Assessment Report

GREAT PLAINS DEVELOPMENT
COMPANY OF CANADA, LTD.

77-#390-#6500

GEOLOGICAL, GEOCHEMICAL, AND GEOPHYSICAL REPORT

GJ OPTION

KINASKAN LAKE AREA
BRITISH COLUMBIA

N.T.S. 104-G/9

Liard Mining Division
Latitude: 57 degrees, 39 minutes North
Longitutde: 130 degrees, 14 minutes West

Doug Good

D. R. Good
G. L. Garratt
October, 1977

G L Garratt

Part 2 of 2
6500

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

APPENDICES

PLATES

A. SUMMARY

The GJ option, which includes the GJ and Spike 1 and 2 claims, is situated on the Klastline Plateau in the Stikine Region of northwestern British Columbia. The area has been the focus of substantial exploration for porphyry copper mineralization since 1964. Diamond drilling by Amoco Canada Petroleum Company Ltd. in 1970 and 1971 intersected significant copper mineralization in a quartz stockwork beneath showings in Groat Creek. In well mineralized sections, grades range from 0.3% to over 1% copper carrying significant gold values with one intersection of greater than 0.4% over more than 60 meters (200 feet). Mineralization appears to be cut off to the north and south by easterly faults.

In 1976, Great Plains Development undertook a program of mapping and geochemistry in an attempt to locate potential areas for further mineralization on the GJ claim.

The objective of the 1977 program was to locate drilling targets by carrying out an induced polarization survey over that part of the claim which appeared promising, and to carry out a limited bedrock geochemical survey to get reliable geological and geochemical data at selected sites on the plateau. In addition, several trenches were blasted through the plateau overburden to expose the bedrock. Work was carried out between July 1, 1977 and August 16, 1977.

The induced polarization survey was completed over the northern two-thirds of the GJ claim and indicated several chargeability anomalies. The bedrock geochemical samples were taken at selected sites over the I.P. anomalies in an attempt to define a relationship between I.P. response and near-surface copper mineralization. The geochemical values were reliable but a more detailed survey would have to be completed to get a clear relationship between I.P. and geochemistry. The assay results of the trenches were not high but did indicate the existence of minor stockworking and mineralization on the plateau to the east of Groat Creek.

The surveys gave optimistic results and indicated several areas of good potential for further mineralization. In particular, the area to the east and southeast of the main showing in Groat Creek appears to have excellent potential. Here, geophysical and geochemical anomalies, together with favourable

geological and structural features indicate stockwork development potential. The northwest corner of the claim appears to have good potential because of an I.P. anomaly which broadens with depth. Only the northern part of this anomaly has good geochemistry however.

B. INTRODUCTION

1. History

Groat Creek, which flows north-south through the claim group and upon which the showings are located, was named after the original prospector in the area. Conwest Exploration Company Ltd. was the first company to conduct an evaluation of the area. In 1964 Conwest staked 196 claims of the GJ Group across the southwestern portion of the Klastline Plateau to cover a number of mineral occurrences. Preliminary mapping and geochemical soil and silt sampling were conducted. It was concluded that only their first mineral occurrence, Groat 1, merited any further investigation and it was in the vicinity of this showing that all later work was conducted.

In 1965, Conwest conducted magnetometer and induced polarization surveys. The grid was a cross which consisted of two perpendicular lines centered at the showing in Groat Creek. The north-south line was 6,000 feet (1818 m) long and the east-west line was 5,000 feet (1515 m) long. These skeletal surveys gave insufficient data for any definite conclusions. Blasting, bulk sampling of three trenches and rock chip analysis of 150 samples yielded promising results. The rock chip samples averaged between 0.5% and 0.6% copper with appreciable values in gold and silver. All the Conwest claims, except four upon which the main showing was located, were allowed to lapse. No further work was undertaken until Amoco Canada Petroleum Company Ltd. optioned the ground in early 1970.

To protect the four claims, Amoco staked a further 180 claims - the N Group and the Red Group in 1970. Five B.Q. diamond drill holes were drilled from the same platform on Groat Creek adjacent to the showing. The holes were drilled in a starburst pattern at -60 degrees in all major compass directions with a vertical hole in the center. Values of 0.3% to over 1% copper were intersected over significant widths in all holes except GJ 70-4, drilled to the north. In the same year, a grid of eight 4,000 foot (1212 m) lines oriented north-south and centered over the showing was emplaced. The area was mapped and a magnetometer survey completed. Induced polarization and geochemical surveys were only partially completed over the grid.

In 1971, diamond drill holes GJ 71-5 to 19 were drilled across the property and further mapping was undertaken. Except in holes adjacent to the starburst to the east and west (GJ 71-6, GJ 71-15), mineralization was minimal. The holes around the starburst helped to outline the mineralized zone but failed to delineate it.

Amoco did not pursue exploration any further on the property and Conwest allowed the claims to lapse in the fall of 1975. Mr. R. Dickinson of United Mineral Services Ltd. immediately staked the present GJ claim of twelve units over the showing. Texasgulf Inc. staked their Groat Group and consequently they presently surround the GJ claim to the west, north, and northeast.

In the spring of 1976, Great Plains Development Company of Canada Ltd. optioned the GJ claim from United Mineral Services Ltd. and undertook the 1976 field program.

The overall objectives of the 1976 program were to re-evaluate the main area of mineralization with attention to possible structural dislocation and to examine the covered plateau areas in an effort to determine their economic potential. To attain these ends, the field program included installment of a picketed grid for use in mapping and for geochemical and geophysical surveys, mapping of the claim in order to get a new interpretation of the geology, relogging of existing drill core to satisfactorily link it to the geology and completion of soil geochemistry and magnetometer surveys over the entire claim.

In November of 1976, the Spike 1 and 2 claims of 28 units were staked, adjoining the GJ claim to the south and east.

Optimism generated by the 1976 program resulted in organization of the 1977 work which is documented in this report.

2. Ownership

The GJ claims, as staked by Conwest in 1964, and optioned by Amoco in 1970, lapsed and became available for further staking on October 10, 1975. R. Dickinson, of United Mineral Services Ltd., #1326 - 510 West Hastings Street, Vancouver, British Columbia, staked the present GJ claim on October 14, 1975 and recorded them on October 29, 1975 in Victoria. The claim consists of four unit lengths E - W and three unit lengths N - S for a total of twelve units.

Great Plains Development optioned the claim in April of 1976. On November 11, 1976 the Spike 1 and Spike 2 claims were staked by Great Plains Development and recorded at Victoria on November 25, 1976. The Spike 1 claim consists of eighteen units - three N - S and six E - W and is contiguous with the southern GJ claim boundary. The Spike 2 claim consists of ten units - five N-S and two E-W and is contiguous with the eastern GJ claim boundary.

