SC 650 – 15233

# GEAREX ENGINEERING
# GEAREX MANAGEMENT LTD.

ASSESSMENT

~~GEOLOGICAL~~ GEOCHEMICAL

REPORT

ON

FILMED

HEAVY METALS CONCENTRATION & ANALYSIS

ON THE

CV (1292) MINERAL CLAIM

Alocin Creek Area

NICOLA MINING DIVISION

N.T.S. 82L/4W

Lat. 50°00.5' Long. 119°52'

FOR

Operator: **LARAMIE MINING CORPORATION**

Owner: Peter S. Peto



October 09, 1986

Gerhard von Rosen, P.Eng.

gerhard von rosen 33176 richards ave mission bc v2v 5x4 (604) 826-7851

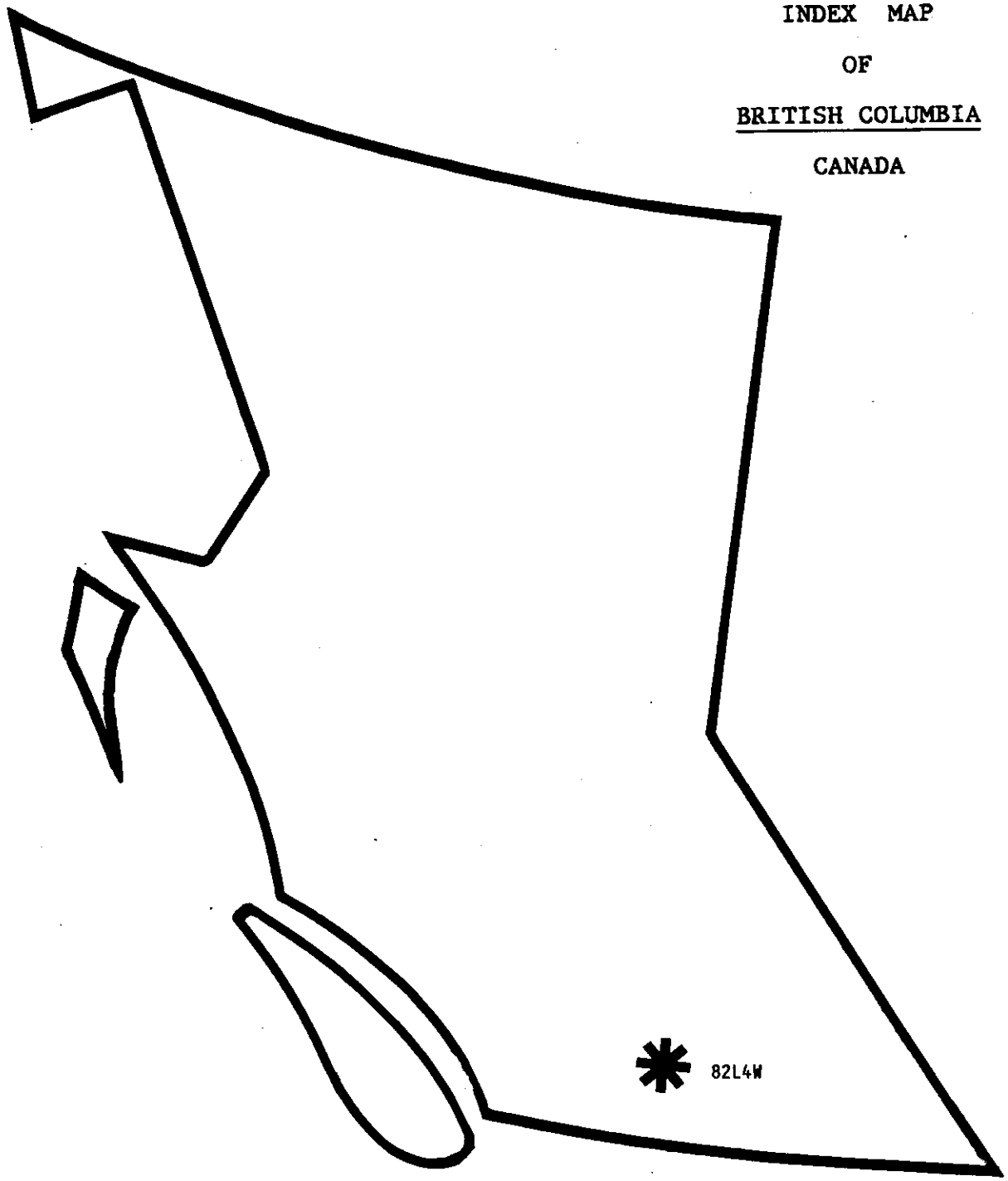
FIGURE "A"

