PROSPECTING, GEOCHEMICAL AND GEOPHYSICAL REPORT

on the

CHOPAKA CLAIM GROUP

KEREMEOS-NIGHTHAWK AREA

OSOYOOS MINING DIVISION

82E-4E
(49°02'n. Lat., 119°41 W. Long.)

for

MICHAEL J. HARRIS
(OWNER)

by

MICHAEL J. HARRIS, B.A.
Prospector

July, 1990

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SUMMARY AND CONCLUSIONS

The Chopaka Claim Group is located 25 kms southeast of Keremeos, B.C. at the junction of Highway 3 and the Nighthawk Road. Osoyoos is 20 kms to the east along Highway 3. The Group consists of 26 claim units and comprises approximately 640 hectares.

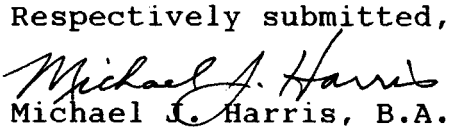
The area has a history of mining exploration and production dating back to the turn of the century. The Dankoe Mine, located to the northwest and adjacent to the Chopaka Claims, has been in production intermittently since the early 1920's. Silver, lead, copper, zinc and gold are contained in quartz veins which are found within a large body of syenite. To the south, in Washington State, production is recorded in lead, zinc, silver, and gold veins contained in the Similkameen pluton of the Nighthawk-Chopaka area.

A shear zone containing two mineralized quartz veins is exposed in a 5 meter adit in the south section of the Chopaka claims.

This report covers the 1989\1990 work program on Chopaka (3174), a 15 claim unit portion of the Chopaka Claim Group. The objective of this program was to explore existing showings and search for additional mineralization, primarily in vein-type deposits. The program included prospecting, geochemical and geophysical surveys. Prospecting resulted in the discovery of a mineralized quartz vein, outcrops of altered granodiorite containing anomalous gold values and float with anomalous gold and silver values. Analysis of soil samples resulted in the identification of a zone containing gold values up to 350 ppb. A magnetometer survey undertaken on the grid area delineated several zones of higher readings which may be related to a mafic rich diorite found in an outcrop above the survey area. The majority of anomalous gold values in soil and rock samples were found within the areas of higher magnetic readings.

The scope of the 1989\1990 exploration program is considered to be of a preliminary exploration nature. Results warrant further exploration in areas of anomalous gold values, where prospecting and soil sampling should be undertaken on a more detailed basis. An EM-VLF survey should be conducted along the grid to identify conductive zones. Several areas of the claims, such as the talus slopes in the north section, have not been explored and should be the subject of future exploration.

Respectively submitted,



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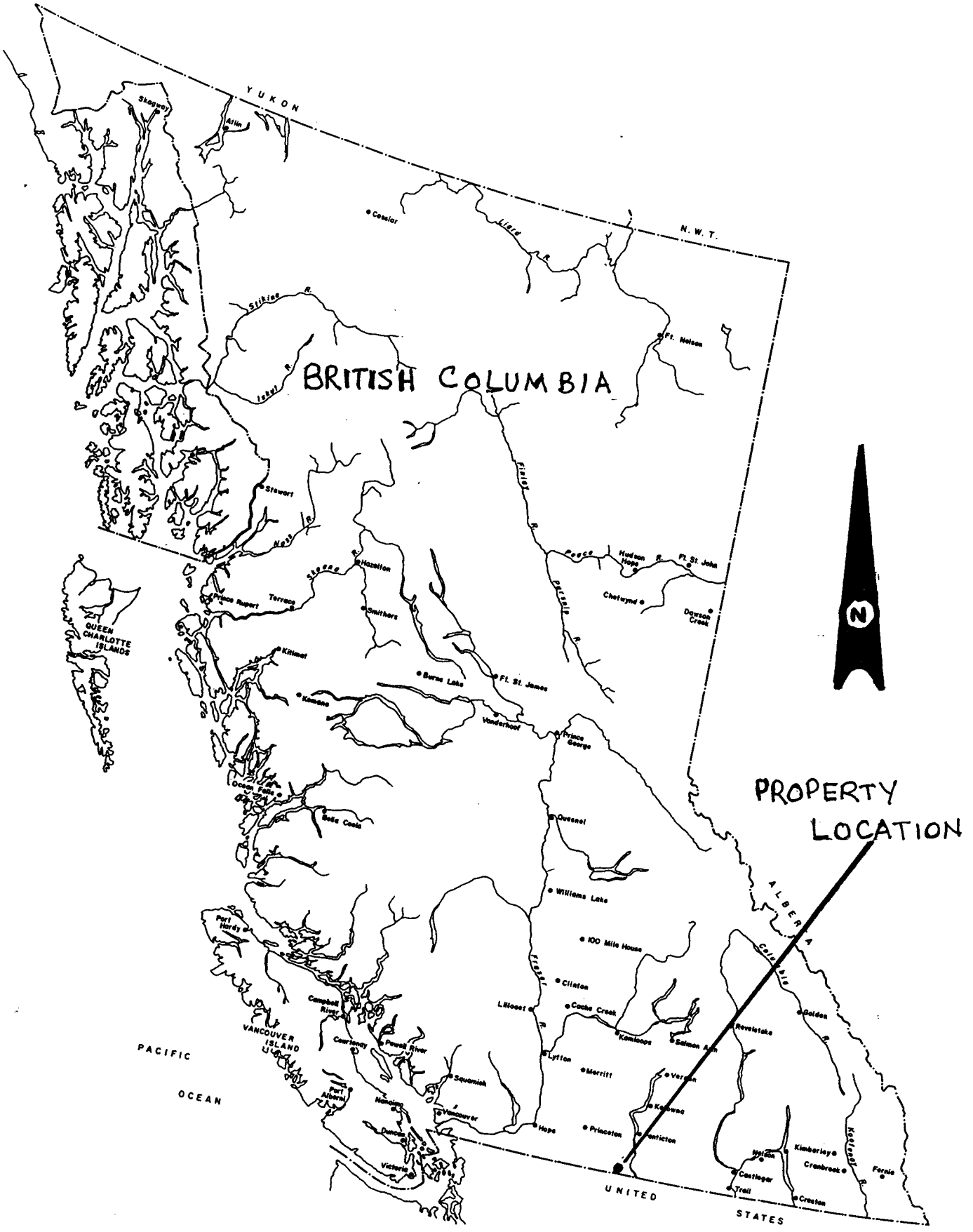
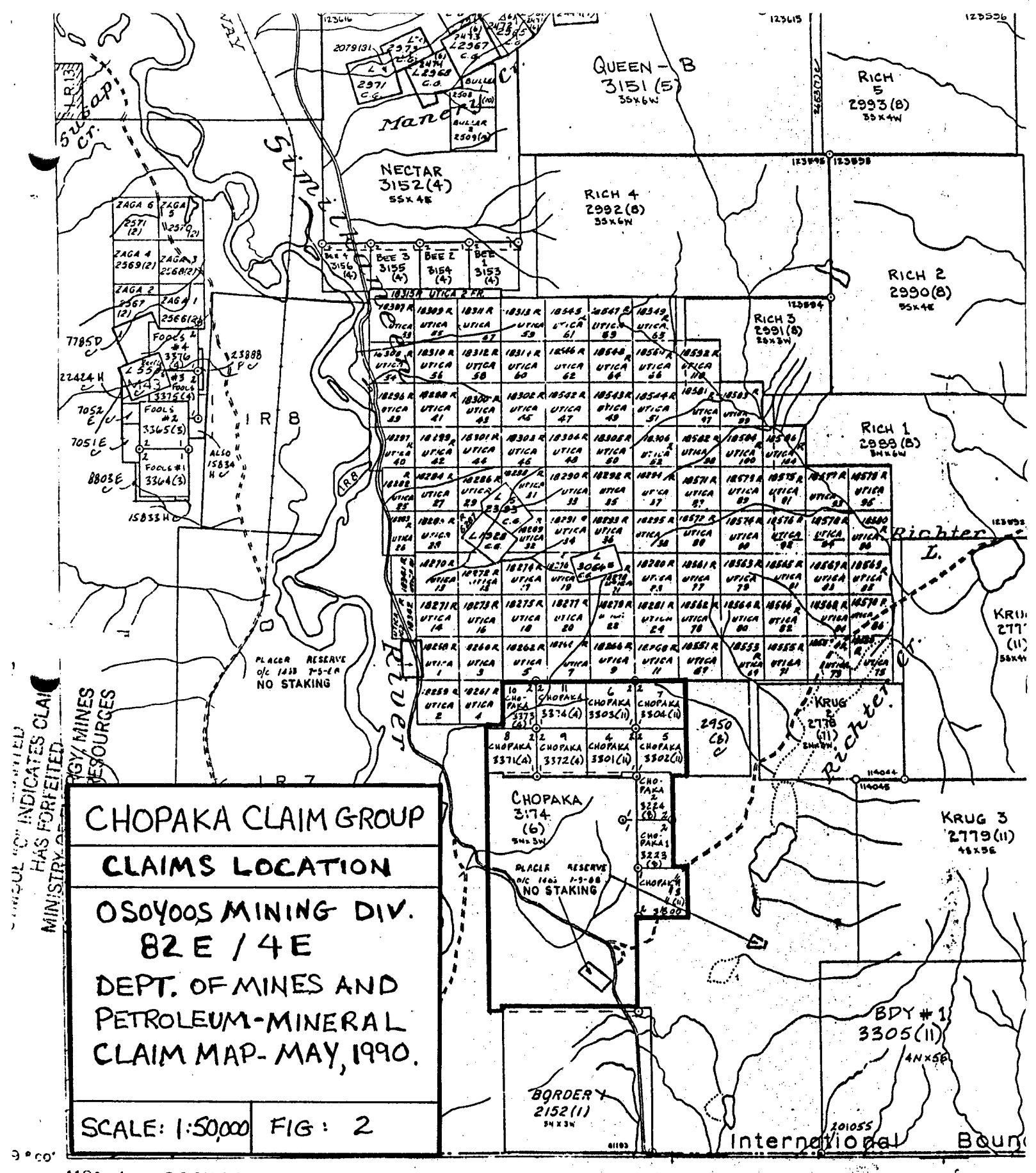
July, 1990



CHOPAKA CLAIM GROUP

LOCATION MAP

DATE: JULY, 1990	SCALE:	FIGURE: 1



CHOPAKA CLAIM GROUP

CLAIMS LOCATION

OSOYOOS MINING DIV.
82 E / 4E
DEPT. OF MINES AND
PETROLEUM-MINERAL
CLAIM MAP- MAY, 1990.

SCALE: 1:50,000 FIG: 2

119°45' · OSOYOOS MINING DIVISION

AREA SUBJECT TO URANIUM / THORIUM REGULATIONS

For up-to-date information on claims in any area you should apply to the Mining Recorder for the Mining Division concerned.

DEPARTMENT OF MINES AND PE
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1 . 0 INTRODUCTION

1.1 GENERAL

Field work was conducted on the Chopaka Claim (3174) from June 19, 1989 to April 8, 1990 by Michael J. Harris. A total of 29 days of work was recorded. Funding assistance by way of a FAME grant is gratefully acknowledged.

The majority of work took place in the north-central section of the claim where a 7 km grid was established. Soil samples were taken every 25 meters and initially tested using the Bloom test method. Samples were bagged and selected samples taken for laboratory analysis. Remaining samples have been stored by the writer. Basic prospecting took place along the grid and outcrops other than granodiorite were recorded. Topographical features were also noted. Rock samples from outcrop and float showing signs of alteration or mineralization were collected and selected samples were sent for analysis. A magnetometer survey was conducted on the grid with stations every 12.5 meters.

In the south portion of the claims prospecting centred around a 5 meter adit which intersects two mineralized quartz veins. Close by, thin mineralized quartz veinlets are found. Rock and soil samples were taken and prospecting for extension of the veins took place. A small grid was established approximately 300 meters northwest of the adit in the area of a previously recorded silver anomaly and soil samples were taken and analyzed.

Limited prospecting was undertaken in the extreme north section of the claims, which is comprised of steep terrain and talus slopes.

1.2 LOCATION AND ACCESS

The property is located 25 kms southeast of Keremeos, B.C. at the junction of Highway 3 and the Nighthawk Road. Osoyoos is 20 kms to the east. The Nighthawk Road leads to the Chopaka customs station at the Canada - United States border 2.5 kms south of Highway 3.

Coordinates for the property are 49° 02'N. Latitude and 119° 41'W. Longitude (NTS 82E-4E Osoyoos Mining Division.)

Access to the property can take place along Highway 3 and the Nighthawk Road on the south and central portions of the claims. A four wheel drive road in the extreme south section leads to the top of Barber Mountain. Access to the north section may be possible from a four wheel drive road which leads to the top of

Richter Mountain. This route was attempted in April, 1990 but was blocked by snow on the north face of the Mountain.

1.3 PHYSIOGRAPHY

The Chopaka Claim Group is located in the Okanogan range of the Cascade Mountains. Elevations vary from 460 meters to 1250 meters above sea level. Highway 3 crosses the claims at the lower elevations forming the Richter Pass. Elevations increase to the north with the south slope of Richter Mountain. To the south elevations increase with the north slope of Barber Mountain.

Topography is gentle to steep with a variety of cliffs and talus slopes. Several drainage gullies cut through the claims. Traverses along the north portion of the claims are hampered by cliffs and talus slopes.

Lower elevations are covered with overburden with few outcrops. Glacial and alluvial gravels and debris are prominent. Vegetation consists of bunch grass and sage brush with a scattering of deciduous and coniferous (mostly pine) trees.

The upper elevations consist of a greater proportion of outcrop but the prominence of talus and overburden covers large areas. Coniferous trees, pine and fir, increase with elevation.

Cattle graze throughout the property during the summer.

1.4 CLIMATE

The climate is hot and dry in the summer and cold in the winter. Work is possible on the property year-round except during heavy winter snowfalls. Temperatures average 50°F. with lows of -10° F. to highs of 120°F. Precipitation is light, 7-10 inches per year, and results in the semi-arid condition of the area.

1.5 PROPERTY AND CLAIM STATUS

The Chopaka Claim Group consists of one modified grid claim (15 units) and eleven 2 post claims for a total of 26 claim units. The claims are owned by Michael J. Harris, 2710 Cactus Court, North Vancouver, B.C.

This report covers work performed on Chopaka (3174) and if accepted will put this claim in good standing until 1996.