3. Location and Physiography

The GJ claim is located at 57 degrees, 38 minutes, 40 seconds to 57 degrees, 39 minutes, 20 seconds north latitude and 130 degrees, 14 minutes to 130 degrees, 15 minutes west longitude. The Spike claims adjoin to the south and east sides of the GJ claim.

The claims lie within the Stikine Region of northwestern British Columbia in the Liard Mining Division (Figure 1). They are located on the western edge of the Kinaskan Lake map sheet - N.T.S. 104-G/9E with the G.J. and Spike 1 claims extending a short way onto 104-G/9W (Plate 1). They are approximately 100 kilometers (sixty miles) southeast of Telegraph Creek and 385 kilometers (240 miles) north of Terrace, British Columbia.

The claims are located on the southern end of the Klastline Plateau. Glacial movement down the Iskut Valley left behind the truncated spurs of the plateau and a chain of ribbon lakes of which Kinaskan is one, just 5.5 kilometers (3.5 miles) east of the property. The plateau is an undulating surface between 1515 m and 1665 m (5,000 and 5,500 feet), approximately 760 m (2,500 feet) above the Iskut Valley floor. Heavy peri-glacial run-off has resulted in deep incision of the creeks which flow radially from the plateau. The plateau areas in which the claims are situated are generally covered by short grasses and are occasionally poorly drained and boggy. Below tree line at about 1450 m (4,800 feet), the plateau slopes and creek valleys are covered by dense stands of spruce and fir.

Outcrops on the plateau are scarce and only along the creeks and valley walls are there sufficient rock outcroppings for detailed mapping.

4. Economic Considerations

The Stewart-Cassiar highway is routed along the eastern shore of Kinaskan Lake, connecting to the Alaska highway near Watson Lake, Yukon Territories, 400 kilometers (250 miles) to the north. Amoco constructed a road suitable for four-wheel drive vehicles in the fall of 1970 from the west side of Kinaskan Lake. This necessitated the barging of equipment across the Lake from the Stewart-Cassiar highway on the eastern shore. The road is still in a reasonable state of repair and suitable for walking equipment to the property.

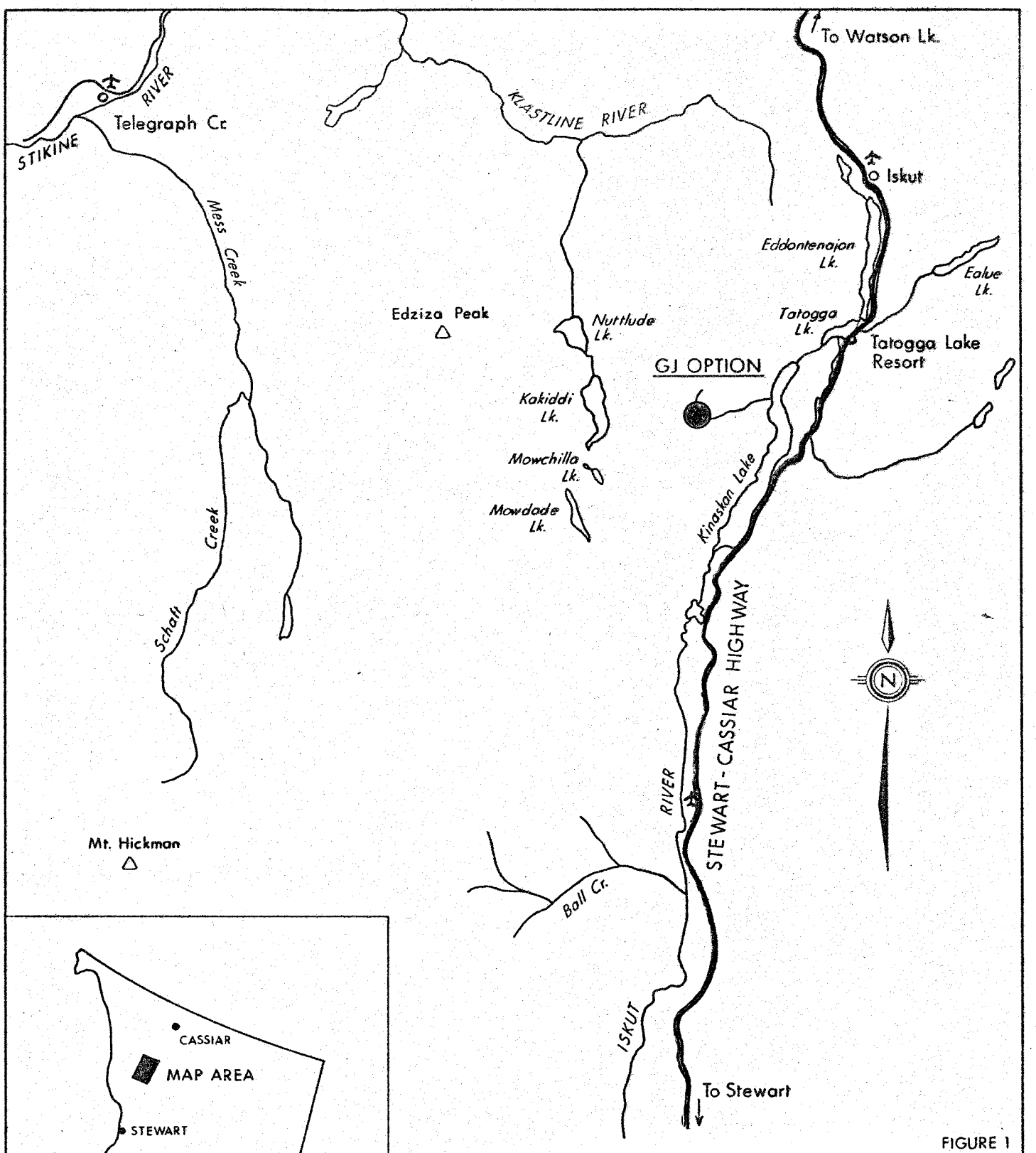

To Watson Lk.
KLASTLINE RIVER
STIKINE RIVER
Telegraph Cr
Iskut
Mess Creek
Eddontenajon Lk.
Ealue Lk.
Edziza Peak
Nuttlude Lk.
Tatogga Lk.
Tatogga Lake Resort
GJ OPTION
Kakiddi Lk.
Mowchilla Lk.
Mowdade Lk.
Kinaskan Lake
Schaft Creek
STEWART-CASSIAR HIGHWAY
N
Mt. Hickman
Ball Cr.
ISKUT RIVER
ISKUT
To Stewart
CASSIAR
MAP AREA
STEWART
SMITHERS
Vancouver
GREAT PLAINS
DEVELOPMENT COMPANY OF CANADA, LTD.
BRITISH COLUMBIA
GJ OPTION
PROPERTY LOCATION MAP
KILOMETRES 10 0 10 20
MILES 5 0 5 10
SCALE 1 : 500,000
LIARD M.D.
N.T.S. 104-G/9
D. GOOD
OCTOBER 1977

FIGURE 1

Access to the property is usually made by helicopter utilizing the services offered by Okanagan Helicopters which are based at Tatogga Lake Resort on the Stewart-Cassiar Highway, some 19 kilometers (12 miles) to the north-east. Return flying time from Tatogga Lake is 0.3 hours.

