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REPORT

on the

**ASTRA NO. 2 CLAIM
GAVIN LAKE AREA
CARIBOO MINING DIVISION
MAP SHEET M93A/5W**

for

BARTS RESOURCES LTD.

BY:

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March 27, 1984

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I. SUMMARY AND CONCLUSIONS

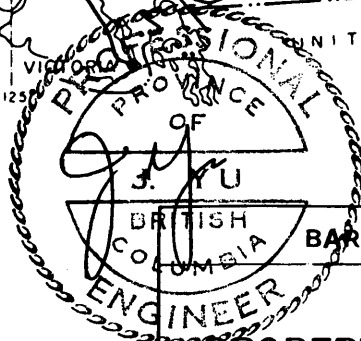
The Astra No. 2 mineral claim is located geologically in the Quesnel Trough and south west of the Cariboo-Bell and Quesnel River mineral deposits where proven reserves of copper-gold mineralization are presently being evaluated.

The claim appears to cover polymictic volcanic breccia, basalts, tuffs and some type of intrusive, but little detailed geology has been completed to confirm the lithology.

The claim geology certainly seems to fit the exploration model of being part of a volcanic pile associated with plutonism.

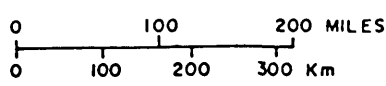
An initial exploration program of geology and geochemistry is recommended at a cost of \$21,560.00.

A second phase of \$53,240 is proposed, contingent upon the results of the first phase. The total first and second phases are estimated at \$74,800.



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PROPERTY LOCATION MAP
 CARIBOO MINING DIVISION
 BRITISH COLUMBIA



| | | |
|-----------------|------------------|----------|
| Drawn: J. Yu | Checked: J. Yu | Plan No. |
| Scale: As shown | Date: 1983-11-10 | I |

122°00'

45'

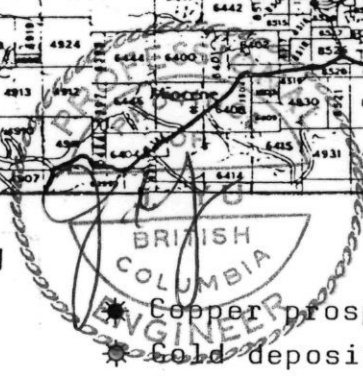
30'

53°45'



CARIBOO MINING DIVISION
BRITISH COLUMBIA

PROPERTY LOCATION MAP



★ Copper prospect
★ Gold deposit

II. INTRODUCTION

The Astra No. 2 claim consisting of 20 units is located south west of Bootjack Mountain of the Cariboo-Bell and west of Gavin Lake and is owned by Barts Resources Ltd.

Attention to this area was initiated by work on the Cariboo-Bell mineral occurrence and more recently by new discoveries at Maud Creek, Quesnel River and Eureka.

A property visit was made to the Astra No. 2 claim on October 25 and 26, 1983 and on January 28, 1984.

This report reviews the property geology, the ore deposition model, and makes recommendations for additional work.