The Chopaka Claim Group is located in the Osoyoos Mining Division and consists of the following:

Claim	Units	Record No.	Record Date
Chopaka	15	3174	June 5, 1989
Chopaka 1	1	3223	August 26, 1989
Chopaka 2	1	3224	August 26, 1989
Chopaka 3	1	3300	November 11, 1989
Chopaka 4	1	3301	November 13, 1989
Chopaka 5	1	3302	November 13, 1989
Chopaka 6	1	3303	November 13, 1989
Chopaka 7	1	3304	November 13, 1989
Chopaka 8	1	3371	April 10, 1990
Chopaka 9	1	3372	April 10, 1990
Chopaka 10	1	3373	April 10, 1990
Chopaka 11	1	3374	April 10, 1990

1.6 AREA AND PROPERTY HISTORY

There are no known records of the workings on the property which consist of a 5 meter adit and two trenches. The workings likely date back to early exploration in the 1920's.

Two assessment reports, dating back to 1985 (Weymark) and 1986 (Crooker), are available covering the southern portion of the Chopaka claims and are identified in item 7.0 References. Both reports provided useful information about the area around the adit. Although there is evidence of previous staking on the central and northern portion of the claims there are no known records available of work undertaken.

The Nighthawk-Chopaka area of Washington State has been the scene of mining activity since the 1880's. Intermittent production has taken place at the Four Metals Mine, Kaaba Texas, Little Chopaka Six Eagles, Ruby Mines, etc. The main values were in silver and lead with lesser values in zinc, copper and gold. Deposits were found in quartz veins. Exploration continues in the area. Geology and Mineral Deposits, Loomis Quadrangle, Okanogan County, by Rinehart and Fox, page 120, suggests that, although previous mining has depleted known reserves, several areas offer the most potential for exploration, one of which is the altered area within the Similkameen pluton north of Nighthawk. The Chopaka claims appear to fall within this area.

To the north and adjacent to the Chopaka Claims Group the Horn Silver deposit, currently operated by Dankoe Mines, has been intermittently in production from 1920 to 1984. A Mill facility is located on site and has recently operated for short periods of time on a custom-milling basis. Reported production from this deposit is over ten thousand ounces of gold and four million ounces of silver. Production is also recorded from the Mak-Sikkar north of Dankoe Mines and the Fairview mining camp to the north-east.

Approximately 13 kms to the east of the Chopaka Claim Group, the Dividend deposit has a reported production of 16,000 ounces of gold.

To the west and across the Similkameen River limited exploration has taken place because of its inaccessibility, however, several areas of mineralization have been recorded.

Exploration continues in the area on known occurrences and generally throughout. A large block of claims, on Richter and Kobau Mountains, was staked in 1988 by Minova Corp. and exploration undertaken.

2 . 0 EXPLORATION PROCEDURE

2.1 GENERAL

Two areas of the property were explored, namely:

A) the grid established in the north-central portion of the claim,
B) the adit area in the southern portion of the claim,

Basic prospecting, rock and soil sampling, and analysis using the Bloom test method with follow-up laboratory analysis took place at both locations. A magnetometer survey was conducted in the grid area.

2.2 LOCATIONS AND PROCEDURES

A) GRID AREA:

A 7 km. grid was established. A 1000 meter north-south baseline was placed 750 meters west of the eastern boundary of Chopaka (3174). Starting at a point 50 meters below the north boundary line of Chopaka (3174) the baseline was extended south with pickets placed every 100 meters. Lines were extended to the east and west of the baseline at Lines 200, 300, 400, 500, 600 and 700. Above Line 200 talus slopes made soil sampling difficult. Lines below Line 700 were not placed. Wooden pickets were placed every 100 meters along the lines and stations identified every 25 meters.

Soil samples were taken at every station from the brown "b" horizon using a standard long handled shovel with a galvanized scoop at depths of 5 to 15 cm. Rock samples, which showed signs of alteration or mineralization, were collected. In areas of interest soil and rock samples were taken between the lines. A total of 244 soil samples were taken, tested by the Bloom method, and bagged. Ninety-four soil samples and 38 rock samples were sent for laboratory analysis. A magnetometer survey using a Scintex MP-2 took place along the lines with readings at 12.5 meter stations.

Gold and Silver values are plotted on Figure 5 on a scale of 1:2500. Bloom test results are shown on Figure 4.

B) ADIT AREA:

Rock samples were taken of the two quartz veins intersected by the adit as well as a sample from a thin quartz veinlet to the west of the adit. Other thin quartz veinlets were found above the adit. The surrounding area is covered by overburden and extension of the adit veins was not found. Four rock samples were analyzed.

Three soil samples were taken downslope from the Adit at intervals of 10 meters and were sent for analysis.

A small grid was established approximately 700 meters northwest of the adit in the area of a previously reported anomalous silver value in soil samples. Thirty soil samples were taken of which 9 were sent for analysis.

One soil sample was taken and analyzed from a point 850 meters northeast of the adit and immediately south of Highway 3 at a previously reported copper anomaly in a soil sample.

Gold and Silver values are plotted on Figures 3 at a scale of 1:5000.

2.2 GEOCHEMICAL ANALYTICAL METHODS

Soil samples were initially tested using the Bloom test method, a field test for total heavy metals (Zn,Pb and Cu). The test is quantitative and is designed to differentiate obvious anomalies from background values. This method was useful in identifying areas worthy of more detailed prospecting and determining which samples were to be chosen initially for laboratory analysis. This method is described in detail in Appendix II. Results are plotted on Figure 4.

Selected soil and rock samples were taken for laboratory analysis to either Min-En Laboratories Ltd., 705 West 15th St., North Vancouver or Acme Analytical Laboratories Ltd., 852 East Hastings St., Vancouver, B.C. Laboratory techniques for geochemical analysis consists of preparing samples by drying at 95° C, and sieving or grinding to minus 80 mesh. An ICP (Min-En - 31 elements and Acme - 30 elements) analysis and Au (fire assay, aqua-regia digestion, atomic absorption finish) are then carried out on the samples.

2.3 GEOPHYSICAL SURVEY - MAGNETOMETER

A total field magnetic survey using a Scintrex MP-2 magnetometer was conducted over the grid area for a total of 7 kms. Survey lines are spaced every 100 meters and stations every 12.5 meters along the lines.

A base station reading was taken at the beginning of the survey. These values were used to obtain standard values for all baseline readings. All loops ran off the baseline were then corrected to these standard values by the straight line method.

Magnetometer data is plotted on Figure 6 at a scale of 1:2500.

3 . 0 GEOLOGY AND MINERALIZATION

3.1 REGIONAL AND CLAIM GEOLOGY

The Chopaka claim group is underlain by the Similkameen composite pluton which is defined as a zoned pluton with quartz monzonite and granodiorite composition in the central part, a complex of alkalic rocks in the marginal part, and monzonite in the intervening part. The pluton is estimated to be 130 sq. miles in area. It is considered to be of Jurassic or Cretaceous age and generally believed to be part of the Nelson plutonic complex. The claims are specifically underlain by a grey granodiorite.

To the north, and possibly intersecting the northeast corner of the Chopaka Claim Group, contact is made with the syenite which forms a east-west trending band of between 2.0 km to 1.3 km. The Dankoe Mine is located within the western edge of this band, overlooking the Similkameen River.

The Kobau group, which has been intruded by the Similkameen pluton and the syenite, is located to the north. It is comprised of a great thickness of metamorphosed, stratified rocks mainly of sedimentary origin and considered to be of Carboniferous age. Quartzites, mica schists, and greenstones characterize this formation.

A number of mafic dykes intrude the granodiorite on the Chopaka claims and generally are in a northeast-southwest direction. Thin pink feldspar veinlets are also present in the granodiorite in several locations.

A magnetic outcrop, R38, of approximately 15 square meters was located at L190 E525. A sample was sent for petrographic analysis and was classified as a medium grained mafic rich diorite made up of 40% hornblende. The petrographic analysis is contained in Appendix II. This outcrop was intruded by two mafic dykes, R27 and R29, which contained anomalous values in silver and other minerals.

A small outcrop of magnetic diorite was found at L400 E212.5, which was similar in appearance to the above but composed of a smaller grain size. Specimens of this rock type are prominent in float on the claim. This rock was not analyzed.

3.2 MINERALIZATION AND ALTERATION

Mineralization was found in quartz veins, altered granodiorite, and float. Anomalous silver values were found in mafic dykes.

The adit in the south section of the claims intersects two mineralized quartz veins. Quartz, up to 50 cm wide, occurs within a wider

shear zone. The zone strikes S 63° E and dips 25° - 30° S.E. It contains galena, pyrite, sphalerite, chlorite, malachite and sericite. Silver values, and to a lesser degree gold values, are revealed in laboratory analysis.

A 10 cm quartz vein was located at L600 E210. It strikes N 72° E and dips 90°. Contact with the granodiorite is sharp with very little alteration. Pyrite, sphalerite, chlorite, hematite and chalcopyrite are observed. The quartz is layered and carbonization is evidenced by reaction to acid. Analysis resulted in values up to 460 ppb gold, 8.0 ppm silver, 303 ppm zinc and 281 ppm copper. Soil anomalies east along Line 600 imply an extension of this vein which is covered by overburden after an exposure of 2 meters.

Altered granodiorite containing thin quartz veinlets was located along Lines 500, 600 and 700 at points that infer a possible northwest-southeast zone of alteration. Hydrothermal alteration in the granodiorite is mainly in the form of iron staining, with some pyrite, sericite and chlorite. Values in outcrops up to 220 ppb gold and 1.7 ppm silver were revealed in analysis with no significant values in other minerals. A float sample of quartz pegmatite found at the above location returned values of 455 ppb gold and 3.5 ppm silver.

The highest gold and silver values were found in float samples at L500 E035 in a vuggy quartz containing hematite. Analysis resulted in values of 2750 ppb gold and 8.8 ppm silver. Surrounding altered granodiorite float returned values of 1100 ppb gold and 4.8 ppm silver. These samples were found downslope from a series of gold anomalies in soil up to 350 ppb gold.

Mafic dykes, ranging in width from several cms to 5 meters, were located at a number of locations throughout the grid area. These dykes are magnetic and show various amounts of carbonate precipitate and iron staining. Silver values of up to 4.5 ppm silver were recorded with some samples showing minor values in other minerals such as 291 ppb lead.

Other rock samples with anomalous gold and silver values are shown in Figures 3 and 5.

4 . 0 GEOCHEMISTRY

4.1 SOIL SAMPLING

A total of 107 soil samples were analyzed by recognized analytical laboratories. This included 70 samples tested for Au + an ICP, 10 were sampled for ICP only, and 27 were analysed for Au only.

A) GRID AREA:

Background and anomalous values were calculated as follows:

ELEMENT	BACKGROUND	ANOMALOUS
*Au	11.54 ppb	$\geq$ 20 ppb
Ag	.57 ppm	$\geq$ 1.2 ppm
As	6.65 ppm	$\geq$ 13 ppm
Zn	77.37 ppm	$\geq$ 144 ppm
Pb	15.62 ppm	$\geq$ 32 ppm
Cu	43.71 ppm	$\geq$ 86 ppm

* Sample #54 - 350 ppb Au has not been included in order to avoid distortion of background and anomalous values.

GOLD:

A total of 93 samples were analyzed for Au and 15 samples returned anomalous values, ie., $\geq$ 20 ppb. Values ranged from <1 ppb to 350 ppb.

SAMPLE NO.	LOCATION	Au ppb	Ag ppm	As ppm	Zn ppm	Pb ppm	Cu ppm
20	L600 E200	78	1.0	1	113	53	52
112	L600 E215	30	.8	9	62	23	49
22	L600 E250	28	.9	9	57	19	51
43A	L700 E450	39	.7	6	76	18	34
50	L500 E025	68	1.1	7	93	27	45
151	L400 W225	20	1.0	22	75	21	36
195	L300 W250	27	.1	7	71	2	48
256	L300 E075	25	.2	7	75	2	28
267	L400 E075	74	-	-	-	-	-
52	L500 E075	39	-	-	-	-	-
53	L500 E100	35	-	-	-	-	-
269	L400 E025	39	-	-	-	-	-
263	L400 E175	28	-	-	-	-	-
54	L500 E125	350	-	-	-	-	-
60	L500 E275	29	-	-	-	-	-

SILVER:

A total of 67 samples were tested for Ag and 2 returned anomalous values, ie., $\geq$ 1.2 ppm. Values ranged from .1 ppm to 1.3 ppm.

SAMPLE NO.	LOCATION	Au ppb	Ag ppm	As ppm	Zn ppm	Pb ppm	Cu ppm
11	L300 E400	6	1.3	8	77	23	79
21	L600 E225	3	1.2	12	74	33	56

ARSENIC:

A total of 67 samples were tested for As and 9 returned anomalous values, ie., $\geq$ 13 ppm. Values ranged from 1 ppm to 29 ppm.

SAMPLE NO.	LOCATION	Au ppb	Ag ppm	As ppm	Zn ppm	Pb ppm	Cu ppm
47	L700 E575	-	1.1	16	58	17	55
31	L700 000	2	.7	14	67	19	55
113	L600 E220	5	1.0	13	65	23	51
122	L600 W150	5	1.0	29	69	19	52
151	L400 W225	20	1.0	22	75	21	36
162	L200 W325	10	1.1	18	68	23	66
175	L500 W275	10	.9	13	62	19	53
217	L200 E400	5	.8	23	56	26	43
219	L300 E450	10	.8	26	70	23	38

ZINC:

A total of 67 samples were tested for Zn with 1 anomalous value, ie., $\geq$ 144 ppm. Values ranged from 47 ppm to 145 ppm.

SAMPLE NO.	LOCATION	Au ppb	Ag ppm	As ppm	Zn ppm	Pb ppm	Cu ppm
140	L200 W025	10	.1	2	145	7	27

LEAD:

A total of 67 samples were tested for Pb and 3 returned anomalous values, ie., $\geq$ 32 ppm. Values ranged from 2 ppm to 53 ppm.

SAMPLE NO.	LOCATION	Au ppb	Ag ppm	As ppm	Zn ppm	Pb ppm	Cu ppm
20	L600 E200	78	1.0	1	113	53	52
21	L600 E225	3	1.2	12	74	33	56
110	L600 E190	3	.9	5	100	33	41

COPPER:

A total of 67 samples were tested for Cu and 1 returned an anomalous value, ie., $\geq$ 86 ppm. Values ranged from 13 ppm to 89 ppm.

SAMPLE NO.	LOCATION	Au ppb	Ag ppm	As ppm	Zn ppm	Pb ppm	Cu ppm
283	L190 E550	5	.5	1	89	22	89

DISCUSSION:

Anomalous soil values from the area of L600 E210 correspond to the analysis of rock samples from the 10 cm mineralized quartz vein which contains anomalous values in gold, silver, arsenic, lead and zinc.