The already constructed frame camps of 1970 and 1971 are situated on the plateau approximately 50 meters (165 feet) above tree line. Amoco's drilling programs necessitated drilling both on the plateau and within the valley of Groat Creek. It may readily be presumed that further drilling could be conducted without being hampered by water availability problems.

Several layers of till and glacio-fluvial outwash sands drape the topography of the plateau creating widespread overburden, boggy areas and exposed mud and sand patches.

6. Objectives

The 1977 field program was a logical progression of the work completed in 1976. The objective was to determine favourable targets for drilling by undertaking an induced polarization survey and by deep overburden sampling to get reliable geochemistry results over I.P. anomalies. In addition, the Spike claims were to be prospected and mapped, and the streams were to be sampled as an aid to locating any further, previously undiscovered mineralization.

C. EXPLORATION AND DEVELOPMENT

1. Introduction

The GJ area has been of considerable interest to Great Plains Development Minerals Department for a number of years because of:

1) its proximity to the Chris-Red Group,

2) the apparent similarity in mineralization styles and overall geology between the Chris-Red and GJ areas which are supported by regional structures that suggest genetic analogies,

3) the other properties and interests in the area held by Great Plains Development provides for the possible pooling of tonnages and development expenses.

2. Prospecting

No serious prospecting was carried out in 1977 except that associated with the mapping of the Spike claims.

3. Geological Mapping

Geological mapping was carried out on the Spike 1 and 2 claims, at a scale of 1 inch = 400 feet (1:4800), using air photo enlargements as aids (see Plate 3). Mapping was preliminary and not extremely detailed, nevertheless, it did help in outlining the regional framework. As well, additions and minor changes were made to the geology of the GJ claim. The geology

of the overburden covered plateau areas was greatly augmented by rock chip samples recovered from overburden drilling. The chips gave reliable data as to the underlying rock type but extrapolation remained difficult due to the extensive structural displacements on the property. Nevertheless, a better picture of the geological units and the structural complexity on the claim was achieved because of the increase of data points.

4. Geochemical Survey

The geochemical surveys completed in 1976 outlined a broad and legitimate geochemical anomaly, but the program left a feeling that reliable geochemical results had not been obtained in some areas, especially the plateau areas.

In 1977, an opportunity to utilize the deep overburden sampling technique of Bema Industries Ltd. arose. The technique employs a Pianjar drill which drives a point to bedrock. The point is jacked out and a sampler is sent down which samples residual soil immediately above bedrock (see Appendix 1 for overburden drilling logs). Previous work in the area had indicated that the method was extremely useful as a reliable geochemical tool and also as a mapping aid, as bedrock chips are generally brought up with the samples. In some areas no residual soil was encountered and only glacial clay exists above bedrock. When this occurred, a bedrock sample and a clay sample from immediately above were taken.

A total of 51 samples were taken and placed in kraft brown paper sample bags, labelled, and sent to Chemex Labs Limited, 212 Brooksbank Avenue, North Vancouver, British Columbia for copper analysis. Where insufficient residual soil was available, the bedrock chips were ground and included in the sample. Chemex Labs Limited analysed the samples using the following procedures:

1. Samples are sorted, recorded and oven dried @80 degrees C.

2. The -80 mesh fraction is retained in powder seal envelopes. Coarse material is normally discarded.

3. 0.50 gms. of -80 mesh sample is weighed into a 22 x 175 test tube. 3 mls 70% $HClO_4$ and 2 mls. conc. HNO_3 is added to sample. Sample is slowly heated to 203 degrees C. Digestion time 2 - 3 hours.

4. Cool and adjust sample volume to 25 mls using distilled water. Mix thoroughly and allow sediment to settle.

5. Analyse sample solutions for PPM copper by standard atomic absorption procedures.

The overburden sampling was done after the induced polarization survey was completed. Samples were taken at selected sites across the I.P. anomalies and at problematic geochemical sites in an attempt to indicate the relationships between the I.P. and geochemistry. The area to the west of the main grid of 1976 was sampled for the first time in conjunction with this. As well, the anomalously low area within the geochemistry anomaly on the plateau to the east of the starburst was sampled on lines 18E and 22E.

In addition to its value to the geochemistry and mapping, the overburden sampling is a useful tool in determining depth of overburden. The sampling indicated that the overburden is extremely variable in thickness on the plateau, ranging in thickness from less than one meter (3 feet) to over 9 meters (30 feet).

When both a bedrock sample and a clay sample were taken, it was found that generally the clay sample analysed slightly higher, presumably due to the tendency of clay to absorb metallic ions.

Results from the overburden sampling are considered to be reliable (see Appendix 2 for geochemical assay sheets). Samples taken on lines OW, 2W and 6W are generally low but higher anomalous values were obtained in the area of the previously defined copper anomaly at the northern end of lines 2E, 4E and 6E. The area of low values within the anomaly on the east side of the creek showed significantly higher values in places than previously indicated and effectively filled out the anomaly. The samples taken to the east on line 38E outside the limit of the anomaly as defined by previous techniques, were still low. This eastern area may continue to be low geochemically as previously indicated, but more detailed overburden sampling would be required to confirm this.

5. Geophysical Survey

Induced Polarization Survey

Between August 3 and August 12, 1977, Peter E. Walcott and Associates Limited carried out an induced polarization survey on the GJ claim. The survey consisted of first and second separation measurements of apparent chargeability at 100 foot (30 m) intervals using a dipole-dipole method of surveying and a 100 foot (30 m) dipole. Simultaneous measurements of resistivity were also made. The survey was carried out on 400 foot (121 m) lines from L6W to L54E. Lines were surveyed from 18S to 14N. The northern half of L8W was filled in at the end of the survey. A total of 9.7 line miles (15.5 kilometers) were completed.

