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GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL REPORT
on the BAG 1-2 CLAIMS
LOCATED in the NICOLA MINING DIVISION
N.T.S. 92-I-8W
Latitude: 50°22' North; Longitude: 120°24' West

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on the BAG 1-2 CLAIMS

LOCATED in the NICOLA MINING DIVISION

N.T.S. 92-I-8W

Latitude: 50°22' North; Longitude: 120°24' West

Owned and Operated by

CANADIAN NICKEL COMPANY LIMITED

E.J. Debicki
District Geologist
B.C. and Yukon
Canadian Nickel Company Limited
80-10551 Shellbridge Way
Richmond, British Columbia
V6X 2W8
September, 1983

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1.0 SUMMARY

The BAG 1-2 claims (35 units), located 40 kilometres northeast of Merritt, British Columbia in the Nicola Mining Division were staked in 1982 by Canadian Nickel Company Limited (Canico). Access is by Highway No. 5 which cuts through the southern portion of the claims.

Geologically, the BAG claims area is underlain by a Triassic-Jurassic Nicola Group sequence of interbedded volcanics, volcaniclastics and sediments trending north to northwest, dipping moderately to steeply eastward. The sequence lies on the west limb of a syncline with axis trending northeast-southwest through the south portion of the property. The claims were staked to protect the northwest strike-length continuation of the former Au-Ag-Cu-Pb-Zn-W producer, the Stump Lake (Enterprise) Mine, lying immediately to the south of the BAG claims on the south shore of Stump Lake.

During May-June, 1983, exploration by Canico consisted of prospecting, geological, geochemical and geophysical surveys. Two areas of interest were outlined. On the western edge of the claims, the northwest strike-length continuation of the Stump Lake (Enterprise) Mine structure was located. A 6-10 centimetre wide episodically-veined, quartz-chalcedony sheeted vein is exposed over a strike length of 325 metres. Highest analytical results were 35 ppb Au, 0.4 ppm Ag, and 58 ppm As. Extensive clay alteration borders the vein. The vein is interpreted to represent the upper level of an epithermal vein system. In the central portion of the claim, a mafic volcanic unit of the Nicola Group is characterized by weak brecciation, fracturing, quartz-carbonate veining, silicification and pyritization. The zone is up to 200 metres wide and has been traced the full length of the claims for 2200 metres. An arsenic soil anomaly with values up to 29 ppm As is coincident with the zone. The north portion of the zone is characterized by narrow quartz veins with highest values up to 880 ppb Au, 3.7 ppm Ag, 429 ppm As, 115 ppm Mo, 162 ppm Cu.

Further work during 1983 to evaluate the two zones of interest will consist of detailed prospecting, geological and geochemical surveys. A gas chromatography survey will be conducted over the area of the northwest strike-length continuation of the Stump Lake (Enterprise) Mine structure.

2.0 INTRODUCTION

This report covers the work done on the BAG 1-2 claims between May 18, 1983 and June 13, 1983. A crew consisting of up to six personnel completed the program from accommodation located at Kokanee Beach and Resort Ltd., on Highway No. 5, approximately 20 kilometres south of the claim group.

2.1 Location, Access, Physiography

The BAG 1-2 claims (35 units) are located 40 kilometres northeast of Merritt, British Columbia. The claim group occurs on the north shore of Stump Lake (Figures 1 and 2).

Access to the property is by Highway No. 5 (Merritt-Kamloops Highway) which cuts through the southern portion of the property along the north shore of Stump Lake. A dirt trail utilized for access to grazing land cuts east-west through the claims immediately north of the BAG 1 and 2 boundary. Access to this road is from Highway No. 5 to the east. Permission from grazing rights owners is required to utilize this dirt road. All portions of the property are readily accessible on foot. Numerous fences criss-cross the area.

The BAG 1-2 claims cover rolling arid grasslands utilized primarily for ranching (cattle grazing). The property rises gently northwest from the shores of Stump Lake at 756 metres above sea level to the highest point in the north approximately 1200 metres above sea level. Vegetation consists primarily of assorted grasses and weeds rarely exceeding 0.5 metres in height. Depressions and incised creek beds are occasionally covered by scrub brush and small spruce trees. Grazing cattle and in particular bulls are a consistent nuisance in performing exploration in the area.

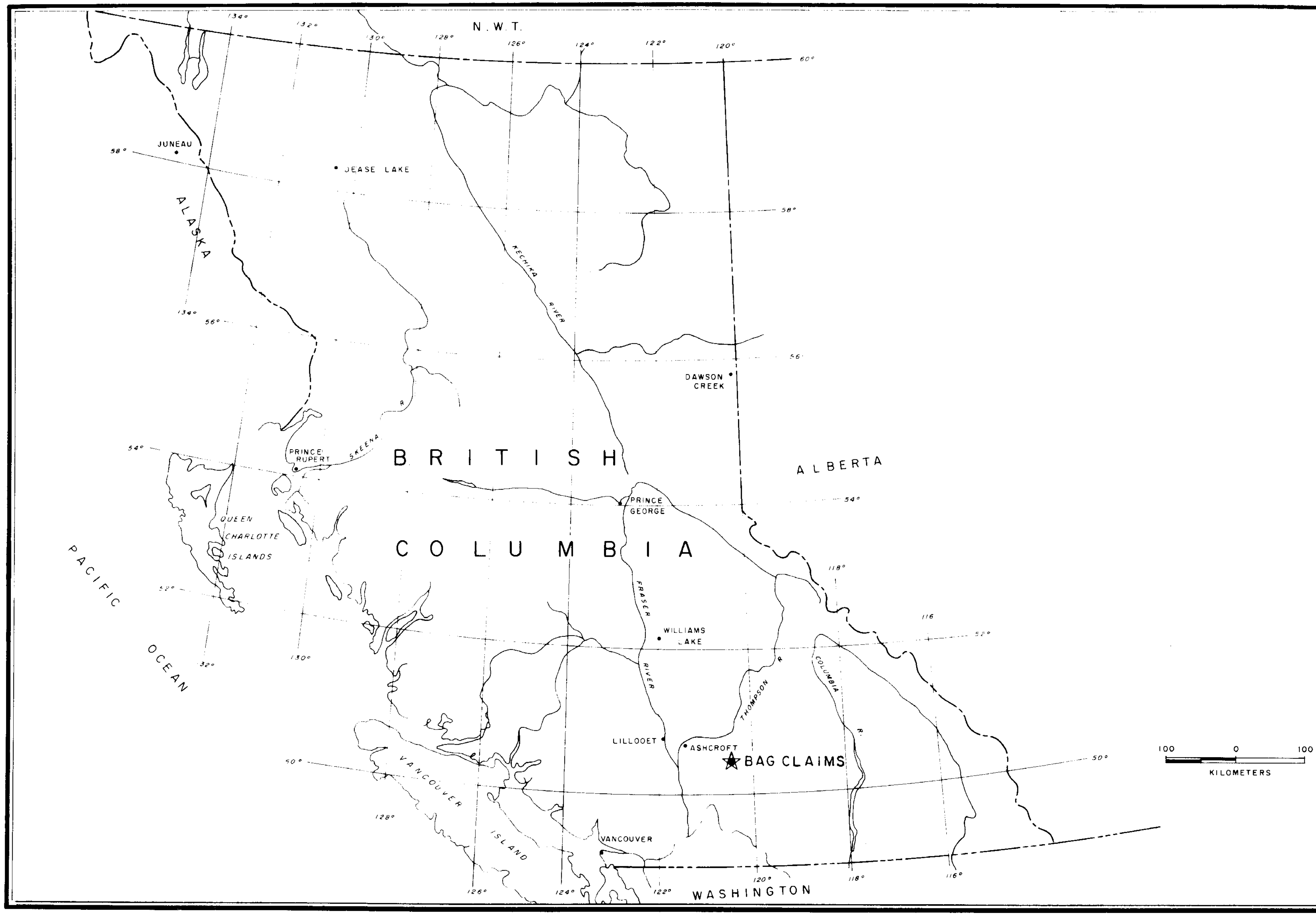
2.2 Property Definition

The BAG 1-2 claims are located in the Nicola Mining Division, claim sheet N.T.S. 92-I-8W (Figure 3).

Canadian Nickel Company Limited (exploration subsidiary of Inco Limited) is the owner and operator of the BAG claims.

Claim Name	Units	Record No.	Date Staked	Date Recorded
BAG 1	15 (3Sx5W)	1276(7)	July 21, 1982	July 23, 1982
BAG 2	20 (4Nx5W)	1277(7)	July 21, 1982	July 23, 1982
	35			

All ground surrounding the BAG claims is staked. Portions of the BAG claims appear to overstake claims previously located, namely the ANDERSON 4 in the northwest, the MICROGOLD and STUMP in the northeast and ARGUS and ARGUS 4 in the southeast.



GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,719

Canadian Nickel Company Limited	Copper Cliff, Ontario POM 1NO	
LOCATION MAP	SHEET	FIGURE 1
Project: OKANAGAN - BAG CLAIMS	Area: BRITISH COLUMBIA	
Supervisor: E J DEBICKI	Instrument	Survey date
Compiled by	Drawn by: D.W. Walsh	Date drawn: Sept., 1983 / Revised
Scale: 1 : 4,750,000	File	N.T.S.

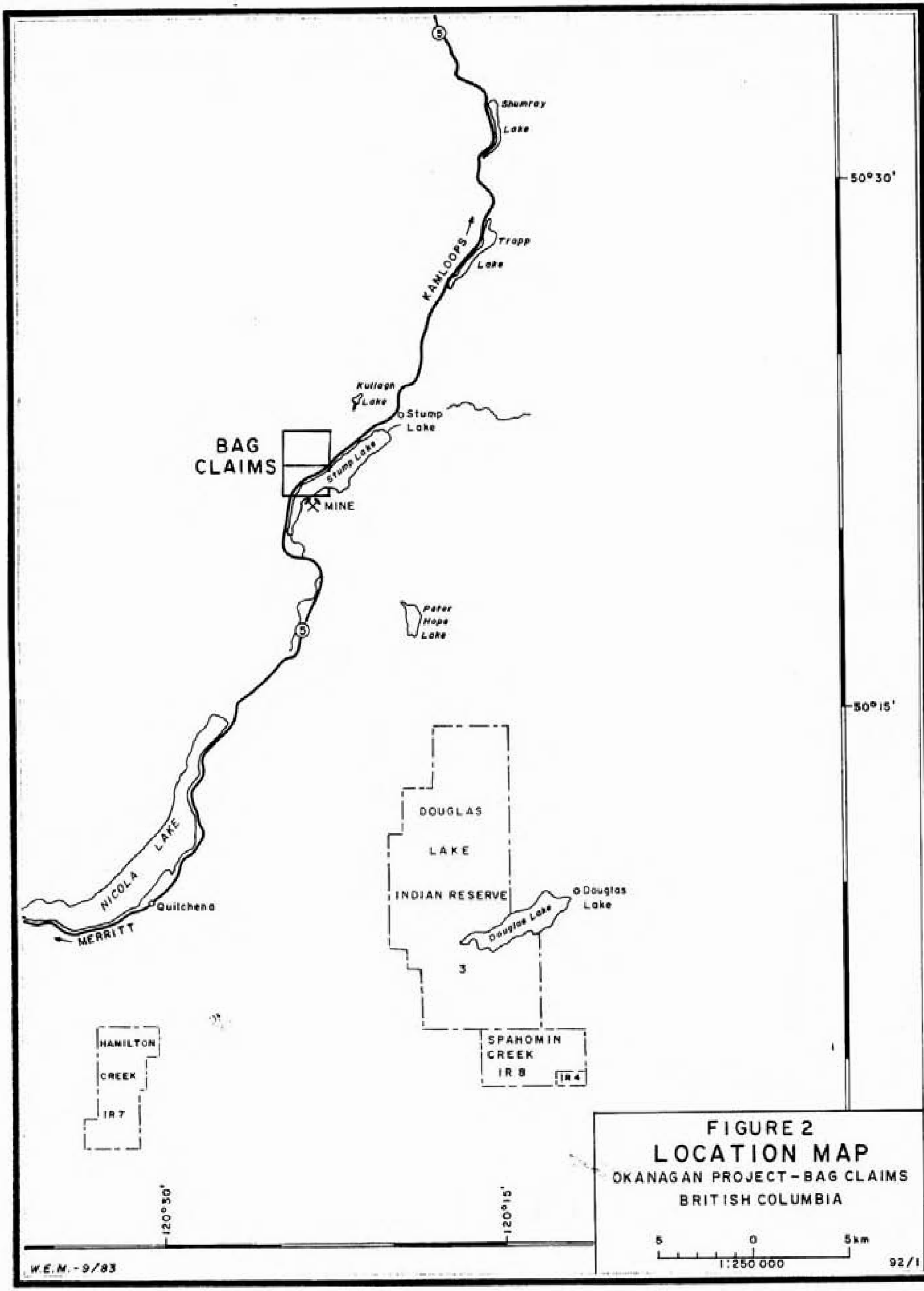


FIGURE 2
LOCATION MAP
OKANAGAN PROJECT - BAG CLAIMS
BRITISH COLUMBIA

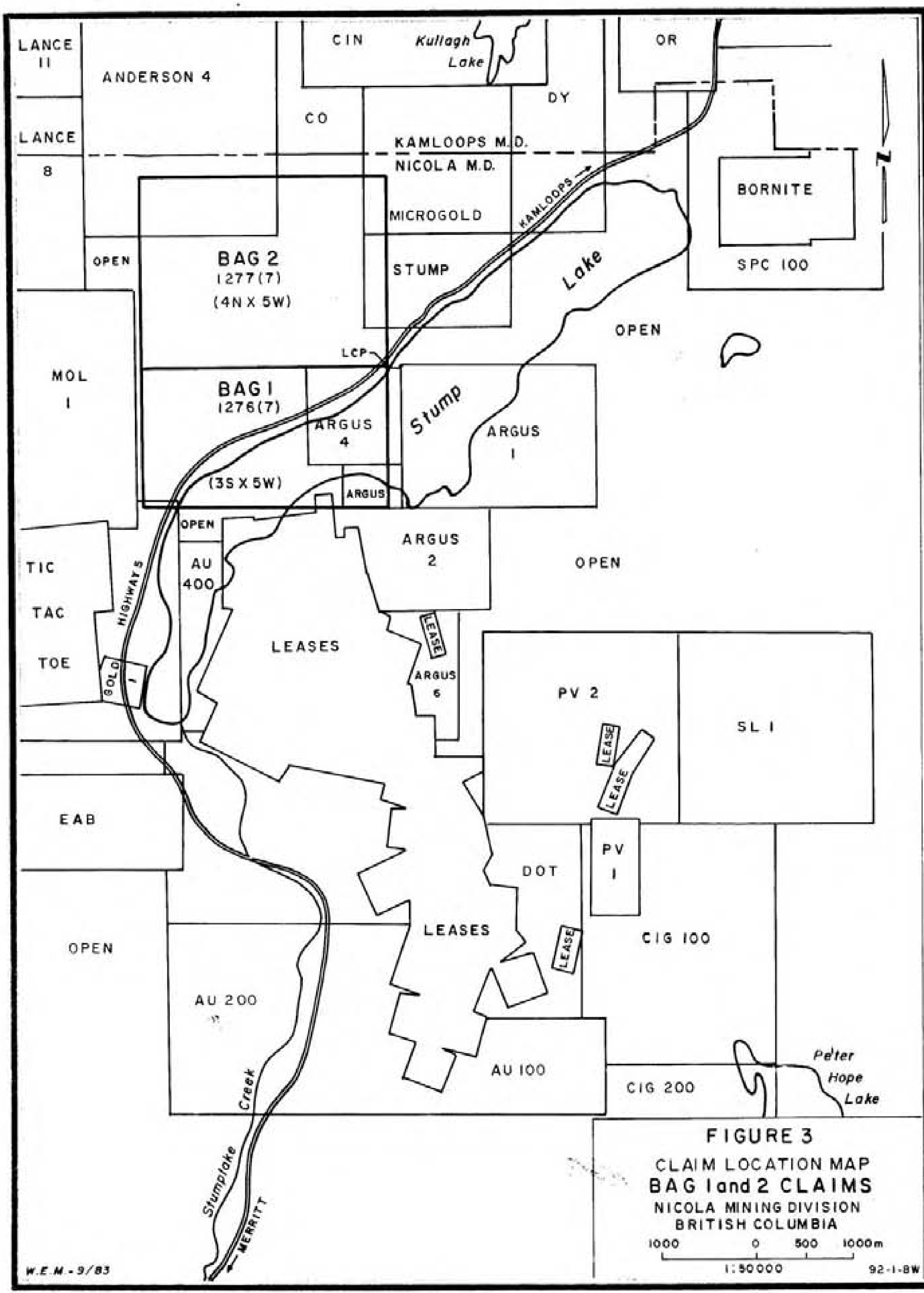


FIGURE 3
CLAIM LOCATION MAP
BAG 1 and 2 CLAIMS
NICOLA MINING DIVISION
BRITISH COLUMBIA
1000 0 500 1000m
1:50000
92-I-8W

The BAG claims cover land held in part in the name of the crown and in part by leases granted by the crown for the purpose of grazing. Leases 8, 9, 16, 793, 839 and 4270 are held by:

Frolek Cattle Company Limited
P.O. Box 188
Kamloops, British Columbia
V2C 5K6
(604) 376-8919

Verbal permission was granted by Mr. Denis Frolek, owner of the Frolek Cattle Company Limited, which allowed Canico access to the grazing lands in order to carry out the exploration program.

2.3 Previous History

The Stump Lake area has undergone considerable exploration since the early 1900's. Most significant was production from the Stump Lake (Enterprise) Mine located on the south shore of Stump Lake. During the period 1926-1952, production totalled 71,304 tonnes grading 3.57 g/t (0.104 oz/ton) Au, 109.02 g/t (3.181 oz/ton) Ag, 0.695 kg/t (0.07%) Cu, 14.58 kg/t (1.46%)Pb, 3.29 kg/t (0.33%) Zn plus unreported WO_3. Most recently Celebrity Energy Corporation has consolidated land holdings of the former Stump Lake Mine and is planning a $1 million exploration program on the property. Minor production is reported from other similar deposits in the area.

On the ground covered by the BAG claims, no records have been located indicating any previous work has been completed. A shallow pit or collapsed shaft found in the northeast corner of the claims indicates some attempt by previous workers to evaluate one of the several quartz veins on the property.

Most recently extensive exploration has taken place or is in progress on claims surrounding the BAG claims. On the MICROGOLD claim located to the northest, diamond drilling was completed in May 1983 by Chevron. On the TIC TAC TOE claims located to the southwest, diamond drilling was conducted by Seymour Resources Inc. during August 1983. On the LANCE/ANDERSON claims to the north, previous exploration was performed by Oliver Resources Ltd., Dynamic Oil, Esperanza Explorations Ltd., Sumitomo Metal Mining Canada Limited and most recently by Glen E. White Geophysical Consulting & Services Ltd.

2.4 1983 Exploration Program

The 1983 Canico exploration program was carried out by a four man crew increased at times to six men during the period May 18, 1983 to June 13, 1983. Work on the claims was completed from accommodation located approximately 20 kilometres to the south. Access to and from the property on a daily basis was by means of two four-wheel drive Chevrolet Suburbans.

The program consisted of gridding, prospecting, geological, geochemical and geophysical surveys on both the BAG 1 and 2 claims. All work was restricted to areas north of Highway No. 5. Grid lines (pickets and flagging) were established at 400 metre intervals at right angles to a base line trending 320° for a length of 2,500 metres (1+00E to 24+00W). Grid lines reached a maximum length of 2,000 metres south of the base line and 2,300 metres north of the base line. Sample interval varied at 50 metres or 100 metres dependent on the type of survey completed. A total of 19,400 metres of grid was established.

A total of 44 rock samples, 194 soil samples, 1 -80 mesh stream sediment sample and 7 heavy mineral stream sediment samples were collected during the program.

Figure 4 outlines the grid location in relation to the BAG 1-2 claim boundaries.

3.0 REGIONAL GEOLOGY

The general geology of the BAG 1-2 claims area is outlined by G.S.C. Map 886A (Cockfield, 1948).

Carboniferous-Permian Cache Creek Group and Triassic-Jurassic Nicola Group volcanics and sediments underlie much of the map area in the vicinity of the BAG 1-2 claims. These sequences are intruded by Cretaceous Coast Intrusions composed of granite, granodiorite and gabbro. Tertiary (Miocene) Kamloops Group Volcanics, tuffs, breccias and agglomerates cap all other sequences.

On the BAG 1-2 claims, only the Triassic-Jurassic Nicola Group volcanics and sediments were noted. The sequence is interpreted to lie on the northwest limb of a syncline with the axis trending in a northeast-southwest direction parallel to the north shore of Stump Lake.

4.0 PROPERTY GEOLOGY

The BAG 1-2 claims are underlain by Triassic-Jurassic Nicola Group volcanics and sediments subdivided into five distinct lithologies. The geology of the BAG 1-2 claims is outlined on Figure 5.

4.1 Geological Units

Unit 1 consists of volcanics subdivided into Unit 1a, a fine to medium grained dark green, often amygdaloidal andesite-basalt, and Unit 1b, feldspar porphyry, fine grained, dark green matrix with white to grey feldspar phenocrysts.

Unit 2 is subdivided into Unit 2a, rhyolite which is fine grained, white to grey coloured, siliceous, often with well developed banding, and Unit 2b, a lapilli tuff, fine to medium grained, white to green coloured, and siliceous.

Unit 3 consists of coarse grained massive andesite to basalt locally with coarser grained gabbroic zones. This unit may represent a synvolcanic intrusive phase of Unit 1.

Unit 4 is a coarse grained, polymictic volcanic breccia-agglomerate, with conglomeratic-like phases. The breccia matrix is fine grained, mafic and often epidote rich.

Unit 5 is composed of a fine grained, aphanitic, grey to black, well bedded argillite. The unit is pervasively gossan stained.

Two types of quartz veins occur throughout the sequence, namely sheeted quartz-chalcedony veins and white, bull quartz veins. These are further discussed in section 4.4 Mineralization.

4.2 Structure

The Triassic-Jurassic Nicola Group volcanic-sediment sequence on the BAG 1-2 claims trends roughly north-south to northwest-southwest. Bedding and foliation, where observed, dip moderately to steeply eastward. The sequence occurs on the west limb of a syncline. The syncline axis as plotted on G.S.C. Map 836A trends northeast-southwest and lies along the south boundary of the claim parallel to the north shore of Stump Lake. The stratigraphic succession of the Nicola Group lithologies becomes progressively older from east to west across the claim group as a result of topography, erosion and structural setting. The east-west succession consists of Units 4, 1a and 1b, 5, 2a and 2b, 3 and 1a. Contacts between these units trend north-south.

No major faulting was located on the claims except for the area around 4+00W/7+00S where a narrow sheeted quartz-chalcedony vein interpreted to be the northwest strike-length extension of the Stump Lake (Enterprise) Mine structure appears to have been emplaced along a fracture zone oriented at 320^{o}.

Minor brecciation and fracturing associated with quartz-carbonate alteration were noted throughout Unit 1a in the central portion of the claim group.

4.3 Alteration

Alteration on the BAG 1-2 claims was noted in two areas. In the southwest corner of the property (northwest corner of BAG 1) clay or argillite alteration of Unit 2 rocks occurs adjacent to a sheeted, episodically-veined quartz-chalcedony vein. The alteration occurs on either side of the vein over an exposed width of 5 metres. The width of the alteration may be wider but is overburden covered. Exposure is restricted to an incised creek bed. Coincident with Unit 1a and 1b rocks in the central portion of the claim group, quartz-carbonate alteration zones, usually gossanized, are weakly brecciated, fractured, silicified and pyritized. The extent of this alteration is not pervasive throughout Unit 1a and 1b but does occur over a width of up to 200 metres and along the full length of the claim group for 2200 metres.

4.4 Mineralization

On the BAG 1-2 claims, two styles of mineralization or mineralizing events have been outlined:

1. In the southwest corner of the property (northwest corner of BAG 1), the northwest strike-length continuation of the Stump Lake (Enterprise) Mine structure has been located. At 4+00W/7+00S, a 6-10 cm wide quartz-chalcedony sheeted vein strikes 305°-310° and dips 75° SW. Parallel, en echelon quartz-chalcedony veins up to 3 cm wide occur adjacent to the main vein. The vein structure is exposed intermittently in a creek bed over a length of 325 metres and a width of up to 5 metres. Overburden covers the vein structure at either end. Extensive clay, argillic alteration is present on either side of the vein. The vein is interpreted to represent the upper level of an epithermal vein system. Characteristics of this vein are typical of this type of system, i.e. episodic veining, alteration, quartz-chalcedony composition, low precious metal and base metal values, enchanced values in arsenic and mercury. A 1:2,500 scale enlargement of this vein structure is outlined on Figure 5.

   To the southeast, on the adjacent leases, production from the past-producing Stump Lake (Enterprise) Mine during the period 1926-1952 (intermittent producton) yielded 71,304 tonnes grading 3.57 g/t Au, 109.02 g/t Ag, 0.695 kg/t Cu, 14.58 kg/t Pb, 3.29 kg/t Zn and unreported WO_3. Quartz veins in fissures and shear zones up to 3 metres wide, trending 315° to 025°, dipping 45°-85°E contain pyrite, galena, sphalerite, tetrahedrite, chalcopyrite, bornite and sheelite with minor arsenopyrite, pyrrhotite and native gold. Characteristics of epithermal mineralization are noted in old reports i.e. ore minerals occur in thin bands parallel to the vein walls, the wallrock is altered, bleached and pyritized, and the ore occurs in shoots.

2. Coincident with Unit 1a and 1b andesite-basalts in the central area of the claim group, intermittent quartz-carbonate veining occurs with brecciation, fracturing, silicification, pyritization (1-2%) and is weakly gossanized. This veining occurs throughout the Unit 1 rocks over a maximum width of 200 metres and along the full length of the Unit 1 exposure for 2200 metres extending off the claims to the north and to the south into overburden and Stump Lake. At the north end of the Unit, numerous quartz and quartz-chalcedony veins were located, oriented at various azimuths but generally steeply to vertically dipping. The veins are narrow, generally 0.5 to 3 metres, and can be traced intermittently for distances up to 1,200 metres. The relationship of these veins to those at the Stump Lake (Enterprise) Mine is not known but is assumed to be of same generation. The location of these quartz veins is outlined on Figure 5.