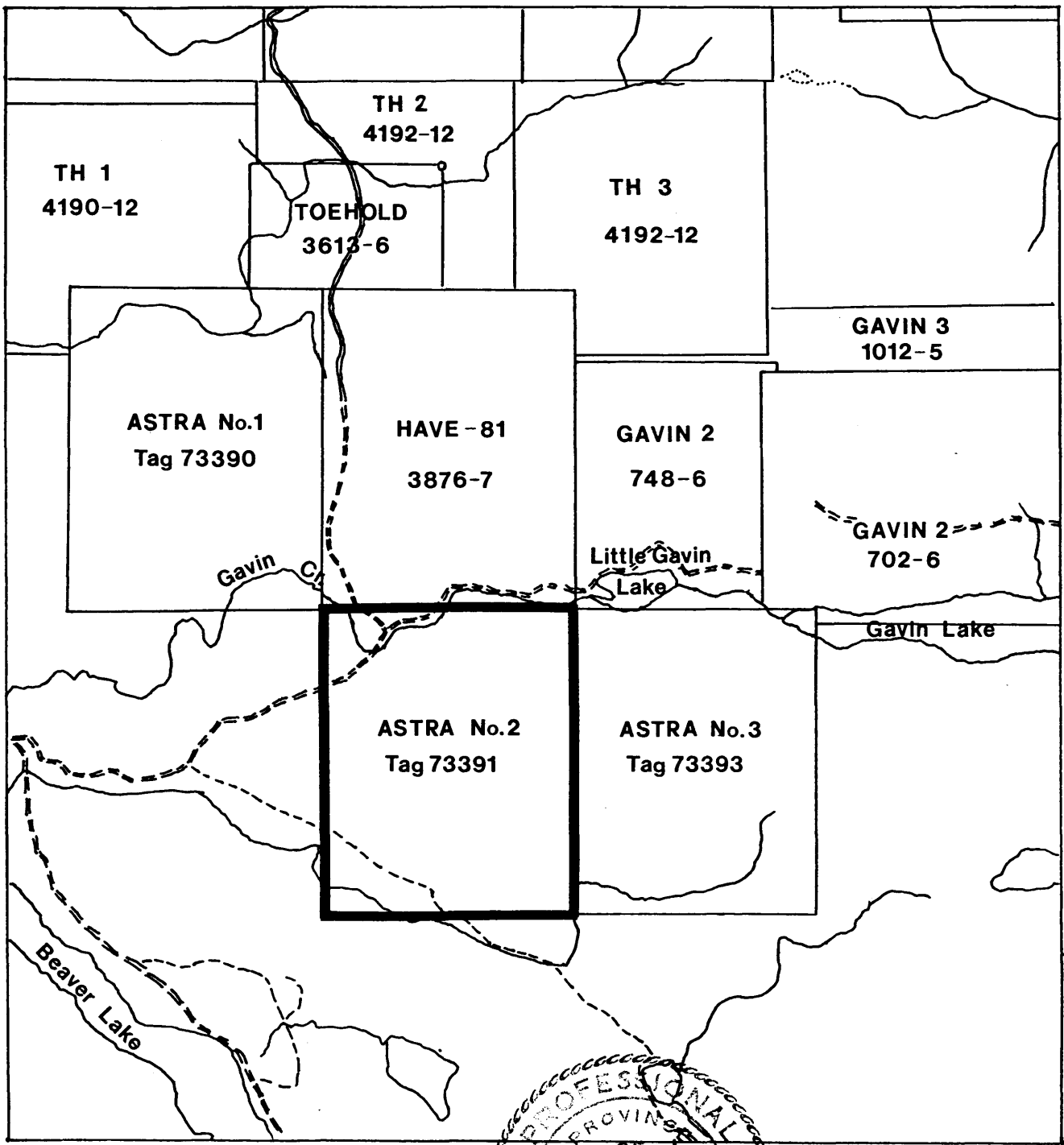
III. LOCATION AND ACCESS

The Astra No. 2 claim is located approximately 1.5 kilometers north east of Beaver Lake and 1.6 kilometers west of Gavin Lake. The geographic coordinates at the centre of the claims are:

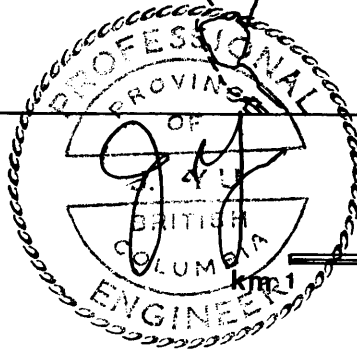
52° 29' 0" N latitude by 121° 47' 30" W longitude.

Access is from Williams Lake, the central supply centre with air, rail and highway links to Vancouver and Edmonton, via Highway 97 to Likely. The property is located on the unpaved section of the Williams Lake to Likely highway at approximately 3 kilometers northeast of the Beaver Lake turn off. The north west portion of the claim is located at the Gavin Lake turn off.