An anomalous zone in gold occurs downslope and to the east from sample # 54 (350 ppb au), which is located at L500 E125. Extensions uphill and to the north on Lines 400 and 300 can also be inferred. Seven anomalous samples, not all of which are continuous, are found in this location. Float samples, R31 (rusty quartz) and R 32 (altered granodiorite wallrock), found within this zone returned gold values of 2750 ppb and 1100 ppb.

Sample # 43A (39 ppb Au), located at L700 E450, was found in the vicinity of rock sample R49, which is mineralized quartz float with anomalous values in gold (75 ppb) and silver (4.8 ppm).

Higher than average values in zinc and copper in soils were found downslope from the mafic rich diorite outcrop located at L190 E550.

B) ADIT AREA:

A total of 12 samples were taken in the south section of the claim. Only 2 samples, which were taken downslope from the adit at 10 meter intervals, showed anomalous values with the exception of copper.

SAMPLE NO.	LOCATION	Au ppb	Ag ppm	As ppm	Zn ppm	Pb ppm	Cu ppm
13	20 m of adit	35	2.8	21	171	84	36
14	10 m of Adit	44	3.2	16	177	96	42

DISCUSSION:

The anomalous values found in the above 2 soil samples correlate with geochemical analysis of the rock samples taken from the adit. It is also possible that other quartz veins occur below the adit, covered by overburden, and have influenced these soil samples.

4.2 ROCK SAMPLING:

A total of 42 rock samples were taken for analysis, with 32 samples analyzed for Au and ICP, 9 samples were analyzed for ICP only and 1 sample for Au only. Two samples were analyzed for the platinum group of metals. Comments regarding rock samples have been discussed in section 3.0, Geology and Mineralization, of this report. Locations and descriptions of rock samples are shown in Appendix IV.

Certificates of laboratory analysis for both rock and soil are contained in Appendix I.

Sample numbers are not continuous along the lines and lab analysis occurred on several occasions, therefore, reference to Figures 3 and 4 is necessary. Also, a number of rock and soil samples appear in the certificates of analysis which were taken from other sections of the Claim Group, not covered by this report, and these have been noted on the certificates.

Locations of anomalous Au/Ag values in rock and soils are shown on Figures 3 and 5. Figure 7 shows the location of anomalous gold values in rock and soils with the contouring of magnetometer readings.

5 . 0 GEOPHYSICS

5.1 MAGNETOMETER

A magnetometer survey took place along the grid for a total of 7 km. Readings ranged from a low of 55,961 gammas to a high of 57,724 gammas. The mean average reading was approximately 56,800.

A rock outcrop at L190 E575, was surveyed in detail using the magnetometer. An area of approximately 15 square meters was revealed in readings higher than the surrounding area with the highest reading at 61,000 gammas. Contouring of magnetic data, as shown in Figure 6 indicates a possible extension of this outcrop to the south. A sample of this rock, R38, was analyzed for Au and ICP and the platinum group. A petrographic interpretation defined the rock as a mafic rich diorite.

An isolated high reading of 57,375 at L400 W212.5 was also surveyed in detail but did not indicate extension in any direction beyond several meters of similar high readings. However, a reading of 56,405 was recorded 2 meters below the high reading which would imply a sharp contact of different rock types. A small outcrop of diorite, similar in appearance to R38, but of a smaller grain size, was located at the high reading.

Contouring of magnetic data in Figure 6 shows the grid area to have a number of zones where readings are higher than the mean average. The presence of diorite and mafic dykes which react to a pocket magnet are likely sources. The varying depth of overburden, which is very prominent, would also account for changes in readings. The low readings in gullies may be indications of faulting.

Figure 7 shows magnetic contours in relation to anomalous gold values in rock and soil samples many of which occur in areas of higher readings.

Unadjusted magnetic readings for all stations are listed in Appendix VI.

6 . 0 CONCLUSIONS AND RECOMMENDATIONS

The Chopaka Claim Group is located in an area that has the potential for discoveries of economically viable ore deposits. The close proximity of past producing deposits such as the Dankoe Mine and the Nighthawk-Chopaka camp are favourable indications of this potential. Although the Chopaka claims have likely been prospected on several occasions in the past, the presence of extensive overburden would have hampered basic prospecting. Modern geochemical and geophysical methods provide a greater opportunity for discoveries in this environment.

The 1989\1990 work program on the Chopaka claims resulted in the following findings:

1) discovery of a narrow 10cm mineralized quartz vein containing anomalous gold, silver and several base metals,

2) identification of altered granodiorite containing anomalous gold and silver values in a possible zone,

3) location of an anomalous zone of gold in soil with values up to 350 ppb, which is in the vicinity of float samples containing values up to 2750 ppb gold,

4) discovery of float samples in several other areas of the claims showing gold and silver anomalies,

5) location of an outcrop of a mafic rich diorite which is in contact with the granodiorite and as a result offers the potential of mineralization,

6) several anomalous gold values which are coincidental with higher magnetic readings,

7) mafic dykes, which appear to be the latest occurrence, contain anomalous silver values,

8) and,identification of minor gold values in the adit veins.

Recommendations are as follows:

- A VLF-EM survey should be conducted over the grid area. Electromagnetic data can then be correlated with known data from the magnetometer survey and geochemistry. Conductive zones such as mineralized veins and shear fracture zones, as well as mineralization at the contact of different rock types, may be revealed.

- A detailed soil sampling survey should take place over the gold anomaly found in the soil above rock sample R31. A more closely spaced grid should be established and sampling initially concentrated at the location of sample #54 (350 ppb gold.)

- The area around the adit should be further explored in a detailed survey using geochemical and geophysical methods. A number magnetic highs and EM conductors were outlined in the 1985 assessment report.

- Based on the favourable results of this program further exploration on the unexplored areas of the Chopaka Claim Group is warranted.

7 . 0 REFERENCES

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Province of British Columbia

Ministry of Energy, Mines and Petroleum Resources

THIS IS TO CERTIFY THAT

MIKE HARRIS

HAS SUCCESSFULLY COMPLETED

ADVANCED PROSPECTING COURSE - 1989

AND IS HEREBY GRANTED
THIS CERTIFICATE OF ACHIEVEMENT

DIRECTOR OF
PROSPECTORS' ASSISTANCE

COURSE INSTRUCTOR

MAY 11, 1989

DATE

Appendix I

CERTIFICATES OF ANALYSIS

MIN
• EN
LABORATORIES

SPECIALISTS IN MINERAL ENVIRONMENTS
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

VANCOUVER OFFICE:
705 WEST 15TH STREET
NORTH VANCOUVER, B.C. CANADA V7M 1T2
TELEPHONE (604) 980-5814 OR (604) 988-4524
TELEX: VIA U.S.A. 7601067 • FAX (604) 980-9621

TIMMINS OFFICE:
33 EAST IROQUOIS ROAD
P.O. BOX 867
TIMMINS, ONTARIO CANADA P4N 7G7
TELEPHONE: (705) 264-9996

Assay Certificate

9V-0652-RA1

Company: MIKE HARRIS
Project: CHOPAKA
Attn: M.HARRIS

Date: JUL-13-89
Copy 1. M.HARRIS, NORTH VANCOUVER, B.C.

He hereby certify the following Assay of 3 ROCKS samples submitted JUL-10-89 by M.HARRIS.

Sample Number	AU G/TONNE	AU OZ/TON
R#1	0.03	.001
R#2	0.20	.006
R#3	0.02	.001

Certified by _____

MIN-EN LABORATORIES

COMP: MIKE HARRIS
PROJ: CHOPAKA
ATTN: M.HARRIS

MIN-EN LABS ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 9V-0652-SJ1
DATE: JUL-14-89
* TYPE SOIL GEOCHEM * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU PPB
13	2.8	19330	21	1	151	1.2	4	10090	5.8	14	36	27070	2800	1	6020	1642	2	200	13	800	84	1	42	1	1	54.3	171	1	1	1	21	
14	3.2	22130	16	1	137	1.4	4	10630	6.0	15	42	29220	2920	1	6650	1735	3	230	14	1240	96	1	52	1	1	60.7	177	1	1	1	23	
22	.9	16330	9	1	104	1.2	7	11390	3.5	21	51	38760	3170	1	7510	728	3	440	18	1640	19	1	33	1	1	118.3	57	1	3	2	33	
23	.5	15800	4	1	115	1.0	5	8830	3.3	19	44	36060	3490	1	6650	685	3	370	16	1300	14	1	29	1	1	103.8	54	1	1	1	30	
26	.7	14340	6	1	79	1.0	5	11010	3.1	17	37	31380	3080	1	6130	623	2	360	11	1280	15	1	29	1	1	87.4	47	1	1	1	24	
43A	.7	21670	6	1	112	1.2	6	8680	3.2	19	34	34670	3830	1	7820	816	3	240	15	1350	18	1	35	1	1	87.5	76	2	3	1	29	
47	1.1	15990	16	1	104	1.1	6	10720	3.1	22	55	38020	3630	1	7560	715	3	390	19	1370	17	1	29	1	1	109.2	58	1	2	2	37	
~~49~~ 59	1.1	17250	12	1	112	1.2	6	11320	4.4	22	55	41360	3990	1	7590	757	2	510	17	1660	18	1	33	1	1	125.4	60	2	3	2	35	
70	.7	25700	4	1	128	1.5	7	10960	4.3	20	38	35910	4440	1	8900	1219	4	210	13	1560	25	1	55	1	1	89.3	106	3	3	1	24	
78	.5	17350	11	1	153	1.1	5	8490	3.4	19	48	35030	2410	1	7840	733	3	350	16	1210	18	1	31	1	1	96.3	62	1	1	2	35	
81	.4	18440	1	1	167	1.0	5	8530	3.5	19	48	34520	2490	1	8230	748	3	340	18	1220	17	1	33	1	1	94.5	65	1	1	2	35	
84	.4	16300	1	1	162	.9	5	7310	4.1	17	38	30790	2490	1	7140	699	3	270	17	1180	15	1	29	1	1	81.5	65	1	1	1	32	
88	.5	16460	3	1	157	1.0	5	8150	4.4	19	49	34280	2520	1	7990	714	3	300	17	1240	19	1	30	1	1	92.0	63	1	1	1	34	
90	.6	17950	5	1	166	.9	5	8340	3.5	19	47	34480	2620	1	7970	748	3	360	16	1180	19	1	32	1	1	92.9	65	2	1	1	35	
92	.6	17660	7	1	170	1.0	5	7990	4.0	19	46	34320	2470	1	7670	720	2	320	19	1160	17	1	31	1	1	90.7	64	2	1	1	34	
100	.6	17120	3	1	160	.9	5	8050	4.5	19	47	33760	2230	1	8080	694	2	330	17	1160	22	1	31	1	1	92.4	61	1	2	1	36	
11	1.3	23510	8	1	103	1.4	8	13350	4.4	22	79	38510	4290	1	9770	872	4	410	19	1620	23	1	42	1	1	103.0	77	3	3	2	38	6
12	.4	18050	3	1	163	1.0	5	8900	3.5	16	32	29920	3330	1	6890	1030	3	330	13	860	23	1	39	1	1	75.0	82	1	1	1	29	1
20	1.0	24870	1	1	71	1.4	7	10900	4.4	19	52	38410	4700	1	8580	925	2	320	12	1440	53	1	42	1	1	97.6	113	2	2	2	27	78
31	.7	17700	14	1	119	1.2	5	10440	3.4	20	55	38940	2700	1	7840	694	2	330	18	1480	19	1	34	1	1	111.1	67	1	2	2	34	2
73	.9	22980	1	1	116	1.3	7	9430	3.7	21	46	36090	5190	1	9360	1000	3	280	13	1380	19	1	42	1	1	94.9	88	2	3	2	29	1
76	1.0	16520	4	1	134	.9	6	20070	3.7	19	49	34090	2730	1	8240	658	3	410	17	1590	19	1	33	1	1	104.2	60	2	2	2	34	2
102	.7	17690	2	1	158	1.0	6	8360	3.2	18	42	32270	2930	1	7480	684	3	420	17	1150	16	1	32	1	1	90.7	61	1	1	1	33	1

COMP: MIKE HARRIS
PROJ: CHOPAKA
ATTN: MIKE HARRIS

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 9V-0757
DATE: JUL-29-89
* TYPE SOIL GEOCHEM * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU PPB
8	.9	17970	5	1	93	1.2	7	11410	3.9	20	55	37160	3590	17	8150	671	2	510	14	1140	21	1	34	1	1	108.5	58	2	1	1	22	2
71	.5	23340	8	1	148	1.2	8	8580	3.1	20	38	36330	5440	25	8720	1051	2	280	14	1350	25	1	34	1	1	92.4	91	1	3	1	19	3
108	1.0	18030	8	1	103	1.2	7	10580	3.0	19	47	36840	3440	14	6850	737	2	400	12	1430	23	1	32	1	1	107.5	63	1	3	1	21	6
111	.9	21280	9	1	100	1.4	8	12010	3.2	20	50	37970	4030	16	7760	767	2	440	15	1300	20	1	41	1	1	108.7	66	2	3	2	23	4
112	.8	18500	9	1	114	1.2	8	10390	2.6	20	49	36650	3460	14	7510	748	2	430	16	1280	23	1	31	1	1	106.0	62	1	2	2	23	30
113	1.0	18400	13	1	124	1.1	8	11580	3.5	21	51	36620	3520	13	7660	765	2	480	15	1520	23	2	36	1	1	108.7	65	2	2	1	24	5
114	.7	22340	7	1	122	1.1	7	9100	2.8	17	34	32170	3330	18	6660	740	2	370	18	1070	22	1	34	1	1	82.5	74	1	2	1	18	
115	.7	28330	8	1	121	1.7	8	10400	3.2	19	44	33440	5070	38	9310	1255	2	310	22	1090	27	1	52	2	1	76.9	122	2	2	1	12	5
116	.9	31700	1	1	97	1.7	8	10200	3.3	18	41	34250	4390	30	9080	596	2	280	13	880	19	1	56	2	1	77.7	81	2	1	1	14	

COMP: MIKE HARRIS
PROJ: CHOPAKA
ATTN: MIKE HARRIS

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 9V-0757-RJ1
DATE: JUL-29-89
* TYPE ROCK GEOCHEM * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU PPB
R4	3.4	6850	1	1	30	.7	1	1770	1.9	4	133	17970	3240	4	1940	534	1	120	1	490	602	2	18	1	1	16.1	156	1	1	1	191	2
R5	.3	1830	216	1	10	.2	1	580	5.2	3	10	6290	740	2	790	100	2	120	4	90	13	1	2	1	1	8.7	82	1	1	3	279	2
R6	.4	5250	2	1	29	.5	4	3290	1.5	6	37	10610	2640	7	3110	272	1	510	5	430	13	1	16	1	1	25.2	24	2	1	1	199	1

MIN
• EN
LABORATORIES

SPECIALISTS IN MINERAL ENVIRONMENTS
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

VANCOUVER OFFICE:
705 WEST 15TH STREET
NORTH VANCOUVER, B.C. CANADA V7M 1T2
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TIMMINS OFFICE:
33 EAST IROQUOIS ROAD
P.O. BOX 867
TIMMINS, ONTARIO CANADA P4N 7G7
TELEPHONE: (705) 264-9996

Geochemical Analysis Certificate

9V-0652-SG1

Company: MIKE HARRIS
Project: CHOPAKA
Attn: MIKE HARRIS

Date: JUL-30-89
Copy 1. MIKE HARRIS, NORTH VANCOUVER, B.C.