The I.P. survey outlined several chargeability anomalies. A pronounced anomaly extends from L2E and L34E in an east southeasterly direction near the southern end of the grid. Another broader, more moderate anomaly covers the northwest corner of the grid. The lower resistivities appear to be related, in part, to conductive overburden.

For a detailed account of the I.P. survey, consult the accompanying report by Peter E. Walcott.

6. Trenching

A total of five trenches were blasted during the 1977 program. They were located in overburden covered areas on the plateau where the cover was felt to be shallow enough to enable easy trenching. In general, they were situated in the area covered by the copper anomaly, and were designed to indicate subsurface geology and the mode and extent of copper mineralization at bedrock surface.

Rock chip samples were taken across the entire length of exposed bedrock and were assayed for copper.

The trenches are described below:

TRENCH NUMBER	GRID LOCATION	BEARING	DEPTH	ASSAY WIDTH	ASSAY (% Cu)
7G1	27+25'E/4+25'S	010 degrees	3'(.9 m)	12'(3.6 m)	0.05
7G2	36 E/2+75'S	000 degrees	3'(.9 m)	12'(3.6 m)	<0.01
7G3	34+20'E/7+180'S	135 degrees	3'(.9 m)	12'(3.6 m)	0.13
7G4	32 E/6+10'S	030 degrees	5'(1.5 m)	8'(2.4 m)	0.17
7G5	4+100'E/12N	085 degrees	5'(1.5 m)	10'(3 m)	0.03

The complete trench descriptions including geology, mineralization, alteration, etc. are in Appendix 3. The trench locations and assays are plotted on Plate 2.

D. GEOLOGY

1. Regional Geology

The GJ and Spike claims are situated on the southwest portion of the Klastline Plateau which lies in a complex tectonic environment. The Klastline Plateau lies on the northeast half of the Stikine Arch which is a "northeasterly trending lobe of crystalline and metamorphic rocks that remained relatively positive throughout much of Mesozoic time" (Souther, 1971). On the west and southwest, the Arch is bound by the Coast Crystalline geanticline, on the southeast by the Upper Jurassic Bowser Basin, a successor basin which continued to receive sediments while the surrounding area became emergent, and to the north and northeast by the Atlin Terrane an allochthonous sheet which was thrust to the southwest.

The northern half of the Klastline plateau has been mapped primarily as volcanics and derived volcaniclastics of Upper Triassic age by the G.S.C. (Souther, 1971). A regional fault, trending northeasterly passes through the center of Kakiddi Lake and interesects the Iskut Valley fault zone at the north end of Kinaskan Lake. To the south of the fault, the G.S.C. mapped the rocks as a down thrown sequence of Middle Jurassic pillow lavas, fragmentals, and proximal volcaniclastic rocks. However, age determinations of the intrusive rocks of this area (Rolf Schmitt, 1977) gives an age of 185-195 million years (Upper Triassic-Lower Jurassic) so the age of the intruded volcanics and sediments must be older; i.e. Middle - Upper Triassic.

2. Local Geology

a) Introduction

The overall interpretation of the geology of the claims has not changed despite additions and minor modifications. Generally, the property consists of a broad sequence of andesitic volcanic rocks, sediments, and cherts in the south which are intruded by a dioritic intrusion in the north. Extensive alteration and metamorphism over much of the property is associated with the intrusion. Away from the diorite, the volcanic and sedimentary rocks are relatively unaltered. The volcanic and sedimentary rocks away from the intrusion are generally devoid of copper mineralization and have lesser amounts of pyrite. Where stockworking is developed

near the intrusive-country rock contact, as at the showing in Groat Creek, alteration is more intense and pyrite and chalcopyrite in significant amounts occur in the quartz veins. Away from the stockwork, the intrusive bodies contain only minor occurrences of disseminated and vein-controlled copper mineralization.

The well-bedded chert unit indicates that the general attitude of stratigraphic units strikes northeasterly and dips steeply to the west with considerable local variation. Recent mapping of the southwest portion of the Klastline Plateau (Rolf Schmitt, 1977) has indicated the intrusive body to be trending NE-SW. The expression of the intrusion on the GJ property is considered to be a lobe or sill-like body at the southwestern extremity of the main intrusion and trends in an ESE-WNW direction.

Radiometric age-dating of the intrusion (as determined by Schmitt) indicates an age of 185-195 million years (Upper Triassic-Lower Jurassic). The intruded volcanic and sedimentary rocks are therefore considered to be of Middle-Upper Triassic age; older than the ages given them by the G.S.C.

b) Unit Descriptions

The eleven mapped rock units which occur on the GJ and Spike claims are described below in the order in which they occur chronologically. (See the accompanying geology map and legend, Plate 3.)

Descriptions have, in part, been excerpted from the 1976 Yearend Report and changed or extended where new data has allowed. The section to be described is as follows:

post Lower Jurassic	(Unit 11: Undivided Dykes and Sills.
Upper Triassic	(Unit 10: Felsitized Rock.
to	(Unit 9: Quartz Monzonite.
Lower Jurassic	(Unit 8: Diorite Porphyry.
	(Unit 7: Diorite.

Middle Triassic to Upper Triassic	(Unit 6:	Quartzite.
	(Unit 5:	Altered Volcanics.
	(Unit 4:	Chert.
	(Unit 3:	Cherty Volcanics and Sediments.
	(Unit 2:	Sedimentary Rocks: lithic arkoses, siltstones, minor shale.
	(Unit 1:	Andesitic Volcanic Rocks: 1a-flows, 1b-tuffs, 1c-agglomerates, 1d-porphyritic and amygdaloidal flows.

UNIT 1 - Andesitic Volcanic Rocks

Unit 1 consists of a broad sequence of andesitic volcanic rocks consisting of flows 1a; tuffs, 1b; agglomerates, 1c; and porphyritic and amygdaloidal rocks, 1d. Variability in origin and texture, together with structural displacements, and lack of outcrop in some areas made extrapolation of individual flows or tuff sequences difficult, hence the flows, tuffs, etc. were grouped into one unit. This unit covers the eastern, southern, and southwestern portion of the GJ and Spike claims and is considered to be the youngest unit. Schmitt, 1977, mapped the rocks on the west side of Groat Creek as a distinct and younger unit than the volcanic rocks to the east, however, the appraisal of this writer found no definite evidence of this, hence, this report considers the rocks as one unit of generally similar lithology.

Overall, the outcrops weather medium to dark grey and are quite recognizable from a distance because of their resistant and often cliff-forming nature. The flows are dense, grey-green in color, and are usually fine-grained. They often have a blocky outcrop habit due to random fracturing and break into angular pieces.