The claims are covered by Birch, Jackpine and Fir which has little undergrowth in the higher elevations at 1000 m and undergrowth is encountered in creek drainages and lower elevations. Portions of the area, especially near the centre of the claim, have been logged.



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CARIBOO LAND DISTRICT, B.C.



paved road ==
 gravel road ==

IV. PHYSICAL FEATURES

The claims cover moderately gentle, partially logged terrain with elevations ranging around 950 m to 1050 m. The major creeks do incise, creating steep sided gulleys.

Heavy snowfalls in winter and frequent summer rains are typical of the precipitation of the area.

V. CLAIMS

Aberdeen Resources Ltd. has purchased all the interest in the Astra No. 2 claim.

The location posts were inspected in the field and are in order, the transfers of ownership were not examined at the Ministry of Mines.

It is understood that assessment work requirements have been maintained where required.

The record number is 73391 on the Astra No. 2 claim which consists of 20 units.

VI. GENERAL GEOLOGY

The Quesnel Lake area in south central British Columbia forms part of the Quesnel Trough, a Mesozoic tectonic feature occurring between the Omineca Crystalline Belt to the east and the oceanic-deposited rocks of the Cache Creek Group to the west. The Quesnel Trough forms the western margin of the southern part of the Columbian Orogen.

The Quesnel Lake area is underlain by about 7,000 metres of Upper Triassic - Lower Jurassic volcanic and sedimentary rocks which have been intruded by comagmatic felsic plutons. The volcanic and sedimentary rocks comprise an Upper Triassic basalt sequence of green and grey alkali olivine basalt and alkali basalt which are analcite-bearing towards the top, and which grade up into maroon basalts of the

same composition as the underlying rocks. Overlying the basaltic sequence is a sequence of felsic breccias derived by phreatic eruption and submarine laharic activity.

Intruding the volcanic and sedimentary sequences are small syenite and monzonite stocks whose associated volcanics and intrusive margins are hosts to copper-gold deposits. Felsic volcanism, plutonism and ore deposition were essentially coeval events during the Lower Jurassic period.

Overlying the Upper Triassic - Lower Jurassic rocks, are shallow water sedimentary rocks of mainly mid-Jurassic age. The provenance of these rocks was the Paleozoic Cache Creek Group to the west of the Quesnel Trough.

The chemical compositions of the rocks of the Quesnel Lake area are characteristic of alkalic volcanic suites such as those of Hawaii and the Lesser Antilles. Although similar to basalts forming at accreting plate margins, and in the intraplate environment, work by various researchers suggests these basalts are more typical of those formed at consuming plate margins.

The copper-gold deposits seem to be associated with two stages of development, the high level propylitic basalts and the deeper seated margins of the alkalic stocks.

VII. ECONOMIC GEOLOGY

The region surrounding the property has had little consistent exploration until recently, although placer gold exploration and production has been conducted since the 1880's.

The only activity prior to 1964 is a Ministry of Mines report for 1933 that mentions the P. Shaw property, located some five kilometers southeast of Kangaroo Mountain. Several quartz veins in andesitic rocks were found and contained values in gold and silver.

In the early forties a series of deposits consisting of gold bearing quartz veins were developed. These include the likes of Cariboo Gold Quartz and Mosquito Creek. These are veins and bedded pyritic deposits in faults and fractures in the Paleozoic Cariboo series consisting of black argillites, quartzites, and schists.

These rocks and deposits are all part of the Omineca Crystalline Belt which lies just east of the Quesnel Trough.

During the early 1960's a distinctly different type of ore deposit was found in the form of the Cariboo-Bell and several similar deposits have been found since then.

(a) Cariboo-Bell

This deposit, currently being developed by E. & B. Explorations is located on the west slope of Polley Mountain beside Polley Lake, some 56 km. northeast of Williams Lake.

This deposit occurs in an alkalic intrusive complex in the Quesnel Trough, a 35 km. wide northwesterly trending volcanic-sedimentary sequence of Early Mesozoic age.