He hereby certify the following Geochemical Analysis of 5 SOIL samples submitted JUL-11-89 by MIKE HARRIS.

Sample Number	AU-FIRE PPB
22	28
43A	39
47	11
59	17
70	3

Certified by _____

MIN-EN LABORATORIES

COMP: MIKE HARRIS
PROJ: CHOPAKA
ATTN: MIKE HARRIS

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 9V-0822-SJ1
DATE: AUG-07-89
* TYPE SOIL GEOCHEM * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU PPB
21	1.2	21160	12	1	119	1.7	9	11880	2.4	24	56	44330	3980	13	8060	773	3	510	17	1380	33	2	35	1	1	130.1	74	1	1	3	17	3
37	.7	21490	6	1	123	1.5	8	12370	3.4	20	40	38200	3710	17	7540	1006	3	430	11	1600	24	1	42	1	1	108.3	89	1	1	2	9	9
50	1.1	24880	7	1	132	1.5	9	12410	3.2	21	45	39360	3900	18	7630	945	3	410	14	1510	27	1	47	1	1	109.0	93	1	2	2	13	68
109	.8	24530	6	1	135	1.5	9	11240	2.0	21	40	41140	4480	16	7230	995	3	460	15	1470	26	1	40	1	1	113.8	86	3	1	2	11	6
110	.9	26120	5	1	126	1.6	9	12180	2.7	20	41	38130	3960	18	7740	1097	2	480	13	1640	33	1	47	1	1	104.2	100	1	1	2	10	3

COMP: MIKE HARRIS
PROJ: CHOPAKA
ATTN: MIKE HARRIS

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 9V-0822-RJ1
DATE: AUG-08-89
* TYPE ROCK GEOCHEM * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU PPB	PT PPB	PD PPB
R.C.-7	4.1	2250	21	2	9	.5	7	1340	3.2	37	161	74790	570	1	1330	110	26	60	1	150	29	1	5	1	1	66.6	303	1	1	1	167	250	13	3
R-2	.9	11870	1	1	146	.8	4	19310	1.5	8	66	13930	7080	11	3610	951	2	180	3	930	17	1	12	2	1	24.4	37	1	1	1	99			
R-3	3.8	19820	9	1	38	1.8	23	46810	6.1	38	47	50820	1290	31	21630	907	5	860	24	2320	53	3	22	1	1	150.8	99	2	3	2	32			

COMP: MIKE HARRIS
PROJ: CHOPAKA
ATTN: MIKE HARRIS

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 9V-1049-RJ1
DATE: SEP-07-89
* TYPE ROCK GEOCHEM * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU PPB
R08	.9	11960	12	1	116	.9	2	7410	.5	8	22	18830	4550	12	4280	768	2	360	3	830	4	1	13	1	1	25.9	37	1	1	2	201	203
R09	1.6	25520	36	1	70	1.9	12	20260	1.1	31	51	42600	1790	52	26520	758	7	1240	58	1700	36	1	32	1	1	107.4	85	3	2	2	151	
R10	2.3	12470	24	1	55	1.7	14	14120	.5	23	55	32590	2120	22	13200	572	4	1550	21	1860	31	1	33	1	1	90.2	80	3	3	2	85	
R11	2.5	18370	17	1	42	1.9	15	25020	.7	32	66	47430	1730	35	18840	729	6	840	19	2280	41	1	16	1	1	133.7	83	3	3	1	22	2
R12	2.3	14120	24	1	70	1.7	15	13250	.9	24	59	34100	2520	31	14250	538	4	1410	25	1900	26	1	26	1	1	96.6	81	3	3	2	77	
R13	2.3	14920	24	1	79	1.8	15	14790	.7	23	54	32750	2570	29	13710	516	4	2090	21	1850	23	1	42	1	2	91.5	83	3	3	2	85	
R14	4.1	23020	12	1	75	2.1	25	28430	.8	45	97	55430	1610	38	25280	923	7	1790	53	2530	45	2	46	2	1	165.2	97	4	4	2	72	
R15	1.2	15510	14	1	70	1.5	10	15560	.5	23	49	39050	1800	30	16290	718	4	740	22	2020	34	1	22	1	1	101.8	79	3	2	1	38	3
R16	.6	22090	1	1	97	1.7	7	34650	.5	24	53	42160	3910	28	15890	745	6	700	28	1950	23	1	57	1	1	101.0	78	3	2	1	29	2

COMP: MIKE HARRIS
PROJ: CHOPAKA
ATTN: MIKE HARRIS

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 9V-1291-RJ1
DATE: OCT-09-89
* TYPE ROCK GEOCHEM * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU PPB
R-17	1.3	19010	1	1	50	1.5	7	20310	.1	27	61	43080	1200	32	22380	754	6	1010	38	1870	45	6	58	1	1	115.6	96	2	1	2	67	
R-18	1.5	23030	1	1	54	1.7	11	16230	1.1	31	58	42740	1100	65	31350	683	8	1130	76	1640	56	4	31	1	1	105.3	86	1	1	3	169	5
R-19	1.0	20440	1	1	64	1.4	7	21680	1.4	24	44	38900	2200	37	19750	613	5	800	36	1770	38	1	41	1	1	99.1	76	1	1	2	54	
R-20	2.0	26330	1	1	39	1.7	13	19480	.6	25	44	35240	1780	59	14380	579	5	780	33	1460	41	1	92	1	1	85.5	85	2	1	1	40	5
R-21	.1	3430	19	1	14	.2	2	2460	.1	3	8	5150	960	7	1160	81	1	310	5	150	4	1	27	2	1	11.0	16	1	1	1	113	5
R-22	.5	5160	1	1	90	.5	2	12600	1.1	3	5	4710	3850	6	880	480	1	180	3	880	3	1	12	1	1	10.4	13	1	1	1	81	20
R-23	.6	12130	1	1	57	.8	6	11320	.2	10	8	18250	4430	20	7220	624	3	280	4	860	21	1	47	1	1	33.9	61	1	1	1	62	5
R-24	1.4	7620	1	1	76	.6	2	14710	1.0	7	26	16870	3180	10	3800	859	3	190	4	830	14	1	17	1	1	15.3	36	1	1	1	71	110
R-25	1.7	7000	17	1	80	.6	1	20420	.1	7	10	12990	5030	11	3160	957	3	130	3	720	11	1	11	1	1	13.7	32	1	1	1	78	220
A1 #155 SOIL	.6	16020	1	1	110	1.2	6	8060	.1	16	37	27610	2810	12	5830	644	1	310	15	1260	24	1	31	1	1	75.4	63	1	1	1	6	

COMP: MIKE HARRIS
PROJ: CHOPAKA
ATTN: MIKE HARRIS

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 9V-1387-SJ1
DATE: OCT-30-89
* TYPE SOIL GEOCHEM * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU PPB
122	1.0	17750	29	1	125	.9	9	8790	.1	20	52	36880	3410	35	7440	623	3	380	18	1290	19	1	34	1	1	105.1	69	2	2	1	34	5
151	1.0	16350	22	1	96	1.0	8	9670	.1	18	36	35150	3480	16	6420	704	3	330	12	1370	21	1	33	1	1	97.9	75	1	1	1	25	20
160	1.1	18970	1	1	121	1.1	8	9200	.1	19	34	36650	3970	18	7260	909	4	310	12	1330	18	1	35	1	1	98.6	91	2	2	1	27	10
162	1.1	15070	18	1	99	1.2	9	9280	.1	23	66	43120	3970	14	8880	736	3	400	19	1370	23	3	33	1	1	127.1	68	2	2	2	39	10
168	.9	21120	9	1	88	1.4	8	10020	1.1	20	28	40400	6060	31	10070	1485	5	280	9	1850	28	1	35	3	1	95.7	133	2	2	1	13	5
175	.9	15830	13	1	102	.9	8	9030	.1	20	53	39450	3130	15	7030	630	2	400	15	1210	19	1	35	1	1	118.0	62	1	2	1	31	10
217	.8	13250	23	1	75	.9	7	43750	1.1	15	43	24510	3320	16	9670	611	4	260	15	1350	26	2	47	1	1	64.0	56	1	1	1	23	5
219	.8	18720	26	1	105	.9	8	9320	.1	19	38	32540	3940	17	6640	781	4	320	13	1340	23	1	31	1	1	85.3	70	2	2	1	25	10

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VANCOUVER OFFICE:
705 WEST 15TH STREET
NORTH VANCOUVER, B.C. CANADA V7M 1T2
TELEPHONE (604) 980-5814 OR (604) 988-4524
TELEX: VIA U.S.A. 7601067 • FAX (604) 980-9621

TIMMINS OFFICE:
33 EAST IROQUOIS ROAD
P.O. BOX 867
TIMMINS, ONTARIO CANADA P4N 7G7
TELEPHONE: (705) 264-9996

Geochemical Analysis Certificate

9V-1387-SG1

Company: MIKE HARRIS
Project: CHOPAKA
Attn: MIKE HARRIS

Date: OCT-30-89
Copy 1. MIKE HARRIS, NORTH VANCOUVER, B.C.

He hereby certify the following Geochemical Analysis of 14 SOIL samples submitted OCT-20-89 by MIKE HARRIS.

Sample Number	AU-WET PPB
055	5
118	10
127	5
140	10
143	10
172	10
178	5
190	5
184	10
199	5
201	10
204	5
040A	5
044	5

Certified by _____

MIN-EN LABORATORIES

COMP: MIKE HARRIS
PROJ: CHOPAKA
ATTN: MIKE HARRIS

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 9V-1535-SJ1
DATE: NOV-21-89
* TYPE SOIL GEOCHEM * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU PPB
57	.4	15390	1	1	102	1.1	5	7070	1.8	15	32	32510	2910	14	5810	698	1	220	16	1360	21	3	24	1	1	84.8	73	1	1	1	18	5
226	.4	20920	1	1	130	1.3	8	8410	.7	19	46	33700	4710	23	7820	1322	2	250	21	1270	18	2	23	1	1	80.6	117	1	1	1	20	5
235	.5	23680	1	1	127	1.5	8	7570	.7	17	55	33390	4390	26	7270	769	1	280	17	1160	22	1	27	1	1	79.8	85	1	1	1	22	10
248B	.4	19960	1	1	112	1.1	6	7840	2.0	17	34	30830	3790	19	6610	826	2	240	10	1150	11	1	31	1	1	77.4	76	1	1	1	21	5
253	.7	16430	2	1	94	1.2	7	8810	.9	16	34	28520	3510	20	7590	650	1	400	15	1080	9	2	39	1	1	79.3	66	1	1	1	22	5
260	1.0	18420	1	1	112	1.2	8	10080	.1	19	39	34560	3430	14	6880	698	3	450	17	1340	18	2	34	1	1	102.1	63	1	1	1	25	5
272	.9	22860	1	1	120	1.3	9	9890	.1	18	38	38470	3710	18	6630	715	1	350	14	1230	10	1	33	1	1	106.6	77	1	1	1	26	5
283	.5	20440	1	1	122	1.2	8	10260	1.0	18	89	32070	3640	23	7610	1102	2	330	15	810	22	2	38	1	1	84.3	89	1	1	1	22	5
284	.9	28580	1	1	142	1.9	8	11400	.1	21	66	43530	3990	30	8070	1024	2	390	13	1880	17	1	34	1	1	123.0	103	1	1	1	24	5
285	.6	23630	1	1	164	1.6	8	10270	.1	18	61	36030	3960	29	7420	1321	1	370	12	1470	12	1	37	1	1	99.6	116	1	1	1	18	5
286 *	.9	26230	1	1	165	1.6	9	10490	.1	20	45	37570	4230	20	7680	996	2	430	17	1240	18	1	27	1	1	106.0	94	2	1	1	25	5
287 *	.6	23460	1	1	129	1.1	7	6850	.1	15	30	30250	1820	15	5560	877	1	340	14	2250	13	1	22	1	1	80.9	98	2	1	1	20	5
288 *	1.0	21270	1	1	119	1.5	8	13130	.1	21	51	38340	3850	16	7820	876	2	540	15	1730	23	2	28	1	1	120.7	75	1	1	1	23	5
289 *	.8	22070	1	1	141	1.6	8	12020	.2	20	46	36130	4070	16	7430	892	1	520	15	1550	16	1	29	1	1	110.9	80	2	1	1	24	5
290 *	1.1	20020	2	1	122	1.5	8	13450	.6	20	42	39520	3590	14	7190	843	2	550	15	1850	22	2	27	1	1	127.1	78	1	1	1	25	10
291 *	.5	18970	3	1	122	1.4	5	10520	.1	17	34	35360	3130	14	6010	785	3	410	14	1390	4	1	23	1	1	107.6	72	1	1	1	21	5
292 *	.9	20370	1	1	150	1.1	6	9960	1.4	17	31	30260	3110	14	5750	838	3	470	11	1160	13	1	25	1	1	89.4	70	1	1	1	19	5
293 *	1.1	20700	1	1	126	1.6	7	11870	.1	20	41	37600	3460	15	7070	861	3	470	15	1470	14	4	24	1	1	115.0	73	1	1	1	25	5
294 *	1.1	20230	6	1	104	1.7	8	13800	.2	21	47	38030	4010	16	7900	933	1	550	13	1790	14	1	28	1	1	120.3	78	1	1	1	23	10
295 *	.9	20850	1	1	130	1.2	6	10190	.1	18	37	32570	2960	14	6450	766	2	440	16	1260	17	2	24	1	1	95.6	70	1	1	1	24	5
296 *	1.1	21480	21	1	137	1.5	9	9490	.1	19	38	34930	3630	15	6680	852	2	360	17	1150	16	1	23	1	1	99.3	78	1	1	1	27	20
297 *	1.0	17150	19	1	97	1.4	9	11850	.2	20	49	35880	3810	14	7480	864	1	440	17	1220	8	2	24	1	1	106.0	67	2	2	1	25	5
298 *	1.0	21220	1	1	114	1.4	8	9280	.3	19	46	36020	4240	17	7160	750	1	350	16	790	5	1	24	1	1	102.4	73	1	1	1	26	5

*286 - 298 not covered in this report.