The tuffaceous members of Unit 1 show considerable variability. In the northeast corner of the mapped area, very fine-grained banded and bedded tuffs occur and are interpreted as water-lain tuffs. Minor shaley and

interbedded siltstone layers occur with these tuffs. Generally, however, the tuffs are coarser and less stratified, grey-green in color, and consisting of a variety of lithic fragments. The fragments are generally subangular although some rounded lapilli occur. The tuffs are somewhat less resistant than the flows, are often crumbly and have a more rounded outcrop expression.

Locally in the southwest corner of the mapped area, agglomeratic sections occur with bombs having a maximum diameter of 8 cm. These bombs are in a finer tuffaceous matrix.

Occasionally, in the southwest corner of the map area, slightly porphyritic and amygdaloidal andesites occur. Feldspar and hornblende phenocrysts, up to one centimeter in length occur in an andesitic matrix. Amygdules are predominantly calcite-filled.

Unit 1 is generally unaltered although some hematite and chlorite occurs along slickensides. Veining is restricted to white carbonate veins which occur randomly throughout the unit and rarely exceed 1 cm in width. No copper mineralization was observed and only minor disseminated pyrite occurs.

UNIT 2 - Sedimentary Rocks: Lithic Arkoses, Siltstones, Minor Shale

This unit is of relatively minor importance. The sedimentary rocks appear to occur in a north-south trending band on the southwest side of Groat Creek. These rocks appear to be underlain and overlain by volcanic rocks so they may represent a period of submergence and sedimentation during Triassic volcanism.

The sandstones (lithic arkoses) are generally medium to coarse grained and contain abundant quartz and feldspar grains as well as black cherty fragments and argillaceous material. They are poorly bedded and often are gossanous in weathering. The siltstones are well bedded with thin, intercalating shaley horizons. Only minor pyrite has been seen in the sedimentary rocks.

UNIT 3 - Cherty Volcanics and Sediments

This unit covers much of the southeast half of the GJ claim. It may, in fact, represent a portion of the chert unit, but the variability in silicification suggests that this cherty appearance is secondary. The rocks are thought to be intercalated volcanic flows and tuffs, with minor sediments which have undergone varying degrees of silicification. A large part of the area has been completely silicified to produce cherts. Only occasionally does the original unaltered rock type present itself. Many of the cherty rocks are well banded indicating a sedimentary or volcaniclastic origin whereas others are not banded. Excellent parting occurs in parts of the unit and often is difficult to distinguish from bedding. Some of the less silicified rocks are very friable, breaking into angular fragments along preferred orientations, but the more cherty rocks are more competent. This unit is structurally complex with bedding and folds displaying the regional pattern by generally dipping and plunging to the northwest. Only minor disseminated pyrite is associated with this unit.

UNIT 4 - Chert

Schmitt has determined through thin section work that the cherts are of radiolarian origin. This would suggest a deep ocean environment during a period of volcanic quiescence. If this were the case, it may indicate that the chert unconformably overlies Units 1, 2 and 3. The chert outcrops in a band across the claim northward from Lines 14 to 18S. It occurs in places throughout the property north of this and may extend far north of the property (Schmitt, 1977). The chert ranges from buff or cream to light grey in color with black bands intermittently spaced between. It usually shows distinct bedding which is from 5 cms to 0.3 meters in thickness. In coarser grained rocks, microcrystalline grains of clear quartz occur in a turbid cryptocrystalline matrix of silica. The coarser grained chert may represent recrystallization in response to its proximity to the intrusion as might be evidenced in D.D.H. GJ 71-7.

The chert on the GJ claim is often mineralized with pyrite and traces of chalcopyrite along fractures. However, assays indicate that the chert seldom exceeds 0.1% copper in the drill holes. One showing on the Spike 1 claim had interesting amounts of chalcopyrite, almost exclusive of pyrite, developed on fractures in the brittle chert.

UNIT 5 - Altered Volcanics

Previous workers in this area interpreted the siliceous, finely crystalline rocks as rhyolite. From closer examination of the core and of surrounding outcrops this interpretation has been revised. Variations in the type and degree of alteration within this sequence makes the unit almost impossible to differentiate into original volcanic horizons and consequently the more general term of "altered volcanics" has been used.

The altered intervals appear to be very fine to microcrystalline with occasional ghosts of the original phenocrysts or fragments (approximately 1 mm). These relic features suggest that the original country rock had at least a finely crystalline texture before silicification and sericitization occurred.

The present appearance of the interval is mottled from dull grey-green, to dark green, to brown, to grey. It can be highly sericitized and carbonatized and elsewhere it can approach a chert. All mafic constituents have been leached and removed during metasomatism so that the rock bears no relation to its original features.

The rock type may have been tuffs or even flows. In places where texture can be observed, it is similar to the diorite. It is the writer's option that these areas are near the contact and the diorite has ingested the country rock. These zones of granitization will be transitional between country rock and diorite in composition making absolute classification of the rock type impossible without the use of specialized techniques.

The exact structural relationship between the altered volcanics and chert is unknown. Stratigraphically they appear to overlie the cherts but they may be in fault contact with the chert.

The altered volcanics host the stockwork and copper mineralization at the showing in Groat Creek. Trench 7G4 at 32E/6+10'S is in a brecciated altered volcanic rock which is considered to be near the intrusive contact. The rock has extensive calcite veining and assayed 0.17% copper.

UNIT 6 - Quartzite

The quartzite observed in the lower sections of the starburst cores is the same unit that outcrops as a band across the northern part of the claim. Although not always apparent, the quartzite is thinly bedded and shows various degrees of sorting. In places the unit looks like an orthoquartzite but elsewhere it is compositionally banded with the altered argillaceous content remobilized as chlorite. It is considered to be a contact metamorphic expression of the chert near the intrusive contact, with the silica being remobilized and recrystallized into a coarser-grained rock.

The unit has a characteristic fine sugary texture. It varies in color from white to medium grey with variable amounts of limonitic staining. The grains are usually well sorted ($\pm$ 1 mm), clearly visible to the naked eye, subrounded to rounded with good sphericity. The cement appears to be quartz. The unit is commonly flecked with very fine grains of green chloritic material. These remnants of the original sedimentary clay minerals are commonly in aggregates as whispy filaments and clots of chlorite.

The quartzite displays varying degrees of porosity. This characteristic may have resulted from differential silicification of the quartzite during metamorphism. The quartzite is extensively fractured and on surface, these hairline fractures are limonitically stained and quite distinctive.

In the starburst holes, pyrite and chalcopyrite mineralization occurs within the quartzite in association with clear quartz stockwork veins which are cut by barren cream quartz veins. Extensive feldspar quartz veins occur occasionally, effectively brecciating the rock, as occurs between 377 and 403 feet (114 and 134 meters) in D.D.H. GJ 70-2.