The alkalic complex is centrally located in the trough at Bootjack Lake. Rocks of upper Triassic age consist of volcanoclastics, flows and aquagene tuffs, which are represented by green augite trachy-basalt flows, feldspathic crystal and lapilli tuff and polymictic volcanic breccias.

These are all suggestive of a developing volcanic centre in a marine environment.

The intrusive complex is a multiple laccolith about six km. long by two - three km. wide consisting of several lithological phases. The phases consist of syenodiorite, monzonite porphyry, intrusion breccia and pyroxenite-gabbro.

The most important rock type is the crackle breccia, as the copper-gold mineralization is found in this unit in fractures, networks of veinlets, pods and drusy cavities.

The gold occurs in the chalcopyrite as inclusions and also as free particles.

The grade of mineralization is directly proportional to the intensity of brecciation.

(b) Quesnel River

This deposit is being developed by Dome Mines and is situated on the Quesnel River some 10 km. northwest of Likely, some 60 km. northeast of Williams Lake.

This deposit is also found in the main volcanic belt of the Quesnel trough and has an associated stock.

The volcanics, although not as clearly understood, are an assemblage of basaltic tuffs, lapilli tuffs, and trachybasalts. The volcanics near the stock are extensively propylitized and contain pyrite varying from 2% to 15%. The propylitized volcanics also carry gold mineralization.

In areas where the basalts are breccias, i.e., basalt fragments surrounded by tuff, the epidote ground mass can run 4 or 5 grams of gold.

The intrusive complex here is considered to be a stock as opposed to a laccolith as at Cariboo-Bell. This intrusive shows zoning, the interior being monzo-diorite and the outer edge becoming a hornblende porphyry diorite. The hornblende porphyry contains extensive pyrite and chalcopyrite which both in turn have associated gold. To date, the first phase of drilling has indicated approximately one million tons of ore grading .20 oz/ton of gold.

(c) Eureka

This prospect located 110 km. east northeast of Williams Lake near Horsefly is being drilled by Amoco Canada Petroleum.

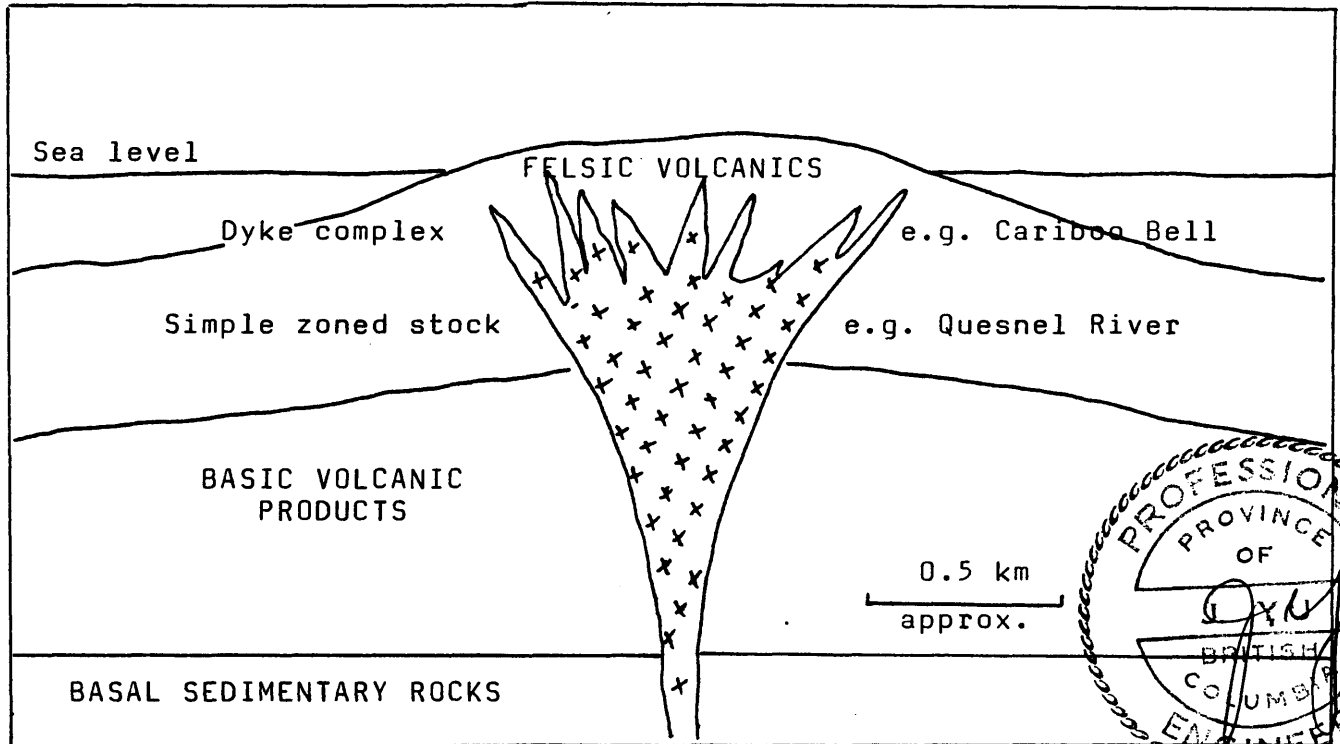
Work to date has indicated that gold values are being found in another series of polymictic volcanics.