INDEX MAP

OF

BRITISH COLUMBIA

CANADA




LARAMIE MINING "CV" CHROME

ALOCIN CREEK AREA NICOLA MINING DIVISION

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# INTRODUCTION

The ultra-basic dikes, geologically termed the 'Old Dave Intrusions', along with the chromium occurrences for which this terrain is well-known, represent an interesting environment for possible platinum-group metal deposition. The subject property encompasses a portion of the dike formation at a point where chromite occurrences have previously been explored for their chrome content.

The writer suggested to the client that heavy metal sampling of the silt fraction obtained from drainages issuing from better mineralized (chromite) portions of the property may be valuable in providing information that would re-direct exploration methods in this general area. As the simplest method of obtaining heavy metal fractions from sediments is by sluicing techniques, this was undertaken in the short test, described herein.

The writer is quite familiar with the area, having explored the environs previously. Relatively recent logging operations, however, have changed the landscape, providing simple access to the main showings via a modern logging road.

Mobilization in to the property was on August 3, 1986, when the writer accompanied by Ernest von Rosen, arrived at the property after sundown. Chosing the southern entrance to the ridgecrest road (judged to be the better access road to the showings as seen from the writer's pre-logging perspective) the crew was obliged to make camp near the border of a major recent logging show, due to the obliteration of the original 4x4 trail. As a result of the lateness of the hour further access exploration was not undertaken.

Upon researching, early next morning, the trail leading south from the other, northern end of the ridge, it was discovered that the Alocin creek bridge was impassable, thus terminating that possibility of access to the sample site.

The next choice was to hike up Alocin creek which flows past the main showings, however the originally-planned sluicing operation would then not be possible to perform, as the pump, sluice, and other equipment was too cumbersome to carry by hand. The test would in that case have to revert to a hand panning exploration.

As a last resort, while driving up one of the main logging roads, leading south from the Alocin bridge, it was discovered that the road changes direction and leads immediately past the main showings.

