SURVEY OF CANADA August 1998 - July 1999

Contract Geoscientist (Multinational Andean Project)

- Creation of digital map, collation of geochemical, isotopic and palæontological data collected in Bolivia, Peru, Chile and Argentina; August 1998-March 1999.
- Collation of maps in MapInfo for proposed geophysical survey area in South America;

March-April 1999.

! Creation of a volcano web page for the Canadian Cordillera.

! Fieldwork with SERGEOMIN in the Serrania Intersalar, southwestern Bolivia; June-July 1999.

CANMEX MINERALS CORPORATION March 1997 - March 1998; July 1998
Contract Geologist

! Geological mapping of Miocene volcanic rocks on the western margin of the South Boleo Basin, south of the Boleo stratiform Cu-Co-Zn deposit, Baja California Sur, México.
! Air photo interpretation of faults and strata exposed within the South Boleo Basin.
! Author of a colour geological map of the South Boleo Basin, with accompanying report.
! GIS compilation of aeromagnetic and transient electromagnetic data from the South Boleo Basin; production of 18 geophysical maps for final geophysical report.

INTERNATIONAL SKYLINE GOLD CORPORATION January 1997
Contract Geologist

! Initial diamond drill program on Kent property, southern B.C. (porphyry copper target).

BRITISH COLUMBIA GEOLOGICAL SURVEY BRANCH July - December 1996
Science Officer

! Mapping in the vicinity of the Kemess South porphyry copper-gold mine, northern B.C.
! Co-author of paper on Kemess area.
! Compilation of results of mapping for release as Open File Map.

GEOLOGICAL SURVEY OF CANADA September 1995 - June 1996
Research Scientist

! B.C. - Canada Mineral Development Agreement Interior Plateau Project Coordinator, supervising production of summary volume from the Interior Plateau Project.
! GSC Co-ordinator of 1996 Cordilleran Roundup conference.
! Acting Staff Volcanologist (Volcanic Hazards), Cordilleran Division.
! Volunteers Coordinator, Cordilleran Division.
! Participated in filming of Discovery Channel documentary on the Quaternary volcanism in Wells Gray Provincial Park, British Columbia (*Great Canadian Parks*), September 1995.

GEOLOGICAL SURVEY OF CANADA September 1993 - September 1995
Visiting Scientist (N.S.E.R.C. Postdoctoral Fellowship)

! M.D.A. Interior Plateau Project; mapping and petrological study of Eocene volcanic rocks hosting Clisbako epithermal mineralization west of Quesnel, B.C. (NTS 93B & C).
! Acting Staff Volcanologist (Volcanic Hazards), Cordilleran Division.
! Volunteers Coordinator, Cordilleran Division.

INTERNATIONAL SKYLINE GOLD CORPORATION July 1993 - September 1993
Project Geologist

! Party chief of exploration and diamond drilling (~10,000') crew on the Stonehouse deposit, northwestern B.C. Exploration targeted the Zephrin Zone, at the centre of the old workings and discovered a new mineralized zone nearby.

UNIVERSITY OF BRITISH COLUMBIA June 1992 - July 1993
Research Associate 2

! Mineral Deposit Research Unit; regional mapping and stratigraphy in the western portion of the Iskut map area (Iskut Project).

GEOLOGICAL SURVEY OF CANADA January - March 1992

Physical Scientist 1

! Compilation of 1:250,000 map sheet of Rivers Inlet (NTS 92M).

! Geological compilation in areas of Iskut River map sheet (NTS 104B).

! Petrological compilation of volcanic rocks from the Ilgachuz shield volcano, central B.C.

CAMBRIA GEOLOGICAL INC. September 1991

Geologist

! Geological mapping of volcanic and sedimentary rocks of the Hazelton and Bowser Lake Groups in the area surrounding the Eskay Creek gold deposit, northwestern British Columbia; fieldwork curtailed by injury.

SKYLINE GOLD CORPORATION May 1988 - March 1991

Geologist

! Party chief of exploration and diamond drilling (6000') crew on the northern part of the REG property, northwestern B.C., during summer of 1988.

! Supervision of underground diamond drilling at Stonehouse deposit, winter 1988-1989. Discovery of new mineralized zone in the hanging wall of the main producing vein.