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TIMMINS, ONTARIO CANADA P4N 7G7
TELEPHONE: (705) 264-9996

Geochemical Analysis Certificate

9V-1535-RG1

Company: MIKE HARRIS
Project: CHOPAKA
Attn: MIKE HARRIS

Date: NOV-23-89
Copy 1. MIKE HARRIS, NORTH VANCOUVER, B.C.

We hereby certify the following Geochemical Analysis of 10 ROCK samples submitted NOV-18-89 by MIKE HARRIS.

Sample Number	AU-WET PPB	AU-FIRE PPB	PT-FIRE PPB	PD-FIRE PPB
R38		7	12	4
R26	5			
R28	5			
R29	10			
R31	2750			
R32	1100			
R33	100			

Certified by _____

MIN-EN LABORATORIES

COMP: MIKE HARRIS
PROJ: CHOPAKA
ATTN: MIKE HARRIS

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 9V-1535-RJ1
DATE: NOV-23-89
* TYPE ROCK GEOCHEM * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM
R27	4.0	19940	211	1	173	1.3	14	18240	3.9	28	110	39630	4280	18	15180	613	6	2220	32	1520	291	1	266	1	10	100.2	133	1	2	1	23
R35	2.8	22130	36	1	176	1.7	17	20650	2.1	34	90	49580	3290	33	20890	775	9	1910	41	2340	84	3	100	1	1	136.8	99	3	2	2	39
R38	1.1	9320	46	1	39	1.7	7	26180	.1	27	12	70480	2030	9	13080	1049	6	1650	7	5370	52	1	26	1	1	269.2	80	2	3	2	54
R26	.4	10350	4	1	65	1.0	4	9030	.2	11	10	22530	3210	17	6220	697	3	280	6	940	26	1	17	1	1	46.2	59	1	1	1	64
R28	1.2	9370	55	1	18	1.5	9	25260	1.5	22	13	50380	1940	7	12150	867	5	1610	6	4090	50	2	26	1	1	176.6	62	1	3	2	61
R29	4.5	21080	45	1	171	1.9	25	28730	1.8	40	91	49770	4470	18	21770	992	9	3310	31	2180	66	7	125	1	1	149.7	98	3	4	2	42
R31	8.8	1320	10	1	19	.1	2	1440	.1	3	9	11160	640	1	500	219	3	50	4	130	8	1	2	1	1	6.4	23	1	1	2	305
R32	4.8	7380	1	1	123	.7	1	15370	15.2	7	24	14780	5370	9	2030	911	6	70	6	860	16	1	12	1	1	13.2	121	1	1	1	70
R33	1.0	9570	3	1	82	.5	5	17350	.1	9	10	16540	4330	17	4550	654	3	240	5	820	19	1	19	6	1	29.5	51	1	1	1	61

COMP: MIKE HARRIS
PROJ: CHOPAKA
ATTN: MIKE HARRIS

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: OV-0008-RJ1
DATE: JAN-09-90
* TYPE ROCK GEOCHEM * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU PPB
R1A	1.3	12260	66	1	46	1.1	7	2410	5.4	8	19	27790	5760	10	3720	2380	8	440	9	820	41	1	11	1	1	29.0	567	1	1	2	229	85
RC7A	8.0	3490	17	1	21	.2	14	500	.1	36	281	130100	1270	4	1290	146	79	20	1	40	40	1	2	1	1	91.8	47	1	1	3	428	460
R39	1.6	27110	49	1	102	.8	41	21320	.1	45	92	70890	1420	9	19040	1250	75	3560	45	880	18	4	2	1	1	185.6	103	2	3	11	1299	160
R48	3.5	6270	11	1	108	.5	5	600	.1	4	13	28710	4760	6	780	81	13	1050	2	270	14	1	29	1	1	24.3	44	1	1	4	479	455
R49	4.8	6480	92	1	106	.5	3	810	.1	8	18	30670	4340	1	650	482	8	60	8	340	12	1	8	1	1	16.7	37	1	1	4	488	75
R51	.2	1670	11	1	12	.2	2	140	.1	6	28	18410	740	2	750	84	22	30	6	100	4	1	1	1	1	12.1	15	1	1	3	348	20
R52	.2	2280	11	1	42	.3	2	1120	.1	2	11	12680	1350	1	560	79	7	20	4	850	11	1	7	1	1	19.6	18	1	1	4	525	220
R53	6.4	2280	155	1	11	.4	3	3280	.1	5	84	25790	850	4	1850	1265	6	30	10	140	88	1	6	1	1	7.0	99	1	1	4	552	30

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Michael J. Harris File # 90-0966 Page 1

2710 Cactus Court, North Vancouver BC V7H 1R8

	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	Pt** ppb	Pd** ppb	Rh** ppb
*	R 101	4	26	35	158	2.4	10	5	397	2.31	166	5	ND	4	7	1	2	2	16	.13	.037	7	12	.52	99	.01	2	.75	.01	.14	1	685	5	3	3
*	R 102	3	47	7	109	.2	7	5	880	1.57	8	5	ND	6	165	2	2	2	9	4.04	.083	9	9	.29	143	.01	2	.66	.01	.27	1	21	9	5	3

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: P1-P2 Rock P3 Soil P4-P5 Soil Pulp AU** PT** PD** RH** BY FIRE ASSAY & ANALYSIS BY ICP/GRAPHITE FURNACE.

DATE RECEIVED: APR 16 1990 **DATE REPORT MAILED:** April 20/90 **SIGNED BY.** C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

* R 101 and R102 not covered in this report

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*
R-103	25	23	2	25	.1	16	1	56	.98	10	5	ND	1	2	1	2	2	6	.03	.008	2	14	.02	34	.01	2	.04	.01	.02	2	2

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
29 L600 E500	1	43	3	71	.1	10	10	687	2.92	10	5	ND	2	178	1	4	2	52	1.32	.114	17	14	.75	73	.12	3	2.79	.01	.36	1	7
65 L500 E400	1	33	5	61	.1	14	11	689	3.07	9	5	ND	3	69	1	3	2	61	.83	.097	18	19	.62	97	.14	2	1.85	.02	.27	1	3
132 L200 W225	1	33	3	56	.1	13	11	591	3.60	5	5	ND	4	42	1	4	2	76	.57	.068	17	25	.56	76	.14	2	1.39	.01	.30	1	1
137 L200 W100	1	30	2	61	.1	14	11	560	3.74	6	5	ND	4	45	1	2	2	79	.58	.074	15	25	.52	96	.13	2	1.43	.01	.27	1	3
195 L300 W250	1	48	2	71	.1	20	12	625	3.71	7	5	ND	5	56	1	3	2	76	.77	.110	17	28	.72	117	.13	2	1.67	.01	.34	1	27
256 L300 E075	1	28	2	75	.2	15	10	631	3.15	7	5	ND	3	63	1	5	2	60	.65	.053	17	21	.51	157	.17	2	2.53	.02	.27	1	25
258 L300 E125	1	35	6	65	.1	16	11	630	3.57	8	5	ND	4	58	1	4	2	75	.71	.085	17	25	.51	130	.15	2	2.05	.02	.32	1	19
264 L400 E150	1	34	2	73	.1	16	12	714	4.04	7	5	ND	3	60	1	2	2	86	.82	.117	19	25	.52	109	.14	3	1.91	.02	.32	1	14
209 L200 E200	1	39	4	102	.1	20	13	885	3.93	4	5	ND	5	168	1	7	2	77	1.71	.127	24	47	1.42	25	.22	2	3.04	.01	.17	1	7
279 L700 W250	1	52	2	58	.1	23	14	549	4.42	5	5	ND	3	55	1	4	3	107	.72	.113	16	36	.65	112	.13	4	1.30	.02	.30	1	5
S300 BL N080 8 & 9	1	41	3	81	.1	11	12	907	3.84	2	5	ND	5	70	1	4	2	76	.86	.142	20	20	.93	92	.16	5	1.83	.02	.47	1	4
S301 BL N150 8 & 9	1	47	3	61	.1	15	12	582	3.75	3	5	ND	3	44	1	2	2	78	.71	.060	18	25	.69	92	.16	2	1.74	.02	.38	1	2
S302 BL N275 8 & 9	1	52	3	79	.1	16	13	678	4.15	5	5	ND	4	63	1	5	2	85	.75	.105	19	27	.81	100	.15	2	1.86	.01	.37	1	1
S303 BL N350 8 & 9	1	25	6	63	.1	14	11	721	3.82	3	5	ND	6	42	1	3	2	84	.61	.104	16	26	.53	98	.12	2	1.37	.01	.25	1	7
S304 BL N500 8 & 9	1	23	2	122	.1	15	11	872	3.46	8	5	ND	4	77	1	2	2	67	.75	.157	14	21	.65	187	.14	2	2.28	.02	.20	1	1
S305 BL N650 10 & 11	1	30	3	66	.2	16	12	844	3.60	3	5	ND	5	52	1	3	2	76	.56	.064	15	28	.55	162	.14	2	1.82	.01	.27	1	2
S306 DEEP GULLY 10 & 11	1	78	2	71	.1	17	14	783	4.30	7	5	ND	1	94	1	2	2	104	1.11	.144	21	27	.83	103	.15	12	1.59	.03	.37	1	13
S307 TOP BOUNDARY 10 & 11	1	28	4	60	.2	15	9	670	2.45	9	5	ND	3	54	1	4	5	51	.62	.087	12	20	.41	169	.11	3	1.70	.01	.18	1	1
STANDARD C/AU-S	18	59	37	133	6.8	68	31	1060	4.16	37	22	6	39	50	19	16	22	60	.52	.097	40	54	.97	181	.08	38	2.01	.06	.14	13	50

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
040A	1	13	10	102	.1	9	9	869	3.10	2	5	ND	8	74	1	2	2	59	.73	.087	20	17	.61	98	.17	3	2.15	.01	.41	1
044	1	34	8	63	.1	17	10	662	2.96	3	5	ND	4	62	1	2	2	60	.65	.101	17	26	.51	149	.15	3	1.77	.01	.32	1
055	1	51	4	66	.3	17	11	594	3.52	8	5	ND	5	64	1	2	3	80	.85	.142	20	25	.56	127	.14	6	1.68	.02	.34	1
118	1	42	10	59	.1	16	11	606	3.38	2	5	ND	6	65	1	2	2	77	.79	.128	20	26	.53	128	.15	2	1.66	.02	.29	1
127	1	55	9	54	.1	25	13	570	3.78	2	5	ND	3	50	1	2	2	92	.51	.064	15	35	.54	140	.16	2	1.44	.02	.38	1
140	1	27	7	145	.1	6	11	1509	3.31	2	5	ND	13	69	1	2	2	61	.71	.101	19	14	.79	177	.16	2	1.77	.01	.51	1
143	1	27	6	58	.1	15	10	728	3.01	2	5	ND	4	50	1	2	2	61	.52	.059	17	22	.45	155	.16	2	1.95	.01	.28	1
172	1	53	7	59	.2	18	12	548	3.51	3	5	ND	3	65	1	2	3	81	.72	.115	16	28	.61	135	.13	3	1.46	.02	.25	1
178	1	47	5	59	.1	18	11	572	3.39	3	5	ND	12	61	1	2	2	76	.70	.121	17	27	.57	148	.14	4	1.59	.02	.29	1
190	1	25	8	78	.1	12	10	837	3.13	3	5	ND	14	63	1	2	4	65	.70	.102	19	20	.53	124	.16	2	1.82	.01	.37	1
184	1	54	5	65	.1	20	12	630	3.80	3	5	ND	5	56	1	2	2	81	.68	.117	20	28	.62	108	.16	2	1.60	.01	.39	1
199	1	38	8	80	.1	11	7	730	2.42	4	5	ND	1	157	1	2	2	51	6.03	.147	13	19	.78	92	.08	5	1.28	.01	.30	1
201	1	42	7	57	.1	18	11	581	3.48	2	5	ND	4	53	1	2	2	78	.60	.115	17	26	.55	120	.13	2	1.42	.01	.28	2
204	1	25	2	130	.1	9	10	1212	3.29	2	5	ND	13	98	1	2	3	63	.78	.098	22	15	.71	80	.18	3	1.77	.01	.41	1
STANDARD C	18	63	36	141	7.0	73	33	1019	4.11	40	21	8	40	51	20	16	18	62	.48	.095	41	55	.87	193	.08	36	1.91	.06	.13	13

SAMPLE#	AU* ppb
14	44
23	15
26	5

ACME ANALYTICAL LABORATORIES LTD.
852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6
PHONE(604)253-3158 FAX(604)253-1716

DATE RECEIVED: APR 24 1990

DATE REPORT MAILED: April 27/90.

GEOCHEMICAL ANALYSIS CERTIFICATE

Michael J. Harris FILE # 90-1046

2710 Cactus Court, North Vancouver BC V7H 1R8

SAMPLE#	AU* ppb
CHOPAKA L300 E050 #1	13
CHOPAKA L300 E100 #2	<1
CHOPAKA L300 E150 #3	4
CHOPAKA L350 E125 #257	3
CHOPAKA L400 E050 #268	6
CHOPAKA L400 E075 #267	74
CHOPAKA L400 E100 #266	16
CHOPAKA L400 E125 #265	2
CHOPAKA L500 BL00 #49	3
CHOPAKA L500 E050 #51	5
CHOPAKA L500 E075 #52	39
CHOPAKA L500 E100 #53	35
CHOPAKA L600 E025 #15	9
CHOPAKA L600 E100 #17	9
CHOPAKA L600 E150 #19	5
CHOPAKA L700 E100 #35	3
STANDARD AU-S	48

- SAMPLE TYPE: Soil -80 Mesh AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.

SIGNED BY. C. Leong. D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ACME ANALYTICAL LABORATORIES LTD.
852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6
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DATE RECEIVED: MAY 3 1990

DATE REPORT MAILED: May.4/90.