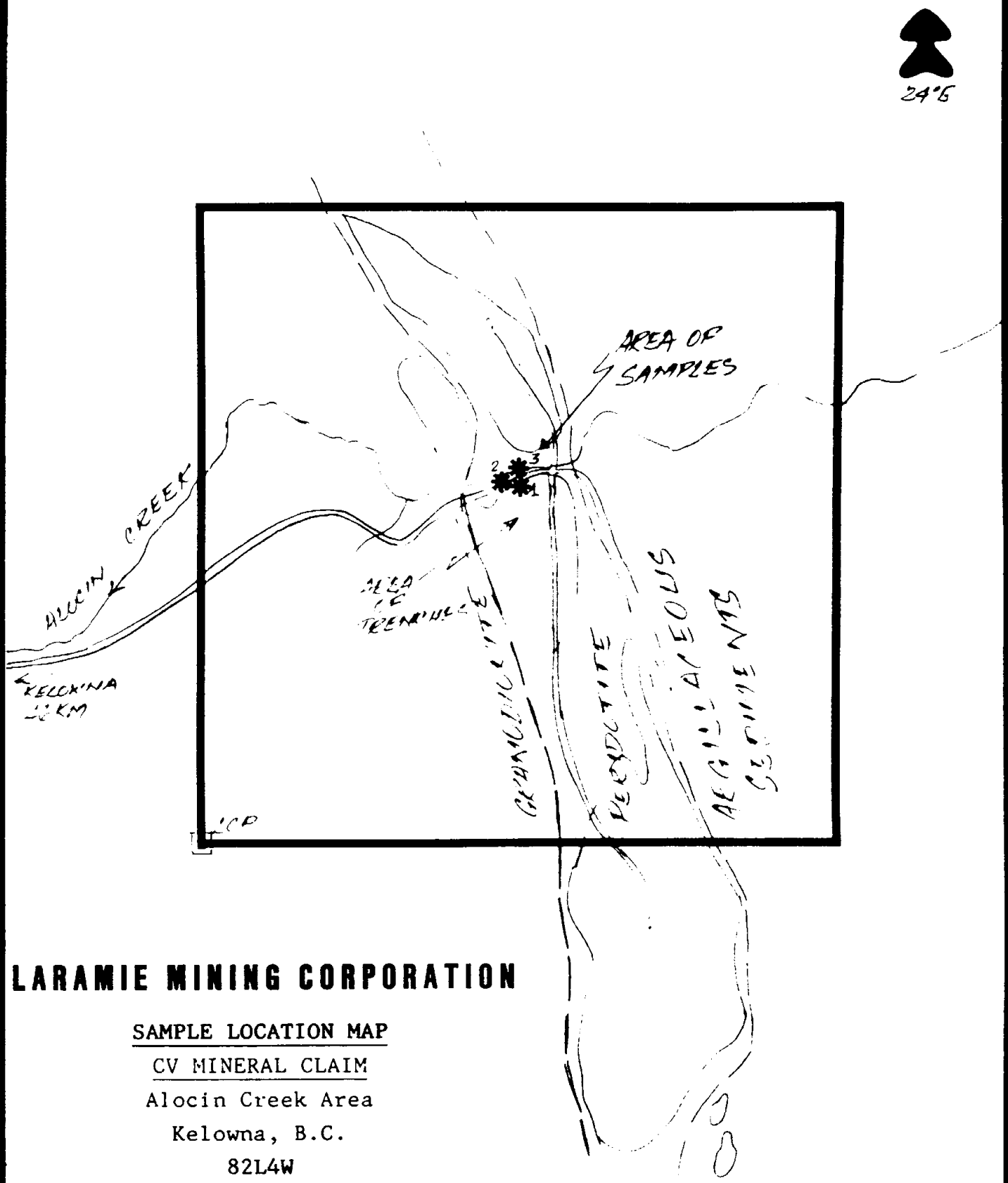
The day was getting along by this time, and only two samples were sluiced before it was time to set up camp.

Another sample was run in the morning of August 5, 1986, and the remainder of the day was used for demobilization.

## PROPERTY HOLDINGS

| CLAIM NAME | RECORD NO. | UNITS | ANNIVERSARY |
|---|---|---|---|
| CV | 1292 | 4 | August 24, 1987 |

The claims are recorded in the NICOLA MINING DIVISION and are plotted on map 82L4W. The anniversary dates shown have been up-dated to show one year assessment work filed, on the basis of the subject report.




# LARAMIE MINING CORPORATION

## SAMPLE LOCATION MAP

CV MINERAL CLAIM

Alocin Creek Area

Kelowna, B.C.

82L4W

GEAREX ENGINEERING mission bc

## LOCATION & ACCESS

50°30'N 119°52'W 82L4W

The property lies about 27 kilometers west of Kelowna bridge. To reach the claim by road, two-wheel drive transportation via 5 miles of paved west-shore road northerly from Westside (Kelowna, B.C.) and then about 43 kilometers (27 miles) of very good gravel logging road to Cameo (also Cameron Lake) is used. There are numerous logging roads and trails through the general area.
Recent logging operations have opened up the terrain, and a newly constructed wide logging road, starting at the Alocin creek bridge, provides access to the main showings.

## PHYSIOGRAPHY, VEGETATION & CLIMATE

The property covers about one kilometer of exposure of intrusive rock which due to its resistance to weathering remains as a prominent ridge, sparsely covered by conifers. On either side of this northwesterly trending structure is lower level terrain which typically hosts small rounded lakes, elongate swamps and interconnecting streams. It appears that both sides of the ridge have been logged in recent times.
Rainfall in this area is moderate, and the snow pack remains until late spring due to the altitude (4700 feet).

## HISTORY

Chromite discovery in this area was first described by Cairnes (1932, p. 94A). Jones (1959, p 154) expands on this by documenting the presence of further ultramafic dikes. Hand trenches and test pits have since been dug and blasted in a small area around the main pit.