It is interesting to note that the quartz stockwork veins are texturally identical to the quartzite. The quartz veins exhibit clear, sugary textured grains and generally have good porosity.

UNIT 7 - Diorite

The diorite intrusion outcrops as an east-southeasterly trending stock or sill up to ~20 meters (400 feet) thick in the north of the property. In the starburst holes, interdigitating contacts between the country rocks and diorite sills indicate this to be the approximate southern margin of the intrusion. Drill hole geometry indicates the sills to be extensions of the main intrusive body which appears to intrude from the north and east. Diorite outcrops extend as far east as the north end of the Spike 2 claim.

The diorite is a homogenous, fine to medium crystalline, dark green unit which displays equigranular to hypidiomorphic granular texture. It is usually only slightly propylitically altered in outcrop. The propylitic alteration is present as secondary calcite, chlorite and minor epidote as apple green stringers. However, certain drill core sections show potassium feldspar development associated with the quartz stockwork. Where most intense, the pink felspar introduction is accompanied by biotite and magnetite. Where alteration is lower, the mafic and leucocratic mineral phases retain their original crystal habits despite chloritization and minor breakdown of the feldspars. Secondary enrichment of biotite and magetite may occur in places, but thin section work would be required to qualify this. Hand specimen examination could not reveal the nature of the mafic phase or the proportions of the respective feldspars. The leucocratic mafic ratio is commonly around 3:2.

The diorite which outcrops around 20E 14N is finer crystalline, has a higher mafic index, contains primary biotite and only small amounts of magnetite. This unit is very similar to the diorite present towards the base of the starburst diamond drill holes. This similarity would suggest that the diorite body on the claim was plunging from the north and/or structurally downdropped in the vicinity of the starburst holes. Drill hole geometry appears to support the latter.

The diorite is the main phase of intrusion on the property and accounts for the fracturing and stockwork development at the country rock contact and the alteration of the surrounding volcanics and sediments.

UNIT 8 - Diorite Porphyry

Previous mapping by Amoco also did not distinguish clearly between the diorite and the diorite porphyry; the porphyry often being considered as porphyritic sections within the main diorite intrusion. Schmitt, in his 1977 report, with the aid of thin sectioning, called the unit an augite porphyry dyke which was entirely pre-intrusion. Mapping by Great Plains in 1976 considered the diorite porphyry as being a distinct, but related phase of the main diorite intrusion. The unit is found in numerous places within the claim boundaries and occurs as sills and dykes intruding the overlying volcanics and sediments.

The porphyry contains subhedral to euhedral phenocrysts of augite from two to five millimeters in size and comprising 25 to 40% of the rock.

The groundmass varies in grain size but is always finely crystalline. The composition is a mixture of fine feldspar laths and chloritized mafics. The occasional presence of magnetite and biotite, in aggregates to one millimeter, increases the grain size of the groundmass. It is possible that these minerals are secondary but it is not conclusive. Pink feldspar alteration is sometimes present in drill core associated with stockwork

mineralization as a second form of potassic alteration. Occasionally, biotite and pink feldspar form a speckled "salt and pepper" groundmass. The unit is generally homogenous. The only variation occurring is a change in the grain size of the groundmass which reflects the thickness of the particular sill or dyke.

The thickness of the sills and dykes of the diorite porphyry on the property rarely exceed 18 meters (60 feet). In D.D.H. GJ 70-1, a 75 meter (250 foot) section of the porphyry was intersected. This interval is probably increased in thickness by faulting for only 9 meters (30 feet) was intersected in D.D.H. GJ 70-2.

UNIT 9 - Quartz Monzonite

This unit was observed only in the drill holes until 1977 when previously snow-covered outcrops were discovered at approximately L34E/8S. The monzonite is most commonly encountered in the starburst holes beneath the main showing. It is generally a light, brownish-pink fine to medium crystalline intrusive which shows distinctive sub-trachytic texture. Approximately equal amounts of stubby pink to green orthoclase and white plagioclase laths to 2 mm show this texture. The feldspar phenocrysts lie in a finer interwoven groundmass of quartz and K-felspar which includes grains of biotite to 1 mm. The intrusive is generally low in magnetite although the enrichment of magnetite, perhaps associated with potassic alteration, produces magnetically high areas, including the outcrop on L34E/8S.

In the starburst drill holes, the unit generally becomes more granular and less porphyritic with depth as in D.D.H. GJ 70-2, but the sub-trachytic texture continues. Sericitic alteration is variable within the intrusive, but appears to increase with depth in D.D.H. GJ 70-2. The feldspars show sericitic alteration of variable intensity and the biotite is often highly chloritized. Some of the potassic alteration appears to be related to the quartz monzonite phase of intrusion. The quartz monzonite is occasionally brecciated by faulting, with clay production obliterating the sub-trachytic texture.

The quartz monzonite is considered to be a late stage expression of the main dioritic intrusive body. It occurs generally as dyke-like bodies which cut the surrounding rocks. The alignment of the feldspar phenocrysts subparallel to the contact with diorite at 329 feet (100 m) in D.D.H. GJ 70-1 suggests that the monzonite intruded the diorite. The unaltered contact between the two units indicates that the quartz monzonite intruded at an approximately equivalent temperature to the diorite. However, it does not appear to be a cool intrusive since the contact is not brecciated. In D.D.H. GJ 70-3, at 372 feet (113 m), inclusions of the diorite porphyry can be seen in the quartz monzonite, indicating that the monzonite intruded the porphyry.

In the starburst holes, some of the better copper mineralization is associated with the quartz monzonite and the sulfide bearing veins pervading it. This may be a result of a metallic enrichment of the later phase quartz monzonite.

UNIT 10 - Felsitized Rock

This unit is light to medium grey in colour, perfectly homogenous and without a distinctive texture. It is indurate, forming prominent outcrops and breaks like an intrusive. It is quite distinct from the altered volcanic unit. The texture is largely obliterated but the even grey characteristics suggest a finely crystalline granular texture. No mafic minerals are apparent. Very finely disseminated pyrite and a rust weathering colouration are the only remains of the ferromagnesium content. This unit is not recognizable in the outcrop form in any of the diamond drill holes with the possible exception of GJ 71-8.

UNIT 11 - Undivided Dykes and Sills

The Spike 1 claim to the south of GJ has several occurrences of dykes and sills which are believed to be of post-intrusive age. The extent of these dykes is not great and their thickness is usually less than 15 meters (50 feet). Except for one fine to medium-grained feldspar porphyry dyke, all the observed dykes are coarse-grained and porphyritic, usually with mafic phenocrysts of hornblende in an andesitic matrix.

c. Metamorphism

Metamorphism on the property consists of low-grade contact metamorphism near the intrusive-country rock interface. The mineral assemblage, as determined in thin section work by Schmitt, 1977, includes albite, epidote, biotite, hornblende, muscovite, clinozoisite, chloritoid, and carbonate, which indicates a hornblende-hornfels facies.