! Supervision of surface diamond drilling (50,000') at Stonehouse, summer 1989.

! Compilation of geological maps and sections of Stonehouse gold deposit, winter 1989-1990.

! Mapping of the REG property during summer of 1990; preparation of geological report.

WESTMIN RESOURCES LTD. Summer 1987

Field Assistant

! Geological mapping at Palisade Bluff epithermal gold prospect in the Coast Plutonic Complex of B.C.

! Logging of diamond drill core on the same property; compilation of drill sections.

UNIVERSITY OF ALBERTA 1981 - 1986

Instructor

! Mineralogy and optical mineralogy (part-time, 1985-1986).

! Introductory geology for the Summer Youth University, an introduction to university for secondary school students (July 1985).

Teaching Assistant

! Laboratories in introductory geology, mineralogy, optical mineralogy, geochemistry, igneous petrology and metamorphic petrology (1981-1985).

UNIVERSITY OF MANITOBA 1977 - 1981

Teaching Assistant

! Introductory geology, mineralogy, optical mineralogy, X-ray crystallography, igneous petrology, metamorphic petrology and palæontology.

MATTAGAMI LAKE EXPLORATION LTD. Summer 1980

Party Chief

! Helicopter-based reconnaissance exploration in the Ogilvie Mountains, Yukon Territory.

COMINCO LTD. **Summer 1978; summer 1979**
Field Assistant

! Individual reconnaissance geology and geochemistry project, related to M.Sc. thesis in the Yukon Crystalline Terrane (summers 1978, 1979).

DURHAM UNIVERSITY **Summer 1977**
Mineral Curator

! Reorganization of the geology department's mineral collection, including mineral identification using X-ray powder diffraction equipment.

PUBLICATIONS

Metcalfe, P., in "press". Canadian volcanoes web page.

Metcalfe, P., 2000. Petrogenesis of Quaternary alkaline lavas in the Wells Gray volcanic field, east-central BC using conserved (Pearce) element ratios. Geological Society of America Cordilleran Section annual meeting, April 2000.

Metcalfe, P. and Sawlan, M.G., 1998. Volcanic stratigraphy of the southwestern edge of the Boleo Basin, Baja California Sur, Mexico. Geological Association of Canada Annual Meeting, Québec, PQ, Program with Abstracts 23, p.123.

Metcalfe, P., 1997. Geology of the Boleo South Area, Santa Rosalia, Baja California Sur, Mexico. Canmex Minerals Corporation Internal Report, 90p. incl. 1:50,000 colour geological map.

Diakow, L.J. and Metcalfe, P., 1997. Geology of the Swannell Ranges in the vicinity of the Kemess Copper-Gold Porphyry Deposit, Attycelley Creek (94E/2), Toodoggone River Map Area. *In*: Geological Fieldwork 1992; B.C. Geological Survey Branch Paper 1997-1, p.101-116.

Diakow, L.J., Newell, J.M. and Metcalfe, P. (*eds.*) 1997. Interior Plateau Geoscience Project: Summary of Geological, Geochemical and Geophysical Studies; GSC Open File 3448 / B.C. Geological Survey Branch Paper 1997-2, 256p.

Metcalfe, P., Richards, T., Villeneuve, M., White, J. and Hickson, C.J., 1997. Physical and chemical volcanology of the Eocene Mount Clisbako volcano, central British Columbia. *In*: Interior Plateau Geoscience Project: Summary of Geological, Geochemical and Geophysical Studies; GSC Open File 3448 / B.C. Geological Survey Branch Paper 1997-2, p.31-62.

Metcalfe, P. and Hickson, C.J., 1995. Mount Clisbako, central British Columbia: stratigraphy of an eroded Eocene volcano hosting epithermal mineralization. International Union of Geodesy and Geophysics, XXI General Assembly, Boulder, CO; Abstracts, p. B423.

Metcalfe, P. and Hickson, C.J., 1995. Mount Clisbako, central B.C.: stratigraphy, petrology and economic significance of assemblages in a buried Eocene volcano; Geological Association of Canada Annual Meeting, Victoria, B.C., Program with Abstracts 20, p.70.