Buccaneer Resources Ltd., and the previous owner Nicola Copper Mines Ltd., after having surveyed a large portion of the main dike extension using magnetometer, geochemical, and geological means, chose to employ a local contractor to drill and blast oversize trenches across the main chromite showing. This occurred shortly after 1978. The recent logging operations have greatly improved access to the area.

## REGIONAL GEOLOGY

The Vernon sheet (GSC Map 1059A, Vernon) shows the area to be underlain by a northerly-trending (2 to 4 miles wide) sliver of Chapperon Group metasediments (Archaean or later) overlain in part by Cache Creek group argillites (Paleozoic) to the east and intruded by Jurassic granodiorite to the west. Along the northerly grain and trend of the Chapperon rocks occur the Old Dave intrusions (Proterozoic and/or Paleozoic) consisting of chromite-bearing serpentinized dunite and other ultrabasic rocks.

Tertiary lava capping occurs mostly on the higher ridges in the area. Glacial scouring has enhanced the north-northwesterly trending grain of the rocks producing a ribbed effect in the topography between ridges and swampy parallel valleys.

## GEOLOGY OF ORIGINAL ALOCIN CREEK SHOWING

The showing is well described by Cairnes in Jones' memoir. Cairnes (1932, p. 94A) writes:

> "...This chromite-bearing dyke is composed mainly of dark green serpentine which commonly weathers a deep orange-red, but in places is coated instead with a thin, semi-transparent, whitish, talcose film. The serpentine has resulted from the alteration of an intrusive composed very largely of olivine. Microscopic studies reveal different stages of alteration ranging from those in which abundant small grains of olivine occur in a meshwork of serpentine to others in which no traces of unaltered olivine remain. Other minerals present include partly to completely altered crystals of pyroxene, talc, chlorite, magnetite, asbestos, chromite. The chromite is dark brown and almost opaque in thin section. It is an abundant constituent at one locality. At most other places the rock carries disseminated magnetite occurring either in crystals or in lumps and small, irregular streaks. At different places the serpentine was observed to contain small veinlets of cross-fibre asbestos varying in thickness from that of a mere thread to 1/4 inch...
>
> ...The principal discovery was made less than 100 yards southeast of, and a few feet above, the left bank of the river...Here a small segregation of high-grade chromite ore was discovered, apparently mostly dug out. It occurred in part as closely spaced kidneys of chromite 1/2 inch to one inch in diameter, and in part as a heavy dissemination of small, granular aggregates occupying up to 75 per cent or more of the rock volume. The enclosing rock is a dull green, massive, partly serpentinized dunite in which some further alteration to talc and chromiferous chlorite has occurred. Little or no magnetite appeared to be present. Though not of itself economically important, this discovery suggests the possibility of other occurrences

in this serpentinized belt. Little clue is furnished as to where to look for such deposits. The rock in the belt is a type that under favourable conditions might prove a valuable source of both chromite and asbestos and, perhaps, rarer minerals such as platinum. The belts should, consequently, be followed in both directions and particular attention paid to it at places where it either widens materially ore changes in its general structure or appearance."

## PURPOSE OF HEAVY METALS ANALYSIS

The platinum group of metals show an affinity for ultrabasic environments. As the subject property includes such an environment with associated chromite showings, it was felt by the writer that the viability of utilizing placer concentration techniques to effect a pre-concentration of the heavy metal fraction from detritus, could be evaluated by carrying out the subject test.

Not only would the relative concentration of platinum group elements within the detritus emerging from the area of the chromite showings be explored, but also would the methodology be examined. In the event that the method works in this specific area, then a more regional 'stream sediment analysis program' might be recommended.

## METHOD OF HEAVY METALS ANALYSIS

A portable aluminum sluice box was utilized to provide black sand concentrate from the detrital material washed across the device.

The box's dimensions were approximately 5 feet long, one foot wide, double stacked with fine-grained sand being diverted through slits into the upper box, while the coarser material (minus 2 inch) was washed across the lower box. Special rubber matting was used, underneath expanded metal, to catch the black sand.

Water was provided by pumping from the creek.
Samples were obtained by shoveling gravel into plastic pails, and systematically dumping this material across the sluice box.
Once the washing was completed the sand left in the sluice was carefully washed into a bucket, and this remaining material was hand panned to a few teaspoons of black sand concentrate.
This sample was presented to the assay laboratory where it was fluxed, fired, and rendered into a silver bead, which was then dissolved, and the solution analyzed by induced-coupled-plasma instrumentation.
The appended assay certificates display the results.