The quartzite, Unit 6, is considered to be a recrystallization near the intrusive of the chert unit. Bedding and general outcrop nature appears to have been preserved.

d. Structural Geology

Despite extensive structural dislocations and strong folding locally, the overall attitude of the volcanic, sedimentary, and cherty rocks is considered to be striking northeasterly and dipping from vertical to 45 degrees west. Regionally, the intrusive is trending in a northeasterly direction. On the GJ claim, a sill-like lobe at the southwest extremity of the pluton is striking ESE-WNW and plunging to the southwest. The intrusive-country rock contact appears to be more or less conformable to bedding, as deduced from sub-surface data.

Well bedded units, such as the chert, cherty volcanics, and sediments often display extensive folding, with the fold axes plunging in a northwesterly direction. The cherts are usually well fractured perpendicular to bedding, especially where folded.

The area close to the intrusive contact is cut by numerous block faults which are clearly manifested by the topography. Examination of the core sections adds weight to the observations made during mapping. Fault zones and intervals of fault gouge are common in the starburst drill cores and demonstrate that certain faults underwent considerable structural dislocation. Structural features near the showing in Groat Creek are characterized by several structural trends associated with the stockwork development and mineralization. A strong fracture trend at 070 degrees carries pyrite and chalcopyrite in quartz veining which parallels the parting. As well, strong fracture sets of 050 degrees, 090 degrees and 160 degrees occur at the showing.

The structural features on the plateau give it interesting economic implications in that the intersections of large scale faults may be linked to stockwork development and mineralization.

e) Mineralization and Ore

i) Mineralogy

Copper is the most important economic mineral on the property occurring as chalcopyrite. Assay results are available for all the cored sections revealing localized grades of up to 2% copper over ten feet. Grades in the order of 0.5% copper are common over 60-100 meters (200 - 300 feet) in the stockwork zone of the starburst cores. Gold and silver are present where copper mineralization is better; gold occurring in the approximate ratio of 0.01 ounces per ton Au to 0.20% Cu. Pyrite is visible throughout the starburst cores and closely associated holes averaging around 3% in the igneous rocks and about 1% in the chert and quartzite. Bornite comprises approximately 1% of sulphide minerals (Schmitt, 1977).

Chalcopyrite mineralization is concentrated within the zone of the quartz stockwork in the starburst area. The clear quartz veins which are sometimes flow banded contain chalcopyrite in disseminated and massive forms. Frequently, the chalcopyrite occurs as stringers within the centre of the quartz veins representing the final hydrothermal pulse. Chalcopyrite is sometimes found as stringers without gangue and in disseminated form in the host rock adjacent to the quartz veins. Occasionally massive veins of iron and copper sulphides occur in the approximate ratio of 5:1, iron:copper. Late quartz-feldspar with minor calcite veins cut all the quartz veins. This veining varies considerably in intensity in the starburst but can be intense over limited sections. The quartz-feldspar veins only rarely carry sulphides and can be considered barren.

Elsewhere on the property, several small occurrences of chalcopyrite and malachite have been noted. One interesting occurrence was discovered on the Spike 1 claim approximately 120 meters (400 feet) south of the GJ claim boundary at the equivalent of 14 to 18E. Malachite and chalcopyrite occur in chert (Unit 4) sporadically over a distance of approximately 30 meters (100 feet). Chalcopyrite is found as disseminations and as blebs and patches up to 0.5 cm square filling fine fractures. Very little pyrite was observed. From this, it appears that the chert could be an interesting host for mineralization.

Interesting outcrops showing stockworking and minor copper mineralization were found in trenches on the plateau (i.e. at L27+ 25'E/4+25'S, L34+20'E/7+180'S, and L32E/6+10'S). Elsewhere, minor mineralization as disseminations and in quartz veins along shears occur within the diorite, diorite porphyry, and quartzite units.

The generalized paragenetic sequence for mineralization from the diorite interval in D.D.H. GJ 70-2 is:

1) fracturing filled by clear quartz veins,
2) quartz with pyrite,
3) quartz with pyrite and chalcopyrite,
4) quartz with chalcopyrite,
5) chalcopyrite,
6) quartz-feldspar veins with minor calcite as void fillings.

The better copper grades are usually found where the quartz veins contain chalcopyrite as the only sulphide. When chalcopyrite and pyrite are present within the veins, the grade usually begins to drop until only the pyrite is present.

ii) Alteration

Extensive areas of the claim, including the diorite intrusion and the country rock have been variably altered, often obliterating the original textures and making classification of rock units difficult. Varying intensities of propylitic, sericitic, and potassic alteration have been observed, as well as silicification and felsitization.

The main body of the diorite intrusion, which outcrops over much of the northern part of the GJ claim, is variably propylitized. Overall, it is quite weakly propylitized but locally more intense development of calcite, chlorite and epidote, as apple green stringers occurs. Diorite in the starburst drill holes is often propylitically altered. The diorite porphyry is more susceptible to alteration with the augite phenocrysts invariably altered to "apple green" spots which appear to be saussurite, a fine grained assemblage of carbonate, chlorite, epidote.

Potassic alteration has been observed in the starburst holes and in a trench on the plateau to the east of the Groat Creek. The alteration appears to consist of slight to moderate pervasive flooding of potassium feldspar and often the development of fine-grained secondary biotite. Magnetite may accompany the potassic alteration in places but its secondary origin is not conclusive. Where the potassium feldspar and biotite occur together, they give the rock a salt and pepper texture. Magnetite is more common in the diorite porphyry and in the southern margin of the diorite and may represent a secondary enrichment associated with the pervasive potassic alteration near the showing. Occasionally potassic alteration occurs as a thin margin (1 cm) to the quartz veins. Trench 7G1 on the plateau at 27+25'E/4+25'S appears to be potassically altered diorite porphyry with potassium feldspar flooding the matrix.

The area around the main showing which is underlain by altered volcanics has undergone sericitic alteration and silicification, as well as minor potassic and propylitic alteration. Alteration has destroyed much of the original texture making identification of distinct lithologies difficult. Sericite, calcite and chlorite are the main alteration minerals with sericite and chlorite commonly occurring on fracture surfaces. Some of the rocks are silicified enough to approach chert. Many of the rocks have had their mafic constituents leached and removed during alteration.