5.0 GEOCHEMICAL SURVEYS

The 1983 program completed exploration over a grid on the BAG 1-2 claims totalling 19,400 metres. A 2,500 metre base line oriented at 320° was established with cross-lines at 400 metre intervals extending up to 2000 metres south and 2,300 metres north of the base line. Sample intervals along the cross-lines were at 50 metre or 100 metre dependent on the survey. Rock and soil geochemistry were completed on the grid. A total of 44 rock samples and 194 soil samples was collected. In addition 1 stream sediment (-80 mesh) and 7 stream sediment (heavy mineral concentrate) samples were collected from streams on the property.

Geochemical rock, soil, -80 mesh and heavy mineral concentrate samples were submitted to Acme Analytical Laboratories Ltd. for analysis. Samples were analyzed for 30 elements utilizing Inductively Coupled Plasma (ICP). A 0.5 gram sample is digested with 3 mls of 3:1:3 HCl to HNO_3 to H_2O at 90°C for 1 hour and then diluted with 10 mls of H_2O and analyzed by standard ICP techniques. Au was analyzed by atomic absorption utilizing a 10 gram sample and Hg was analyzed by flameless atomic absorption utilizing a 0.5 gram sample. Both Au and Hg sample preparation/leaching was identical to that for the standard 30 element ICP package. The soil samples were not analyzed for Hg. Geochemical results are listed in Appendix A.

5.1 Rock Geochemical Survey

A total of 44 rock samples was collected from various locations throughout the BAG 1-2 claims. Rock sample locations and results (Au, Ag, As) are plotted on Figure 5. Rock sample descriptions and results (Au, Ag, As, Sb, Pb, Zn, Cu) are listed in Appendix B.

The analytical results obtained from samples collected from the quartz-chalcedony vein in the southwest corner of the property did not return any anomalous values in Au and Ag. Highest results were 35 ppb Au and 0.4 ppm Ag. As is enhanced up to a maximum of 58 ppm. A high value of 250 ppb Hg was obtained from the clay-argillite alteration adjacent to the vein. Low precious metal and base metal values and increased values in As and Hg are as expected if this vein is at an upper level of a typical epithermal vein system.

Quartz and quartz-chalcedony veins associated with the Unit 1a and 1b andesite-basalt in the central portion of the claims returned the most anomalous values. Several of the sampled veins returned values up to 880 ppb Au, 3.7 ppm Ag, 429 ppm As, 115 ppm Mo, 162 ppm Cu.

Units 2a and 2b, rhyolite and rhyolitic lapilli tuff contain a very weak enhancement in gold values up to 35 ppb Au versus normal background of 5-10 ppb Au. No samples were collected from the quartz-carbonate alteration associated with the Unit 1a and 1b andesite-basalt in the central portion of the property.

5.2 Soil Geochemical Survey

A total of 194 soil samples was collected on the BAG 1-2 grid. Sample interval on the base line and each of the cross-lines was 100 metres. Soil sample locations are plotted on Figure 6, and soil sample results for Au, Ag, As are plotted on Figures 7, 8 and 9, respectively.

The soil profile on the property is poorly developed. No distinctive B-horizon is present. The sampled soil consists of a light to dark brown, very dry, loess-like material which is normally capped by a thin layer of black loess-like material high in organic content derived from decaying grass and weeds. The soil horizon is interpreted to be less than 1 metre thick over much of the property. Many of the soil samples contain rock chips of broken bedrock (felsenmeer).

Au results are 5-15 ppb for all but five of the soil samples. Of these five values greater than 15 ppb, the maximum value was 50 ppb Au in soils over the area where quartz veins contained gold values in rock samples up to 880 ppb Au.

Ag results in soil attain a maximum of 0.4 ppm Ag and do not outline any weakly anomalous zones.

As results, up to a maximum of 29 ppm As versus a background of 2-4 ppm, are coincident with the quartz-carbonate, quartz, and quartz-chalcedony veining in the Unit 1a and 1b andesite-basalt rocks in the central area of the claim. The As soil anomaly widens dramatically on the north end of the property coincident with the quartz and quartz-chalcedony veins.

The other ICP elements analyzed from the soil samples have not been plotted but are tabulated in Appendix A.

5.3 Stream Sediment Geochemical Survey

In 1982, several heavy mineral pan concentrate samples were collected from southeast flowing streams draining into Stump Lake off the BAG claims. The magnetite fraction of these samples was not removed. Sample locations and results are plotted on Figures 10 and 11, respectively. Highest value obtained was 140 ppb Au. This value was in part responsible for staking the BAG 1-2 claims. The results of the 1982 heavy mineral pan concentrate samples are included as part of this report but expenditures for this work is not claimed as sampling was carried out prior to staking.

During 1983, an orientation heavy mineral survey was conducted on two of the drainages sampled in 1982. For the purposes of the 1983 heavy mineral survey carried out on the BAG claims and other surrounding areas, a Goldhound Concentrating Wheel (goldwheel) was utilized to isolate the heavy mineral fraction. At each sample site, approximately 20 kg of stream sediment are wet-sieved utilizing a 0.5 metre diameter -20 mesh stainless steel screen to obtain approximately 2-3 kg of material. This -20 mesh material is processed on the goldwheel to yield approximately 50-100 grams of heavy mineral concentrate. This concentrate is dried, magnetite fraction is removed with a strong magnet and the remaining non-magnetic fraction submitted for ICP analysis (30 elements) and AA analysis for Au and Hg. Specifications and operating instructions for the goldwheel are included as Appendix D. Use of this apparatus is more efficient and removes operator error compared to normal panning techniques.

Results from the first stream returned a value of 935 ppb Au from the non-magnetic fraction of the sample processed on the goldwheel. This compared to a value of 5 ppb obtained from a pan concentrate sample with magnetite not removed. This is the same creek which hosts the northwest strike-length continuation of the Stump Lake (Enterprise) Mine vein structure.

Sampling of the second stream did not provide as drastic a contrast between the pan concentrate versus goldwheel concentrate results. This stream returned a value in 1982 of 140 ppb Au from pan concentrate. The magnetite was not removed. The 1983 sampling was more extensive in order to carry out an orientation survey. A listing of the sample type and results is included in Appendix C. In summary; pan concentrate and goldwheel concentrate heavy mineral concentrates with magnetite removed, and a -80 mesh stream sediment sample failed to duplicate the 1982 value of 140 ppb Au. The 1982 result is attributed to a "nugget" effect of one flake of gold being contained in the analyzed portion of the sample. The results of this orientation is in contrast to results obtained elsewhere where gold values in heavy mineral goldwheel concentrate versus heavy mineral pan concentrate are enhanced by a factor of ten or twenty.

6.0 GEOPHYSICAL SURVEYS

Geophysical work on the BAG 1-2 claims consisted of magnetometer and VLF-RADEM surveys.

6.1 Magnetometer Survey

Canico personnel carried out 16,900 metres of ground magnetometer survey taking readings at 50 metre intervals. A Scintrex MF-2 fluxgate magnetometer was used to measure the relative vertical field strength in gammas. Corrections were made for diurnal and instrument drift by reading a base station at one to two hour intervals. The corrected survey results are plotted on Figure 12 with 100 gamma contour intervals.

The readings vary only over a range of about a thousand gammas. The magnetic anomalies found are relatively small. Their narrow size and elongated shape indicate that their sources are thin, near the surface and therefore that the overburden is shallow where present. The spatial relationship to the geology suggests that the cause for the anomalies is contact alterations in the basalts close to the rhyolite.

6.2 VLF-RADEM Survey

A 16,900 metre VLF-RADEM survey was conducted on the 400 metre grid using a transmitting station at Seattle, Washington (NPG) which operates at 18.6 kHz. A Crone "RADEM" receiver was employed at 50 metre station intervals to record tilt angle of the resultant field in degrees. The data are plotted on Figure 13.

The profiles show some scatter in the reading which is caused by a relatively large angle between the geological strike and the direction to the best available VLF transmitter station (NPG) and the variable topographical slope. No continuous conductor axis could be established from the results. There are some scattered cross-overs indicating possibly short and weak conductive zones that may be from minor fractures. None of those cross-overs can help in the interpretation of the geological structure of the area.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The BAG 1-2 claim group is underlain by volcanics and sediments of the Triassic-Jurassic Nicola Group. The sequence trends roughly north-south and dips moderately to steeply east. Exploration during May-June, 1983 outlined two areas of further interest on the claim group. The first area in the southwest corner of the property is the northwest strike-length continuation of the Stump Lake (Enterprise) Mine vein structure. A 6-10 centimetre wide, episodically veined sheeted quartz-chalcedony vein is exposed over a strike length of 325 metres. Rock results are up to 35 ppb Au, 0.4 ppm Ag, and 58 ppm As. The vein is interpreted as the upper level of an epithermal vein system. Low values in Au and Ag are expected at the upper levels of this type of system. The second area, in the central portion of the claim group, is coincident with an andesite-basalt unit up to 200 metres wide and exposed for a length of 2200 metres on the claim group. Quartz-carbonate veining with silicification, brecciation, fracturing, pyritization (1-2%) and weak gossan development is ubiquitous throughout the unit. At the north end of the unit, quartz and quartz-chalcedony veins, randomly oriented and up to 3 metres wide contain values up to 880 ppb Au, 3.7 ppm Ag, 429 ppm As, 115 ppm Mo, 162 ppm Cu. An arsenic soil anomaly with values up to 29 ppm As is coincident with the andesite-basalt unit containing the quartz-carbonate and quartz veining.

Further work during 1983 to evaluate the two zones of interest will consist of detailed prospecting, geological and geochemical surveys. A gas chromatography survey will be conducted over the area of the northwest strike-length continuation of the Stump Lake (Enterprise) Mine structure.

CRONE GEOPHYSICS LIMITED

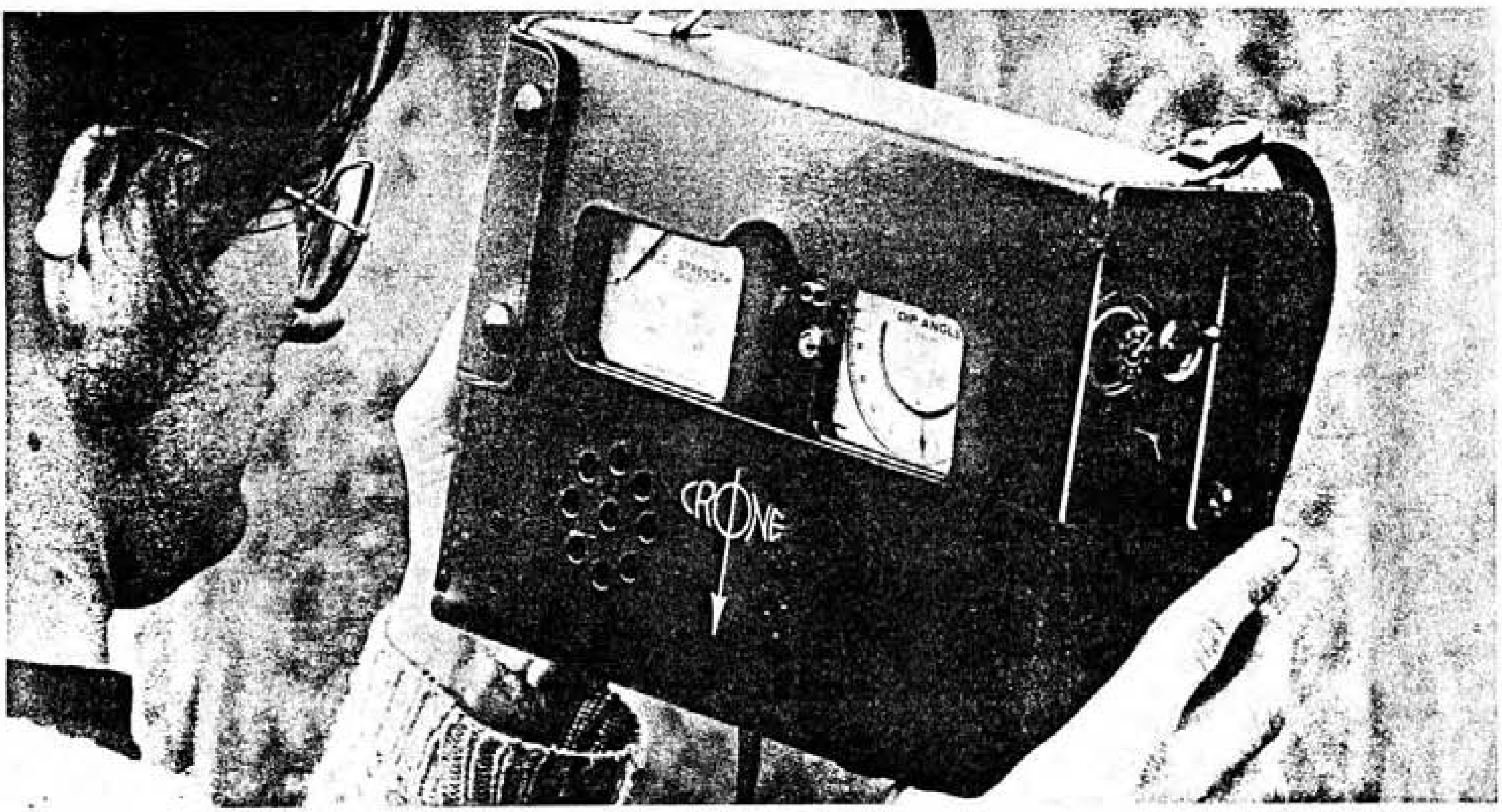
3607 WOLFEDALE ROAD,
MISSISSAUGA, ONTARIO,
CANADA,
L5C 1V8

Phone: (416) 270-0096

Cable: CRONGEO, TORONTO

RADEM

AN EM RECEIVER MEASURING THE FIELD STRENGTH, DIP ANGLE AND QUADRATURE COMPONENTS OF THE **VLF** COMMUNICATION STATIONS



This is a rugged, simple to operate, ONE MAN EM unit. It can be used without line cutting and is thus ideally suited for GROUND LOCATION OF AIRBORNE CONDUCTORS and the CHECKING OUT OF MINERAL SHOWINGS. This instrument utilizes higher than normal EM frequencies and is capable of detecting DISSEMINATED SULPHIDE DEPOSITS and SMALL SULPHIDE BODIES. It accurately isolates BANDED CONDUCTORS and operates through areas of HIGH HYDRO NOISE. The method is capable of deep penetration but due to the high frequency used its penetration is limited in areas of clay and conductive overburden.

The DIP ANGLE measurement detects a conductor from a considerable distance and is used primarily for locating conductors. The FIELD STRENGTH measurement is used to define the shape and attitude of the conductor.

SPECIFICATIONS

SOURCE OF PRIMARY FIELD: VLF Communication Stations 12 to 24K hz

NUMBER OF STATIONS: 7 switch selectable

STATIONS AVAILABLE: The seven stations my be selected from:

Code	Station & Location	Frequency
✓ CM	Cutler, Maine	17.8 KHz
SW	Jim Creek ~~Seattle~~, Washington	24.8 ~~18.6~~ KHz
✓ AM	Annapolis, Maryland	21.4 KHz
H	Lauluaiei, Hawaii	23.4 KHz
BOF	Bordeaux, France	15.1 KHz
E	Rugby, England	16.0 KHz
MS	Gorki, Russia	17.1 KHz
OD	Odessa (Black Sea)	15.6 KHz
NC	Australia, N.W.C.	22.3 KHz
YJ	Yosamai, Japan	17.4 KHz
HN	Hegaland, Norway	17.6 KHz
TJ	Tokyo, Japan	20.0 KHz
BA	Buenos Aires	23.6 KHz

CHECK THAT STATION IS TRANSMITTING: Audible signal from speaker.

PARAMETERS MEASURED:

(1) DIP ANGLE in degrees of the magnetic field component, from the horizontal, of the major axis of the polarization ellipse. Detected by a minimum on the field strength meter and read from an inclinometer with a range of ± 90° and an accuracy of ± ½°.

(2) FIELD STRENGTH (total or horizontal) of the magnetic component of the VLF field, (amplitude of the major axis of the polarization ellipse). Measured as a percent of normal field strength established at a base station. Accuracy ± 2% dependent on signal. Meter has two ranges: 0 — 300% and 0 — 600%.

(3) OUT-OF-PHASE component of the magnetic field, perpendicular in direction to the resultant field, as a percent of normal field strnegth, (amplitude of the minor axis of the polarization ellipse). This is the minimum reading of the Field Strength meter obtained when measuring the dip angle. Accuracy ± 2%.

OPERATING TEMPERATURE RANGE: -30°C (-20°F) to +50°C (120°F)

DIMENSIONS AND WEIGHT: 9 x 19 x 27cm — 2.7Kg (6 lb)

SHIPPING: Instrument with foam lined wooden case,
shipping wt. — 6.0Kg (13 lb)

BATTERIES: 2 of 9 volt — Eveready 216
Average life expectancy — 20 hours for continuous operation

UNITS AVAILABLE ON A RENTAL OR PURCHASE BASIS.
CONTRACT SERVICES AVAILABLE FOR FIELD SURVEYS.

SCINTREX

MF-2 FLUXGATE MAGNETOMETER

The MF-2 is a completely new concept in vertical force fluxgate magnetometers. These instruments, which are designed for fast and accurate mineral ground surveys, are orientation independent, self levelling and require no tripod.

The MF-2 combines in one compact 5½ lb. package electronics, sensor and rechargeable batteries. With the latest I.C. and F.E.T. circuitry and high precision components, a temperature stability better than 1 gamma per degree is standard (with .25 gamma on special order) over a range of —40° to +40° centigrade.

The instrument has a built-in hemisphere polarity switch providing two overlapping ranges. For the Northern hemisphere the full range is +80,000 to —20,000 gammas, and reversible for the Southern hemisphere.

A calibrated feedback system can be provided which makes it possible to determine the total vertical component strength.

Measuring accuracy, on the 100 gamma scale is 0.5 gamma, and on the 1000 gamma scale 5 gammas.

The Scintrex MF series of magnetometers have been in use for many years in varied applications, e.g. ground reconnaissance, base station recording and monitoring, study of magnetic properties of rocks, observatory monitoring and recording of both vertical and horizontal components.

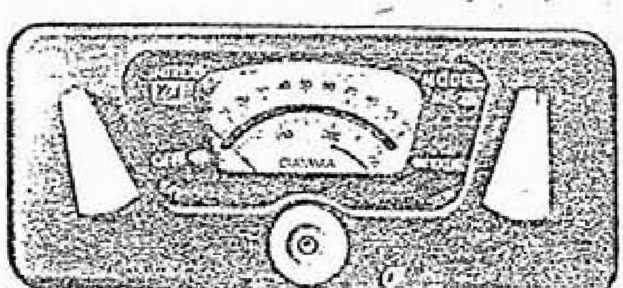
OPTIONAL

a) MF-2G

The MF-2G Fluxgate Magnetometer has the same electronics and specifications as the MF-2, but the sensor is detached and enclosed in a small cylindrical tube which permits it to be oriented and tilted in any desired direction. A 25 foot cable connects the sensor to the instrument housing. This version is particularly suitable for the study of the magnetic properties of rocks, and the measurement of magnetic field components of any orientation, etc.

b) MF-2GS

The MF-2GS Magnetometer again has the same electronics and specifications as the MF-2 but has two sensors, the enclosed self-levelling sensor of the MF-2 as well as the detached geoprobe of the MF-2G, either one of which can be employed at any one time. Thus, this instrument can be employed as the standard MF-2 as well as for vertical gradient measurements, and for the determination of the magnetic properties of rocks, etc.



SPECIFICATIONS OF FLUXGATE MAGNETOMETER MODEL MF-2

	RANGES	SENSITIVITY
Standard:	Plus or minus	
	1,000 gammas f.sc.	20 gammas/div.
	3,000 gammas f.sc.	50 gammas/div.
	10,000 gammas f.sc.	200 gammas/div.
	30,000 gammas f.sc.	500 gammas/div.
	100,000 gammas f.sc.	2000 gammas/div.
Optional:	100 gammas f.sc.	2 gammas/div.
	300 gammas f.sc.	5 gammas/div.

Meter: Taut-band suspension
100 gamma scale 2.1" long — 50 div.
300 gamma scale 1.9" long — 60 div.

Accuracy: 1000 to 10,000 gamma ranges ±0.5% of full scale.

Operating Temperature: —40°C to +40°C
—40°F to +100°F

Temperature Coefficient: Less than 1 gamma per °C (½ gamma/°F)

Noise Level: Less than 1 gamma P-P

Bucking Adjustments: (Latitude) —20,000 to +60,000 gammas
9 steps of 10,000 gammas plus fine control of 0 - 10,000 gammas by ten turn potentiometer. Reversible for southern hemisphere.

Recording Output: Optional.

Electrical Response: D.C. to 0.3 cps (3db down) on 1000 gamma range with meter in circuit. D.C. to 20 cps with meter network shorted for recording purposes.

Connector: Cannon KO2-16-10SN
for plug Cannon KO3-16-10-PN and cover KO6-16-⅜.

Batteries: Internal 3 x 6V-1 amp/hr. Sealed Lead Acid rechargeable Centralab GC 6101; recharge time 8 Hrs.

Consumption: 60 milliamperes — GC6101 batteries are rated for 16 hours continuous use.

Dimensions: 6¼"x 2¾"x 10" Instrument.
161 mm x 71 mm x 254 mm

Weights: 5 lb. 8 oz. — 2.5 kg.

Battery Charger: 6"x 2½"x 2½"
155 mm x 64 mm x 64 mm
110V - 220V 50/60 Hz supply or 28 - 42V D.C. supply
Automatic charge rate and cutoff preset for Centralab GC6101 batteries.

SCINTREX LIMITED
79 Martin Ross Avenue. Downsview, Ontario, Canada

8.0 REFERENCES

1. Cockfield, W.E., 1948; Stump Lake Deposits; in Structural Geology of Canada Ore Deposits, A Symposium, Canadian Institute of Mining and Metallurgy, pp. 183-186.

2. Cockfield, W.E., 1948; Geology and Mineral Deposits of Nicola Map Area, British Columbia; G.S.C. Memoir 249, with G.S.C. Map 886 (Geology Map) and G.S.C. Map 887A (Mineral Map), Scale 1:253,440.

3. George Cross Newsletter, March 14, 1983; Seymour Resources Inc.; Issue No. 50 (1983).

4. George Cross Newsletter, July 13, 1983; Celebrity Energy Corps.; Issue No. 134 (1983).

5. Ministry of Energy, Mines and Petroleum Resources, 1982; Natural Geochemical Reconnaissance 1:250,000 Map Series, Aschroft, British Columbia (NTS 92I), Regional Geochemical Survey; BC RGS-8, 1981 and G.S.C. Open File 866.

6. Ministry of Energy, Mines and Petroleum Resources, 1983; MINFILE - Mineral Occurrences in British Columbia; Planet, Enterprise, King William, 92ISE029, 3p.

7. Northern Miner, June 30, 1983; Celebrity Energy Corp., Launches B.C. Program; p. 5.

9.0 STATEMENT OF EXPENDITURES

BAG 1-2 CLAIMS - 1983

Labour

E. Debicki	June 7-9, 11-12	5 days @ $230	$1,150	
M. Mason	June 7-8	2 days @ 250	500	
B. Booth	May 18-19, June 1, 6-12	10 days @ 101	1,010	
G. Beischer	June 1, 6-13	9 days @ 86	774	
C. Ravnaas	June 1, 6-13	9 days @ 81	729	
E. Makela	June 1, 6-12	8 days @ 76	608	$ 4,771.00

Report Preparation

Report Writing - E. Debicki	3 days @ 230	690	
Drafting - W. Saftic	3 days @ 206	618	1,308.00

Personnel Expenses

Accommodation - Hotel		698.68	
Meals	43 man days @ 20	860.00	1,558.68

Transportation

Truck Rental 2 x 9 days @ 53.50	963.00	
Gasoline	176.00	
Travel - Airfares	600.00	1,739.00

Analytical

Rock - 44 ICP, Au @ 9.25	407.00	
- 9 Hg @ 3.00	27.00	
- 44 Sample Preparation @ 2.50	110.00	
Soil/Stream - 195 ICP, Au @ 9.25	1,803.75	
- 1 Hg @ 3.00	3.00	
- 195 Sample Preparation @ 0.50	97.50	
Heavy Mineral - 7 ICP, Au, Hg @ 12.25	85.75	
- 7 Sample Prepration @ 1.25	8.75	2,542.75

Miscellaneous

Exploration Equipment and Supplies, Freight	235.79
Total Expenditures:	$12,155.22

E.J. (Ed) Debicki
Canadian Nickel Company Ltd
July 13, 1983

10.0 AUTHOR'S QUALIFICATIONS

I, EDWARD J. DEBICKI, of the City of Richmond, in the Province of British Columbia, HEREBY CERTIFY:

1. THAT I reside at 11351 Seahurst Road, Richmond, British Columbia, V7A 3P3

2. THAT I am a graduate of McMaster University, Hamilton, Ontario, with a degree of Bachelor of Science (1971).

3. THAT I am District Geologist, B.C. and Yukon, with Canadian Nickel Company Limited (subsidiary of Inco Limited) of Copper Cliff, Ontario, POM 1NO.

4. THAT I have practised my profession as a geologist since 1971, having worked in Ontario, Quebec, the Northwest Territories, Yukon Territory and British Columbia.

5. THAT I visited the property and that the work described in this report was carried out under my supervision on behalf of Canadian Nickel Company Limited.

6. THAT I am a Fellow of the Geological Association of Canada and a member of the Canadian Institute of Mining and Metallurgy.

DATED at Richmond, British Columbia, this 12th day of September, 1983.