## DESCRIPTION OF SAMPLES

The site of operations was chosen for its proximity to the documented occurrence of relatively high-grade pods of chromite located within the ultrabasic dike, and the easy access to a flowing stream.
Three samples were concentrated during the operation.
The first sample, **ALO 1**, consisted of ten buckets of broken gravel which were collected downhill from the location of the chromite pods, from road cuts and old trenches. Fluvial action and concentration had only a minor effect on this material. The maximum distance of the sample sites from the sluice box which was located next to the road, in this case was about 200 feet.
The next sample, **ALO 2**, consisted of five buckets of silty creek bank gravel. For this site the box was moved downhill towards the creek below the road. The sample was obtained from a single pit.
The third sample, **ALO 3**, consisted of five buckets of creek bed material, which was shoveled from the present active creek channel, including moss, roots, and unconsolidated material lying on bedrock.

d

## POSSIBLE SOURCES OF ERROR

The results herein displayed are believed to be reasonably accurate, however there are known sources of possible error.

The bucket count is accurate, however, the buckets were never full due to their prohibitive weight when full. As the sampled material packed loosely in the buckets, their combined volume is not representative of bank-run material.

In order to address this problem, more than the quoted number of buckets were sluiced in order to make up for the presumed shortfall.

The sluice box had been utilized by the writer in another gold-bearing gravel area before this job, and the possibility does exist that some carry-over of heavy metal concentrates did occur. To prevent this from 'salting' the subject test, careful scrubbing and washing down of the sluice box were undertaken prior to this operation.

Some precious metal, especially that represented in the minus 300 mesh size range, is lost during the final panning operations. It is thus possible that some of the values were not retained in the sample that was received by the laboratory. The amount not included in the assay is estimated to be inconsequential to the present test.

## RESULTS

It is evident, from reading the appended assay certificate, that some gold and platinum along with silver were detected by the laboratory procedures.

Sample **ALO 1** consisted of ten buckets taken of broken bedrock debris from road cuts and trenches above the road, and downhill of known chrome occurrences. The chrome concentrations are reflected in the assay. Cobalt, nickel and some arsenic, along with vanadium are also displayed.

(The previous sample was obtained from twice the number of buckets as the following two.)

**ALO 2**, consisting of five buckets of gravel, resulted in the recovery of lesser amounts of

precious metal, including platinum, while chrome, cobalt, nickel, vanadium are still evident.

**ALO 3**, consisting of five buckets of gravel, provided an assay of lower precious metal content, yet still showed the arsenic, cobalt, nickel, vanadium association with chrome. The whole-rock analysis (showing the rock-forming elements as oxides) indicates the samples to obtain (from a heavy metal concentrate derived) from a rock which is high in iron, magnesium, silica, aluminum, titanium, with minor amounts of manganese, calcium, and zirconium. As the analyses display the composition of pan concentrates, where a large proportion of the lighter rock-forming elements are excluded, the heavy metal fraction is exaggerated relative the actual elemental composition.

## RATIO OF CONCENTRATION

Each bucket of gravel, when fully loaded has a volume of about 25 liters, or 25 kilograms of water. The actual weight of the filled buckets was not obtained, but using a specific gravity of 2.8, which may be low, they would weigh 25x2.8 kg, not considering the voids. If these may be guessed at 30%, then the buckets would weigh 25x2.8x70%, or 50 kilograms. Moisture was not a major factor in the samples.

Sample **ALO 1**, therefore, had an estimated weight of 50x10 kilograms, while **ALO 2** and **ALO 3** weighed 50x5 kilograms.

The dry weight reported by the assayer was 40.7 grams for **ALO 1**, 166.4 grams for **ALO 2**, and 72.9 grams for **ALO 3**.

The ratios of concentration were therefore as follows:

**ALO 1** (12,000:1)

**ALO 2** (1,500:1)

**ALO 3** (3,500:1)

## INTERPRETATION OF RESULTS

It is evident that chrome with associated elements such as nickel, cobalt, and vanadium are detected by the assay of black sand concentrates.
A minor concentration of precious metals has also been detected.
There appears to be a relationship between silver and gold, and vaguely between platinum and gold, as shown by the ratio between their analyzed concentrations.