GEOCHEMICAL ANALYSIS CERTIFICATE

Michael J. Harris FILE # 90-1154
2710 Cactus Court, North Vancouver BC V7H 1R8

SAMPLE#	AU* ppb
CHOPAKA L300 E200 #4	4
CHOPAKA L400 E025 #269	39
CHOPAKA L400 E175 #263	28
CHOPAKA L400 E200 #262	7
CHOPAKA L400 E225 #261	4
CHOPAKA L500 E125 #54	350
CHOPAKA L500 E175 #56	16
CHOPAKA L500 E225 #58	8
CHOPAKA L500 E275 #60	29
CHOPAKA L500 E300 #61	5
CHOPAKA L600 E335 #24	5
CHOPAKA 9V-0652-SG1 #13	35
STANDARD AU-S	53

- SAMPLE TYPE: Soil/Pulp AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.

SIGNED BY. . . . . D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

APPENDIX II

PETROGRAPHIC INTERPRETATION

Vancouver Petrographics Ltd.

JAMES VINNELL, Manager
JOHN G. PAYNE, Ph.D. Geologist
CRAIG LEITCH, Ph.D. Geologist
JEFF HARRIS, Ph.D. Geologist
KEN E. NORTHCOTE, Ph.D. Geologist

P.O. BOX 39
8080 GLOVER ROAD,
FORT LANGLEY, B.C.
V0X 1J0
PHONE (604) 888-1323
FAX. (604) 888-3642

Report for: Mike Harris,
2710 Cactus Court,
North Vancouver, B.C.
V7H 1R8

June 29th, 1990

Samples:

One rock sample (un-numbered) for sectioning and petrographic description.

Description:

DIORITE

Estimated mode

Plagioclase	25
K-feldspar	9
Quartz	5
Hornblende	40
Clinopyroxene	14
Sericite	1
Epidote	2
Apatite	1
Sphene	1
Opaques	2

This sample is a medium-grained, mafic-rich intrusive of dioritic composition.

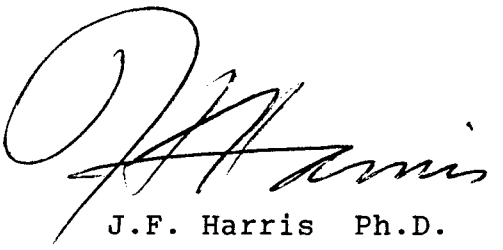
It has a predominant grain size range of 0.3 - 3.0mm, and consists essentially of an interlocking, generally anhedral intergrowth of fresh hornblende, pyroxene and feldspars.

The hornblende is a strongly pleochroic, dark olive-green to straw-coloured variety. The pyroxene is a pale green variety, sometimes showing peripheral alteration to hornblende.

The plagioclase is mainly fresh, but shows sporadic saussuritic alteration to fine-grained epidote and flecks of sericite. Twinning is generally not well developed. Where extinction measurements can be made, they indicate a relatively sodic composition (andesine).

Fresh K-feldspar (microcline) and quartz are notable accessories. Their presence is a contributory factor in the classification of this mafic-rich rock as a diorite rather than a hornblende gabbro.

Minor accessories are apatite, as tiny euhedra; sphene, as irregular interstitial grains; and opaques - probably mainly magnetite - as disseminated equant individuals, 0.1 - 0.3mm in size, most commonly associated with the margins of clumps of the mafic silicates.



J.F. Harris Ph.D.

(929-5867)

Appendix III

BLOOM TEST SPECIFICATIONS

PART 3

FIELD TESTS FOR

TOTAL HEAVY METALS, COPPER

Dr. S.J. Hoffman

March 1980

BLOOM TEST FOR TOTAL HEAVY METALS (THM=Zn+Pb+Cu)

Introduction

The Bloom total heavy metal (THM) test measures the sum of the readily extractable Zn, plus Pb, plus Cu from soil or stream sediment samples into a citrate buffer. The test is qualitative, designed to differentiate obvious anomalies from background values. A constant volume of sample (instead of weight) is used to outline relatively rapidly seepage or groundwater (hydromorphic) anomalies related to Zn and/or Cu and/or Pb prospects. Because Cu or Pb is commonly found associated with U mineralization, the THM test can also be used as a pathfinder to locate U occurrences. Similarly the THM test can be used in the search for Mo deposits if a significant association exists with Cu, Pb or Zn.

The Bloom test uses an alkaline hydroxylamine hydrochloride-citrate buffer to dissolve the readily or most easily soluble Zn+Pb+Cu. An organic phase of benzene or toluene containing a green coloured organic dye determines the concentration of these metals. The dithizone forms a strongly coloured complex with the metals (pink or purple or red or orange or brown). When only a small amount of metal is complexed, the organic solution has a blue-grey colour. The procedure employed to determine how much metals are extracted from a given sample is based on continued addition of dithizone solution until the concentration of the complex is reduced and the solution has a blue-grey colour. If the colour of the organic phase cannot be reduced to blue-grey within the limits of volume contained in a test tube, the sample is highly anomalous.

Preparation of the Buffer Solution

The following procedure requires a 2000 ml flask or 2 litre bottle and a triple beam balance. Recommended weights can be adjusted to suit the size of the available container.

1) Weigh 180 g of ammonium citrate into a plastic beaker or dixie cup;

2) Weigh 28.8 g of hydroxylamine hydrochloride into a Dixie cup;

3) Pour both chemicals into a 2000 ml flask, taking care not to spill them. A funnel of writing paper is helpful in preventing spills;

4) Add about 1000 ml of deionized water;

5) Add 100 ml of concentrated ammonium hydroxide (outdoors - strong fumes);

6) Dilute to 1800 ml (or almost to the full level of the container) with deionized water;

7) Shake well, measure the pH. The pH must read 8.5 for the buffer to be correctly adjusted;

8) If the buffer solution is less than 8.5, add concentrated ammonium hydroxide from a squirt bottle until the pH is 8.5;

9) Store the buffer in a cool place until used;

10) Prior to use clean the buffer with 5 ml of dithizone in chloroform using a separatory funnel. Shake 50 times; let the chloroform settle to the bottom. Discard. If the buffer appears cloudy or coloured add an additional 5 ml of chloroform, without dithizone, shake 50 times, and discard. The solution should clear. The procedure can be performed one or several times if necessary;

11) The buffer is now ready for the Bloom test.

Preparation of the Dithizone in Benzene (Toluene) Solution

The dithizone dye is added to benzene or toluene. Care is necessary in handling dithizone, as the reagent is easily destroyed by heat and light. The solid powder and benzene solutions must be stored in a dark, cool place. Benzene is an extremely flammable and poisonous chemical. No smoking is allowed and care should be taken to prevent spills because the chemical can penetrate the skin. Use rubber gloves if spillage is a problem. Also avoid inhaling the fumes.

1) Weigh 0.2 g of dithizone powder. The powder is very fluffy and occupies a large volume, a portion of which might be lost if care is not exercised.

2) Place the powder in a clean 500+ ml Nalgene container. Avoid ordinary plastic because of the strong possibility of Zn contamination.

3) Add 500 ml of benzene using a graduated cylinder to prepare a 0.04% dithizone stock solution.

4) The stock solution bottle must be opaque or the bottle must be wrapped in aluminum foil. Ordinary light will otherwise decompose the dithizone.

5) A working solution is prepared by diluting the 0.04% stock dithizone solution to 0.002%. This is accomplished by taking 5 ml of the stock solution and adding 95 ml of benzene in the 100 ml graduated cylinder.

6) The working solution (0.002% dithizone) is stored in a squeeze bottle wrapped in aluminum foil. The solution lasts for only one day. It is prepared immediately before a traverse and unused solution is discarded at the end of the day.

7) Benzene is a flammable liquid. It should not be dumped in an area where cigarettes are smoked.

The Bloom test should always be performed out of doors.

Bloom Test Procedure

The reagents are now prepared and the experiment can begin.

1) Place 1 level spoonful of soil or sediment in a clean test tube.

2) Add 5 ml of the Bloom buffer.

3) Add 1 ml of the 0.002% working solution.

4) Stopper the test tubes with a Nalgene stopper (definitely do not use a rubber substitute).

5) Shake the test tubes exactly 50 times; let the benzene float to the top of the liquid; read the colour of the dithizone solution.

6) If the dithizone-benzene solution is green, record 0. If the solution is blue-grey, record 1. If the solution has any other colour continue.

7) If the solution is purple, orange, red or brown, add another 1 ml of dithizone-bezene. Shake 15 times only. If the solution

is now blue-grey, record 2. If the solution is still purple, orange, red, or brown, more dithizone-benzene is required.

8) Additions of dithizone in benzene solution follows the following sequence: 2 ml and 5 ml, (10 ml, 20 ml and 30 ml if a larger test tube is used) until a blue-grey endpoint is reached. The value recorded represents the sum of all the additions (i.e. 3, 5, 10, (20, 40 and 70)). If the solution has not become blue-grey by the time 70 ml of dithizone-benzene has been added, give the sample a value of 70+ and note the solution colour.

9) Discard contents of the test tubes, wash the test tubes, and begin the next set of samples.

Discussion

The Bloom test is very sensitive to changes in buffer pH. Despite much care, changes are sometimes difficult to prevent under field conditions. The buffer solution should therefore be made freshly at regular intervals. Do not prepare a lifetime supply at one time. Deterioration of the buffer is to be suspected if a large fraction of the samples give anomalous results. Use standard samples as checks. These are prepared by saving a dried soil sample which is known to give positive results and a second sample known to give background values. Submit the standards periodically to the test. They should give approximately the same results each time, verifying that the chemicals have not gone bad.

The buffer pH can also be varied by introducing a soil or sediment sample having a strongly acid pH. The measurement of soil pH of anomalous samples might therefore be important. Procedures for measuring soil pH are outlined in the soil and stream sediment sampling instruction manual, columns 46 and 47.

The applicability of the Bloom test is significantly influenced by temperature. If the day is hot the buffer and dithizone solutions can deteriorate very rapidly. If the temperature is less than $5^{o}C$ ($42^{o}F$) the dithizone solution forms a gel which prevents determination of THM values.

The colour of solutions having a 10+ value is an indication of the element present in abundance. The meaning of the colours is summarized below:

Normal colour, Scarlet red	-	zinc
Raspberry-red Colour	-	copper
Straw colour	-	copper (has the same colour as deteriorated dithizone, add more soil - colour changes to raspberry red)
Orange-red Colour	-	lead (the lead colour forms in preference to other colours, even if a substantial amount of other metals is present

Summary

The Bloom test determines the readily soluble metal content of a sample. It will not measure sulphide or other insoluble components of a sample, even if the heavy metal content is very great. THM anomalies are often found downstream or downslope of the source because chemical weathering tends to transport metals a greater distance from a mineral prospect than mechanical processes. Comparison of the distribution of total metal content anomalies determined in a laboratory with Bloom test values commonly results in a THM anomaly lying downstream or downslope of a corresponding 'total' metal anomaly.

Appendix IV

ROCK SAMPLE LOCATIONS

Sample No.	Location	Description
R1	Adit (entrance)	-grab, 30 ppb Au, quartz vein, rusty shear
R1A	Same as above	-grab, 85 ppb Au, 1.3 ppm Ag, 567 ppb Zn, quartz vein, rusty shear, sphalerite, carbonatized
R2	L490 W150	-grab, 200 ppb Au, .9 ppm Ag, quartz veinlets in altered granodiorite, rusty stain, sericite
R3	L400 W175	-grab, 20 ppb Au, 3.8 ppm Ag, mafic dyke, 5 meters wide, magnetic, carbonate
R4	Adit (end)	-1 meter chip, 2 ppb Au, 3.8 ppm Ag, 602 ppm Pb, 156 ppm Zn, 133 ppm Cu, quartz vein with rusty shear, galena, sphalerite, pyrite, chlorite, malachite, sericite, carbonatized
R5	L600 E210	-grab, 15 cm sample of full width of quartz vein and wallrock 2 ppb Au, .3 ppm Ag, 216 ppm As, layered quartz, carbonatized, minor wall rock alteration, vein exposed for 2 meters, strikes 72° NE, light brown stain - siderite?
RC7	Same as R5	-grab, 250 ppb Au, 13 ppb Pt, 4.1 ppm Ag, 303 ppm Zn, 161 ppm Cu, mineralized chips from quartz vein, sphalerite, pyrite, rusty stain
RC7A	Same as R5	-grab, 460 ppb Au, 8.0 ppm Ag, 281 ppm Cu, mineralized chips from quartz vein, pyrite, rusty stain
R8	L600 W050	-grab, 203 ppb Au, .9 ppm Ag, altered granodiorite with thin quartz veinlets, rusty stain, sericite, pyrite, mica, in contact with R9
R9	L600 W050	-grab, 1.6 ppm Ag, mafic dyke 7 meters wide, striking 72° NE, magnetic, rusty stain, carbonate

R10	L600 W330	-grab, 2.3 ppm Ag, mafic dyke, magnetic, carbonate
R11	L600 W330	-grab, 2.5 ppm Ag, mafic dyke, magnetic
R12	L550 W350	-grab, 2.3 ppm Ag, mafic dyke, magnetic, rusty stain
R13	L570 W330	-grab, 2.3 ppm Ag, mafic dyke, magnetic, rusty stain, carbonate
R14	Same as R3	-grab, 4.1 ppm Ag, mafia dyke, magnetic, rusty stain, carbonate
R15	L410 W175	-grab, 3 ppb Au, 1.2 ppm Ag, mafic dyke, magnetic, rusty stain
R16	L300 E010	-grab, 2 ppb Au, .6 ppm Ag, mafic dyke, 1.5 meters wide, magnetic, rusty stain
R17	L120 E350	-grab, 1.3 ppm Ag, mafic dyke, magnetic, rusty stain
R18	L100 E350	-grab, 5 ppb Au, 1.5 ppm Ag, mafic dyke, 1.5 meters wide, magnetic, rusty stain
R19	L100 E350	-grab, 1.0 ppm Ag, mafic dyke, magnetic
R20	L600 E010	-grab, 5 ppb Au, 2.0 ppm Ag, mafic dyke, magnetic
R21	L200 E525	-grab, 5 ppb Au, .1 ppm Ag, pink feldspar vein in granodiorite dark green fragments - epidote?
R22	Same as R2	-grab, 20 ppb Au, .5 ppm Ag, altered granodiorite adjacent to thin quartz vein, sericite, mica, rusty stain
R23	L490 W150	-grab, 5 ppb Au, .6 ppm Ag, altered granodiorite, gneissic appearance, 2 meters west of R22
R24	Same as R8	-grab, 110 ppb Au, 1.4 ppm Ag, altered granodiorite with thin quartz veins, rusty stain, sericite, pyrite, mica