E.J. (Ed) Debicki

APPENDIX A

ANALYTICAL RESULTS

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS, VANCOUVER B.C. PH:253-3158 TELEX:04-53124

ICP GEOCHEMICAL ANALYSIS

A .500 GRAM SAMPLE IS DIGESTED WITH 3 ML OF 3:1:3 HCL TO HNO3 TO H2O AT 90 DEG.C. FOR 1 HOUR. THE SAMPLE IS DILUTED TO 10 MLS WITH WATER.
THIS LEACH IS PARTIAL FOR: Ca,P,Mg,Al,Ti,La,Na,K,W,Ba,Si,Sr,Cr AND B. Au DETECTION 3 ppm.
AU* ANALYSIS BY AA FROM 10 GRAM SAMPLE. HG* ANALYSIS BY FLAMELESS AA FROM .500 GRAM SAMPLE. SAMPLE TYPE - ROCK & SOIL R - Rock S - Soil

DATE RECEIVED JUNE 15 1983 DATE REPORTS MAILED June 18/83 ASSAYER D. Toye DEAN TOYE, CERTIFIED B.C. ASSAYER

CANADIAN NICKEL FILE# 83-0788 PROJECT# 60813 PAGE # 1

SAMPLE #	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb	Hg ppb
RX-41601	2	55	5	60	.1	3	6	565	3.33	12	2	ND	2	20	1	2	2	10	.45	.10	14	3	1.07	71	.01	8	.43	.07	.13	2	5	-
RX-41602	1	29	4	58	.1	3	4	582	2.21	9	2	ND	2	25	1	2	2	5	1.73	.02	2	1	.10	158	.01	8	.37	.01	.26	2	10	-
RX-41603	1	18	8	55	.2	3	3	825	2.47	19	2	ND	2	338	1	2	2	7	9.11	.04	6	3	1.12	427	.01	7	.41	.01	.22	2	35	-
RX-41604	1	41	7	68	.1	53	21	677	3.82	4	2	ND	2	538	1	2	2	98	5.10	.30	40	84	2.59	1965	.05	7	.93	.07	.24	2	25	-
RX-41605	1	13	2	87	.2	47	17	681	3.74	13	2	ND	2	57	1	2	4	72	12.77	.20	2	132	1.64	58	.07	8	2.01	.05	.14	2	10	-
RX-41606	1	107	8	62	.2	54	20	593	2.95	5	2	ND	2	89	1	2	2	81	10.47	.07	2	127	1.96	63	.11	6	2.30	.04	.09	2	5	-
RX-41607	1	47	6	42	.3	57	18	713	3.03	5	2	ND	2	63	1	2	2	60	13.94	.06	2	114	2.03	250	.02	8	2.08	.03	.12	2	5	-
RX-41608	1	61	6	73	.1	19	15	608	4.94	12	2	ND	2	36	1	2	2	155	1.27	.16	15	45	2.37	66	.20	6	2.34	.10	.09	2	5	-
RX-41609	1	8	6	68	.1	4	5	456	2.73	2	2	ND	2	44	1	2	2	16	2.06	.07	11	4	1.13	105	.01	5	1.94	.05	.20	2	5	-
RX-41610	1	22	11	66	.2	12	9	789	3.14	9	2	ND	2	47	1	2	2	45	4.48	.07	6	24	1.08	94	.14	7	1.89	.06	.16	2	5	-
RX-41611	1	2	3	4	.4	1	1	489	1.02	5	2	ND	2	462	1	2	2	5	22.91	.01	2	1	8.09	144	.01	3	.07	.01	.01	2	5	10
RX-41612	1	12	2	12	.3	7	4	539	1.66	43	2	ND	2	385	1	5	2	23	19.51	.02	2	9	7.19	124	.01	3	.15	.02	.01	2	15	30
RX-41613	1	74	8	68	.1	22	16	971	5.09	11	2	ND	2	104	1	2	2	126	3.16	.14	15	42	2.13	34	.01	6	1.43	.05	.04	2	20	40
RX-41614	1	66	9	58	.1	36	18	897	4.88	6	4	ND	2	78	1	2	2	142	3.08	.12	11	72	4.07	30	.01	6	2.69	.06	.05	2	10	10
RX-41615	1	4	1	5	.4	6	6	397	1.08	25	2	ND	2	453	1	2	2	8	20.45	.01	2	5	8.89	174	.01	2	.13	.01	.01	2	5	30
RX-41616	1	50	5	47	.1	22	14	923	4.03	58	2	ND	2	149	1	2	2	86	8.70	.11	10	37	3.44	214	.01	4	.76	.03	.05	2	5	250
RX-41617	1	61	8	56	.1	39	20	791	5.02	11	2	ND	2	71	1	2	2	132	2.66	.13	7	51	3.51	96	.19	6	2.86	.04	.06	2	5	20
RX-41618	1	14	5	13	.3	7	5	725	2.50	14	2	ND	2	264	1	2	2	27	18.42	.03	2	13	7.07	107	.01	3	.42	.02	.02	2	5	60
RX-41619	1	3	4	6	.4	3	2	517	2.01	6	2	ND	2	464	1	2	2	9	20.58	.01	2	3	7.81	89	.01	4	.14	.01	.01	2	10	10
RX-41620	2	108	5	89	.1	30	16	663	4.82	13	2	ND	2	71	1	2	2	136	3.13	.12	6	43	2.07	33	.24	7	2.18	.07	.04	2	25	-
RX-41621	1	13	7	11	.3	3	3	817	2.64	5	2	ND	2	334	1	2	2	11	19.72	.01	2	2	7.29	112	.01	4	.23	.01	.06	2	35	70
RX-41622	2	54	11	59	.1	67	25	666	4.84	12	5	ND	2	53	1	2	2	165	3.10	.19	3	222	3.62	103	.17	7	4.19	.12	.10	2	15	-
RX-41623	1	229	6	41	.1	4	10	556	2.29	4	2	ND	2	46	1	2	2	75	1.56	.17	8	6	1.09	73	.10	9	1.62	.05	.36	2	30	-
RX-41624	1	74	7	67	.1	20	15	727	4.49	19	4	ND	2	79	1	2	2	159	2.95	.13	9	36	2.09	46	.28	4	2.12	.08	.05	2	20	-
RX-41625	1	248	10	97	.1	8	21	711	5.09	11	2	ND	3	66	1	2	2	155	1.77	.26	26	2	1.63	42	.22	8	2.80	.06	.13	2	20	-
RX-41630	1	9	5	90	.1	2	4	751	3.72	9	2	ND	2	47	1	2	2	33	2.09	.08	5	5	1.23	549	.27	5	2.75	.04	.13	2	5	-
RX-41631	1	35	12	74	.1	10	13	688	5.01	20	2	ND	2	62	1	2	2	98	2.35	.06	6	20	1.95	249	.17	4	3.03	.12	.17	2	15	-
RX-41632	6	5	1	6	.1	2	1	63	.56	7	2	ND	2	5	1	2	2	5	.09	.01	2	2	.07	27	.01	8	.17	.01	.02	2	20	-
RX-41633	14	68	6	69	.3	3	9	226	4.13	52	2	ND	2	38	1	2	2	28	.58	.22	20	1	.60	100	.01	7	2.03	.01	.28	2	35	-
RX-41634	1	1	5	2	.6	1	1	2037	.34	2	2	ND	2	344	1	2	8	7	30.40	.01	5	1	.05	7	.01	5	.05	.01	.01	2	5	-
RX-41635	4	103	1	11	.1	3	4	285	1.09	7	2	ND	2	55	1	2	2	7	2.26	.02	3	1	.71	683	.01	6	.13	.02	.04	2	5	-
RX-41636	1	54	6	59	.2	7	15	1126	2.74	6	2	ND	2	97	1	2	2	89	7.64	.10	6	5	3.27	573	.02	8	.59	.04	.04	2	5	-
RX-41637	63	13	6	15	1.2	5	3	156	.86	11	2	ND	2	19	1	2	2	25	.62	.01	2	4	.17	336	.01	8	.37	.01	.07	2	70	-
RX-41638	87	16	4	26	1.8	8	3	143	1.33	45	3	ND	2	15	1	3	2	25	.14	.02	2	6	.33	539	.01	6	.53	.01	.08	2	190	-
RX-41639	11	15	3	20	.8	6	2	113	.89	7	2	ND	2	7	1	2	2	17	.08	.01	2	6	.13	192	.01	2	.36	.01	.07	2	150	-
RX-41640	104	35	8	32	1.5	6	4	107	1.95	191	2	ND	2	33	1	7	2	22	.08	.04	6	5	.11	1014	.01	5	.62	.01	.17	2	325	-
STD A-1/AU 0.5	1	30	40	184	.3	35	13	1028	2.89	10	2	ND	2	38	1	2	2	59	.69	.09	7	69	.78	293	.09	6	2.03	.03	.21	2	530	60

SAMPLE #	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm
RI-41641	22	38	8	60	.3	17	16	338	4.52	44	2	ND	2	10	1
RI-41642	2	173	11	97	.1	8	19	1027	6.90	10	7	ND	3	51	1
RI-41643	115	58	14	39	3.7	6	9	338	2.88	80	2	ND	2	25	1
RI-41644	2	162	8	73	.1	8	17	862	5.90	2	10	ND	3	53	1
RI-41645	8	104	11	66	.8	10	11	656	7.20	34	2	ND	2	12	1
RI-41646	60	66	15	48	.8	7	10	419	5.96	429	2	ND	2	35	1
RI-41647	14	15	3	20	1.0	5	3	233	1.20	14	2	ND	2	17	1
RI-41648	30	12	5	17	.7	5	2	113	.89	14	2	ND	2	8	1
STD A-1/AU 0.5	1	29	38	185	.3	36	13	1046	2.88	10	2	ND	2	37	1

SAMPLE #	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
RI-41641	2	2	47	.27	.10	14	10	.81	185	.01	6	2.56	.01	.30	2	5
RI-41642	2	2	200	3.24	.23	26	8	2.13	54	.20	2	2.96	.04	.08	2	5
RI-41643	6	3	45	.19	.05	12	1	.36	903	.01	3	1.15	.01	.17	2	65
RI-41644	2	2	188	2.15	.20	22	7	1.85	47	.30	4	2.55	.06	.10	2	5
RI-41645	2	2	128	.29	.08	19	3	1.59	78	.01	4	3.65	.01	.17	2	15
RI-41646	10	2	86	.23	.08	14	3	1.22	1355	.01	6	2.78	.01	.15	2	135
RI-41647	2	2	16	.92	.01	2	4	.15	247	.01	4	.49	.01	.09	2	860
RI-41648	2	2	16	.14	.02	2	5	.15	183	.01	4	.35	.01	.07	2	145
STD A-1/AU 0.5	2	2	61	.63	.11	8	78	.79	272	.08	6	2.08	.02	.20	2	515

CANADIAN NICKEL FILE# 83-0788 PROJECT# 60813

SAMPLE #	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
SI 89801	1	33	8	75	.1	19	10	791	2.66	6	2	ND	3	53	1	2	2	55	.67	.09	11	33	.47	300	.08	5	2.56	.02	.23	2	15
SI 89802	1	40	9	72	.1	14	9	808	2.32	6	2	ND	2	70	1	2	2	50	.87	.10	11	24	.47	264	.07	7	1.95	.02	.31	2	10
SI 89803	1	41	7	67	.1	14	9	764	2.14	5	2	ND	2	107	1	2	2	45	1.13	.10	11	20	.51	230	.05	8	1.83	.02	.33	2	10
SI 89804	1	46	5	78	.2	13	8	703	1.93	8	2	ND	2	98	1	2	2	40	1.51	.16	13	13	.42	400	.04	10	1.87	.02	.36	2	5
SI 89805	1	36	7	64	.2	12	8	726	2.17	5	6	ND	2	110	1	2	2	45	1.03	.10	12	19	.62	245	.05	8	1.84	.03	.37	2	15
SI 89806	1	42	8	71	.2	14	9	853	2.07	5	2	ND	2	93	1	2	2	43	1.27	.11	12	20	.44	356	.05	7	1.95	.02	.30	2	10
SI 89807	1	46	10	68	.2	16	10	838	2.52	10	2	ND	2	82	1	2	2	53	.95	.11	14	23	.57	282	.06	8	2.21	.02	.35	2	10
SI 89808	1	42	8	82	.3	15	10	1094	2.44	8	2	ND	2	69	1	2	2	47	1.22	.15	12	24	.47	362	.05	8	1.76	.01	.29	2	50
SI 89809	1	39	6	57	.3	10	7	469	1.93	4	2	ND	2	172	1	2	2	31	1.83	.13	9	15	.77	195	.03	13	1.60	.03	.25	2	10
SI 89810	1	40	7	72	.2	13	9	830	2.40	4	2	ND	2	71	1	2	2	53	1.01	.13	12	22	.48	305	.06	10	2.08	.02	.29	2	5
SI-89811	1	54	6	53	.2	20	12	712	2.95	8	3	ND	2	54	1	2	2	71	1.10	.12	12	34	.74	190	.08	8	1.82	.02	.24	2	10
SI-89812	1	35	9	55	.1	20	11	628	2.94	11	3	ND	2	47	1	2	2	73	.84	.10	11	35	.66	211	.08	6	1.62	.02	.19	2	10
SI-89813	1	51	9	63	.2	20	12	965	2.91	14	2	ND	2	64	1	2	2	62	1.07	.13	15	24	.53	343	.06	9	1.77	.01	.26	2	5
SI-89814	1	41	10	60	.1	17	10	861	2.57	6	2	ND	2	67	1	2	2	57	1.05	.11	12	26	.49	300	.07	8	2.01	.02	.26	2	5
SI-89815	1	41	8	55	.1	17	11	733	2.76	5	4	ND	2	65	1	3	3	64	.91	.10	12	31	.63	287	.07	10	1.92	.02	.37	2	5
SI-89816	1	39	9	74	.2	15	9	832	2.24	5	2	ND	2	82	1	2	2	49	1.18	.13	11	24	.47	342	.06	9	1.91	.02	.39	2	5
SI-89817	1	46	9	58	.2	20	10	706	2.59	7	2	ND	2	86	1	2	2	60	1.20	.13	12	29	.74	214	.06	10	1.85	.03	.35	2	5
SI-89818	1	47	7	57	.1	19	11	761	2.92	9	2	ND	2	62	1	2	2	66	1.03	.11	12	32	.64	272	.07	8	1.98	.02	.42	2	10
SI-89819	1	43	10	72	.2	18	10	828	2.42	4	2	ND	2	72	1	2	2	53	1.32	.15	11	28	.51	332	.05	8	1.94	.02	.35	2	5
SI-89820	1	53	9	60	.2	18	12	753	3.30	10	2	ND	2	52	1	2	2	79	.90	.10	13	30	.72	258	.07	8	2.16	.02	.37	2	5
SI-89821	1	51	9	68	.2	17	12	830	2.97	8	2	ND	2	54	1	2	2	68	.89	.12	12	27	.65	296	.06	8	2.18	.02	.44	2	5
SI-89822	2	69	8	75	.2	19	14	987	3.61	19	2	ND	2	46	1	2	2	79	.94	.13	18	30	.73	340	.06	9	2.67	.01	.41	2	10
SI-89823	2	78	12	77	.2	17	17	1186	4.07	29	2	ND	2	53	1	2	2	84	1.01	.14	23	24	.77	354	.05	10	2.92	.02	.40	2	5
SI-89824	1	52	9	56	.2	15	10	794	2.50	9	3	ND	2	111	1	2	2	63	1.86	.13	12	23	.61	241	.05	15	1.76	.02	.29	2	5
SI-89825	1	58	8	61	.3	18	13	748	3.44	9	2	ND	2	57	1	2	2	84	1.03	.13	16	30	.90	205	.07	9	2.35	.02	.30	2	5
SI-89826	2	74	9	69	.2	13	16	1223	2.83	20	4	ND	2	88	1	2	2	55	1.39	.16	19	13	.61	437	.03	14	2.23	.02	.30	2	10
SI-89827	2	115	25	163	.3	10	14	2697	3.05	17	2	ND	2	115	1	2	2	51	1.47	.20	37	12	.49	479	.04	10	2.96	.02	.34	2	5
SI-89828	1	73	13	74	.3	17	16	1381	3.18	9	2	ND	2	85	1	2	2	55	1.29	.13	34	20	.72	471	.03	11	2.74	.02	.36	2	5
SI-89829	3	55	8	75	.3	11	11	967	1.91	13	2	ND	2	94	1	2	2	35	1.60	.24	18	10	.39	474	.02	10	1.77	.02	.31	2	5
SI-89830	1	51	8	62	.2	20	12	777	3.10	5	6	ND	2	83	1	2	2	82	1.05	.12	10	30	.77	213	.08	9	1.93	.02	.32	2	5
SI-89831	2	47	6	62	.1	19	10	662	2.80	4	2	ND	2	234	1	2	2	76	1.86	.13	9	32	1.03	128	.08	16	1.80	.03	.36	2	5
SI-89832	1	41	8	59	.1	19	11	764	2.74	5	2	ND	2	62	1	2	2	73	1.04	.13	9	33	.58	216	.08	9	1.76	.02	.29	2	5
SI-89833	1	38	7	49	.1	25	13	755	3.44	2	5	ND	2	50	1	2	2	105	.94	.13	8	45	.85	139	.10	7	1.45	.02	.21	2	5
SI-89834	1	32	9	56	.1	21	13	719	2.67	2	2	ND	2	51	1	2	2	67	.51	.08	11	38	.49	155	.11	5	1.78	.06	.28	2	5
SI-89835	1	53	7	57	.2	21	11	661	3.02	6	2	ND	2	60	1	2	2	79	.81	.11	10	34	.72	158	.09	8	2.04	.03	.33	2	5
SI-89836	1	47	8	71	.2	19	11	848	2.62	4	2	ND	2	101	1	2	2	59	.89	.11	10	32	.73	200	.07	9	2.04	.04	.43	2	5
SI-89837	1	33	8	65	.2	20	12	692	2.83	2	2	ND	2	62	1	2	2	69	.59	.08	10	37	.57	143	.10	7	1.91	.04	.36	2	5
STD A-1/AU 0.5	1	30	41	182	.3	36	13	1037	2.87	10	2	ND	2	37	1	2	2	60	.63	.10	8	70	.72	289	.07	6	2.04	.02	.21	2	500

SAMPLE #	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au† ppb
SI-89838	1	30	8	58	.1	15	10	696	2.16	2	2	ND	2	39	1	2	2	46	.37	.07	9	27	.45	114	.06	7	1.81	.06	.31	2	5
SI-89840	1	36	10	58	.1	15	9	634	2.40	3	2	ND	2	46	1	2	2	57	.51	.08	10	26	.48	144	.08	7	1.76	.04	.29	2	5
SI-89841	1	45	11	66	.1	18	10	767	2.38	4	2	ND	2	77	1	2	2	51	.59	.11	10	28	.60	199	.06	8	1.95	.03	.34	2	5
SI-89842	1	51	10	62	.1	21	11	664	2.64	6	2	ND	2	87	1	2	2	60	.78	.12	11	32	.71	190	.07	23	2.01	.02	.35	2	5
SI-89843	1	44	7	50	.1	19	9	594	2.37	2	2	ND	2	51	1	2	2	56	.63	.10	10	29	.67	159	.07	7	1.71	.04	.25	2	5
SI-89844	1	33	8	59	.1	17	10	665	2.40	7	5	ND	2	60	1	2	2	54	.67	.10	10	30	.53	167	.06	6	1.64	.02	.26	2	15
SI-89845	1	42	10	66	.1	20	10	724	2.55	9	2	ND	2	101	1	2	2	55	.84	.13	11	29	.76	159	.06	8	1.70	.02	.35	2	5
SI-89846	1	39	8	54	.1	17	9	593	2.38	3	2	ND	2	62	1	2	2	55	.66	.11	10	29	.56	172	.06	6	1.57	.02	.24	2	5
SI-89847	1	58	8	70	.2	36	14	731	3.26	6	2	ND	2	47	1	2	2	63	1.05	.10	10	51	.81	176	.05	10	2.32	.02	.43	2	5
SI-89848	1	62	10	67	.1	33	14	849	3.20	6	2	ND	2	40	1	2	2	61	.88	.08	11	44	.76	206	.06	8	2.42	.02	.40	2	5
SI-89849	1	55	10	66	.1	29	13	784	3.09	7	2	ND	2	53	1	2	2	61	.94	.09	10	38	.82	193	.06	10	2.27	.02	.43	2	5
SI-89850	1	59	8	53	.1	31	14	639	3.13	5	2	ND	2	70	1	2	2	71	2.33	.10	9	44	.98	144	.06	9	1.96	.01	.32	2	10
SI-89851	1	58	13	63	.2	29	14	762	3.25	4	2	ND	2	45	1	2	2	69	.94	.10	11	38	.80	181	.06	9	2.22	.01	.41	2	5
SI-89852	1	57	9	61	.1	27	14	730	3.33	11	2	ND	2	48	1	2	2	75	.97	.11	10	38	.96	169	.07	9	2.18	.02	.35	2	5
SI-89853	1	56	7	60	.1	25	13	711	3.16	3	2	ND	2	64	1	2	2	70	1.02	.11	10	34	.91	161	.06	12	2.13	.01	.41	2	5
SI-89854	1	65	10	58	.1	27	15	789	3.34	5	2	ND	2	61	1	2	2	77	1.46	.12	10	36	1.05	159	.06	11	2.02	.02	.38	2	5
SI-89855	1	62	9	62	.1	25	14	738	3.35	8	2	ND	2	50	1	2	2	77	1.07	.11	11	34	.96	174	.07	10	2.25	.01	.37	2	25
SI-89856	1	64	9	59	.1	26	14	763	3.24	11	2	ND	2	38	1	2	2	71	.79	.09	10	34	.92	161	.07	8	2.06	.01	.35	2	5
SI-89857	1	67	8	57	.2	26	13	641	3.15	11	2	ND	2	54	1	2	2	75	2.45	.11	9	32	1.00	160	.06	9	2.07	.01	.34	2	10
SI-89858	1	58	9	59	.1	23	13	708	3.28	6	2	ND	2	43	1	2	2	76	.94	.11	10	29	.95	158	.06	7	1.94	.01	.26	2	5
SI-89859	1	49	11	62	.2	23	12	778	2.82	7	2	ND	2	67	1	2	2	63	.94	.11	13	30	.65	241	.05	7	2.43	.02	.32	2	15
SI-89860	1	35	9	56	.1	20	9	732	2.20	7	2	ND	2	56	1	2	2	47	.84	.13	10	28	.45	276	.05	7	1.87	.02	.30	2	5
SI-89861	1	55	9	56	.1	26	12	799	2.60	6	2	ND	2	40	1	2	2	55	.71	.09	11	43	.67	202	.06	6	2.13	.02	.22	2	5
SI-89862	1	57	9	55	.1	24	12	800	2.78	2	2	ND	2	43	1	2	2	62	.90	.12	12	34	.54	213	.06	6	2.06	.01	.25	2	5
SI-89863	1	58	13	59	.1	19	11	849	2.63	6	2	ND	2	50	1	2	2	57	.83	.13	13	27	.57	322	.06	6	2.31	.02	.26	2	5
SI-89864	1	62	9	59	.1	20	12	806	2.80	8	2	ND	2	72	1	2	2	65	1.26	.13	13	27	.73	277	.06	8	2.17	.02	.29	2	5
SI-89865	1	38	204	50	.1	17	8	465	2.31	6	2	ND	2	97	1	2	2	50	1.05	.09	10	23	.68	190	.05	30	1.67	.05	.32	2	5
SI-89866	1	51	11	57	.1	19	11	907	2.64	9	2	ND	2	70	1	2	2	55	1.04	.12	13	23	.57	255	.05	8	1.71	.01	.21	2	5
SI-89867	1	57	8	50	.1	18	11	984	2.33	11	2	ND	2	66	1	2	2	50	1.01	.13	14	18	.53	255	.04	7	1.78	.02	.18	2	5
SI-89868	1	51	8	57	.1	19	11	864	2.66	2	2	ND	2	98	1	2	2	56	.89	.11	14	27	.64	238	.05	8	2.24	.02	.32	2	5
SI-89869	1	46	10	57	.1	18	10	672	2.54	11	2	ND	2	99	1	2	2	54	.95	.11	13	26	.88	218	.05	10	2.11	.02	.27	2	5
SI-89870	1	64	11	72	.1	24	15	922	3.44	13	2	ND	2	67	1	2	2	75	1.13	.13	16	28	.68	273	.05	8	2.45	.02	.28	2	5
SI-89871	1	53	11	59	.1	23	12	747	2.99	6	2	ND	2	57	1	2	2	65	.79	.11	12	34	.74	220	.06	8	2.23	.02	.34	2	5
SI-89872	1	69	7	90	.2	50	18	693	3.75	15	2	ND	2	46	1	2	2	46	.95	.12	9	50	.59	190	.03	9	1.91	.02	.23	2	5
SI-89873	1	56	9	60	.1	26	13	789	3.04	10	2	ND	2	59	1	2	2	63	.84	.10	12	38	.69	218	.06	8	1.96	.02	.26	2	5
SI-89846	1	39	9	55	.2	18	9	603	2.44	6	4	ND	2	63	1	2	2	56	.67	.11	10	28	.57	172	.06	6	1.55	.02	.25	2	5
STD A-1/AU 0.5	1	29	43	185	.3	36	13	1055	2.91	9	2	ND	3	37	1	2	2	62	.65	.10	8	69	.73	282	.07	6	2.09	.01	.21	2	540