VIII. EXPLORATION MODEL

One of the characteristic features of the Quesnel Trough alkalic porphyry systems is that they occur in volcanic piles which were mainly formed in a submarine environment. Volcanism, plutonism and ore deposition were essentially synchronous, and therefore, the ore deposits formed while the volcano was still mostly submarine. In this respect, the environment of volcanism and plutonism was similar to that of Kuroko-type ore-forming environments. The important difference between the environments of formation of the two types of deposits seems to be that in the Quesnel Trough alkalic porphyry deposits, metal-rich solutions did not ascend through the volcanic pile to as far as the sea water-rock interface.

It is suggested then, that phreatic explosive activity occurred periodically in a sea water hydrothermal system associated with an alkalic felsic intrusion in a submarine volcanic pile. As a consequence, rocks formed by the reaction of sea water with the volcanic rocks, were incorporated as fragments, along with fragments of unaltered rocks, in the debris thrown out around the volcanic vents. Subsequently, or perhaps at the same time, this material slumped downslope, mixing with the debris from previous explosive eruptions, flows, and the normal erosion products of the edifice, to form the laterally extensive aprons of laharic deposits around the volcanic centre.

Solutions were then circulating through the rock at the same time as ore was being deposited, as indicated by the spatial relationships of ore and alteration zones, it can be concluded that the ore deposits were forming at the same time as volcanic activity in the region. Furthermore, fragments of syenite and monzonite, similar to



Possible environments within the volcanic pile for ore deposition

rocks comprising the Polley Stock, occur in the breccias. Therefore, the emplacement of the stock must also have been occurring at this time. As well, ore occurs in the stock and is central to the zoned alteration pattern, and therefore the Polley Stock is the probable source of metals and heat in the ore-forming hydrothermal system.

In summary then, the evidence indicates that magmatism, ore formation, wall rock alteration, breccia formation, and slumping of breccias to form laharic flow deposits, were essentially synchronous and causally related processes. In other words, there appears not to have been any significant pause between the three events - volcanism, emplacement of the stock and ore deposition.

IX. PROPERTY GEOLOGY

At this time, the geology and mineralogy of the Astra #2 is not well defined, but the proximity to known deposits and the presence of volcanics and possible plugs suggests that the claims warrant further investigation.

A brief traverse was carried out over the north portion of the claims in the vicinity of Gavin Creek.

The traverse encountered what must be considered the "Gavin Lake Stock", a medium grained grey quartz monzonite. Would appear to consist of dykes and a possible stock. In one area it was seen to be porphyritic in nature. Claims adjoining this claim are known to contain copper-molybdenum mineralization.

Volcanics were also encountered; these consisted of basaltic breccia and a volcanic conglomerate, possibly a lohar or basaltic breccia. The rocks are grey to green in colour and contain numerous calcite fillings.