Hickson, C.J. and Metcalfe, P., 1995. South-central Neogene to Holocene volcanism in the Canadian Cordillera - volcanoes of the Wells Gray - Clearwater area. Geological Association of Canada field trip guide (Victoria '95), 52p.

Metcalfe, P. and Hickson, C.J., 1995. Mt. Clisbako, central B.C.; stalking heat sources, calderas and epithermal gold through a buried Eocene volcano. Cordilleran Roundup, Vancouver, B.C., February 1995.

PUBLICATIONS *(continued)*

Hickson, C.J., Moore, J.G, Calk, L. and Metcalfe, P., 1995. Eruptive style at three intraglacial volcanoes, British Columbia, Canada. Canadian Journal of Earth Sciences, 32, p.838-851.

van der Heyden, P., Mustard, P., Metcalfe, P., Shives, R., Plouffe, A., Teskey, D. and Dunn, C., 1995. Current status of the Interior Plateau Program, Canada-British Columbia Agreement on Mineral Development, 1991-1995. *In*: Current Research, Part A; Geological Survey of Canada, Paper 95-1A, p.75-80.

Metcalfe, P. and Hickson, C.J., 1995: Tertiary volcanic stratigraphy of the Clisbako River area, central British Columbia. *In*: Current Research, Part A; Geological Survey of Canada, Paper 95-1A, p.67-73.

Metcalfe, P. and Hickson, C.J., 1994. Clisbako River area, central British Columbia: preliminary stratigraphy of an Eocene caldera. Geological Society of America Annual Meeting, Seattle, Washington, Abstracts, p.117.

Metcalfe, P., Hickson, C.J. and Higman, S.L., 1994. A possible Tertiary caldera in the Clisbako River area, central British Columbia. Geological Association of Canada Annual Meeting, Waterloo, Ontario, Program with Abstracts 19, p.75.

Metcalfe, P., Higman, S.L. and Hickson, C.J., 1994. Ancient hot springs in central B.C.? Volcanic host rocks of the Clisbako River epithermal systems. (Abstracts, C.I.M. annual meeting, Toronto, May 1994).

Metcalfe, P., Higman, S.L. and Hickson, C.J., 1994. Tertiary volcanic stratigraphy in the Clisbako River area, central B.C. 1994 Cordilleran Roundup, Vancouver, B.C.

Metcalfe, P. and Hickson, C.J., 1994. Preliminary study of Tertiary volcanic stratigraphy in the Clisbako River area, central British Columbia. *In*: Current Research 1994-A; Geological Survey of Canada, p. 105-108.

Hickson, C.J. and Metcalfe, P., 1993. Volcanoes of the Wells Gray - Clearwater area, B.C. Geological Association of Canada field trip guide (Edmonton '93), 59p.

Metcalfe, P., Cumming, G.L., Krstc, D. and Hickson, C.J., 1993 Pb, Nd and Sr isotopic ratios of Quaternary basalts in the Wells Gray-Clearwater Area, eastern British Columbia. Geological Association of Canada Annual Meeting, Edmonton, Alberta, Program with Abstracts 16, p.70.

Metcalfe, P. and Moors, J.G., 1993. Lithostratigraphy and mineralization of the Bronson Corridor, Iskut River area, northwestern British Columbia. Geological Association of Canada Annual Meeting, Edmonton, Alberta, Program with Abstracts 16, p.70.

Metcalfe, P. and Moors, J.G., 1993. Refinement and local correlation of the upper Snippaker Ridge section, Iskut River Area, B.C. (104B/10W and 11E). *In*: Geological Fieldwork 1992; B.C. Ministry of Energy, Mines and Petroleum Resources Paper 1993-1, p.335-339.

Metcalfe, P. and Hickson, C.J., 1992. Petrogenesis of Quaternary lavas in Wells Gray Provincial Park, B.C. EOS; Transactions of the American Geophysical Union.73, p.338.

Yeager, D.A. and Metcalfe, P., 1990. Geology of the Stonehouse gold deposit, Iskut River, B.C. Geological Association of Canada Annual Meeting, Vancouver, B.C., Program with Abstracts 15, p.143.