SAMPLE #	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
SI-89874	1	70	8	59	.1	28	13	877	2.55	6	2	ND	2	56	1	2	2	46	1.02	.12	11	35	.62	244	.03	8	1.67	.01	.20	2	5
SI-89875	1	48	9	69	.2	20	11	941	2.33	5	2	ND	2	55	1	2	2	46	1.06	.14	12	29	.49	276	.05	5	2.07	.02	.28	2	5
SI-89876	1	55	7	62	.2	25	12	805	2.67	9	2	ND	2	60	1	2	2	54	1.00	.11	11	31	.65	235	.05	7	2.03	.02	.36	2	5
SI-89877	1	52	9	60	.3	22	12	590	2.69	7	2	ND	2	50	1	2	2	57	.77	.09	11	31	.72	220	.06	6	1.97	.02	.33	2	5
SI-89878	1	46	7	54	.3	20	10	586	2.54	5	3	ND	2	115	1	2	2	53	.84	.09	10	29	.83	179	.05	8	1.84	.02	.33	2	5
SI-89879	1	47	7	48	.4	21	10	465	2.41	9	2	ND	2	109	1	2	2	52	.79	.09	10	31	.83	145	.05	9	1.58	.02	.26	2	5
SI-89880	1	45	8	52	.2	18	10	737	2.53	6	5	ND	2	63	1	2	2	53	.98	.12	12	24	.55	250	.06	6	2.09	.02	.31	2	5
SI-89881	1	41	7	47	.1	17	10	686	2.37	6	2	ND	2	76	1	2	2	50	.94	.11	11	26	.56	265	.05	7	1.98	.01	.38	2	5
SI-89882	1	44	7	51	.3	19	11	797	2.56	7	4	ND	2	64	1	2	2	54	.73	.09	11	31	.65	197	.06	7	1.97	.02	.36	2	5
SI-89883	1	47	8	50	.1	17	10	633	2.55	6	2	ND	2	124	1	2	2	54	1.04	.10	10	23	.87	128	.05	8	1.70	.07	.40	2	5
SI-89884	1	49	7	54	.2	21	11	702	2.59	4	2	ND	2	72	1	2	2	55	1.08	.11	11	29	.66	249	.05	8	1.90	.02	.41	2	5
SI-89885	1	48	10	54	.2	18	10	728	2.69	7	9	ND	2	53	1	2	2	58	.86	.12	12	27	.56	257	.06	7	2.04	.01	.34	2	5
SI-89886	1	53	7	53	.2	18	10	756	2.66	6	2	ND	2	59	1	3	2	58	1.06	.13	12	24	.64	241	.05	8	1.69	.02	.30	2	5
SI-89887	1	49	6	49	.3	18	10	726	2.45	5	2	ND	2	50	1	2	2	52	.97	.13	10	27	.59	238	.05	6	1.56	.01	.29	2	5
SI-89888	1	77	8	65	.2	40	19	857	4.22	7	2	ND	2	48	1	2	2	102	1.43	.11	10	50	1.39	133	.04	6	1.95	.01	.21	2	5
SI-89889	1	53	9	62	.1	20	12	736	3.07	8	2	ND	2	49	1	2	2	62	.89	.12	11	28	.80	185	.05	8	1.93	.01	.38	2	5
SI-89890	1	51	10	69	.2	21	12	771	3.17	9	2	ND	2	50	1	2	2	62	1.16	.11	11	27	.84	156	.05	9	1.92	.01	.33	2	5
SI-89891	1	56	9	65	.1	21	12	740	2.99	8	2	ND	2	58	1	2	3	59	1.14	.11	11	29	.77	167	.05	8	1.90	.02	.34	2	5
SI-89892	1	57	8	53	.3	17	11	701	2.92	10	8	ND	2	59	1	2	2	64	1.93	.14	12	22	.82	166	.05	9	1.65	.02	.21	2	5
SI-89893	1	59	7	55	.2	17	11	709	2.95	8	2	ND	2	56	1	2	2	65	1.79	.14	12	24	.81	168	.05	8	1.72	.02	.24	2	5
SI-89894	1	56	8	65	.2	16	12	814	2.97	8	2	ND	2	47	1	3	2	61	.88	.13	13	23	.67	214	.05	7	1.95	.01	.33	2	5
SI-89895	1	60	7	65	.2	17	12	884	2.95	6	8	ND	2	46	1	2	2	58	.97	.14	13	23	.73	217	.04	8	1.78	.01	.34	2	5
SI-89896	1	66	10	61	.3	15	11	857	2.72	8	2	ND	2	68	1	2	2	55	1.83	.13	13	22	.76	205	.04	9	1.79	.01	.30	2	5
SI-89897	1	74	9	67	.1	17	12	912	2.94	7	5	ND	2	53	1	2	2	60	1.12	.12	14	22	.77	250	.04	8	1.95	.01	.34	2	5
SI-89898	1	71	9	62	.2	15	11	857	2.68	4	2	ND	2	54	1	2	2	58	.98	.13	11	23	.75	219	.04	8	1.80	.01	.34	2	5
SI-89899	1	54	9	72	.4	17	10	658	2.46	3	2	ND	2	133	1	3	2	47	.94	.12	11	23	1.05	182	.05	13	1.96	.03	.53	2	5
SI-89900	1	62	9	59	.3	15	10	719	2.51	5	2	ND	2	144	1	3	2	58	1.58	.15	9	21	1.29	120	.05	15	1.70	.04	.43	2	5
SI-96001	1	51	8	65	.2	14	10	817	2.46	7	2	ND	2	78	1	2	2	54	.84	.12	9	23	.74	256	.06	9	1.80	.02	.36	2	5
SI-96002	1	60	6	59	.2	17	11	735	2.67	6	3	ND	2	56	1	2	2	61	.92	.12	10	28	.68	250	.05	8	1.78	.01	.33	2	5
SI-96003	1	66	8	60	.1	18	11	762	2.71	5	2	ND	2	79	1	2	2	60	.83	.12	10	24	.82	213	.06	7	1.91	.01	.36	2	5
SI-96004	1	68	10	60	.2	18	11	828	2.62	7	2	ND	2	67	1	2	2	59	.99	.14	10	24	.78	258	.05	9	1.77	.01	.37	2	5
SI-96005	1	84	9	59	.2	17	11	833	2.52	5	2	ND	2	59	1	2	2	57	1.05	.12	10	24	.70	303	.04	7	1.99	.01	.32	2	5
SI-96006	1	60	7	63	.1	22	11	765	2.57	5	3	ND	2	136	1	2	2	56	1.08	.13	9	27	.87	197	.05	12	1.81	.02	.46	2	5
SI-96007	1	67	6	58	.1	9	8	1060	1.83	2	2	ND	2	62	1	2	2	41	1.03	.12	10	14	.43	407	.05	6	1.90	.02	.34	2	5
SI-96008	1	53	9	58	.2	15	9	829	2.10	5	4	ND	2	101	1	2	2	46	1.13	.13	9	23	.53	296	.04	7	1.71	.02	.33	2	5
SI-96009	1	62	7	52	.2	21	11	684	2.77	6	2	ND	2	58	1	2	2	66	.88	.11	9	32	.68	198	.06	7	1.92	.01	.32	2	5
SI-96010	1	40	7	49	.1	16	10	636	2.71	6	2	ND	2	41	1	2	2	67	.54	.09	9	29	.54	157	.07	5	1.61	.04	.25	2	5
STD A-1/AU 0.5	1	29	42	179	.3	35	13	1025	2.94	9	2	ND	2	37	1	2	2	60	.65	.10	8	71	.73	286	.08	6	2.00	.01	.21	2	540

SAMPLE #	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
SI-96011	1	63	7	51	.1	15	9	686	2.42	2	5	ND	2	49	1	2	2	63	.77	.10	9	24	.53	192	.07	6	1.82	.02	.20	2	5
SI-96012	1	52	8	55	.1	21	11	648	2.71	5	2	ND	2	53	1	2	2	68	.75	.10	9	32	.64	190	.08	7	1.92	.03	.28	2	5
SI-96013	1	61	10	56	.1	30	13	645	3.08	6	2	ND	2	160	1	2	2	82	2.35	.11	9	40	1.34	177	.09	8	1.87	.04	.26	2	5
SI-96014	1	37	6	66	.1	20	11	728	2.52	2	4	ND	2	55	1	2	3	57	.53	.09	10	34	.53	217	.08	6	2.01	.03	.32	2	5
SI-96015	1	45	8	58	.1	26	12	671	2.76	7	2	ND	2	56	1	2	2	68	.59	.10	11	38	.73	196	.09	6	1.82	.06	.30	2	5
SI-96016	1	54	7	64	.1	19	11	753	2.61	3	2	ND	2	61	1	2	2	64	.77	.11	9	31	.66	196	.07	6	1.83	.02	.35	2	5
SI-96017	1	54	8	57	.1	19	11	726	2.65	2	2	ND	2	54	1	2	3	65	.79	.11	10	31	.64	209	.08	6	1.94	.02	.26	2	5
SI-96018	1	55	6	50	.1	22	12	631	3.07	4	4	ND	2	42	1	3	3	87	.86	.11	8	35	.77	147	.09	6	1.74	.02	.16	2	5
SI-96019	1	37	9	47	.1	19	11	665	2.68	4	2	ND	2	52	1	2	2	72	.63	.09	8	33	.64	120	.09	7	1.60	.05	.26	2	5
SI-96020	1	34	8	57	.1	26	13	724	2.64	3	2	ND	2	53	1	3	3	68	.51	.08	10	40	.59	154	.10	7	1.68	.07	.33	2	5
SI-96021	1	78	7	66	.1	22	12	856	2.77	2	2	ND	2	58	1	2	2	66	1.00	.13	9	29	.71	375	.07	10	1.98	.02	.34	2	5
SI-96022	1	48	7	56	.1	24	13	712	2.98	2	2	ND	2	57	1	2	3	76	.64	.09	11	39	.74	189	.10	6	2.02	.06	.29	2	10
SI-96023	1	122	11	70	.1	17	14	1118	2.85	2	4	ND	2	95	1	2	2	73	1.10	.15	11	24	.99	358	.05	10	2.06	.02	.33	2	5
SI-96024	1	85	4	59	.1	19	12	777	2.98	8	6	ND	2	129	1	2	3	77	2.23	.14	10	27	1.04	277	.06	9	1.85	.02	.26	2	5
SI-96025	1	71	4	65	.1	20	12	891	2.75	2	2	ND	2	86	1	2	3	66	.92	.12	10	28	.78	238	.07	9	2.04	.02	.34	2	5
SI-96026	1	59	8	72	.1	21	12	880	2.48	5	2	ND	2	106	1	2	3	54	1.09	.12	11	26	.66	339	.06	9	2.14	.02	.43	2	5
SI-96027	1	73	10	63	.1	21	12	870	2.75	4	4	ND	2	91	1	2	4	66	.95	.12	11	27	.78	239	.07	10	2.08	.02	.34	2	5
SI-96028	1	61	8	70	.1	23	13	849	3.01	7	2	ND	2	79	1	2	2	71	.91	.10	11	29	.84	235	.07	10	2.13	.02	.36	2	10
SI-96029	1	55	6	69	.1	19	12	788	2.92	8	2	ND	2	76	1	2	3	65	.87	.11	11	25	.83	162	.06	10	1.91	.02	.30	2	5
SI-96030	1	57	11	62	.1	22	12	767	3.13	5	2	ND	2	61	1	2	2	77	1.09	.11	10	32	.84	202	.08	9	1.96	.02	.30	2	5
SI-96031	1	59	8	82	.1	16	13	964	2.88	6	3	ND	2	62	1	2	2	54	1.81	.15	12	15	.57	268	.02	11	1.75	.01	.27	2	5
SI-96032	1	44	13	66	.1	11	10	1397	2.99	2	3	ND	2	59	1	2	3	63	.98	.13	25	15	.49	293	.07	5	3.40	.03	.11	2	5
SI-96033	1	58	8	72	.1	19	14	915	3.22	25	2	ND	2	69	1	2	3	65	1.51	.17	14	23	.87	225	.04	10	1.74	.02	.24	2	5
SI-96034	1	50	7	66	.1	18	11	904	2.71	11	2	ND	2	68	1	2	2	57	1.06	.14	12	22	.68	228	.05	9	1.81	.02	.36	2	5
SI-96035	1	49	7	68	.1	17	11	742	2.61	10	2	ND	2	62	1	2	3	57	.92	.12	12	22	.67	236	.06	8	1.84	.02	.36	2	5
SI-96036	1	52	9	70	.1	21	13	872	3.09	5	2	ND	2	60	1	2	3	67	.92	.12	12	27	.79	252	.07	8	2.09	.02	.37	2	10
SI-96037	1	45	8	65	.1	18	11	790	2.70	7	2	ND	2	85	1	2	4	57	1.05	.10	11	23	.73	237	.06	9	2.05	.02	.39	2	5
SI-96038	1	52	7	65	.1	22	12	801	2.95	6	3	ND	2	82	1	2	2	65	.97	.12	12	30	.89	191	.07	9	2.15	.03	.39	2	5
SI-96039	1	56	9	66	1.1	21	13	835	2.98	5	2	ND	2	79	1	2	3	66	1.39	.13	13	28	.73	221	.06	12	2.24	.02	.42	2	5
SI-96040	1	49	9	65	.1	22	13	746	3.19	35	5	ND	2	58	1	3	4	70	.83	.10	12	30	.71	219	.07	7	2.32	.02	.33	2	5
SI-96041	1	51	4	61	.1	21	12	738	2.92	5	2	ND	2	53	1	4	3	65	.89	.11	11	27	.71	195	.07	7	1.92	.02	.32	2	5
SI-96042	1	50	10	65	.1	21	12	807	2.94	4	2	ND	2	62	1	2	4	65	.91	.11	12	29	.68	229	.07	8	2.11	.02	.40	2	5
SI-96043	1	50	9	61	.1	22	12	723	3.00	4	3	ND	2	55	1	2	3	67	.80	.10	12	31	.70	210	.07	6	2.12	.02	.32	2	15
SI-96044	1	65	9	63	.1	24	14	846	3.26	6	2	ND	2	100	1	2	3	72	1.28	.13	13	31	1.02	198	.07	12	2.23	.02	.44	2	5
SI-96045	1	50	8	64	.1	22	12	846	2.92	2	3	ND	2	98	1	2	3	64	.89	.09	12	30	.75	202	.07	10	2.21	.02	.41	2	5
SI-96046	1	43	6	59	.1	18	9	461	2.53	3	5	ND	2	160	1	2	3	55	.79	.11	10	24	1.52	97	.07	11	1.93	.04	.31	2	10
SI-96047	1	44	8	59	.1	21	11	787	2.79	5	2	ND	2	108	1	2	2	60	.87	.08	11	30	1.11	171	.07	10	2.16	.04	.38	2	5
STD A-1	1	30	41	185	.3	36	13	1053	2.91	9	2	ND	2	39	1	2	2	62	.64	.10	8	70	.73	294	.08	6	2.11	.01	.20	2	520

SAMPLE #	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au† ppb
SI-96048	1	51	4	54	.1	20	11	470	2.35	5	2	ND	2	72	1	2	2	54	.82	.10	10	27	1.01	151	.05	8	1.63	.02	.26	2	5
SI-96049	1	48	5	60	1.1	24	12	724	2.58	6	2	ND	2	48	1	2	2	55	.91	.10	9	33	.69	198	.05	7	1.77	.01	.34	2	5
SI-96050	1	43	7	55	.1	35	12	782	2.59	3	2	ND	2	42	1	2	2	50	.83	.11	9	54	.80	304	.04	6	1.85	.01	.21	2	5
SI-96051	1	47	7	54	.2	29	12	758	2.47	5	2	ND	2	44	1	2	2	51	.77	.09	10	45	.71	207	.05	5	1.86	.01	.23	2	5
SI-96052	1	41	5	57	.2	22	10	734	2.02	4	2	ND	2	82	1	2	2	39	1.04	.09	8	30	.74	224	.04	9	1.65	.04	.39	2	5
SI-96053	1	52	4	52	.1	28	12	669	2.52	2	2	ND	2	30	1	2	2	51	.64	.10	8	40	.69	148	.05	6	1.53	.01	.26	2	35
SI-96054	1	43	4	57	.2	16	10	767	2.22	9	2	ND	2	49	1	2	2	50	.78	.12	10	25	.53	255	.05	5	1.54	.01	.29	2	5
SI-96055	1	51	7	53	.2	18	11	750	2.54	9	2	ND	2	48	1	2	2	59	.94	.11	10	23	.68	242	.05	8	1.51	.01	.26	2	5
SI-96056	1	53	4	62	.2	15	10	697	2.09	5	2	ND	2	71	1	2	2	45	1.24	.13	11	18	.57	330	.04	8	1.52	.01	.32	2	5
SI-96057	1	50	5	51	.1	16	10	793	2.19	6	2	ND	2	72	1	3	2	47	1.03	.11	12	22	.64	247	.04	8	1.52	.01	.29	2	5
SI-96058	1	46	7	44	.2	10	6	501	1.53	4	2	ND	2	467	1	3	2	31	7.51	.14	9	13	1.67	150	.02	16	1.09	.03	.23	2	5
SI-96059	1	58	8	69	.2	18	12	1025	2.77	15	2	ND	2	55	1	2	2	58	1.04	.13	14	25	.66	283	.05	7	1.86	.01	.27	2	5
SI-96060	1	49	6	83	.3	14	11	1201	3.14	16	2	ND	2	44	1	2	2	47	.94	.13	15	17	.56	326	.03	4	1.92	.01	.17	2	5
SI-96061	1	41	6	68	.1	17	11	833	2.65	12	2	ND	2	55	1	2	2	57	.78	.11	12	23	.65	236	.05	7	1.69	.01	.28	2	5
SI-96062	1	43	6	56	.2	14	8	460	2.16	5	2	ND	2	240	1	5	2	50	2.96	.13	10	22	2.94	161	.05	14	1.69	.03	.19	2	5
SI-96063	1	64	6	66	.2	18	13	941	2.96	8	2	ND	2	70	1	2	2	63	1.24	.14	20	27	.87	252	.04	9	1.84	.01	.32	2	5
SI-96064	1	50	9	89	.3	20	12	826	2.85	12	2	ND	2	76	1	2	2	61	.88	.11	12	28	.72	296	.06	8	1.78	.01	.30	2	5
SI-96065	1	54	8	72	.2	20	11	819	2.55	6	2	ND	2	127	1	3	2	55	1.38	.11	12	27	.81	240	.04	14	1.83	.02	.34	2	10
SI-96066	1	57	7	68	.2	22	13	860	3.09	7	2	ND	2	64	1	2	2	77	1.03	.13	10	33	1.00	201	.06	9	1.85	.01	.26	2	15
SI-96067	1	53	10	71	.2	18	11	972	2.49	4	2	ND	2	86	1	2	2	58	1.05	.12	12	28	.59	294	.05	8	2.09	.01	.28	2	5
SI-96068	1	56	7	53	.1	21	11	684	2.72	8	2	ND	2	52	1	2	2	71	.91	.11	10	31	.70	201	.07	8	1.77	.02	.29	2	15
SI-96069	3	52	4	57	.3	17	9	518	2.25	11	2	ND	2	590	1	2	2	55	4.69	.13	7	23	1.05	77	.05	17	1.26	.02	.26	2	5
SI-96070	1	58	5	49	.1	19	11	717	2.58	8	2	ND	2	68	1	2	2	68	.93	.11	9	31	.67	164	.07	7	1.62	.02	.27	2	5
SI-96071	1	49	5	51	.1	18	10	685	2.35	2	2	ND	2	55	1	2	2	61	.85	.09	8	30	.61	198	.06	7	1.55	.02	.26	2	5
SI-96072	1	41	5	60	.1	18	10	715	2.25	6	2	ND	2	76	1	2	2	54	.72	.09	8	31	.60	215	.06	6	1.60	.02	.34	2	5
SI-96073	1	40	6	45	.1	10	5	398	1.35	4	2	ND	2	828	1	3	2	33	5.60	.10	5	15	4.07	231	.04	22	1.29	.04	.29	2	5
SI-96074	1	60	3	50	.1	22	11	705	2.55	10	2	ND	2	67	1	2	2	66	1.01	.13	9	30	.80	227	.05	8	1.60	.02	.24	2	15
SI-96075	1	74	6	69	.1	18	11	911	2.35	3	3	ND	2	60	1	2	2	54	.84	.11	10	24	.72	337	.06	8	1.90	.02	.25	2	10
SI-96076	1	69	7	56	.2	17	9	701	2.02	7	2	ND	2	297	1	2	2	50	4.10	.13	7	24	.98	300	.04	18	1.44	.02	.35	2	10
SI-96077	1	66	5	70	.2	15	10	797	2.28	7	2	ND	2	61	1	2	2	51	.86	.13	11	23	.70	190	.05	8	1.45	.01	.34	2	5
SI-96078	1	65	6	54	.2	16	9	654	2.30	5	2	ND	2	117	1	3	2	56	1.80	.14	11	25	1.18	142	.06	11	1.45	.02	.22	2	5
SI-96079	1	67	4	57	.2	15	10	763	2.47	4	2	ND	2	77	1	2	2	59	.90	.14	12	24	.60	150	.05	10	1.53	.01	.27	2	5
SI-96080	1	64	8	74	.1	17	14	1103	3.26	16	2	ND	2	42	1	2	2	70	.85	.12	15	28	.72	224	.05	6	2.03	.01	.21	2	5
SI-96081	1	47	6	64	.1	19	11	700	2.70	6	2	ND	2	115	1	2	2	56	.98	.12	12	26	.97	145	.06	12	1.80	.02	.37	2	5
SI-96082	2	37	4	61	.2	14	8	819	1.93	7	2	ND	2	133	1	2	2	38	1.71	.12	9	19	1.03	140	.04	15	1.42	.08	.36	2	15
SI-96083	1	48	4	58	.2	18	11	738	2.70	6	2	ND	2	61	1	2	2	59	.86	.10	11	26	.85	194	.05	9	1.83	.02	.36	2	10
STD A-1/AU 0.5	1	30	38	188	.3	36	13	1072	2.91	10	2	ND	2	40	1	2	2	63	.66	.10	8	76	.79	285	.08	7	2.01	.01	.20	2	530

CANADIAN NICKEL FILE# 83-0788 PROJECT# 60813

SAMPLE #	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au† ppb
SI-96084	1	48	9	63	.1	20	12	771	3.01	8	5	ND	2	49	1	2	2	71	.70	.11	11	33	.78	192	.09	4	2.34	.02	.34	2	5
SI-96085	1	47	9	52	.1	18	10	654	2.82	12	2	ND	2	51	1	2	2	68	.90	.09	11	29	.71	198	.07	8	1.95	.02	.31	2	10
SI-96086	1	47	4	55	.2	17	10	731	2.75	3	2	ND	2	56	1	2	2	64	.95	.12	12	28	.62	247	.07	8	2.06	.02	.36	2	5
SI-96087	1	48	6	51	.2	17	10	732	2.58	5	2	ND	2	54	1	2	2	61	.86	.11	12	27	.60	203	.07	7	1.89	.02	.28	2	20
SI-96088	1	45	7	53	.2	15	9	783	2.27	10	2	ND	2	101	1	2	2	51	1.03	.10	12	22	.59	233	.06	8	1.72	.02	.26	2	25
SI-96089	1	40	6	59	.1	14	9	812	2.45	6	2	ND	2	65	1	2	2	52	.96	.11	13	22	.51	296	.07	7	2.01	.02	.27	2	10
SI-96090	1	55	8	38	.2	18	11	876	2.97	6	2	ND	2	54	1	2	2	67	.92	.12	14	29	.74	267	.07	5	2.14	.02	.23	2	10
SI-96091	1	52	5	56	.2	14	10	769	2.57	8	3	ND	2	82	1	2	2	57	1.11	.11	12	23	.65	236	.06	10	1.73	.02	.28	2	5
SI-96092	1	35	6	42	.1	16	8	510	2.04	2	2	ND	2	150	1	2	2	46	1.53	.11	9	21	.70	146	.06	10	1.42	.03	.30	2	5
SI-96093	1	40	7	59	.1	15	9	721	2.38	6	2	ND	2	98	1	2	2	54	1.13	.13	11	23	.56	257	.07	6	1.94	.02	.31	2	5
SI-96094	1	32	7	97	.1	12	6	700	1.69	4	2	ND	2	94	1	2	2	36	1.47	.12	8	17	.42	276	.05	10	1.57	.02	.29	2	10
STD A-1	1	29	41	180	.3	34	13	1026	2.84	9	2	ND	2	38	1	2	2	60	.65	.10	8	73	.76	271	.08	6	2.09	.01	.21	2	-

ACME ANALYTICAL LABORATORIES LTD.   852 E. HASTINGS, VANCOUVER B.C.   PH:253-3158   TELEX:04-53124

ICP GEOCHEMICAL ANALYSIS

A .500 GRAM SAMPLE IS DIGESTED WITH 3 ML OF 3:1:3 HCL TO HNO3 TO H2O AT 90 DEG.C. FOR 1 HOUR. THE SAMPLE IS DILUTED TO 10 MLS WITH WATER.
THIS LEACH IS PARTIAL FOR: Ca,P,Mg,Al,Ti,La,Na,K,W,Ba,Si,Sr,Cr AND B.   Au DETECTION 3 ppm.
AU* ANALYSIS BY AA FROM 10 GRAM SAMPLE.   SAMPLE TYPE - STREAM SED & SOIL

DATE RECEIVED JUNE 28 1983   DATE REPORTS MAILED July 2/83   ASSAYER D. Toye   DEAN TOYE, CERTIFIED B.C. ASSAYER

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SAMPLE #	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm
SI 08983Y Soil 9	1	41	7	50	.1	17	9	719	2.25	4	2	ND	2	65	1	2	2

SAMPLE #	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
SI 08983Y Soil 9	61	.96	.13	8	32	.55	229	.07	28	1.66	.02	.27	2	5.0

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS, VANCOUVER B.C. PH:253-3158 TELEX:04-53124

ICP GEOCHEMICAL ANALYSIS

A .500 GRAM SAMPLE IS DIGESTED WITH 3 ML OF 3:1:3 HCL TO HNO3 TO H2O AT 90 DEG.C. FOR 1 HOUR. THE SAMPLE IS DILUTED TO 10 MLS WITH WATER.
THIS LEACH IS PARTIAL FOR: Ca,P,Mg,Al,Ti,La,Na,K,W,Ba,Si,Sr,Cr AND B. Au DETECTION 3 ppm.
AU# ANALYSIS BY AA FROM 10 GRAM SAMPLE. HG# ANALYSIS BY FLAMELESS AA FROM .500 GRAM SAMPLE. SAMPLE TYPE - HEAVY MINERAL CONC pulverized -100 mesh