## CONCLUSIONS

Due to the large concentration factor applicable to these assays (ranging between 1,500 and 12,500 to one) resulting from the sluicing and hand panning sequence which results in a black sand concentrate, it is obvious that this method of exploration is very sensitive, in that minute amounts of precious metal can be discovered.
The amounts detected indicate the presence of a very small amount of platinum in the samples.

## DISCUSSION

The information gained from this small test serves less to evaluate the area surrounding the chromite exposures for economic platinum content, than to point out the possibilities resulting from the larger-scale hand-pan silt sampling exploration program that could be performed over those areas known to overly ultrabasic rocks, as supported by aeromagnetic data. These rocks are natural hosts for platinum group metal deposition. The method is sensitive due to its relatively high mechanical pre-concentration.

## RECOMMENDATIONS

A silt sampling survey, covering every drainage issuing from known, or inferred ultrabasic dike exposures utilizing hand-panning procedures for pre-concentration, should be a valuable tool to employ in the exploration for platinum group elements in this geological terrain. In those areas where hand panning pre-concentration recoveries point to the possibility of precious metal occurrence, a small sluice test could be carried out in the vicinity, providing increased recovery sensitivity.

Respectfully Submitted,


Gerhard G. Von Rosen, P.Eng.
October 09, 1986

# BIBLIOGRAPHY

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**Cairnes, C.** - 1932, Geological Survey of Canada Summary Report, page 94A.

**Stevenson, J.S.** - 1941, Preliminary Report on Chrome Ridge, B.C., British Columbia Department of Mines.

**Menzies, M.** - September 1956, Geological and Aeromagnetic Surveys of the Alocin Chrome Groups, Headwaters of the Nicola River, Vernon, B.C.

**Jones, A.G.** - 1959, Vernon Map Area, Geological Survey of Canada Memoir 296.

# APPENDIX

Assay Certificate: Lab# 5645

QUANTATRACE LABORATORIES INC.

quanta trace laboratories inc.
#401-3700 Gilmore Way, Burnaby, B.C., Canada V5G 4M1 Tel:(604)438-5226

## ANALYSIS OF GEOLOGICAL SAMPLES

To: Laramie Mining Corporation Ltd
210 - 717 West Pender Street
Vancouver, B.C.
V6C 1G9

Workorder: 5645
Received : 15-Sep-86
Completed: 29-Sep-86

Attn: Mr. K. Norman

Re: Chemical Analysis of Black Sand Samples from Mr. G. Von Rosen

| Sample type | | Black Sand | Black Sand | Black Sand |
|---|---|---|---|---|
| Identification | | ALO #1 | ALO #2 | ALO #3 |
| Lab Reference # | | 5645-001 | 5645-002 | 5645-003 |
| Analyzed by Plasma Emission Spectroscopy (ICAP) | | | | |
| Method used | | Total | Total | Total |
| Trace Elements | | | | |
| Arsenic | As | 50 | < 30 | 40 |
| Boron | B | 32 | 12 | 9 |
| Beryllium | Be | 0.1 | 0.5 | 0.3 |
| Bismuth | Bi | < 20 | < 20 | < 20 |
| Cadmium | Cd | < 0.5 | < 0.5 | < 0.5 |
| Cobalt | Co | 96 | 34 | 27 |
| Chromium | Cr | 31300 | 4860 | 8080 |
| Copper | Cu | 30 | 31 | 13 |
| Mercury | Hg | < 10 | < 10 | < 10 |
| Molybdenum | Mo | < 3 | < 3 | < 3 |
| Nickel | Ni | 1760 | 152 | 175 |
| Lead | Pb | < 5 | < 5 | < 5 |
| Antimony | Sb | < 10 | < 10 | < 10 |
| Selenium | Se | < 10 | < 10 | < 10 |
| Thorium | Th | < 10 | < 10 | < 10 |
| Uranium | U | < 30 | < 30 | < 30 |
| Vanadium | V | 951. | 878. | 505. |
| Zinc | Zn | 197 | 114 | 90 |
| Results in | | ppm | ppm | ppm |
| Precious Metals by Fire Assay | | | | |
| Silver | Ag | 0.50 | 0.10 | 0.02 |
| Gold | Au | 0.702 | 0.084 | 0.022 |
| Palladium | Pd | 0.001 | 0.001 | 0.001 |
| Platinum | Pt | 0.024 | 0.001 | 0.002 |
| Rhodium | Rh | < 0.001 | < 0.001 | < 0.001 |
| Results in | | oz/T | oz/T | oz/T |

/2...