R25	Same as R2	-grab, 220 ppb Au, 1.7 ppm Ag, altered granodiorite with thin quartz veinlets, sericite, pyrite, rusty stain
R26	L700 E450	-grab, 5 ppb Au, .4 ppm Ag, altered granodiorite, magnetic, rusty stain
R27	L190 E575	-grab, 4.0 ppm Ag, 211 ppm As, 291 ppm Pb, 133 ppm Zn, 110 ppm Cu, 13 cm mafic dyke, magnetic, rusty stain, shearing
R28	L190 E575	-grab, 5 ppb Au, 1.2 ppm Ag, 55 ppb As, pink feldspar veinlet in contact with R38,
R29	L190 E575	-grab, 10 ppb Au, 4.5 ppm Ag, 45 ppm As, 8 cm mafic dyke in contact with R38, magnetic, carbonate
R31	L500 E035	-float, 2750 ppb Au, 8.8 ppm Ag, vuggy quartz, rusty stain, hematite, pyrite,mica
R32	Same as R31	-float, 1100 ppb Au, 4.8 ppm Ag, altered granodiorite, rusty stain, pyrite, sericite
R33	L700 W035	-grab, 100 ppb Au, 1.0 ppm Ag, altered granodiorite, rusty stain, gneissic appearance, mica
R35	L200 E600	-grab, 2.8 ppm Ag, mafic dyke, rusty stain, magnetic
R38	Same as R28	-grab, 7 ppb Au, 12 ppb Pt, 1.1 ppm Ag, medium grained mafic rich diorite, magnetic,
R39	L690 W040	-grab, 160 ppb Au, 1.6 ppm Ag, 1299 ppm Cr, large bolder, mafic, layered, soft white veinlets, rusty stain, pyrite, serpentized?
R48	Same as R2	-float, 455 ppb Au, 3.5 ppm Ag quartz pegmatite with altered wallrock, mica, yellow stain
R49	L700 E450	-float, 75 ppb Au, 4.8 ppm Ag, quartz vein, brown stain, pyrite

R51	L610 E005	-float, 20 ppb Au, .2 ppb Ag, quartz vein, yellow stain, pyrite, mica
R52	L000 E100	-float, 220 ppb Au, .2 ppm Ag, pink-red stain, quartz
R53	Adit -(10 meters west)	-grab, 30 ppb Au, 6.4 ppm Ag, 1 cm quartz veinlet, vuggy, pyrite
R103	L180 E100	-float, 2 ppm Au, .1 ppm Ag, 25 ppm Mo, quartz pegmatite, reddish rusty stain, mica

Appendix V

GEOPHYSICAL EQUIPMENT SPECIFICATIONS

SCINTREX
MP-2 PROTON PRECESSION MAGNETOMETER

Resolution:	1 gamma
Total Field Accuracy:	± gamma over full operating range
Range:	20,000 to 100,000 gammas in 25 overlapping steps.
Internal Measuring Program:	A reading appears 1.5 seconds after depression of Operate Switch & remains displayed for 2.2 secs. Recycling feature permits automatic repetitive readings at 3.7 sec. intervals.
External Trigger:	External trigger input permits use of sampling intervals longer than 3.7 seconds.
Display:	5 digit LED readout displaying total magnetic field in gammas or normalized battery voltage.
Data Output:	Multiplied precession frequency and gate time outputs for base station recording using interfacing optionally available from Scintrex.
Gradient Tolerance:	Up to 5,000 gammas/meter.
Power Source:	8 size D cells ≈25,000 readings at 25° C under reasonable conditions.
Sensor:	Omnidirectional, shielded, noise-cancelling dual coil, optimized for high gradient tolerance.
Harness:	Complete for operation with staff or back pack sensor.
Operating Temperature Range:	-35 to +60° C.
Size:	Console, 8 x 16 x 25 cm; Sensor, 8 x 15 cm; Staff 30 x 66 cm;
Weights:	Console, 1.8 kg; Sensor, 1.3 kg; Staff, 0.6 kg;
Manufacturer:	Scintrex 222 Snidercroft Road Concord, Ontario

Appendix VI

MAGNETIC DATA

MAGNETIC DATA

LINE	STATION	TIME	READING	NOTES
L 700	W 300.0	9:20 am	56200	- bottom of
"	W 287.5		55961	hill
"	W 275.0		56347	
"	W 262.5		56608	
"	W 250.0		56872	
"	W 237.5		56889	
"	W 225.0		57158	
"	W 212.5		57060	
"	W 200.0		56960	
"	W 187.5		56834	
"	W 175.0		56938	
"	W 162.5	9:30 am	57051	
"	W 150.0		56739	
"	W 137.5		56782	
"	W 125.0		56501	
"	W 112.5		56155	- small gully
"	W 100.0		56690	
"	W 087.5		56664	
"	W 075.0		56443	
"	W 062.5		56387	
"	W 050.0		56612	
"	W 037.5		56580	
"	W 025.0		56600	- altered
"	W 012.5		56538	granodiorite
"	Base Line	9:40 am	56623	
"	E 012.5		56680	
"	E 025.0		56336	
"	E 037.5		56405	
"	E 050.0		56526	
"	E 062.5		56660	
"	E 075.0		56974	
"	E 087.5		56922	
"	E 100.0		56860	
"	E 112.5	9:50 am	56843	
"	E 125.0		57002	
"	E 137.5		57024	fence
"	E 150.0		56724	
"	E 162.5		56710	
"	E 175.0		56850	
"	E 187.5		56982	
"	E 200.0		56928	
"	E 212.5		56979	
"	E 225.0	10:00 am	56716	
"	E 237.5		57049	
"	E 250.0		57160	top of gully
"	E 262.5		56716	
"	E 275.0		56643	

LINE	STATION	TIME	READING	NOTES
L 700	E 287.5		56581	
"	E 300.0		56612	
"	E 312.5		56367	- bottom of
"	E 325.0		56700	gully
"	E 337.5		56784	
"	E 350.0		56910	- top of
"	E 362.5		57178	gully
"	E 375.0	10:10 am	57187	
"	E 387.5		56838	
"	E 400.0		56876	
"	E 412.5		56868	
"	E 425.0		56849	
"	E 437.5		56845	
"	E 450.0		57073	
"	E 462.5		56995	
"	E 475.0		56845	
"	E 487.5		56895	
"	E 500.0		56758	
"	E 512.5		56912	
"	E 525.0	10:20 am	56988	
"	E 537.5		56843	
"	E 550.0		56968	
"	E 562.5		56948	
"	E 575.0		57061	
"	E 587.5		57070	
"	E 600.0		57000	
L 600	E 587.5	10:30 am	56776	- large
"	E 575.0		56948	outcrop
"	E 562.5		57075	of
"	E 550.0		57005	granodiorite
"	E 537.5		57045	"
"	E 525.0		57094	"
"	E 512.5		57010	"
"	E 500.0	10:40 am	57150	"
"	E 487.5		56836	
"	E 475.0		56845	
"	E 462.5		56618	
"	E 450.0		56674	
"	E 437.5		56651	
"	E 425.0		56714	
"	E 412.5		56710	
"	E 400.0		56645	
"	E 387.5	10:50 am	56783	
"	E 375.0		56870	- top of
"	E 362.5		56793	gully
"	E 350.0	11:00 am	56353	- bottom of
"	E 337.5		56648	gully
"	E 325.0		56500	
"	E 312.5		56552	
"	E 300.0		56589	
"	E 287.5		56627	- top of gully

LINE	STATION	TIME	READING	NOTES
L 600	E 275.0		56687	
"	E 262.5		56614	
"	E 250.0		56585	
"	E 237.5		56647	
"	E 225.0		56593	
"	E 212.5	11:10 am	56590	- quartz vein
"	E 200.0		56566	
"	E 187.5		56659	- fence
"	E 175.0		56827	
"	E 162.5		56877	
"	E 150.0		56795	
"	E 137.5		56797	
"	E 125.0		56705	
"	E 112.5		56725	
"	E 100.0		56826	
"	E 087.5		56945	
"	E 075.0		57148	
"	E 062.5	11:20 am	57124	
"	E 050.0		56860	
"	E 037.5		56821	
"	E 025.0		56722	
"	E 012.5		56522	- mafic dyke
"	Base Line		56492	- quartz float
"	W 012.5		56563	
"	W 025.0		56662	
"	W 037.5		56606	
"	W 050.0		56904	
"	W 062.5		56908	
"	W 075.0		56978	- mafic dyke
"	W 087.5		56814	
"	W 100.0	11:30 am	56583	
"	W 112.5		56737	
"	W 125.0		56820	
"	W 137.5		57032	
"	W 150.0		57121	
"	W 162.5		57051	
"	W 175.0		56877	
"	W 187.5		56779	
"	W 200.0		56837	
"	W 212.5		56839	
"	W 225.0		56468	
"	W 237.5		56136	- bottom of
"	W 250.0		56505	gully
"	W 262.5	11:40 am	56332	
"	W 275.0		57073	- top of
"	W 287.5		53883	gully
"	W 300.0	11:42 am	56760	

LINE	STATION	TIME	READING	NOTES
L500	W 300.0	12:35 pm	56840	
"	W 287.5		56897	
"	W 275.0		56915	
"	W 262.5		56374	
"	W 250.0		56106	- bottom of
"	W 237.5		56136	gully
"	W 225.0	12:40 pm	56765	
"	W 212.5		56842	
"	W 200.0		56878	
"	W 187.5		56870	
"	W 175.0		56864	
"	W 162.5		56808	
"	W 150.0		57003	- altered rk.
"	W 137.5		56446	- bottom of
"	W 125.0		56805	gully
"	W 112.5		57126	
"	W 100.0	12:50 pm	56734	
"	W 087.5		56755	
"	W 075.0		56884	
"	W 062.5		56956	
"	W 050.0		56814	
"	W 037.5		56710	
"	W 025.0		56815	
"	W 012.5		56660	
"	Base Line	1:00 pm	56680	
"	E 012.5		56818	
"	E 025.0		56875	- quartz float
"	E 037.5		56977	
"	E 050.0		56909	
"	E 062.5		56997	
"	E 075.0		57073	
"	E 087.5		57114	
"	E 100.0		57326	
"	E 112.5		57204	
"	E 125.0	1:10 pm	57182	
"	E 137.5		57148	
"	E 150.0		56859	
"	E 162.5		56748	
"	E 175.0		56670	
"	E 187.5		56703	
"	E 200.0		56867	
"	E 212.5		56700	
"	E 225.0		56869	
"	E 237.5		56832	
"	E 250.0		56774	
"	E 262.5		56745	
"	E 275.0		56795	
"	E 287.5		56882	
"	E 300.0		56880	
"	E 312.5		56943	
"	E 325.0	1:20 pm	57174	

LINE	STATION	TIME	READING	NOTES
L 500	E 337.5		56515	- bottom of
"	E 350.0		56700	small gully
"	E 362.5		56754	
"	E 375.0		56735	
"	E 387.5		56844	
"	E 400.0		56928	
"	E 412.5		56926	
"	E 425.0		56561	- bottom of
"	E 437.5		56894	small gully
"	E 450.0		56885	
"	E 462.5		56962	
"	E 475.0		57000	
"	E 487.5		57175	
"	E 500.0	1:30 pm	57171	
"	E 512.5		57144	
"	E 525.0		57172	
"	E 537.5		57028	
"	E 550.0		57240	
"	E 562.5		57205	
"	E 575.0		57190	
"	E 587.5		57170	
"	E 600.0		57232	
"	E 612.5		57254	
"	E 625.0		57164	
"	E 637.5		56863	- small gully
"	E 650.0	1:40 pm	57170	
"	E 662.5		57469	- large
"	E 675.0		57482	granodiorite
"	E 687.5		57366	outcrop
"	E 700.0	1:45 pm	57151	
L 400	E 600.0	1:50 pm	57369	
"	E 587.5		57100	
"	E 575.0		57206	
"	E 562.5		56852	- talus
"	E 550.0		56763	
"	E 537.5		56903	
"	E 525.0		57231	
"	E 512.5		57060	
"	E 500.0		56800	
"	E 487.5		56680	- talus
"	E 475.0		56578	
"	E 462.5		56594	
"	E 450.0	2:00 pm	56659	
"	E 437.5		56681	
"	E 425.0		56928	
"	E 412.5		56927	
"	E 400.0		56806	
"	E 387.5		56925	
"	E 375.0	2:10 pm	56831	
"	E 362.5		56926	
"	E 350.0		57101	

LINE	STATION	TIME	READING	NOTES
L 400	E 337.5		57142	
"	E 325.0		57156	
"	E 312.5		57045	
"	E 300.0		57147	
"	E 287.5		57066	
"	E 275.0		57049	
"	E 262.5		56925	
"	E 250.0		57052	
"	E 237.5		57192	
"	E 225.0		57165	
"	E 212.5		57116	
"	E 200.0		57052	
"	E 187.5		57030	
"	E 175.0	2:20 pm	56875	
"	E 162.5		56848	
"	E 150.0		56966	
"	E 137.5		56896	
"	E 125.0		56822	
"	E 112.5		56815	
"	E 100.0		56794	
"	E 087.5		56950	
"	E 075.0		56921	
"	E 062.5		56993	
"	E 050.0		56870	
"	E 037.5		56970	
"	E 025.0		56898	
"	E 012.5		56676	
"	Base Line	2:30 pm	56593	
"	W 012.5		56517	
"	W 025.0		56455	
"	W 037.5		56618	
"	W 050.0		56643	-top of
"	W 062.5		56545	gully
"	W 075.0		56378	-bottom of
"	W 087.5		56856	gully
"	W 100.0	2:40 pm	57000	-top of
"	W 112.5		57040	gully
"	W 125.0		56882	
"	W 137.5		56558	-small gully
"	W 150.0		56812	
"	W 162.5		56750	
"	W 175.0		56750	-mafic dyke
"	W 187.5		57048	
"	W 200.0		56816	
"	W 212.5		57375	-diorite
"	W 225.0		56714	outcrop
"	W 237.5	2:50 pm	56792	magnetic
"	W 250.0		56789	
"	W 262.5		56762	
"	W 275.0		56905	
"	W 287.5		56838	
"	W 300.0	2:55 pm	56818	