DATE RECEIVED JUNE 15 1983 DATE REPORTS MAILED June 18/83 ASSAYER [signature] DEAN TOYE, CERTIFIED B.C. ASSAYER

CANADIAN NICKEL PROJECT # 60813 17 & 23 FILE # 83-0792 PAGE # 1

SAMPLE #	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au# ppb	Hg# ppb
SI-90117	1	39	10	40	.1	20	14	587	5.03	12	4	ND	2	95	1	2	2	163	2.70	.15	10	25	1.02	2134	.13	8	1.16	.03	.10	2	15	20
SI-90118	1	44	15	79	.1	24	17	572	7.58	8	2	ND	2	79	1	2	3	249	1.84	.16	11	63	1.08	1270	.26	9	1.30	.05	.10	2	5	40
SI-90119	1	51	11	38	.1	39	18	540	5.99	15	2	ND	2	96	1	2	2	191	1.83	.14	10	31	1.36	2386	.15	9	1.20	.03	.09	2	15	280
SI-90120	1	46	47	57	.3	31	19	573	10.43	3	3	ND	2	84	1	2	2	352	1.41	.14	10	103	1.17	1953	.30	6	1.42	.06	.11	2	10	30
SI-90121	1	70	12	43	.1	44	19	640	7.39	10	2	ND	2	114	1	2	2	238	2.13	.12	13	36	1.48	2458	.18	8	1.37	.04	.10	2	5	30
SI-90122 SI	1	11	8	17	.1	9	5	172	3.85	2	2	ND	2	17	1	2	2	139	.29	.03	3	34	.22	109	.14	8	.35	.02	.04	2	-	25
SI-90123	1	52	10	54	.1	23	11	662	3.09	5	12	ND	2	126	1	2	2	86	2.89	.13	9	43	1.15	157	.09	6	1.39	.04	.16	2	20	50
STD A-1/AU 0.5	1	30	41	182	.3	36	13	1033	2.89	10	2	ND	2	37	1	2	2	61	.66	.11	8	78	.79	296	.08	7	2.07	.02	.22	2	550	50

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS, VANCOUVER B.C. PH:253-3158 TELEX:04-53124

ICP GEOCHEMICAL ANALYSIS

A .500 GRAM SAMPLE IS DIGESTED WITH 3 ML OF 3:1:3 HCL TO HNO3 TO H2O AT 90 DEG.C. FOR 1 HOUR. THE SAMPLE IS DILUTED TO 10 MLS WITH WATER.
THIS LEACH IS PARTIAL FOR: Ca,P,Mg,Al,Ti,La,Na,K,W,Ba,Si,Sr,Cr AND B. Au DETECTION 3 ppm.
AU1 ANALYSIS BY AA FROM 10 GRAM SAMPLE. SAMPLE TYPE - HEAVY MINERAL & STREAM SED

DATE RECEIVED JUNE 27 1983 DATE REPORTS MAILED July 2/83 ASSAYER D Toye DEAN TOYE, CERTIFIED B.C. ASSAYER

CANADIAN NICKEL FILE # 83-0962 PROJECT # 60815 60817 (252) PAGE # 1

SAMPLE #	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au1 ppb
S1 090131 H M	2	75	48	114	1.6	127	47	780	11.32	67	2	ND	21	107	1	2	2	204	1.07	.09	26	57	2.45	53	.20	22	1.08	.02	.07	6	935
STD A-1	1	30	38	181	.3	34	13	1013	2.86	10	2	ND	3	35	1	2	2	59	.60	.10	8	74	.75	291	.08	6	2.17	.02	.22	2	5

APPENDIX B

ROCK SAMPLE DESCRIPTIONS

TRAVERSE NUMBER ______ PROJECT BAG Claims GEOLOGIST(S) Brian R. Booth

N.T.S. 92-I-8W AREA Stump Lake, B.C. DATE June, 1983

SAMPLE NUMBER	SAMPLE TYPE RX Rock, Talus	SX Stream Silt, Soil	Grab, Chip, Channel	SAMPLE LENGTH, WIDTH, AREA	LATITUDE, LONGITUDE and / or U.T.M.	SAMPLE DESCRIPTION Rock type, lithology, character of soil, stream silt, etc. Formation Mineralization, etc.	RESULTS (ppm. / % /oz. per ton) Au ppb	Ag ppm	As ppm	Sb ppm	Pb ppm	Zn ppm	Cu pp
RX 41601	Rock		Chip	20+00W	2+40N	Lapilli tuff siliceous grey to white, some rhyolitic component. Pyrite occurs as disseminations. Some minor carbonate alteration.	5	0.1	12	2	5	80	55
RX 41602	"		"	20+00W	3+00N	Tuff to rhyolite, siliceous, grey to rust brown. Pyrite 1% occurs as disseminations, very fragmental.	10	0.1	9	2	4	58	29
RX 41603	"		"	20+00W	3+75N	Tuff to rhyolite, siliceous, exhibits minor banding, pyrite occurs in minor quantities.	35	0.2	19	2	8	55	18
RX 41604	"		"	18+00W	1+00N	Rock unit 2a, b, mixture of rhyolitic and tuffaceous unit some pyrite, very siliceous.	25	0.1	4	2	7	68	41

TRAVERSE NUMBER ______________ PROJECT BAG Claims GEOLOGIST(S) Greg Beischer

N.T.S. 92-I-8W AREA Stump Lake, B.C. DATE June 15, 1983

SAMPLE NUMBER	SAMPLE TYPE: RX Rock, Talus	SAMPLE TYPE: SX Stream Silt, Soil	SAMPLE TYPE: Grab, Chip, Channel	SAMPLE LENGTH, WIDTH, AREA	LATITUDE, LONGITUDE and / or U.T.M.	SAMPLE DESCRIPTION: Rock type, lithology, character of soil, stream silt, etc. Formation Mineralization, etc.	RESULTS (ppm. / % /oz. per ton): Au ppb	Ag ppm	As ppm	Sb ppm	Pb ppm	Zn ppm	C pp
RX 41605	Rock		Grab	19+40W	2+40S	Amygdaloidal basalt - amygdules up to 1.5 cm diameter, carbonate filled, abundant, mostly white, but some are red and green. Matrix is fine-grained, dark grey basalt. Over the outcrop area, the composition ranges from andesite to basalt. A high degree of epidotization is present in some areas.	10	0.2	13	2	2	87	1
RX 41606	"		"	19+40W	2+40S	Altered basalt. Some amygdules, carbonate filled. Medium to fine-grained dark grey andesite - basalt. Fresh surface is green.	15	0.2	5	2	8	62	10
RX 41607	"		"	20+40W	4+00S	Breccia - fragments are altered andesite - basalt. Sugary fine to medium-grained carbonate matrix surrounding fragments.	5	0.3	5	2	6	42	4
RX 41608	"		"	4+40W	0+00S	Medium-grained tuff - grey black grey on weathered surface.	5	0.1	12	2	6	73	6
RX 41609	"		"	5+00W	4+65S	Tuff - highly siliceous, medium to coarse-grained. Some oxidized pyrite, brown-grey on the fresh surface. Grey on weathered surface.	5	0.1	2	2	6	68	
RX 41610	"		"	4+95W	5+40S	Tuff - very coarse-grained - almost resembles a chert-pebble conglomerate. Grey on fresh and weathered surface. Some finely disseminated sulphide (pyrite).	5	0.2	9	2	11	66	2

TRAVERSE NUMBER ______ PROJECT BAG Claims GEOLOGIST(S) Greg A. Beischer

N.T.S. 92-I-8W AREA Stump Lake, B.C. DATE June 15, 1983

SAMPLE NUMBER	SAMPLE TYPE: RX Rock, Talus	SAMPLE TYPE: SX Stream Silt, Soil	SAMPLE TYPE: Grab, Chip, Channel	SAMPLE LENGTH, WIDTH, AREA	LATITUDE, LONGITUDE and / or U.T.M.	SAMPLE DESCRIPTION: Rock type, lithology, character of soil, stream silt, etc. Formation Mineralization, etc.	RESULTS (ppm. / % /oz. per ton): Au ppb	Ag ppm	As ppm	Sb ppm	Pb ppm	Zn ppm	Cu pp
RX 41611	Rock		Grab	4+00W	7+05S	Quartz vein material from a vein 0.5 m true width, striking 310° dipping 75° south. Vein is botryoidal and contains some vugs and exhibits banded agate. Hydrothermal-type depositional characteristic. Calcareous in places.	5	0.4	5	2	3	4	
RX 41612	"		Chip (0.7 m)	4+00W	7+05S	Same description as RX 41610.	15	0.3	43	5	2	12	1
												Hg =	30
RX 41613	"		Chip (0.5 m)	4+00W	7+05S	Tuff - fine-grained matrix with some larger particles, green on the fresh surface, pinkish - orange on the weathered surface. Weathered film is calcareous. Fresh surface is slightly calcareous. This sample represents the hanging wall of the quartz vein represented by RX 41611, RX 41612.	20	0.1	11	2	8	68	7
												Hg =	40
RX 41614	"		Chip (0.5 m)	4+00W	7+05S	Same description as RX 41613, but with some stockworking of tiny quartz and carbonate veins. Represents footwall of the quartz vein represented by RX 41611, RX 41612.	10	0.1	6	2	9	58	6
												Hg =	10
RX 41615	"		Chip (0.5 m)	3+90W	7+00S	Quartz vein material - clean agate. Minor amounts of pyrite. See description of RX 41611 for other details.	5	0.4	25	2	1	5	[illegible]
												Hg =	30
RX 41616	"		Chip (0.5 m)	3+90W	7+00S	Tuff - highly weathered - extremely friable, recessive, beige in colour. High degree of clay mineral weathering. Represents hanging wall of the quartz vein (RX 41615).	5	0.1	58	2	5	47	5
												Hg =	250

TRAVERSE NUMBER ______________ PROJECT BAG Claims GEOLOGIST(S) Greg A. Beischer

N.T.S. 92-I-8W AREA Stump Lake, B.C. DATE June 15, 1983

SAMPLE NUMBER	SAMPLE TYPE: RX Rock, Talus	SAMPLE TYPE: SX Stream Silt, Soil	SAMPLE TYPE: Grab, Chip, Channel	SAMPLE LENGTH, WIDTH, AREA	LATITUDE, LONGITUDE and / or U.T.M.	SAMPLE DESCRIPTION: Rock type, lithology, character of soil, stream silt, etc. Formation Mineralization, etc.	RESULTS (p.p.m. / % /oz. per ton): Au ppb	Ag ppm	As ppm	Sb ppm	Pb ppm	Zn ppm	Cu ppm
RX 41617	Rock		Chip (0.5 m)	3+90W	7+00S	Same description as RX 41617. Represents a sample of the footwall of the quartz vein (RX 41615).	5	0.1	11	2	8	56 Hg =	61 20 p
RX 41618	"		Chip (0.5 m)	3+90W	7+00S	Same as RX 41617.	5	0.3	14	2	5	13 Hg =	14 60 p
RX 41619	"		Grab	3+90W	7+00S	Quartz vein material - just a remnant, agate - similar description as RX 41615.	10	0.4	6	2	4	6 Hg =	3 10 p
RX 41620	"		Grab	5+50W	7+10S	Argillite - very fine-grained. Black, soft, brown on the weathered surface. Highly fractured, stockworked with fine quartz and calcite veins.	25	0.1	13	2	5	89	108
RX 41621	"		Grab	5+50W	7+70S	Quartz vein material, agate, brecciated in places. Some vugs with botryoidal linings. Small exposure, 1.5 m in length.	35	0.3	5	2	7	11	13
RX 41622	"		Grab	5 70W	8+90S	Rhyolite - very fine-grained, compact, light grey on fresh and weathered surfaces. Very siliceous, cherty - 10% sulphide (pyrite).	15	0.1	12	2	11	59	54
RX 41623	"		Grab	3+60W	4+10N	Agglomerate - conglomerate - pebbles are fairly rounded. Matrix is clastic, brown on fresh and weathered surface. Matrix is medium-grained.	30	0.1	4	2	6	41	229
RX 41624	"		Grab	12+40W	7+00S	Rhyolite - very fine-grained, grey, massive. Some finely disseminated sulphide.	20	0.1	19	2	7	67	74

TRAVERSE NUMBER ______ PROJECT BAG Claims GEOLOGIST(S) Greg A. Beischer

N.T.S. 92-I-8W AREA Stump Lake, B.C. DATE June 15, 1983

SAMPLE NUMBER	SAMPLE TYPE RX Rock, Talus	SX Stream Silt, Soil	Grab, Chip, Channel	SAMPLE LENGTH, WIDTH, AREA	LATITUDE, LONGITUDE and / or U.T.M.	SAMPLE DESCRIPTION Rock type, lithology, character of soil, stream silt, etc. Formation Mineralization, etc.	Au ppb	Ag ppm	As ppm	Sb ppm	Pb ppm	Zn ppm	Cu ppm
RX 41625	Rock		Grab	11+90W	6+80S	Gabbro - coarse-grained, 50% feldspars, no sulphides.	20	0.1	11	2	10	97	248
RX 41630	Rock		Grab	11+40W	6+40S	Rhyolite - light grey, quite siliceous, massive. Some quartz eyes, some sulphide.	5	0.1	9	2	5	90	9
RX 41631	Rock		Grab			Rhyolite.	5	0.1	20	1	12	74	35
RX 41632	"		Grab	16+00W	9+20N	Quartz - chalcedony material, brecciated in places, no sulphides present although outcrop is fragmental and gossaned.	20	0.1	7	2	1	6	5
RX 41633	"		Grab	16+00W	9+20N	The altered carbonate rich tuff. The wall-rock surrounding vein (RX 41632). The out-crop is fragmental.	35	0.3	52	2	6	69	68
RX 41634	"		Grab	16+00W	13+10N	Calcite-carbonate vein, no sulphides, no alterations, no quartz, width unknown.	6	0.6	2	2	5	2	1
RX 41635	"		Grab	12+00W	18+50N	Sample from quartz vein (attitude?). Contains pyrite cubes (minor). Calcite is present.	5	0.1	7	2	1	11	103
RX 41636	"		Chip	9+50W	9+00N	Carbonate veining cutting agglomerate. No sulphide. Gossan on rock.	5	0.2	6	2	6	59	54
RX 41637	"		Chip (0.6 m)			Width of quartz vein 10.6 m, a non-brecciated vein, strike 55° Dip 84°NW. No mineralization observed.	70	1.2	11	2	6	16	13

TRAVERSE NUMBER ____ PROJECT BAG Claims GEOLOGIST(S) C. Raynaas

N.T.S. 92-I-8W AREA Stump Lake, B.C. DATE June 12, 1983

SAMPLE NUMBER	SAMPLE TYPE RX Rock, Talus	SX Stream Silt, Soil	Grab, Chip, Channel	SAMPLE LENGTH, WIDTH, AREA	LATITUDE, LONGITUDE and / or U.T.M.	SAMPLE DESCRIPTION Rock type, lithology, character of soil, stream silt, etc. Formation Mineralization, etc.	RESULTS (p.p.m. / % /oz. per ton) Au ppb	Ag ppm	As ppm	Sb ppm	Pb ppm	Zn ppm	Cu ppm
RX 41638	Rock		Chip (0.6 m)			Width of quartz vein 0.15 m. A strongly brecciated vein where brecciated fragments consist of Nicola Volcanic wallrock. Vein a continuation of RX 41637. Sampled vein. Strike 55° Dip 84° NW. Small gossan and vugs. Observed, but no mineralization.	190	1.8	45	3	4	26	16
RX 41639	"		Chip (1 m)			Width of quartz vein 1 m, but the intermitted quartz veining and Nicola Volcanic quartz vein width are from 0.3 m to 12 cm to 2 cm. Strike 30° Dip 80°NW. A non-brecciated vein with no mineralization.	150	0.8	7	2	3	20	15
RX 41640	"		Chip (0.2 m)	17+00W	11+50N	Quartz vein - strike 320°. Vertical brecciation, chert fragments, quartz filling. Vein is about 7-10 cm wide. Highly gossaned.	325	1.5	191	7	8	32 Mo =	35 104p
RX 41641	"		Chip (0.2 m)	17+00W	11+50N	Andesite - highly sheared and altered. Dark grey, gossaned hangingwall of quartz vein (RX 41640).	5	0.3	44	2	8	60	38
RX 41642	"		Chip (0.3 m)	17+00W	11+50N	Same as RX 41640. Represents footwall of quartz vein (RX 41640)	5	0.1	10	2	11	97	173
RX 41643	"		Chip (0.3 m)	18+00W	13+00N	Quartz vein breccia - same description as RX 41640. Same size and orientation.	65	3.7	80	6	14 Mo	39 = 115	58 ppm
RX 41644	"		Chip (0.3 m)	18+00W	13+00N	Andesite from hanging wall. Same description as RX 41641.	5	0.1	2	2	8	73	162

TRAVERSE NUMBER ____________ PROJECT BAG Claims GEOLOGIST(S) Greg Beischer

N.T.S. 92-I-8W AREA Stump Lake, B.C. DATE June 15, 1983

SAMPLE NUMBER	SAMPLE TYPE: RX Rock, Talus	SX Stream Silt, Soil	Grab, Chip, Channel	SAMPLE LENGTH, WIDTH, AREA	LATITUDE, LONGITUDE and / or U.T.M.	SAMPLE DESCRIPTION: Rock type, lithology, character of soil, stream silt, etc. Formation Mineralization, etc.	Au ppb	Ag ppm	As ppm	Sb ppm	Pb ppm	Zn ppm	Cu ppm
RX 41645	Rock		Chip (0.3 m)	18+00W	13+00N	Andesite - from the footwall, same description as RX 41641.	15	0.8	34	2	11	66	104
RX 41646	Rock		Chip (0.3 m)	18+00W	13+50W	Quartz vein breccia, same description as RX 41640.	135	0.8	429	10	15	48	66
RX 41647	Rock		Chip			Same description as RX 41639.	880	0.7	14	2	3	20	15
RX 41648	Rock		Chip (0.5 m)			Vein width 0.5 m, strike 86° Dip 80°N. A strongly brecciated sample, small gossan observed, no vugs, no mineralization.	145	0.7	14	2	5	17	12

APPENDIX C

STREAM SEDIMENT (HEAVY MINERAL) SAMPLE DESCRIPTIONS

TRAVERSE NUMBER BAG Claims

N.T.S. 92-I-8W

PROJECT BAG Claims

AREA Stump Lake, B.C.

GEOLOGIST(S) B.Booth/E.Debicki/M.Mason

DATE June 8, 1983

SAMPLE NUMBER	SAMPLE TYPE: RX Rock, Talus	SAMPLE TYPE: SX Stream Silt, Soil	SAMPLE TYPE: HM (Grab, Chip, Channel)	SAMPLE LENGTH, WIDTH, AREA	LATITUDE, LONGITUDE and / or U.T.M.	SAMPLE DESCRIPTION: Rock type, lithology, character of soil, stream silt, etc. Formation Mineralization, etc.	Au ppb / Zn ppm	Ag ppm / Cd ppm	As ppm / Sb ppm	W ppm / Mo ppm	Cu ppm	Pb ppm	Hg ppb
						Samples SX 90117 to SX 90123 Dry 1 m wide creek bed opposite Stump Lake (BAG Claims). Creek opposite turn-off into Stump Lake boat launch.							
SX 90117		Stream	HM	Centre of Stream		Resample of SX 90048 Pan concentrate - non-magnetic fraction.	15 40	0.1 1	12 2	2 1	39	10	20
SX 90118		Stream	HM	"		Resample of SX 90048 Pan concentrate - weakly magnetic fraction.	5 79	0.1 1	8 2	2 1	44	15	40
SX 90119		Stream	HM	"		Resample of SX 90048 Goldwheel concentrate - 1st run. Non-magnetic fraction.	15 38	0.1 1	15 2	2 1	51	11	280
SX 90120		Stream	HM	"		Resample of SX 90048 Goldwheel concentrate - 1st run Weakly magnetic fraction.	10 57	0.3 1	3 2	2 1	46	47	30
SX 90121		Stream	HM	"		Resample of SX 90048 Goldwheel concentrate - 2nd run (1st run tailings) - non-magnetic fraction.	5 43	0.1 1	10 2	2 1	70	12	30
SX 90122		Stream	HM	"		Resample of SX 90048 Goldwheel concentrate - 2nd run (1st run tailings) - weakly magnetic fraction.	IS 17	0.1 1	2 2	2 1	11	8	25
SX 90123		Stream	-80 mesh	"		Resample of SX 90048 -80 mesh stream silt.	20 54	0.1 1	5 2	2 1	52	10	50

IS = Insufficient Sample

TRAVERSE NUMBER ____________ PROJECT Merritt-Quilchena-Kamloops Belt GEOLOGIST(S) B. Booth/E. Debicki

N.T.S. 92-I-8W AREA BAG Claims DATE June 12, 1983

SAMPLE NUMBER	SAMPLE TYPE RX Rock, Talus	SX Stream Silt, Soil	Grab, Chip, Channel	SAMPLE LENGTH, WIDTH, AREA	LATITUDE, LONGITUDE and / or U.T.M.	SAMPLE DESCRIPTION Rock type, lithology, character of soil, stream silt, etc. Formation Mineralization, etc.	Au ppb	Ag ppm	As ppm	Cu ppm	Pb ppm	Zn ppm	W ppm
SX 90131		Stream		Goldwheel		Resample of SX 90046.	935	1.6	67	75	48	114	6
				Conc.		Goldwheel Conc. - None magnetic fraction.							
						Highway culvert marker #134/16.							
						B.C. Legal Survey Marker:							
						1967 T 100							
						94 RH							
						404 PC							
						SX 90046 (1982 HM pan concentrate) ran:							
						5 ppb Au, 0.2 ppm Ag, 19 ppm As, 43 ppm Cu,							
						2 ppm W.							

APPENDIX D

GOLDHOUND CONCENTRATING WHEEL
SPECIFICATIONS/OPERATING INSTRUCTIONS

Costa Mesa, CA 92627

AUTOMATIC PANNERS AND CONCENTRATORS

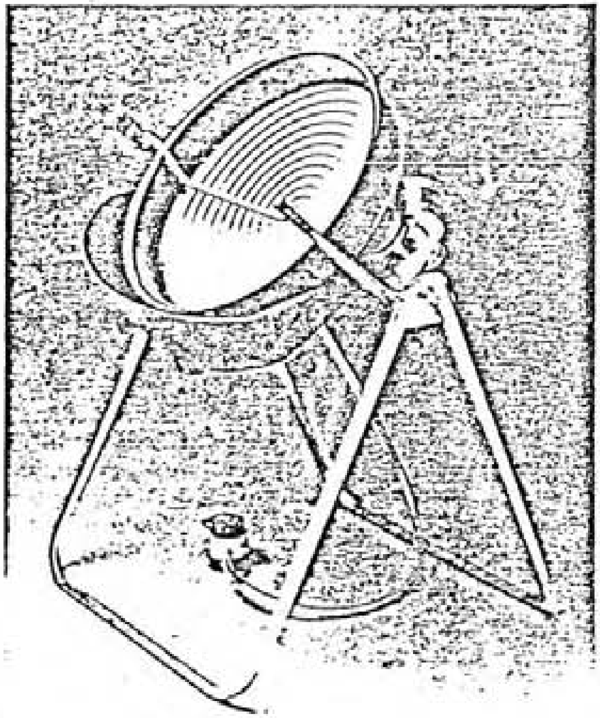
Since 1977

(ughout the world, prospectors, geologists, lab technicians and professional ers depend on Goldhound for reliable, efficient concentration of ores and samplings.

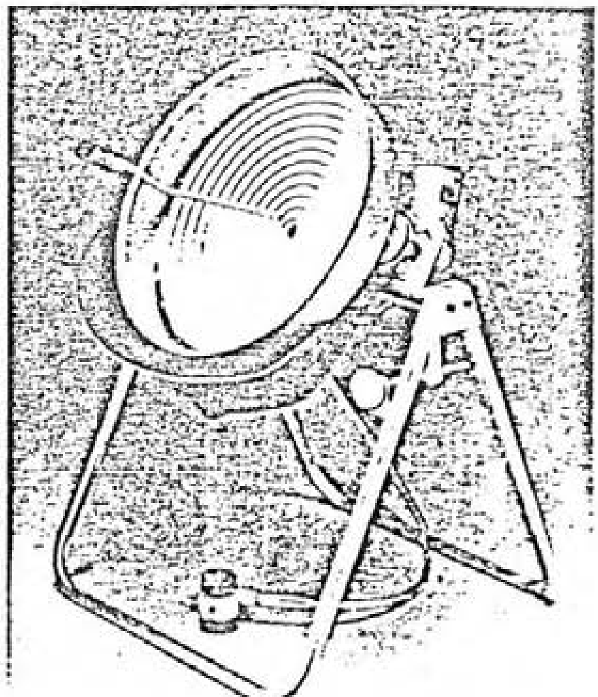
Our rugged, portable wheels clean and concentrate in one quarter the time required with conventional methods. The Goldhound is easy to operate with effective results obtainable the first time used.

The Goldhound is excellent for cleaning black sands and recovering mercury from concentrate, post amalgamation.

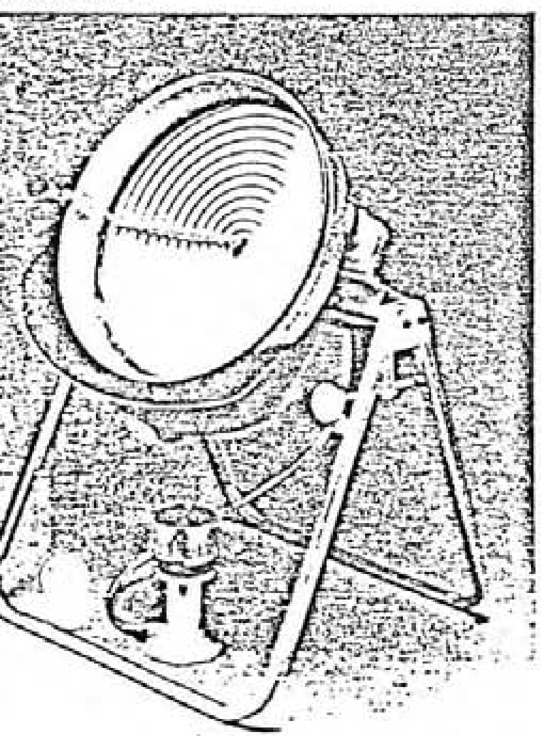
- Recover gold, silver, platinum, tungsten and other heavies to minus 300 mesh.
- Also recovers precious stones.