It would appear that the monzonite intrudes the volcanics, but further work is required.

X. RECOMMENDATIONS

The geology of the claims show that they lie within the Quesnel Trough and that they are underlain by altered volcanics and contain a portion of a monzonite stock or laccolith.

Based on this data, the claim fits the exploration model and detailed surveys consisting of geochemistry, geophysics and geology are recommended for the Astra No. 2 claim.

An additional phase II program is warranted contingent upon the success of the phase I program.

The phase I program should have the geochemistry survey done on a grid of 100 metres by 100 metres and the initial magnetometer work can be run on the same grid, but with readings taken at 50 meter intervals.

The geologic mapping should be tied to the established grid and this work must precisely locate and determine the different geological rock types.

APPENDIX A

References

BIBLIOGRAPHY

- Campbell, R.P. (1961) Quesnel Lake Sheet (West Half), G.S.C. Map 3-1961.
- Various B.C. Minister of Mines and Petroleum Resources Reports; 1926 - 1978.
- Lang, A.H. (1948) Regional Structure of Barkerville District in C.I.M. Jubilee Volume "Structural Geology of Canadian Ore Deposits", pages 141 - 149.
- Sutherland Brown, A. (1957) Geology of the Antler Creek Area, Cariboo District, British Columbia, B.C. Ministry of Energy, Mines & Petroleum Resources, Bull. 38.
- Sutherland Brown, A. (1963) Geology of the Cariboo River, British Columbia, B.C. Ministry of Energy, Mines and Petroleum Resources, Bull. 47.

XI. COST ESTIMATE**Phase I**

| | |
|---------------------------------------|------------------|
| Geologist - 1 month | \$ 4,000 |
| Geochemist - sampler - 1½ month | 4,000 |
| Room & board - 80 man days @ \$40/day | 3,200 |
| Geochemistry & assaying | 2,800 |
| Truck, fuel and transportation | 5,000 |
| Field equipment and supplies | 600 |
| Contingencies @ 10% | <u>1,960</u> |
| TOTAL | <u>\$ 21,560</u> |

Phase II

| | |
|----------------------------------------|------------------|
| Geologist - 2 months | \$ 8,000 |
| Geochemist - sampler - 2 months | 6,000 |
| Geophysicist - EM-16 survey - 1 month | 3,000 |
| Room & board - 150 man days @ \$40/day | 6,000 |
| • Geochemistry & assaying | 6,000 |
| Truck, fuel and transportation | 6,000 |
| Cat trail construction | 5,000 |
| Trenching - cat & hoe rental | 5,000 |
| Field equipment | 1,000 |
| Consulting & reporting | 2,400 |
| Contingencies @ 10% | <u>4,840</u> |
| TOTAL | <u>\$ 53,240</u> |

| | |
|----------------|------------------|
| Total Phase I | \$ 21,560 |
| Total Phase II | <u>\$ 53,240</u> |
| TOTAL PROGRAM | <u>\$ 74,800</u> |

APPENDIX B

CERTIFICATE OF QUALIFICATION

I, JOHN YU, P.Eng., with an office at 1108 - 409 Granville Street, Vancouver, British Columbia, hereby certify that:

1. I am an independent consulting engineer who has prepared a report on the interests of Barts Resources Ltd. during the month of January, 1984.
2. I have no direct or indirect interests, nor do I expect to receive any direct or indirect interest, in the properties or in any securities of Barts Resources Ltd.
3. I attended the University of Alberta and I graduated with a Bachelor of Science in Metallurgical Engineering in 1974.
4. I am a registered Professional Engineer in the Province of British Columbia and Alberta.
5. I have in excess of nine years experience in engineering studies, evaluation of mineral, oil and gas properties, production and process engineering of oil and gas and mining operations in Canada and the United States.
6. I have visited the Astra No. 2 claim area and this report is based on the property visit and on a literature study.
7. I hereby give my permission for inclusion of this report into a statement of material facts or prospectus.

Vancouver, B.C.
March 27, 1984