PUBLICATIONS (continued)

Metcalfe, P., 1989. Petrogenesis of Recent alkali basalts in Wells Gray Provincial Park, British Columbia. International Association of Volcanology and the Chemistry of the Earth's Interior, Annual Meeting, Santa Fe, New Mexico, Program with Abstracts p.188.

Metcalfe, P., 1987. Petrogenesis of Quaternary alkaline lavas in Wells Gray Provincial Park, B.C. and constraints on the petrology of the subcordilleran mantle. Ph.D. thesis, U. of Alberta, 395p.

Metcalfe, P. and Smith, A.D., 1986. Apatite control on Sm, Nd and Sr in alkali basalts of Wells Gray Park, B.C. Geological Association of Canada, Annual Meeting, Ottawa, Ontario, Program with Abstracts 11, p.101.

Metcalfe, P., Scarfe, C.M. and Smith, A.D., 1985. Petrogenesis of Recent alkaline lavas in the eastern Anahim volcanic belt of the Canadian Cordillera. EOS; Transactions of the American Geophysical Union, 66, p. 410.

Metcalfe, P. and Scarfe, C.M. 1983. Volcanology of recent centres in Wells Gray Provincial Park, B.C. Geological Association of Canada, Annual Meeting, Victoria, B.C., Program with Abstracts 8, p.47.

Metcalfe, P. and Clark, G.S., 1983. Rb-Sr whole-rock age of the Klondike Schist, Yukon Territory. Canadian Journal of Earth Sciences 20, pp. 886-891.

Metcalfe, P. 1982. Petrogenesis of the Klondike Schist, Yukon Territory. Geological Association of Canada, Annual Meeting, Winnipeg, Manitoba, Program with Abstracts 7, p.66.

Metcalfe, P., 1981. Petrogenesis of the Klondike Formation, Yukon Territory. M.Sc. thesis, University of Manitoba, 103p.

PUBLICATIONS IN PREPARATION

Metcalfe, P. Petrogenesis of Quaternary alkaline lavas in the Wells Gray volcanic field, east-central BC using conserved (Pearce) element ratios.

Metcalfe, P., Cumming, G.L., Krstc, D. and Hickson, C.J. Mantle inhomogeneity: geochemical and isotopic evidence from Quaternary volcanic rocks, Wells Gray Provincial Park, British Columbia.

Metcalfe, P., Anderson, R.G. and Yeager, D.A. Stratigraphy, structure and mineral deposition at Johnny Mountain, northwestern British Columbia.

Metcalfe, P. and Sawlan, M.G. Volcanic stratigraphy of the southwestern edge of the Boleo Basin, Baja California Sur, Mexico.

Metcalfe, P. and Richards, T. Geological map of the Clisbako River area, central B.C.

PERSONAL

Date of Birth:	April 17th, 1956
Citizenship:	Canadian, British (dual)
Languages:	English (fluent); Spanish, French (conversational)

Physical: Physically fit; easily acclimatizes to elevations in excess of 4600 m (15,000')

Computer:
- BASIC programming language
- NEWPET and PEARCEPLOT petrologic programmes
- Excel #7; Quattro Pro #8; WordPerfect #8; Microsoft Word #7
- CorelDraw #7
- AutoCAD #13; MapInfo 4.1 (Geographic Information System)

EXTRA-CURRICULAR ACTIVITIES

- Durham University Target Rifle Club - Captain 1976-77; Secretary 1975-76.
- University of Manitoba Earth Sciences Graduate Students Representative 1980.
- Fellow of the Geological Association of Canada 1992-1999.
- Editor of ***GEOLOG*** (newsletter of the Geological Association of Canada) 1995-1999.
- GAC Volcanology and Igneous Petrology Division, Secretary-treasurer, 1992-1996; Councillor (West) 1996-2001.
- Editor of ***Ash Fall*** (Volcanology and Igneous Petrology Division newsletter) 1992-1996.
- Volunteer at the Geological Survey of Canada, Vancouver office, 1996-present.
- Volunteer, Science World, Vancouver (Scientists and Innovators in the Schools) 1995-1998. Presently on leave of absence
- Instructor in course for prospectors (B.C. & Yukon Chamber of Mines) 1994-present.
- Other interests include skating, ice hockey, running and mountaineering.

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