Econo 12 Volt



Stainless 12 Volt 2 Lead

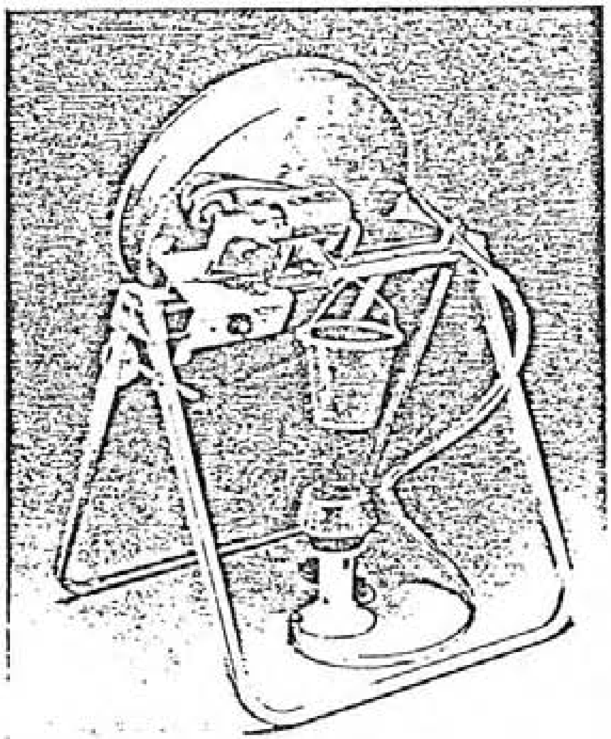


...ss 110 Volt 4 Lead

Industrial 36"

- The Goldhound 18s are available with either a heavy duty 12V electric motor for auto battery operation or 110V electric motor.
- The Goldhound breaks down into three major pieces for ease of storage and transportation.
- Introduced in early 1981, the industrial duty 36" machines have achieved the same reputation as the 18" with those who require industrial grade capacity and production.

- FULLY ADJUSTABLE FRAME
- HEAVY DUTY 110V OR 12V MOTORS
- 25-50 LBS PER HR 2 LEAD CAPACITY
- 50-100 LBS PER HR 4 LEAD CAPACITY
- FULLY IMMERSIBLE 12V OR 110V WATER PUMP INCLUDED
- STURDY, LIGHTWEIGHT LEGS ARE COLLAPSIBLE FOR EASY TRANSFER
- ADJUSTABLE WATER FEED
- ADJUSTABLE BOWL SPEED AND ANGLE
- EACH GOLDHOUND BACKED BY MANUFACTURERS WARRANTY



110 Volt Stainless

12 Volt DC 18"-2 lead riffle pad plastic bowl & water pump 25-50#/hr. capacity Econo-line	399.00
12 Volt DC 18"-2 lead riffle pad & water pump 25-50#/hr. capacity Stainless bowl	549.00
110 Volt AC 18"-2lead riffle pad variable speed & 110V water pump 25-50#/hr. capacity Stainless bowl	599.00
12 Volt DC 18"-4 lead riffle pad & water pump 50-100#/hr. capacity Stainless bowl	659.00
110 Volt AC 18"-4 lead riffle pad w/variable speed 110V water pump 50-100#/hr. capacity Stainless bowl	699.00
110 Volt AC 36"-15 lead Industrial Duty 1/2 ton/hr. capacity Machine line	3,650.00

rtial list of customers using Goldhounds around the world:

onbridge Mines Canada, Dominican Republic, Norway
min S.A. Venezuela
national Nickle Co. Canada
Group, Great Britain   Riofinex: Saudi Arabia
h Carolina State University
sion International Minerals Division of Bechtel Inc.
Minerals Johannesburg, S.A.
shall Earth Resources, Houston Tx.
ed N s Research Malaysia
tom . Paris, Saudi Arabia
aranger, Oslo Norway

GOLDHOUND INTERNATIONAL INC. DIVISION OF CLELAND MINING & MACHINERY COMPANY INC.

GOLDHOUND

ADVANCED RECOVERY TECHNIQUES

The following material will help the Goldhound user get the most out of his machine. The material is organized as follows:

1. Maximizing your ore throughout.
2. Secrets of flour gold recovery.
   A. Watching your water
   B. Amalgamation
3. Fitting your machine into larger ore processing systems.
4. Machine maintenance.

1. MAXIMIZING YOUR ORE THROUGHPUT RATE

This section deals with the "how to" of running the most ore through the machine in the least amount of time.

The following factors control ore throughput rate:

A. feed rate
B. ore specific gravity
C. ore grain size

A. <u>FEED RATE</u>

<u>Rule of Thumb</u>: The more evenly you can introduce your ore the more material you can run.

The ore that can be run the fastest is a dry gravel that has been screened to about 40 mesh.* This screened gravel should be introduced evenly in a thin layer in a line just above the water on the right side of the wheel. The idea is to have the gravel stick to the wet pad in a thin, even layer. This allows the ore to go under the water, be wetted down quickly, and start the wash process shortly thereafter.

If you intend to introduce damp ore or ore in slurry form, introducing it evenly may prove difficult. Damp ore tends to clump up. As the clump hits the bowl bottom it sometimes splashes gold and other material over the front resulting in unnecessary value loss.

Steady ore introduction may also be accomplished by using a hopper or auger feed. A simple hopper may be built out of a 5 gallon plastic bucket suspended over the right side of the wheel. The bucket needs a slot cut in the bottom using a hot knife. An electric vibrator or other vibration producing device should be placed near the hopper feed hole to ensure constant ore flow. This 5 gallon bucket arrangement works best on dry, screened ores.

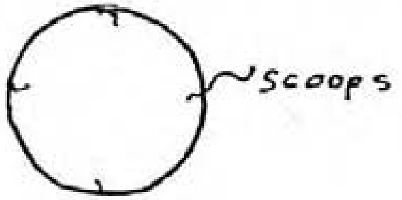
* <u>MESH</u>: Mesh is defined as the number of particles per linear inch. That is 1/4 mesh would be particles 1/4" in diameter; 16 mesh would be particles 1/16" in diameter and 100 mesh would be 1/100" particles in diameter, and so on.

<u>LARGER ROCKS</u>

For bank run sampling, where you wish to introduce clay or moss covered rocks directly into the bowl, you will need to remove the larger rocks by hand. Otherwise the bowl will fill up with larger rocks and your throughput will suffer.

For the more mechnically inclined "rim cleaners" may be constructed. These little metal scoops are positioned along the rim of the bowl and help scoop out the larger rocks that sometimes have difficulty being pushed out of the bowl on their own. Specifically:

<u>FRONT VIEW</u>



<u>SIDE VIEW</u>

ORE DENSITY

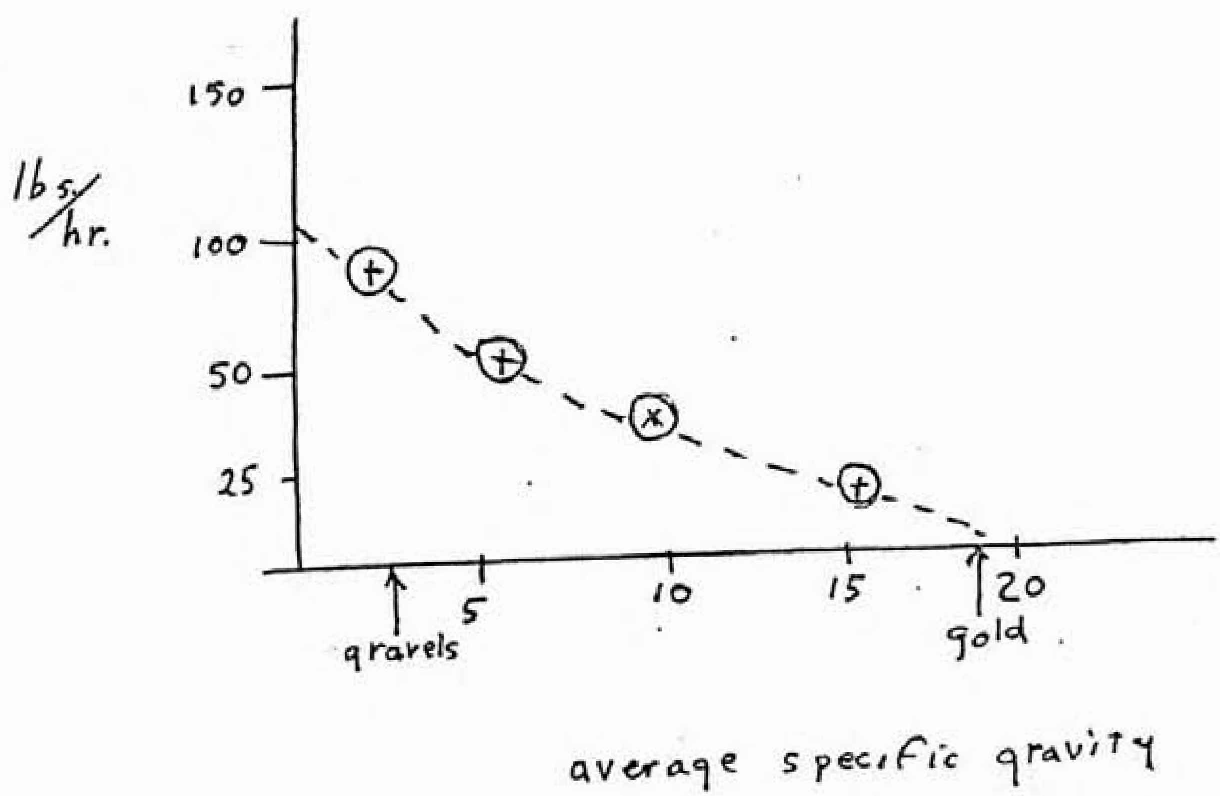
Rule of Thumb: Light gravels run quickly, heavy concentrates run slowly.

As the specific gravity of the ore goes up the number of pounds of ore that can be run through the machine in an hour goes down.

You can realistically expect the following throughput rates with the following ores:

ORE TYPE	AVERAGE SPECIFIC GRAVITY	LBS/HR
gold plus heavy black sand concentrates	10 +	10 - 30
bank runs - sand and gravel with low percentage of heavies	5 - 10	40 - 100

For those of you who are more mathematically inclined the above information may be presented graphically as follows:



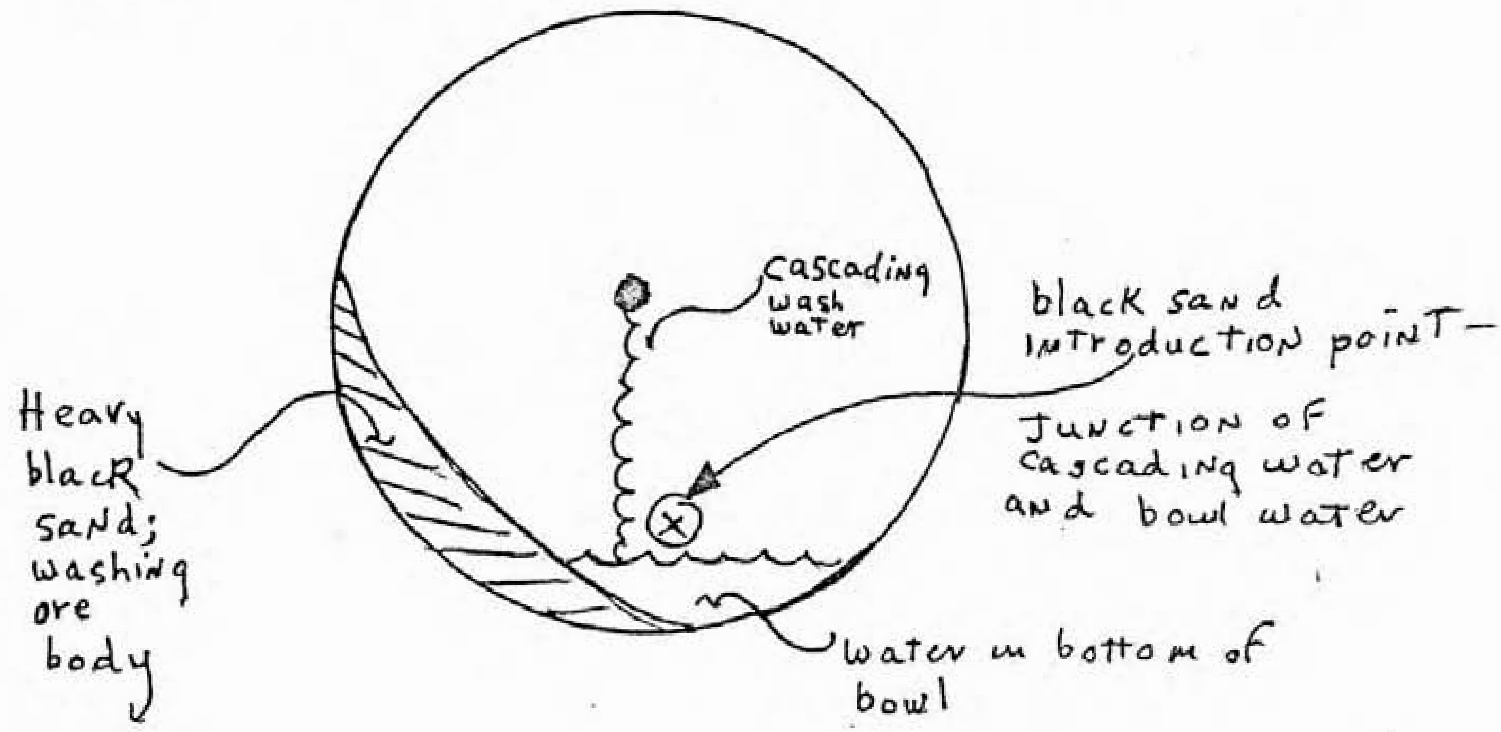
It is appropriate here to dispell one of the fallacies presently in vogue in the mining field, specifically that is the generally held belief that more wheels in line is better. I am referring to the idea that having the concentrate from one wheel feeding into the front of another wheel. The problem is that as the ore works its way from one wheel to the next it gets progressively more concentrated. As it becomes more concentrated its average specific gravity rises. As the specific gravity rises the speed of a given particle (gold) falling through the concentrate decreases. That is the gold floats more and more easily as the surrounding material becomes more concentrated and thus heavier. The result is that the speed of separation drops and the throughput suffers.

In practice this means that having more than two wheels in sequence is a waste of time. Why? Because the first wheel may recover 90% of the values in the first minute while it may take the second wheel five minutes to recover the same values from the concentrate it receives from the first wheel. If you had a third wheel it would take 15 minutes, a fourth 45 minutes and so on. The moral of the story is "If you're planning on using multiple wheels, only use two."

Also, from the preceding discussion it follows that separation of values is faster when the ore or concentrate is lighter. What this means in practice is that if you add some gravel to a heavy concentrate you'll get a faster separation. The ideal black sand to gravel concentrate is about five parts gravel to one part black sand. This means you don't need to clean your black sands up as far as you might think before you use the wheel. This should help save time.

POINT INTRODUCTION TECHNIQUE

For very heavy concentrates there is a special "trick" that can be used to double your throughput. This technique involves introducing your concentrate at exactly the right place on the wheel. Specifically your concentrate needs to be introduced at a point which will allow the concentrate to proceed into the wash cycle without having to go through the washing ore body located at the bottom left of the bowl.



The idea is to introduce the ore, preferably dry or barely damp, into the riffle which runs by, just above the washing ore body. A rule of thumb is to introduce the black sand where the water meets at right angles. This keeps very fine gold from being washed into the heavy concentrate ore body. Once fine gold is in the heavy ore body it takes a long time to sink and start back up the riffles. The heavier the concentrate the longer it takes for it to start up the riffles. If nothing else seems to work, this point introduction technique may also be tried on samples that have extensive fine gold content.

ORE GRAIN SIZE

Rule of Thumb: Ideally ore should be screened to about 20 - 50 mesh (beach sand size) before introduction to the wheel.

Grain size has a lot to do with how well a water-based system works. In the Goldhound the recovery efficiency of the system drops off steadily as ore particles get smaller. For instance you can realistically expect the following recovery efficienies as your gold gets smaller.

Gold Particle Size	% Recovery Efficiency	Final Purity (parts Au to parts black sand)
20 - 40	90 - 95%	from 1 to 1/10 to 1 to 1
40 - 80	90%	from 1 to 1 to 1 to 10
80 - 250	80 - 90 %	from 1 to 10 to 1 to 50
250 plus	30 - 80%	from 1 to 50 to 1 to 500

For 80 plus mesh a further chemical recovery technique such as amalgamation should be considered. Or alternating multiple passes through the wheel might be considered with each pass recovering gold of a different size.

SECRETS OF FLOUR GOLD RECOVERY

Most gold falls into the category of flour gold. Because of this the recovery of flour gold is of exceptional importance. Anybody can pick up a 1/2 oz. nugget. Not everyone can recover the fine gold. Follow some of these hints and you'll get what everyone else misses: the flour gold.

WATCHING YOUR WATER

SURFACE TENSION: Most flour gold is lost simply because it floats away. Gold floats because of surface tension. Water has its own built-in surface tension which may be increased drastically with the addition of oil.

To keep fine gold from floating and make it sink it is necessary to reduce or eliminate surface tension.

The affects of surface tension can be reduced or eliminated by adding a chemical "wetting agent" to your water. Some commercially available wetting agents are:

A. Liquid detergent
Amway biodegradable concentrated liquid detergent or the equivilent is ideal. However almost any liquid detergent will do. Consideration should be given to the environmental impact of any detergent used.

B. Additives
Alum (Aluminum Silicate) like rock salt. Mix in with ore at 1% by weight. Gives constant concentration of wetting agent. Ideal because aluminum and silica are so common in the environment that a little more introduced into the environment through your ore is harmless. Alum is available at most drugstores or chemical supply houses.

C. Acids, etc.
Small amounts of acids and other chemicals may be used to produce the desired surface tension reduction. Caution should be exercised in their use however due to both the personal and environmental safety aspects. Closed recirculating systems should be considered for use with acids. Concentrations of a couple of drops of concentrated nitric acid per gallon of wash water are typical.

Ideally all ore samples should be pre-treated and washed with water that has a wetting agent in it before it is placed into your machine. Barring this the wash water should have a constant amount of wetting agent introduced into it before it enters the wheel.

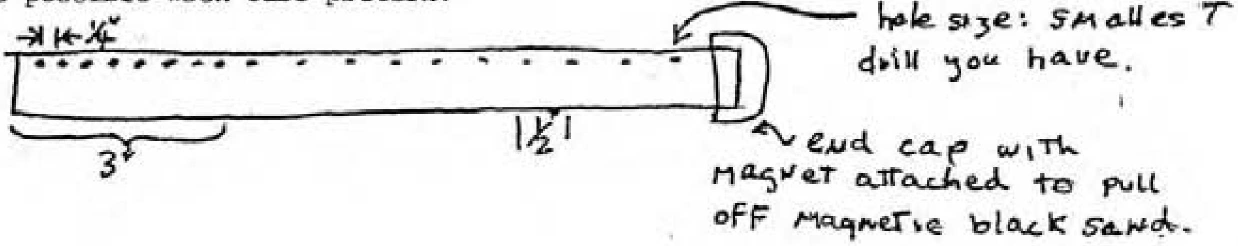
WATCHING YOUR WATER - HOW MUCH IS ENOUGH??

Rule of Thumb: "Less water, finer gold." The less water you can introduce into the wheel the finer will be the gold you can pick up.

This rule leads to the question of modifications to the wash tube. The overall amount of water introduced is governed by the water valve. Control of how little water can be introduced is governed by the size of the holes in the wash tube. Smaller holes introduce less water and thus allow you to recover finer gold.

If you wish to experiment with different wash tube hole sizes and arrangements, do so. Purchase a piece of 1/2" PVC pipe the same size as the original tube that comes on your machine. Drill small holes in approximately the orientation depicted on the following diagram.

One possible wash tube pattern:



HOLE SPACING PHILOSOPHY

As the hole size goes down you introduce less water. As you introduce less water the ore body on the left end of the wheel rides up farther along the bowl edge. If too little water is introduced it rides right up and over, falling across the entire face of the wheel. Thus more small holes will need to be drilled near the left end of the tube as shown in the diagram. At the very edge an extra two or three holes should be drilled. Be sure to use all of the same size holes for your tube.

If you want to get really fancy attach a sink dishwashing nozzle to the end of the wash tube for those hard to clean out sample jars. You may also wish to add a couple of elbows to bring the wash tube closer to the face of the wheel. This will permit you to introduce even less water.

Note that your wash tube may be rotated slightly up side down for fine adjustment of the water intensity. Rotating the tube up permits the water to fall a little farther effectively increasing its intensity. Rotating down decreases it slightly because it doesn't fall as far.

BEFORE YOU AMALGAMATE

One of the more difficult situations in which you may find yourself involves recovery of fine gold from heavy black sand. Sometimes it is not possible to get rid of all the black sand in one or even two passes over the wheel. At this point you probably have say one part gold to 20 -50 parts black sand.

If the amount of black sand isn't too excessive, say less than 10 pounds, it is possible to recover most of the gold by a careful hand panning as an alternative to amalgamating. If you must amalgamate continue to the following section:

AMALGAMATING USING THE GOLDHOUND

The following presentation describes a sure-fire method of recovering fine gold from black sand.

The Goldhound wheel is capable of completely separating gold from black sand as long as the gold is relatively coarse, say down to 30 - 35 mesh. For gold below 35 mesh you will begin to take in some black sand. The amount of black sand taken in will increase as the gold gets smaller. At around 60 - 80 mesh the ratio of gold to black sand is typically one part gold to 5 - 10 parts black sand.

Below about 100 mesh the amount of black sand taken in along with gold increases rapidly to the point where at say 250 mesh you may have one part gold to 50 - 100 parts black sand. It is at this point that you will want to consider using another step to separate the gold from the black sand. This step will not be a mechanical separation as with the wheel, but rather a chemical separation using elemental mercury (Quicksilver) and nitric acid.

AMALGAMATION

Let's assume you have 5 lbs of black sand concentrate which contains coarse and fine gold. You wish to recover the gold and eliminate all the black sand. You've already run this concentrate over your wheel and can't seem to eliminate the black sand and still retain the find gold. At this point you have two choices. You can pass the concentrate over the wheel using a steeper, more vertical setting that will recover the coarse gold and eliminate both the black sand and most of the fine gold. You can save the overflow containing the fine gold and plan to amalgamate this black sand/fine gold combination at a later date. This alternative will give you the most clean gold in the fewest steps.

The alternative, trying to get all the gold at once, will require the use of a technique callud amalgamation.

Amalgamation is the least dangerous of all the chemical techniques available to the small miner. When proper caution is exercised it will prove to be a relatively simple, highly effecient gold recovery technique.

Before you can begin to amalgamate you will need the following equipment:

1. Mercury (Quicksilver). Available in small volumes at most prospecting shops. In larger quantities up to flask (76 lbs) at major chemical supply houses. Check local yellow pages for specific names and addresses.

2. Nitric acid - concentrated. Available same as mercury. If possible purchase by the pint for easier handling.

3. Mechanical amalgamater, plus chams or ball bearings. May be anything from a small cement mixer to a lapidary rock tumbler/polisher. For small batches, say less than 10 lbs, a desk top lapidary rock tumbler available from most lapidary supply houses will do the job. These run from $50 on up depending upon amount of material it can handle. Again, check your local yellow pages or lapidary journals for rock tumbler sources.
   One point about the use of tumblers. Sometimes it is difficult to keep mercury from running out of the tumbler drum lid. Some sort of plumbers cement or rubber cement should be considered if mercury leakage proves to be a problem.

4. Controllable heat source. A small hot plate or the equivelant will be needed to heat your nitric Acid/amalgam solution.

If you use an open fire you will have to watch it closely in order not to over heat your solution. More about this later.

5. Safety equipment:
   Safety glasses; heavy-duty rubber gloves, preferably long sleeved; face mask, type used when spraying weed killers and such; WATER, in case you splash acid on yourself. You will want at least two buckets full or a garden hose running and handy to wash the acid off. Also some baking soda to neutralize the acid.

   Dishwashing detergent or greasy skin cream to spread on hands, face and arms before you start; rubber laboratory apron or thick clothing.

6. Pyrex bowls or stainless steel pans. Two or three for simmering acids. Three to four cup capacity is ideal.

7. Small, throw-away paint brush.

8. Elemental copper. Tubing, pennies, etc.

9. Baking soda.

10. Dishwashing liquid, or other wetting agent.

11. Optional equipment: 50 cc syringes, cotton balls, chamois or silk cloth.

AMALGAMATION

Step I

Take 5 - 10 pounds of black sand and place it in rock tumbler. To the black sand you need to add:

1. Water up to the two thirds mark.
2. One or two drops nitric acid are optional.
3. Liquid detergent.
4. Mercury. Add mercury equal to approximately 2 - 3 times the amount of gold you expect to recover.
5. Four or five three quarter to one inch ball bearings. Four or five links of chain will also work.

Check to see that top of tumbler is completely sealed. If sealing is a problem contact cement or something similar can be used to properly seal the tumbler canisters lid.

Step II

Turn tumbler on. The length of time you leave it on depends upon how determined you are to to get all the gold. Two to three hours is a minimum. Forty-eight hours running time is not unheard of. (Note: Why run so long? Gold may have a film of organic material on its surface or it may be bound up inside of black sand. Your tumbler must clean the surface of the gold as well as free up the gold bound in the black sand. Complete pulverization is what you're after. Typically 15% of your values may be bound in black sand and thus inaccessable except by amalgamation.)

Step III

Stop tumbler. Let material settle for one or two minutes. Take the tumbler canister to your Goldhound. Take the top off and carefully pour the contents of the tumbler canister onto the moving wheel. You will see the mercury being separated by the wheel. You should be able to capture all the mercury while at the same time leaving behind essentially all the black sand.

Step IV

At this point you will have your amalgam separate from your black sand. Now you'll want to separate your gold from the mercury. For this step you'll need either your syringe and cotton balls, your chamois or silk cloth. Personally I prefer the silk cloth.