**quanta trace laboratories inc.**
#401-3700 Gilmore Way, Burnaby, B.C., Canada V5G 4M1 Tel:(604)438-5226

To: Laramie Mining Corporation Ltd W/O: 5645 Page 2

| Sample type | Black Sand | Black Sand | Black Sand |
|---|---|---|---|
| Identification | ALO #1 | ALO #2 | ALO #3 |
| Lab Reference # | 5645-001 | 5645-002 | 5645-003 |
| **Majors as Oxides** | | | |
| Silicon % SiO2 | 9.91 | 33.4 | 51.3 |
| Aluminum % Al2O3 | 2.71 | 7.76 | 10.5 |
| Iron % Fe2O3 | 67.5 | 43.4 | 21.5 |
| Calcium % CaO | 0.60 | 3.6 | 4.61 |
| Magnesium % MgO | 7.92 | 2.7 | 4.02 |
| Sodium % Na2O | 0.20 | 1.4 | 2.25 |
| Potassium % K2O | < 0.1 | 0.84 | 1.45 |
| Barium % BaO | 0.004 | 0.059 | 0.089 |
| Manganese % MnO | 0.31 | 0.20 | 0.24 |
| Phosphorus% P2O5 | 0.17 | 0.22 | 0.11 |
| Strontium % SrO | < 0.003 | 0.029 | 0.046 |
| Titanium % TiO2 | 2.56 | 2.36 | 2.42 |
| Zirconium % ZrO2 | 0.11 | 0.070 | 0.086 |
| Loss on Ignition | 0.00 | 0.15 | 1.04 |
| Results in | % | % | % |
| Total Oxides | 91.7 | 98.0 | 99.7 |
| Dry Weight in grams | 40.7 | 166.4 | 72.9 |

Assayer: SKDifc

cc: Mr.G.Von Rosen

# CERTIFICATE OF QUALIFICATIONS

I, Gerhard von Rosen, reside in Mission, British Columbia, at 33176 Richards Avenue.

I have been practicing my profession of consulting geologist since my graduation from the University of British Columbia in 1962 with a Bachelor of Science, and in 1966, with a Master of Science degree in Honours Geology.

I have prepared the subject report from information gained during my visit to the Alocin river property on August 3-5, 1986, and from references cited.

I am expecting to receive the fees and expenses invoiced regarding the preparation of this report, as this is my sole remuneration. I have no interest in the company, its properties, or its shares, neither do I expect to receive any.

Respectfully submitted,

Gerhard von Rosen, P.Eng.
October 15, 1986

# ITEMIZED COST STATEMENT

| | | |
|---|---|---|
| TRAVEL: | 1.5 | DAYS |
| RECONNAISSANCE: | 0.5 | DAYS |
| FIELD: | 1.0 | DAYS |
| **TOTAL:** | **3.0** | DAYS |
| TIME CHARGED: | 3.0 | DAYS |

| | | |
|---|---|---|
| GROCERIES | | 102.31 |
| SUNDRY | | 24.85 |
| MAPS ETC. | | 3.89 |
| PHOTOS | | 7.25 |
| DIESEL FUEL | | 69.70 |
| TOYOTA PER KM | 1300 @ $000.15 | 195.00 |
| TOYOTA PER DIEM | 03 @ $050.00 | 150.00 |
| TOYOTA PER DIEM INSUR | 03 @ $005.00 | 15.00 |
| FEES | 03 @ $400.00 | 1200.00 |
| HELPER | 03 @ $100.00 | 300.00 |
| ASSAYS | estimate | 300.00 |
| REPORTING | | 1600.00 |
| **TOTAL COSTS INCURRED.....** | | **$3968.00** |

CV (1292) = 4 units $200 = $ 800
**TOTAL ASSESSMENT..**one year.**$ 800**
TOTAL AVAILABLE.....$3968