LINE	STATION	TIME	READING	NOTES
L 300	W 300.0	10:25 am	56858	
"	W 287.5		56999	
"	W 275.0		56554	-small gully
"	W 262.5		56826	
"	W 250.0		57035	
"	W 237.5		56929	
"	W 225.0	10:30 am	56443	-small gully
"	W 212.5		56516	
"	W 200.0		56678	
"	W 187.5		56815	
"	W 175.0		56834	
"	W 162.5		56878	
"	W 150.0		56884	
"	W 137.5		57045	
"	W 125.0		57062	
"	W 112.5		57095	
"	W 100.0		57123	
"	W 087.5		57104	
"	W 075.0		57078	
"	W 062.5	10:40 am	56944	
"	W 050.0		56703	-small gully
"	W 037.5		57010	
"	W 025.0		57103	
"	W 012.5		57047	
"	Base Line		56970	-top of gully
"	E 012.5		56750	-mafic dyke
"	E 025.0		56125	-bottom of gully
"	E 037.5		56564	
"	E 050.0		56774	-bench in gully
"	E 062.5		56559	
"	E 075.0	10:50 am	56883	
"	E 087.5		56877	-top of gully
"	E 100.0		56662	
"	E 112.5		56907	
"	E 125.0		56768	
"	E 137.5		56712	
"	E 150.0		56710	
"	E 162.5		56692	
"	E 175.0		56446	
"	E 187.5		56304	
"	E 200.0		56542	
"	E 212.5		56975	
"	E 225.0	11:00 am	57064	
"	E 237.5		57082	
"	E 250.0		57064	
"	E 262.5		57054	
"	E 275.0		57024	
"	E 287.5		57199	
"	E 300.0		57250	
"	E 312.5		57260	
"	E 325.0		57050	
"	E 337.5		56815	-small gully

LINE	STATION	TIME	READING	NOTES
L 300	E 350.0		57078	
"	E 362.5		57214	
"	E 375.0		57310	
"	E 387.5		57308	
"	E 400.0	11.10 am	57310	
"	E 412.5		57047	
"	E 425.0		57083	
"	E 437.5		56969	
"	E 450.0		56927	
"	E 462.5		56952	
"	E 475.0		56875	
"	E 487.5		56633	
"	E 500.0		56542	-small gully
"	E 512.5		56645	
"	E 525.0		56676	
"	E 537.5		56685	
"	E 550.0		56741	
"	E 562.5	11:20 am	57020	-outcrop
"	E 575.0		57006	
"	E 587.5		56976	-small gully
"	E 600.0		57010	
"	E 612.5		57110	
"	E 625.0		57000	
"	E 637.5		56947	
"	E 650.0		57342	
"	E 662.5		57359	
"	E 675.0		57362	
"	E 687.5		57724	-large
"	E 700.0		57106	granodiorite
"	E 712.5	11:30 am	56969	outcrop
L 200	E 725.0	11:45 am	57155	
"	E 712.5		57035	
"	E 700.0		57054	
"	E 687.5		57000	
"	E 675.0		56972	
"	E 662.5		57204	-mafic dyke
"	E 650.0	11:50 am	56760	-talus
"	E 637.5		56647	"
"	E 625.0		56453	-small gully
"	E 612.5		56609	
"	E 600.0		56735	-talus
"	E 587.5		56685	
"	E 575.0		56862	
"	E 562.5		56736	
"	E 550.0		57245	
"	E 537.5		56803	
"	E 525.0	12:00 pm	57250	
"	E 512.5		57440	-large
"	E 500.0		57079	granodiorite
"	E 487.5		56912	outcrop
"	E 475.0		57111	

LINE	STATION	TIME	READINGS	NOTES
L200	E 462.5		56823	
"	E 450.0		56605	
"	E 437.5		56428	- calcium
"	E 425.0		56472	precipitate
"	E 412.5		56532	on soil
"	E 400.0		56410	- small gully
"	E 387.5		56581	
"	E 375.0		56740	
"	E 362.5	12:10 pm	56692	
"	E 350.0		56669	
"	E 337.5		56616	
"	E 325.0		56570	
"	E 312.5		56416	
"	E 300.0		56195	-bottom of
"	E 287.5		56862	gully
"	E 275.0		57145	-top of gully
"	E 262.5	12:20 pm	56541	
"	E 250.0		56191	-bottom of
"	E 237.5		56461	deep gully
"	E 225.0		56693	
"	E 212.5		56855	
"	E 200.0		57092	-top of gully
"	E 187.5		56969	
"	E 175.0		56850	
"	E 162.5		56884	
"	E 150.0	12:30 pm	56932	
"	E 137.5		56785	
"	E 125.0		56918	
"	E 112.5		56723	
"	E 100.0		56774	
"	E 087.5		56639	
"	E 075.0		56645	
"	E 062.5		56600	
"	E 050.0		56573	
"	E 037.5		56732	
"	E 025.0		56800	
"	E 012.5		56553	
"	Base Line	12:40 pm	56428	
"	W 012.5		56411	
"	W 025.0		56409	
"	W 037.5		56400	
"	W 050.0		56367	-small gully
"	W 062.5		56713	
"	W 075.0		56637	
"	W 087.5		56638	
"	W 100.0		56441	
"	W 112.5		56765	
"	W 125.0		56329	-small gully
"	W 137.5		56517	
"	W 150.0		56904	
"	W 162.5		56872	
"	W 175.0	12:50 pm	56644	-small gully

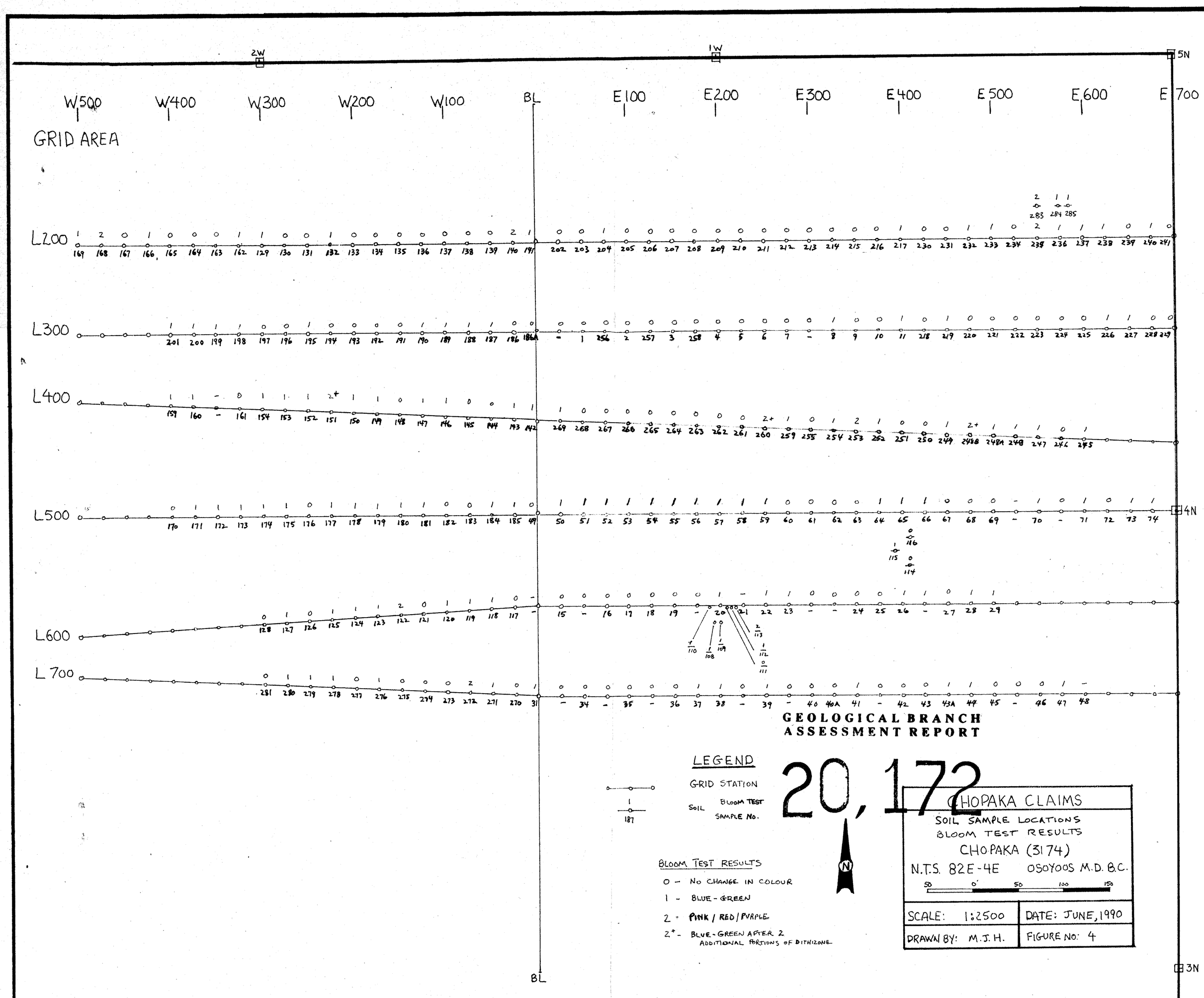
LINE	STATION	TIME	READING	NOTES
L 200	W 187.5		56822	
"	W 200.0		56790	
"	W 212.5		56763	
"	W 225.0		56325	-bottom of gully
"	W 237.5		56956	
"	W 250.0		56901	
"	W 262.5		56855	
"	W 275.0		56858	
"	W 287.5		56585	
"	W 300.0	12.58 pm	56465	-bottom of gully

Appendix VII

COST STATEMENT

COST STATEMENT

SALARIES	
M. J. Harris, Prospector June 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 30, 1989 July 1, 2, 21, 22, 23, 1989 August 26, 27, 1989 September 30, 1989 October 1, 14, 15, 27, 28, 29, 30, 1989 November 11, 12, 1989 April 8, 1990 29 days @ $200.00 per day	$ 5,800.00
MEALS AND ACCOMMODATION	
M. J. Harris Meals - 29 days @ $50.00 per day	1,450.00
Accom. - 23 days @ $50.00 per day	1,150.00
TRANSPORTATION	
Vehicle Rental (Ford 1/2 ton 4 x 4) 29 days @ $50.00 per day	1,550.00
Gasoline - 9 two way trips Vancouver - Keremeos	600.00
EQUIPMENT RENTAL	
Magnetometer - 3 days @ $25.00 per day	75.00
SUPPLIES	
Sample bags, hipchain thread, wooden pickets, flagging, etc.	150.00
ANALYSIS	
Bloom kit chemicals	255.00
Laboratory analysis	1,706.45
Petrographic Interpretation	75.25
REPORT PREPARATION	
Drafting, office supplies, photocopying, and consulting services of Grant Crooker, Geologist	900.00
TOTAL	$ 13,611.70



GEOLOGICAL BRANCH ASSESSMENT REPORT

20,172

LEGEND

GRID STATION

Soil — Bloom Test — Sample No.

1 / 187

Bloom Test Results

0 – No change in colour

1 – Blue-green

2 – Pink / Red / Purple

2* – Blue-green after 2 additional portions of dithizone

N

CHOPAKA CLAIMS

Soil Sample Locations
Bloom Test Results
Chopaka (3174)
N.T.S. 82E-4E Osoyoos M.D. B.C.

50 0 50 100 150

SCALE: 1:2500	DATE: JUNE, 1990
DRAWN BY: M.J.H.	FIGURE NO: 4

2W 1W 5N

W 500 W 400 W 300 W 200 W 100 BL E 100 E 200 E 300 E 400 E 500 E 600 E 700

GRID AREA

L200 L300 L400 L500 L600 L700

4N 3N

BL

LEGEND

GRID

200 GAMMAS CONTOUR INTERVALS

G DRAINAGE GULLY

N

CHOPAKA CLAIMS

MAGNETOMETER SURVEY

CHOPAKA (3174)

N.T.S. 82E-4E OSOYOOS M.D., B.C.

50 0 50 100 150

SCALE: 1:2500	DATE: JUNE, 1990
DRAWN BY: M.J.H.	FIGURE NO: 6

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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2W 1W 5N

W500 W400 W300 W200 W100 BL E100 E200 E300 E400 E500 E600 E700

GRID AREA

L200 L300 L400 L500 L600 L700

4N 3N

BL

LEGEND

- GRID
- 200 GAMMAS CONTOUR INTERVALS
- 57,000 MAGNETIC HIGHS
- 56,600 MAGNETIC LOWS
- 27 SOIL AU ppb
- x 160 ROCK AU ppb
- Q QUARTZ VEIN

N

CHOPAKA CLAIMS

ROCK AND SOIL ANALYSIS – AU / MAGNETOMETER

CHOPAKA (3174)

N.T.S. 82E-4E OSOYOOS M.D., B.C.

50 0 50 100 150

SCALE: 1:2500	DATE: JUNE, 1990
DRAWN BY: M.J.H.	FIGURE NO: 7

RICHTER MTN.

RICHTER CR.

DANKOE MINE

UTICA CLAIM GROUP

CHOPAKA CLAIM GROUP

GRID AREA

CHOPAKA 3174 5N×3W

BORDER 1 2152 (1) 3N×3W

SKEMEOSKUAKIN INDIAN RESERVE 7

SUMAC RD.

NIGHTHAWK RD.

SIMILKAMEEN RIVER

RICHTER CREEK

FRANK LAKE

KRUGER MTN. →

BARBER MTN.

CHOPAKA CUSTOMS

CANADA
UNITED STATES

119°41'

119°40'

49°02'

LCP

LEGEND

- PAVED ROAD
- CART TRACK
- RIVER
- CREEK
- CONTOURS IN METERS
- ADIT
- TRENCH
- LEGAL CORNER POST
- CLAIM BOUNDARY
- GEOLOGICAL BOUNDARY

SOIL — SAMPLE NO. / AU IN PPB / AG IN PPM

ROCK — SAMPLE NO. / AU IN PPB / AG IN PPM

JURASSIC

15 GRANODIORITE

14b OLIVER SYENITE

N

CHOPAKA CLAIMS	
CLAIM AREA - LOCATION OF GRID AND ROCK AND SOIL SAMPLES	
N.T.S. 82E.4E.	OSOYOOS M.D., B.C.
100 0 100 200 300 400 500 METERS	
OWNER MICHAEL J. HARRIS	
SCALE 1:5,000	DATE APRIL, 1990
DRAWN MJH	FIGURE : 3

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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2W 1W 5N

W500 W400 W300 W200 W100 BL E100 E200 E300 E400 E500 E600 E700

GRID AREA

L200 L300 L400 L500 L600 L700

4N 3N

BL

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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LEGEND

GRID STATION

SOIL AU IN PPB / AG IN PPM

ROCK SAMPLE No. / AU IN PPB / AG IN PPM

AU ANOMALOUS >19

MAFIC DYKE

QUARTZ VEIN

CHOPAKA CLAIMS

GEOCHEMISTRY - ROCK/SOIL
AU, AG
CHOPAKA (3174)

N.T.S. 82E-4E OSOYOOS M.D., B.C.

50 0 50 100 150

SCALE: 1:2500	DATE: JUNE, 1990
DRAWN BY: M.J.H.	FIGURE No: 5