Dampen the chamois or cloth and squeeze the mercury through the cloth. This will allow you to separate most of the mercury from the gold. Be sure to hold cloth over suitable catch pan to retain squeezed mercury.

Gather the remaining gold button left in the cloth. This now requires a chemical step in order to clean the remaining mercury off of the gold.

Step V

Removing the remaining mercury from the gold has traditionally been accomplished by using one of two methods. However, a third method, which I highly recommend, is much safer.

Method one, retorting:. The mercury is boiled off. giving off a deadly vapor.
Method two, "potato" method, which works, sometimes. There is danger in dropping mercury into the fire. If the temperature of the mercury rises above 550° F the mercury vaporizes and again is deadly if inhaled. Therefore I recommend method number three.

NITRIC ACID SIMMERING. All around the most controllable and repeatable. Also potentially the least dangerous method with reasonable caution.

Step VI

For this step you'll need the following:

- Safety glasses
- Gloves
- Face mask
- Stainless steel pan
- Nitric acid
- Baking soda
- Amalgam
- dishwashing detergent or skin cream
- rubber apron or very thick clothing

PUT ON YOUR SAFETY GEAR

Take the stainless steel pan. Put in one or two cups of water. Add nitric acid to water. (NEVER add water to acid. It splatters.) Add anywhere from 25% to 75% nitric acid. That is one part nitric to three parts water gives you a 25% nitric solution. A stronger solution makes things go faster and also requires closer watching during the rest of the operation.

Step VII

Put your amalgam button in the pan now. Brown fumes will immediately begin to be emitted from the button. These fumes are toxic. They won't kill you. They can make you sick, so stay away from them. Be sure to wear your mask.

Put the pan on your hot plate.
Bring the solution to a simmer. Do not boil.
It should take 15 minutes to a half hour until the mercury has gone into solution. You'll know when the mercury is all in solution when the Alka-Seltzer like bubbling stops. You should see the beautifully clean gold on the bottom of the pan.

Step VIII

Add a little cool water to the solution to bring its temperature down. The mercury will NOT collect in the pan. That takes another step.

Step IX

Be sure at this point that you have a bucket of water and some baking soda (bicarbonate of soda) on hand in case you splash some of the nitric acid on yourself. Baking soda neutralizes the nitric acid.

Step X

Pour the nitric acid solution into your other stainless steel pan, being careful NOT to lose any of your fine sponge gold.

To recover what little mercury that is still in the nitric acid solution place some elemental copper such as tubing or pennies into the solution. Your mercury will plate out on the copper and pool at the bottom of the pan.

Step XI

Pour the spent nitric acid solution off into another stainless steel pan or pyrex container. Neutralize the solution using baking soda. Dispose of the neutralized acid using a sealed, unbreakable plastic container if possible.

Step XII

Gather your mercury together for another amalgamation cycle.

Step XIII

Take your small brush and brush gold into a suitable container. Put the brush in nitric acid and disolve the bristles. This will free up any fine gold stuck in the brush.

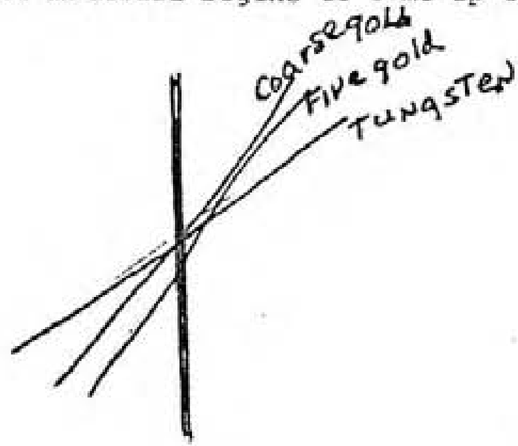
You are now ready to begin the cycle again.

CAUTION: Because we have no control over how you physically go about using materials or in following our instructions, we at Goldhound cannot be responsible for the results you get or any injury you might cause yourself or others, or any property damage that might occur to your property or another's.

ORES CONTAINING MULTIPLE VALUES

Let's say you have an ore that contains several values, gold, silver and tungsten for instance. In this situation separation will be based upon the fact that as the angle of the bowl is changed the specific gravity of the material being recovered changes.

More specifically let us start with an angle of say 25°. Let us also say that at this angle you are recovering gold of say 25 mesh. As you tilt the bowl back you will find that lighter and lighter material begins to come up through the center hole.



It should be noted that the diagrams above have been exagerated to make a point. In reality a very small change in angle is all that is necessary to produce a significant change in specific gravity picked up. Typically one degree of change in tilt will produce a change of about 1/2 specific gravity unit in the material picked up.

What this means in practice is that for an ore containing multiple values or coarse and fine gold, it will probably be necessary to run the ore through the wheel once for each value being careful to set the wheel at a different angle for each ore.

For the original sample containing gold, silver and tungsten you would probably run the material in the following sequence:

1. Run through at angle such that you recovered all gold plus some black sand. Save overflow.

2. Run recovered black sand and gold a second time to eliminate most of black sand. Pan down or amalgamate depending upon percentage of fines vs coarse.

3. Reset wheel at flatter angle, say 30° for silver recovery. Catch all overflow. Pass recovered black sand and silver over wheel a second time in order to eliminate most of black sand.

4. Reset wheel at an even flatter angle, say 35° in order to recover tungsten. usig Using black light adjust wheel for best recovery.

MACHINE MAINTENANCE

Occasional Problems and What to do About Them.

Man has never made a machine that didn't have some problems. The Goldhound is no different. Fortunately the problems that arise are infrequent and can usually be corrected by the user.

As of this writing Goldhounds have experienced the following problems:

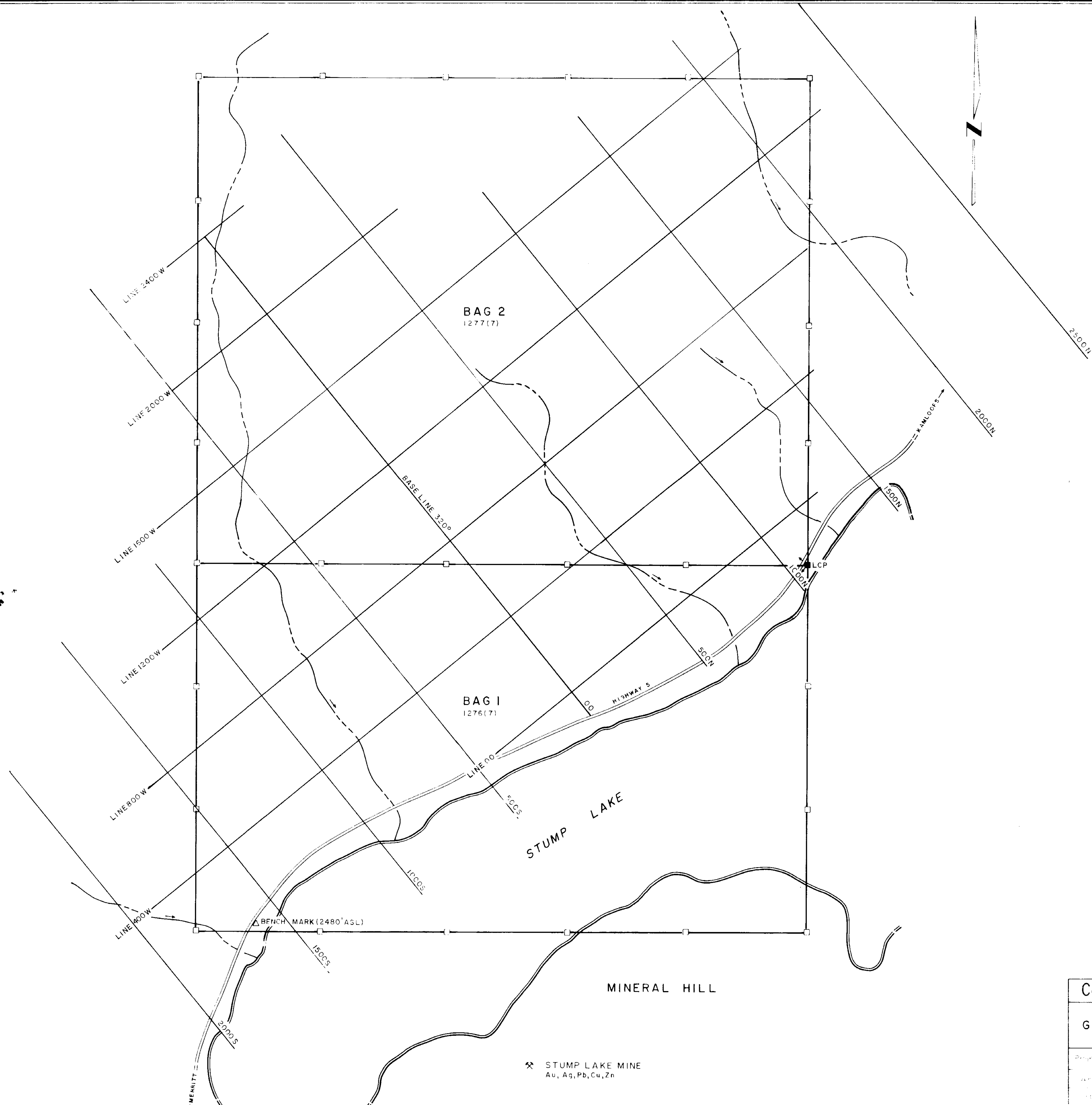
1. MOTOR BURN OUTS: Occasionally a 12 VDC motor (1 out of 50) will burn out after only a few hours of running. Experience has shown that if it's going to burn out it will do so within the first ten hours. If it burns out before ten hours send it back to be replaced. Remember also under no circumstances is the 12 VDC motor to be dropped onto cement. It will definitely break if hit hard enough.

   Some people like to have a spare around. Go to your local junk yard and purchase a 12 VDC clockwise rotating Ford windshaildwiper motor.

2. BROKEN SWITCHES: Sometimes switches are broken by the freight carrier. In this case you can call us and we'll send you a new one or you can replace it yourself. 12 volt machines use a 12 VDC automobile under-the-dash 3-way heater switch. Take your old one in and match it with a replacement. The 110 VAC switches are wall 600 watt incandescent dimmer switches available at most hardware stores.

3. BOWL TO RUBBER SEAL CRACKS: Sometimes the caulking material used between the rubber pad and the bowl cracks. Sometimes also the center hole caulking is a bit rough for certain applications. To repair edge cracks or smooth out the center hole caulking you will need to purchase some Hard Drying Permatex Formagasket automobile head gasket sealer from your local auto supply parts house.

   For edge cracks smear Permatex onto offending area. Work quickly. Permatex is only workable for about 30 - 45 seconds once it comes out of the tube. For the center hole smear Permatex onto hole area, smoothing out as well as possible. Finish smoothing after 2 - 3 minutes by patting down bumps using a wet finger. Do not smear Permatex to try and smooth it down. This will only make it rougher.

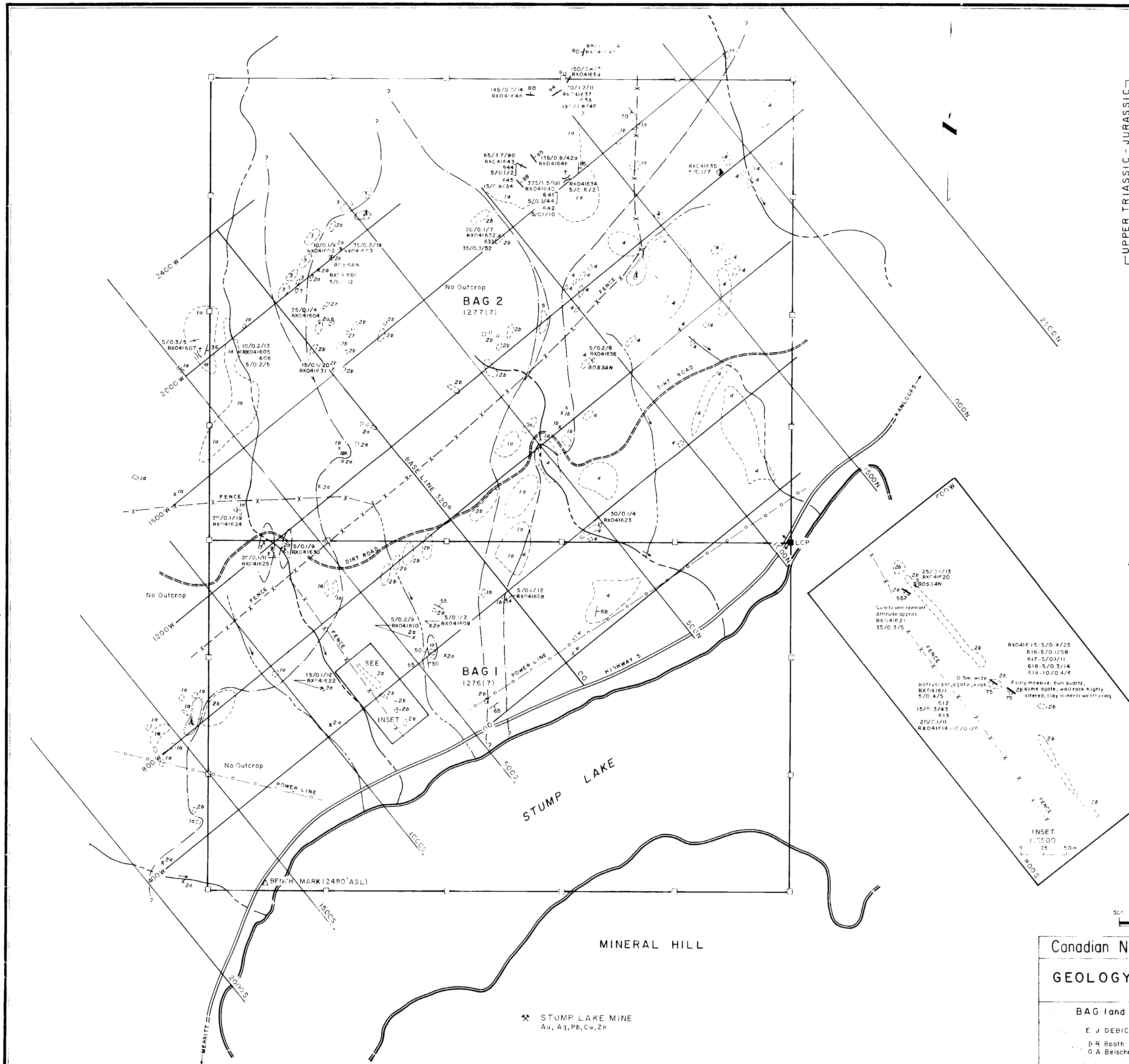


GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,719

500 0 100 200 300 400 500
METRES

Canadian Nickel Company Limited			Copper Cliff, Ontario POM 1NO	
GRID LOCATION MAP			SHEET	FIGURE 4
Project BAG l and 2 CLAIMS		Area Nicola Mining Division, B.C.		
E. J. DEBICKI	Instrument	Survey date June, 1983		
B.R. Booth	Drawn by W E Marsaw	Date drawn Sept., 1983	Revised	
1 10 000	File	NTS 92-I-8W		



GEOLOGICAL BRANCH ASSESSMENT REPORT

11,719

Canadian Nickel Company Limited

GEOLOGY SURVEY

FIGURE 5

BAG 1 and 2 CLAIMS

Nicola Mining Division, B.C.

E. J. DEBICKI

June, 1983

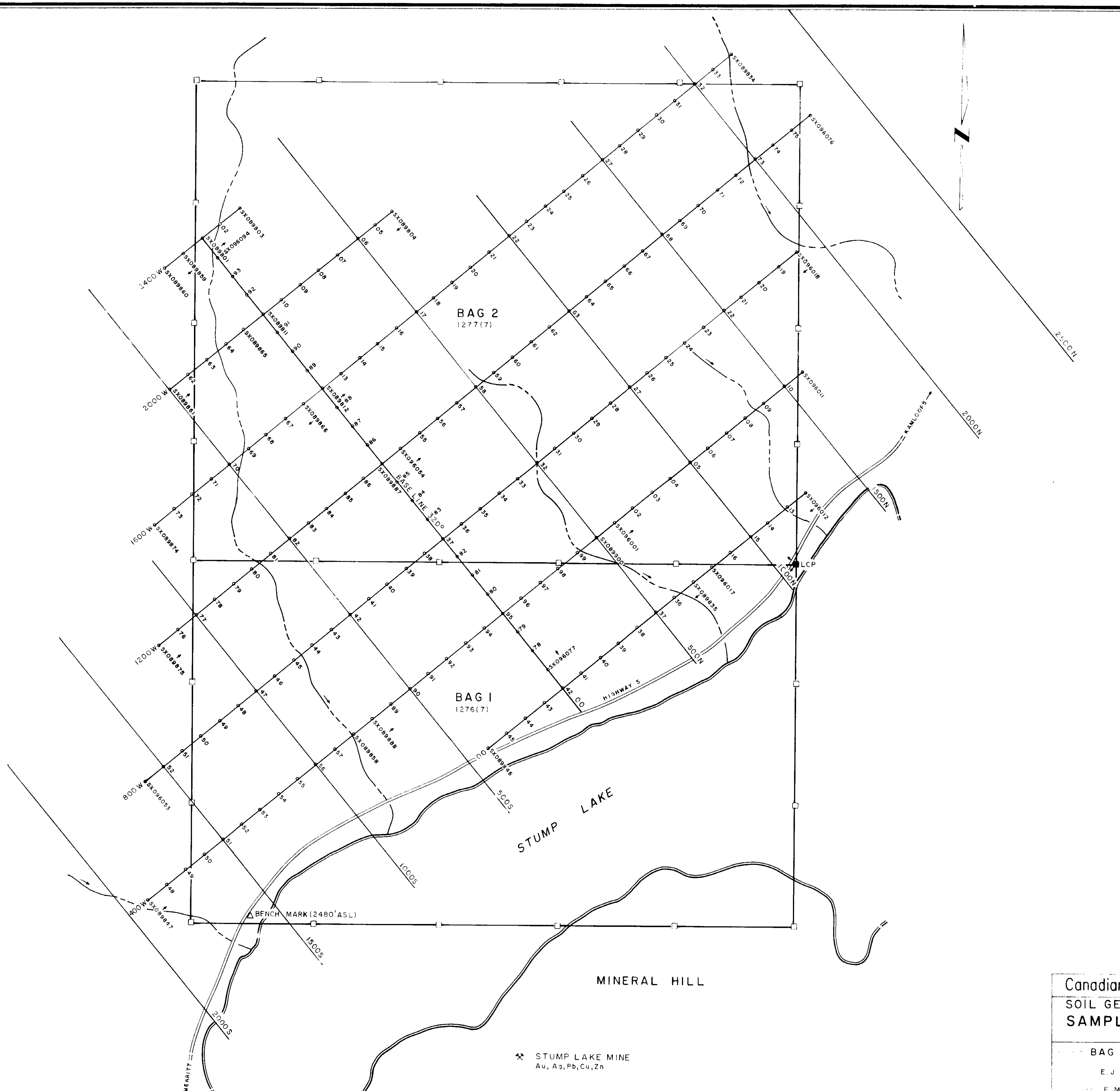
B.R. Booth
G.A. Beischer

W. E. Marsaw

Sept., 1983

1:10 000

NTS 92-I-8W



GEOLOGICAL BRANCH ASSESSMENT REPORT

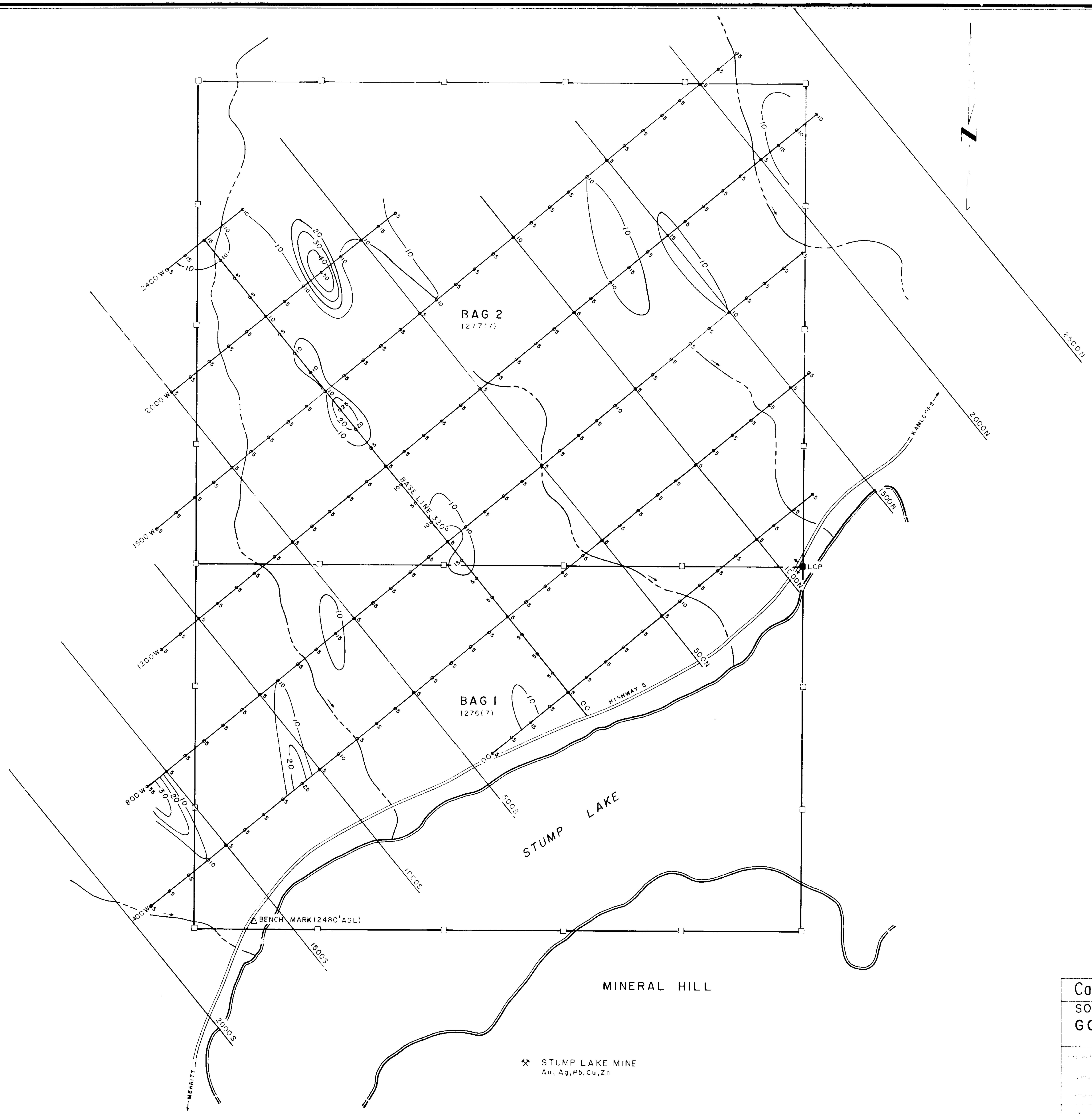
11,719

LEGEND

Soil sample location and number: SX096012
Arrow (→) denotes sequential order
Station spacing: 100m

0 100 200 300 400 500
METRES

Canadian Nickel Company Limited			
SOIL GEOCHEMICAL SURVEY SAMPLE LOCATIONS		Sheet	Figure 6
BAG 1 and 2 CLAIMS	Nicola Mining Division, B.C.		
E. J DEBICKI		June, 1983	
E. Makela	Drawn by W. E. Marsaw	Date drawn Sept, 1983	Revised
1: 10 000		92-I-8W	



GEOLOGICAL BRANCH ASSESSMENT REPORT

11,719

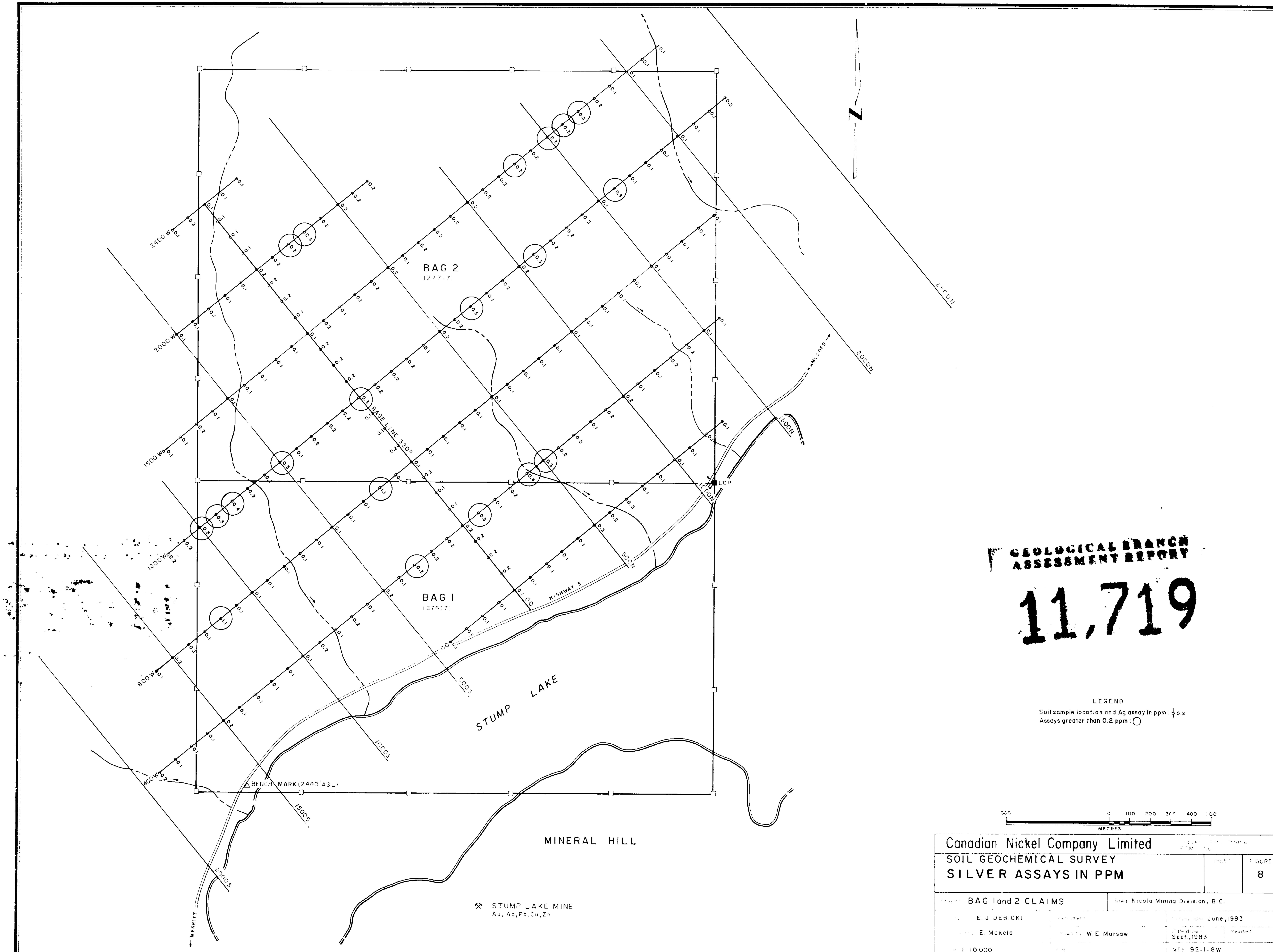
LEGEND

Soil sample location and Au assay in ppb: 10

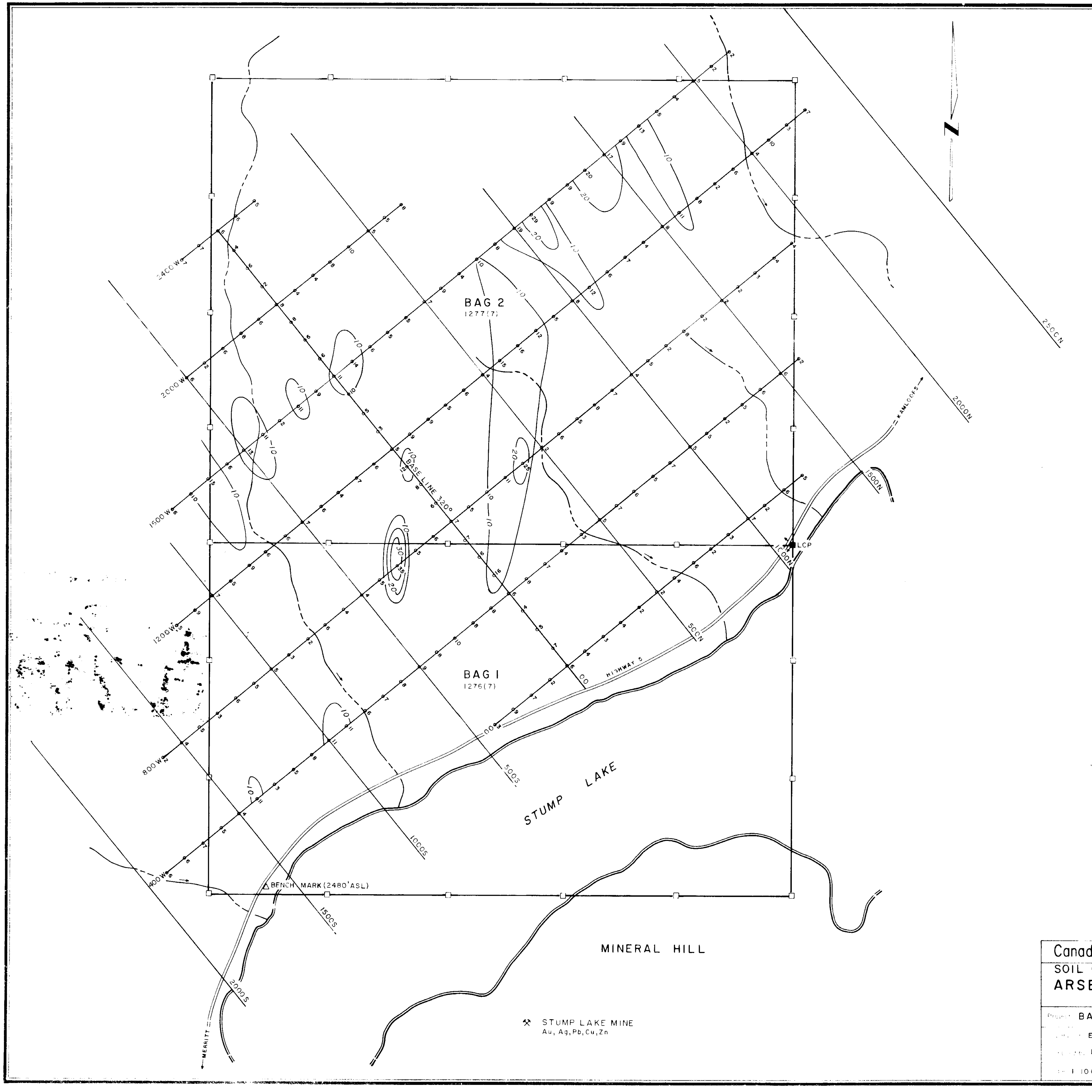
Contour in ppb Au: 20

500 0 100 200 300 400 500
METRES

Canadian Nickel Company Limited			
SOIL GEOCHEMICAL SURVEY GOLD ASSAYS IN PPB		SHEET	FIGURE 7
BAG 1 and 2 CLAIMS	Area Nicola Mining Division, B.C.		
E. J. DEBICKI	Instrument	June, 1983	
E. Makela	Drawn by W E Marsaw	Date drawn Sept, 1983	Revised
1 : 10 000	File	NTS 92-I-8W	



BAG 2
1277(7)
BAG I
1276(7)
BASE LINE 3200
2400 W
2000 W
1500 W
1200 W
800 W
400 W
2500N
2000N
1500N
1000N
500N
00
500S
1000S
1500S
2000S
LCP
HIGHWAY 5
KAMLOOPS
MERRITT
STUMP LAKE
BENCH MARK (2480' ASL)
MINERAL HILL
STUMP LAKE MINE
Au, Ag, Pb, Cu, Zn
N
GEOLOGICAL BRANCH
ASSESSMENT REPORT
11,719
LEGEND
Soil sample location and Ag assay in ppm: 0.2
Assays greater than 0.2 ppm:
METRES
Canadian Nickel Company Limited
SOIL GEOCHEMICAL SURVEY
SILVER ASSAYS IN PPM
FIGURE 8
BAG I and 2 CLAIMS
Nicola Mining Division, B.C.
E. J. DEBICKI
E. Makela
W. E. Marsaw
June, 1983
Sept, 1983
1:10 000
NTS 92-I-8W



GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,719

LEGEND

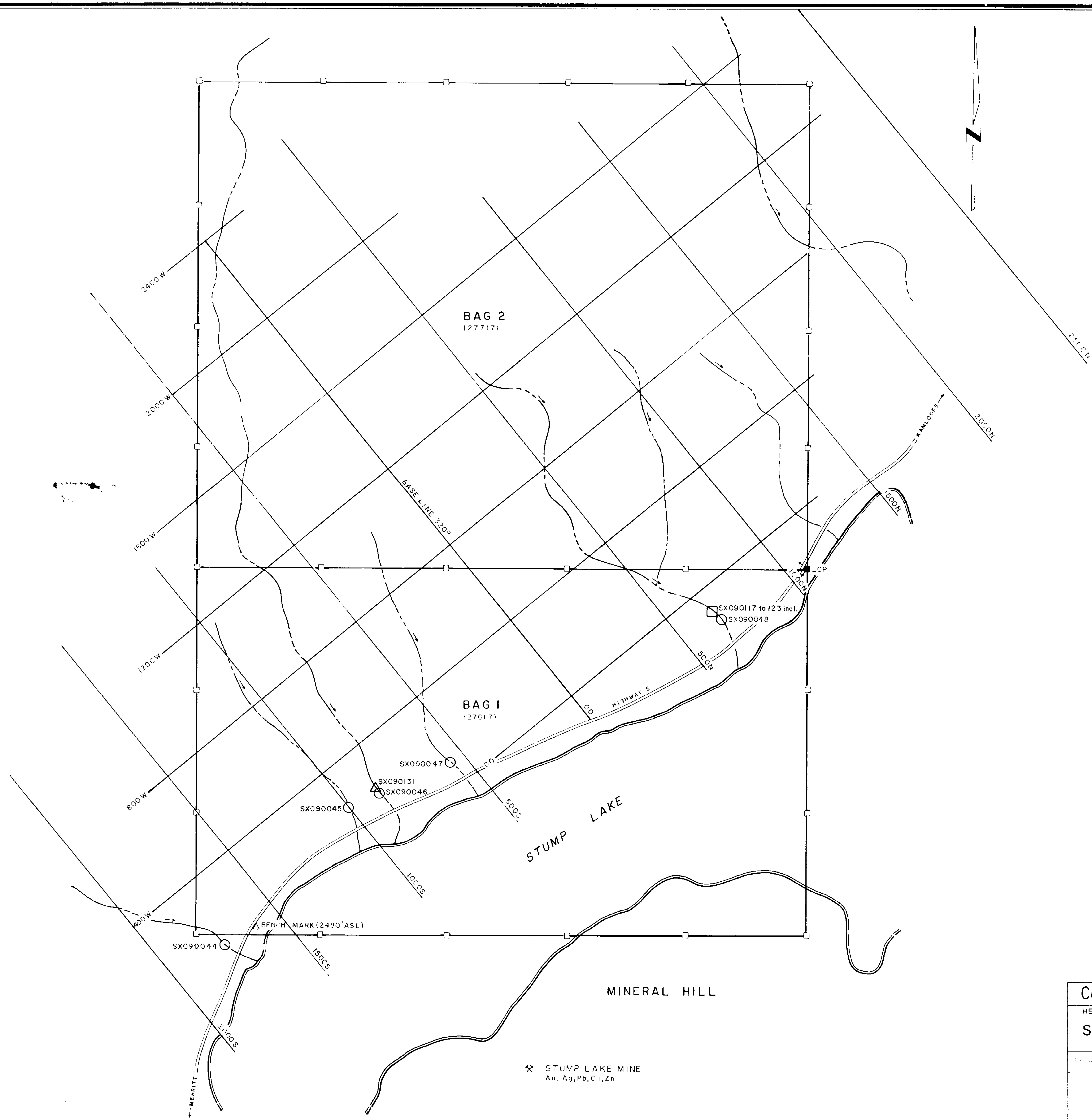
Soil sample location and As assay in ppm: 12

Contour in ppm As: 20

500 0 100 200 300 400 500

METRES

Canadian Nickel Company Limited		
SOIL GEOCHEMICAL SURVEY ARSENIC ASSAYS IN PPM	Sheet	Figure 9
Project: BAG 1 and 2 CLAIMS	Area: Nicola Mining Division, B.C.	
E. J. DEBICKI	Instrument	June, 1983
E. Makela	Drawn by: W.E. Marsaw	Date drawn: Sept, 1983 · Revised
1:10 000	File	NTS 92-I-8W



LEGEND AND NOTES

○ Heavy mineral pan concentrate (1982)

□ Orientation survey (1983) - resample of SX090048
SX090117 - Pan concentrate, non-magnetic fraction
118 - Pan concentrate, weakly magnetic fraction
119 - Goldwheel concentrate, first run, non-magnetic fraction
120 - Goldwheel concentrate, first run, weakly magnetic fraction
121 - Goldwheel concentrate, second run (first run tailings), non-magnetic fraction
122 - Goldwheel concentrate, second run, weakly magnetic fraction
SX090123 - −80 mesh stream silt

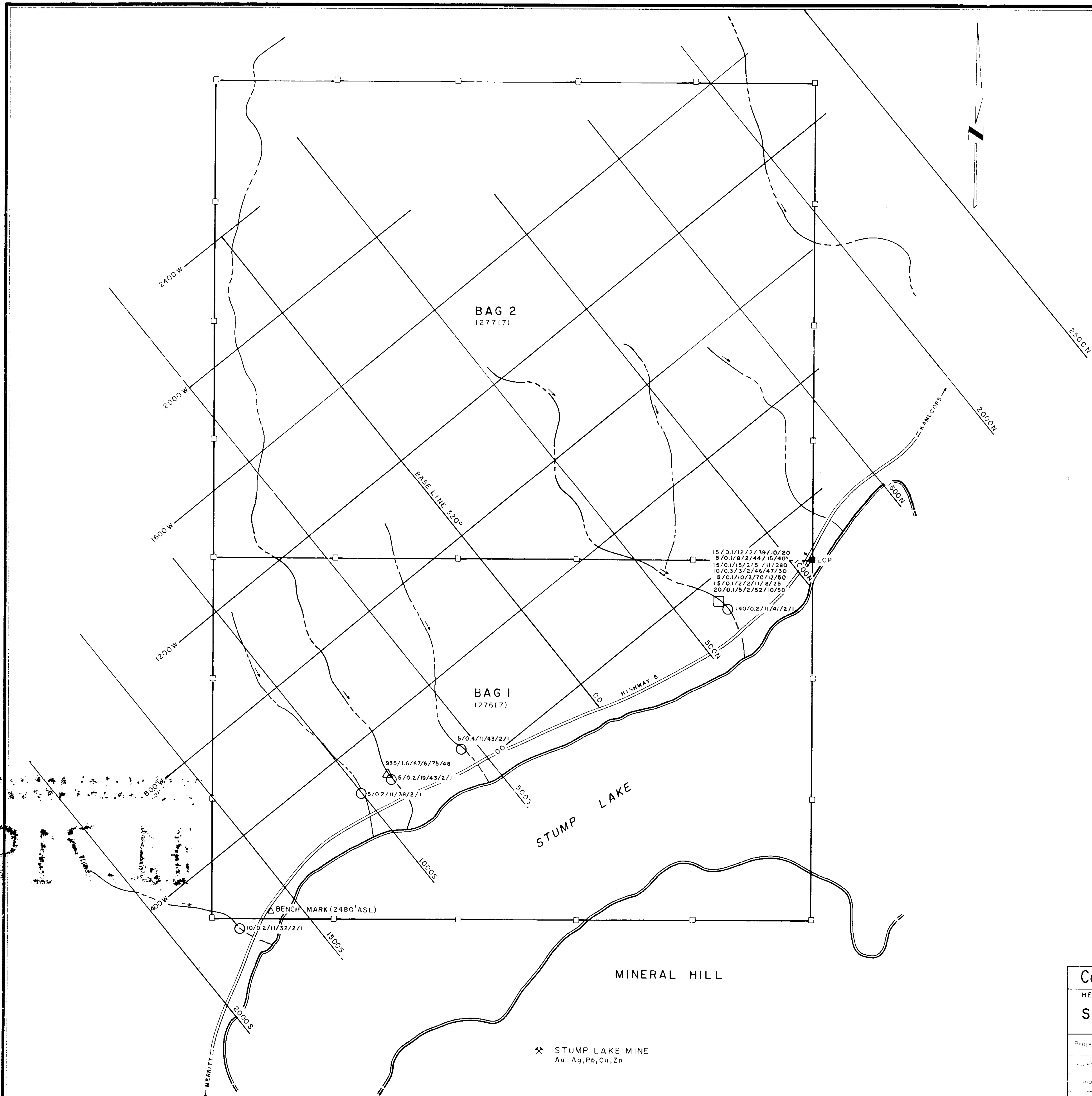
△ Goldwheel concentrate (1983) - non-magnetic fraction (resample of SX090046 - pan concentrate 1982)

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,719

500 0 100 200 300 400 500
METRES

Canadian Nickel Company Limited	Copper Cliff, Ontario P0M 1N0	
HEAVY MINERAL PAN CONCENTRATE AND GOLDWHEEL CONCENTRATE **SAMPLE LOCATIONS**	SHEET	FIGURE 10
BAG 1 and 2 CLAIMS	Area Nicola Mining Division, B.C.	
E. J. DEBICKI	Instrument	Survey date June, 1983
E. Makela	Drawn by W E Marsaw	Date drawn Sept., 1983 / Revised
1 : 10 000	File	NTS 92-1-8W



LEGEND

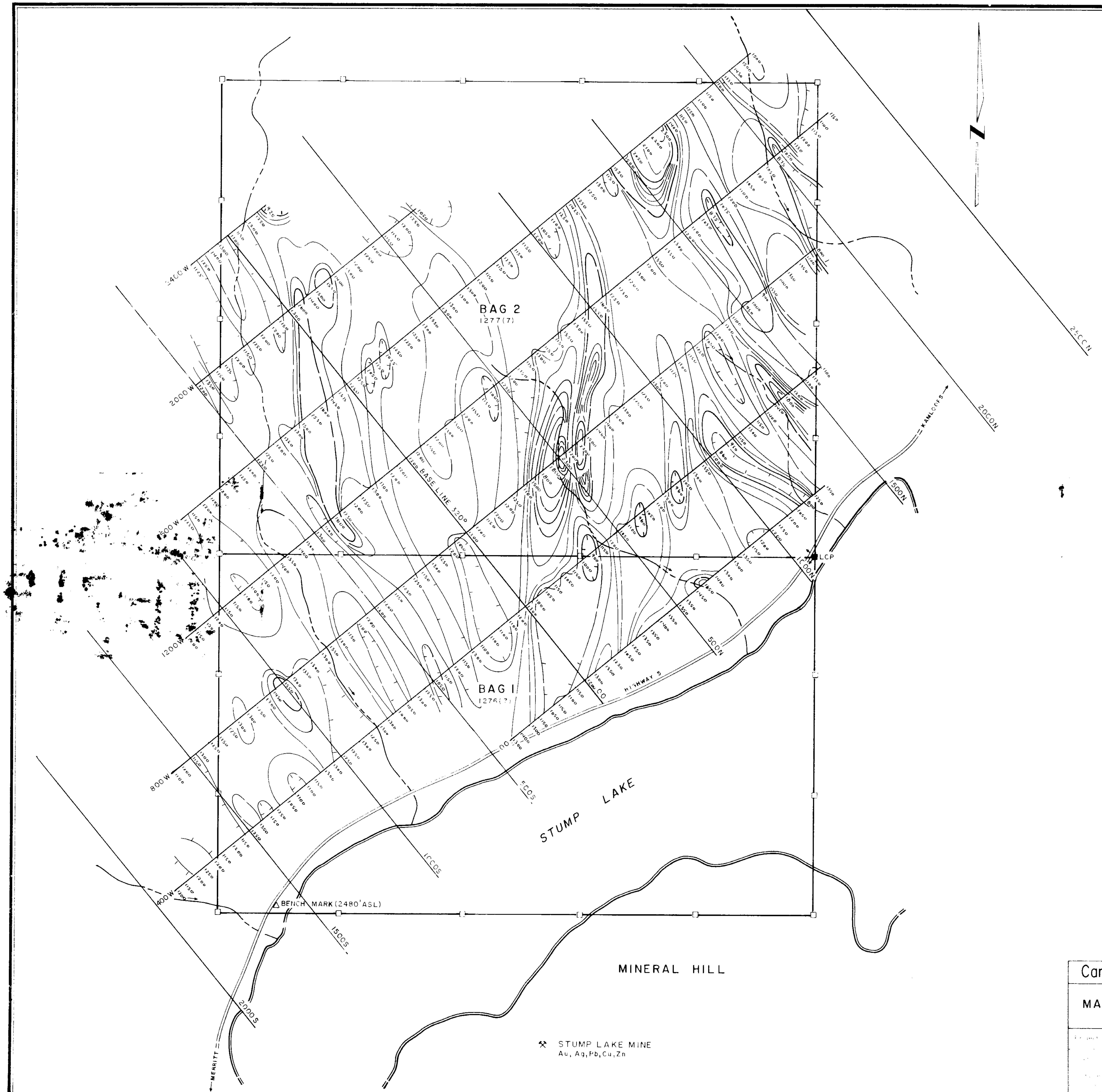
○ 1982 Assays (pan concentrates): Au/Ag/As/Cu/W/Mo
Au assays in ppb, all others in ppm

□ 1983 Assays (SX090117 to 123 incl.): Au/Ag/As/W/Cu/Pb/Hg
Au and Hg assays in ppb, all others in ppm

△ 1983 Assays (goldwheel concentrate): Au/Ag/As/W/Cu/Pb
Au assays in ppb, all others in ppm

500 0 100 200 300 400 500
METRES

Canadian Nickel Company Limited	Copper Cliff, Ontario P0M 1N0	
HEAVY MINERAL PAN CONCENTRATE AND GOLDWHEEL CONCENTRATE **SAMPLE RESULTS**	SHEET	FIGURE 11
Project BAG 1 and 2 CLAIMS	Area Nicola Mining Division, B.C.	
Supervised by E. J. DEBICKI	Instrument	Survey date June, 1983
Compiled by E. Makela	Drawn by W. E. Marsaw	Date drawn Sept., 1983 / Revised
Scale 1:10 000	File	N.T.S. 92-I-8W

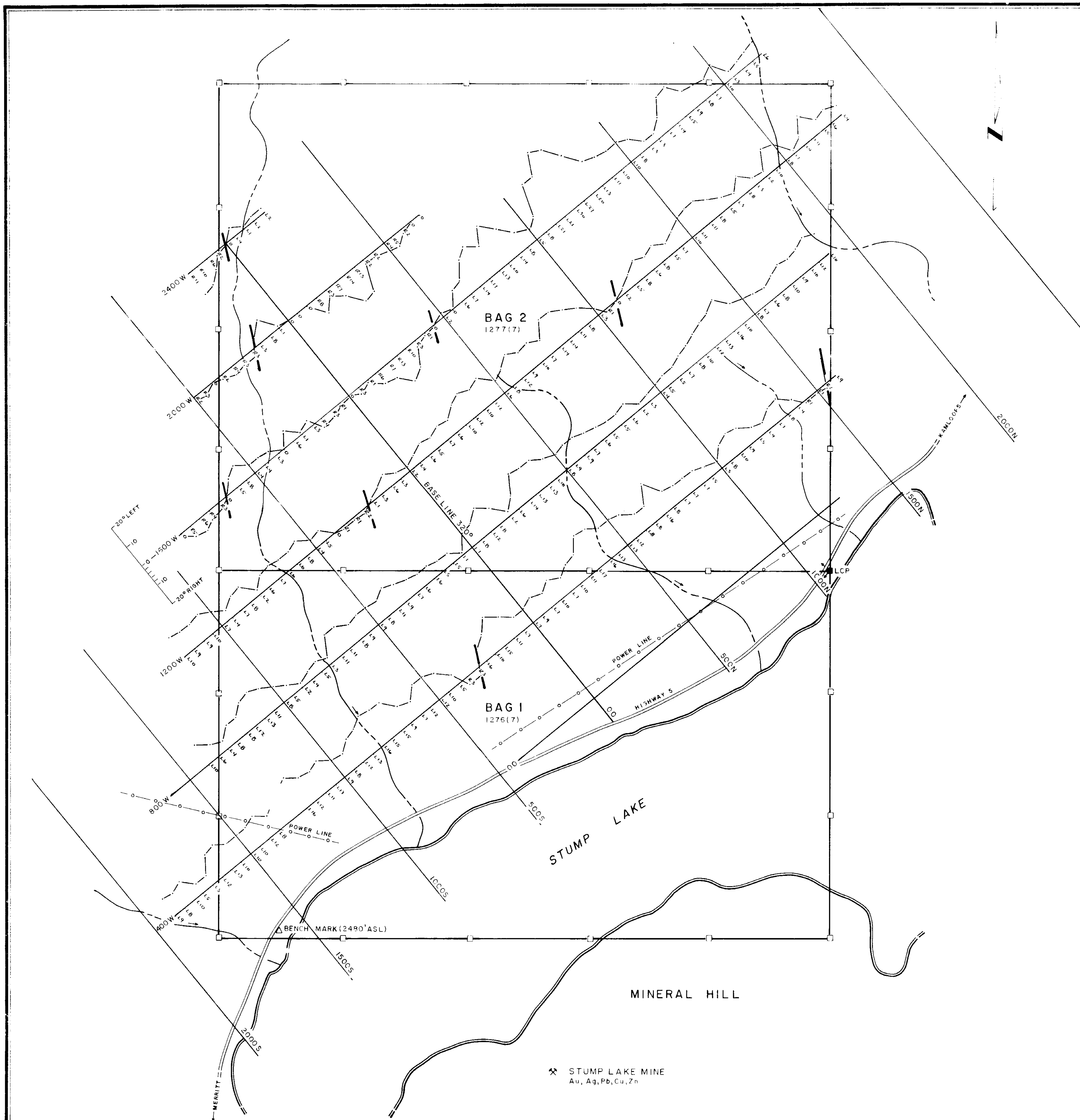


LEGEND

Magnetometer reading in gammas: 1250
Contour interval: 100 gammas
Station spacing: 50m
Isomagnetic lines: 1000, 500, 200, 100, RELATIVE LOW

500 0 100 200 300 400 500
METRES

Canadian Nickel Company Limited		
MAGNETOMETER SURVEY		FIGURE 12
BAG 1 and 2 CLAIMS	Area: Nicola Mining Division, B.C.	
E. J. DEBICKI	Instrument: Scintrex MF-2 Fluxgate Serial 30430	Survey date: June, 1983
C. B. Ravnaas	Drawn by: W. E. Marsaw	Date drawn: Sept., 1983 / Revised
1:10 000	File	NTS 92-I-8W



LEGEND

Tilt angle readings in degrees right, left: R6 L4
Station spacing: 50 m
Profile scale: 1 cm = 10°
Conductor axis:

N

TRAVERSE

SIGNAL FROM NPG 18.6 kHz

500 0 100 200 300 400 500

METRES

Canadian Nickel Company Limited		
VLF ELECTROMAGNETIC SURVEY	SHEET	FIGURE 13
BAG 1 and 2 CLAIMS	Area: Nicola Mining Division, B.C.	
E. J. DEBICKI	Instrument: Crone Radem Serial 227	Survey date: June, 1983
C. B. Ravnaas	Drawn by: W. E. Marsaw	Date drawn: Sept., 1983 / Revised
Scale: 1:10 000	File	NTS 92-I-8W