Silicification of the country rock, in places to chert, suggests that the heat from the intruding dioritic magma mobilized the silicate minerals which upon cooling recrystallized to form variable amounts of chert.

In places on the property, notably above the stockwork on the west valley wall and in the area around 18E 12S, rocks occur which have undergone felsitization. This alteration has taken place along the margin or within the intrusive in these areas. Sericite has completely replaced the feldspars and disseminated pyrite is the only remains of the mafic components. The original texture is largely obliterated but variation in grain size of these rocks reflects the original character.

Shear zones are not extremely common on the property but where present show sericitic and chloritic alteration. Chlorite and calcite commonly occur along fractures in the sheared rock, and calcite and hematite veining can be quite common, as occurs in the diorite porphyry near 36E 23S.

iii) Ore Controls

The copper mineralization, as it occurs at the main showing in Groat Creek is related to or controlled by the following features:

1) it occurs in an area of quartz stockworking,

2) it is associated with quartz veining and where the frequency of quartz veining is higher, the copper grade is correspondingly higher. The most prominent trend of mineralized quartz veining is 070 degrees,

3) it occurs along fractures in the stockwork area and an increase in the fracturing increases the grade of mineralization,

4) the stockwork occurs at the intrusive-country rock contact and is not lithologically selective. Good copper mineralization occurs in the drill holes in altered volcanics, diorite, diorite porphyry, quartz monzonite, and quartzite.

5) the extent of the quartz stockwork at the main showing is controlled by block faults which trend approximately east-west. Available data on geology, induced polarization and magnetics indicates that faults trending east-west to ESE-WNW may be the predominant structural control,

6) mineralization is associated with sericitic and potassic alteration which is prevalent in the area of the showing and which have been noted on the plateau to the east.

E. FINANCE

1. Expenditures

Salaries

D. Good	75 days @$65/day	$ 4,875.00
T. Bojczyszyn	10 days @$65/day	$ 650.00
D. Shearer	9 days @$65/day	$ 585.00
C. Larsen (blaster)	7 days @$65/day	$ 455.00
W. Fehr (cook)	16 days @$65/day	$ 1,040.00
J. Fleming (expeditor)	@$850/month	$ 850.00

Supervision

G. L. Garratt 11 days @$70/day	$ 770.00
I.P. Survey-P.E. Walcott & Associates Ltd.	$ 9,428.59
Overburden Drilling - Bema Industries Ltd.	$ 3,566.43
Travel and Expenses	$ 1,339.84
Helicopter Charter	$ 3,242.37
Radio Rentals	$ 327.56
Camp Costs - Food and Supplies	$ 1,205.18
Assays	$ 207.13
Miscellaneous Expenses	$ 497.65
Sub Total	$29,039.75
Overhead	$ 2,903.98
TOTAL	$31,943.73

F. CONCLUSIONS

1. The GJ and Spike claims are underlain by a sequence of cherts, sediments, volcanics, and volcaniclastic rocks which have been variably altered by the intrusion of an east-southeasterly trending dioritic sill of Upper Triassic - Lower Jurassic age.

2. The soil geochemical surveys outlined a broad geochemical anomaly which stretches southeasterly from the northern claim boundary on the west side of Groat Creek to the plateau areas east of the showings in Groat Creek. The bedrock geochemical survey returned anomalous values over previously low areas and proved that the overburden masks anomalies over parts of the plateau.

3. Trenching indicated that minor stockworking and mineralization, similar to that seen in the starburst drill holes, exists on the plateau to the east of Groat Creek.

4. The induced polarization survey outlined several chargeability anomalies. A pronounced I.P. anomaly trends in an east-southeasterly direction to the south and east of the main showing in Groat Creek. Another broader, more moderate anomaly covers the northwestern corner of the claim.

5. The accumulated data, to date, indicates that the GJ claim has good potential for extensive stockwork copper mineralization.

G. REFERENCES

Bradshaw, P.

1976: Exploration in the Iskut Area, Northern British Columbia.
Memo to G.P.D.

Garratt, G. L.

1977: Tectonostratigraphy of the Stikine Arch
Unpublished G.P.D. Report.

Schmitt, R. H.

1977: A Triassic-Jurassic Granodiorite Monzodiorite Pluton South-East of Telegraph Creek, British Columbia.
Bachelor of Science Thesis, University of British Columbia.

Souther, J. G.

1971: Telegraph Creek Map-Area, British Columbia
G. S. C. Paper 71-44.

Walcott, P. E.

1977: A Geophysical Report on an Induced Polarization Survey.

Winter, C. Q., Good, D. R., and McInnis, M. D.

1976: Yearend Report - GJ Claim, British Columbia
Unpublished G.P.D. Report.

APPENDIX 1

OVERBURDEN DRILLING LOGS

Bema Industries Ltd.

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
01	1	AUG 10/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
5.1 meters	TH, RE	NORCEN GJ
LINE	**STATION**	**LOCATION**
6W	2S	

SAMPLE DESCRIPTION

COLOUR	Clay interface / 2" red brown
TEXTURE	
SOIL TYPE	
FRAGMENTS	angular
MINERALOXIDE	pyrite - rust

DRILLING TIME

POINT STARTED 9:15	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED 10:45

REMARKS:

Took 1 clay sample at 3 meters.
Rocktype - Unaltered Tuff

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
02	2	AUG 10/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
2.80 m	TH. RE	NORCEN
LINE	**STATION**	**LOCATION**
6 W	BL. 00N	GJ

SAMPLE DESCRIPTION

COLOUR	DkBROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR BEDROCK
MINERALOXIDE	

DRILLING TIME

POINT STARTED 11.05	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED 11.30

REMARKS:

Rock Type - Unaltered Tuff.

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
03	3	10/8/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
1.1 m	T.M & R.E.	NORCEN
LINE	**STATION**	**LOCATION**
6W	2N	GJ.

SAMPLE DESCRIPTION

COLOUR	RED - BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED 11:35	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED 11:55

REMARKS:

Rock Type - Altered Volcanic

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

AMPLE NO.	DRILL HOLE NO.	DATE
04	4	10/08/55
AMPLE DEPTH	SAMPLERS	CONTRACT
1.40m	T.M. & R.E.	NORCEN
NE	STATION	LOCATION
6W	4N	GJ

SAMPLE DESCRIPTION

OLOUR	RED-BROWN
XTURE	
OIL TYPE	
AGMENTS	ANGULAR - PALE BUFF BROWN
INERALOXIDE	

DRILLING TIME

OINT STARTED 12:50	SAMPLER STARTED
OINT STOPPED	SAMPLER STOPPED
OINT EXTRACTED	SAMPLER EXTRACTED 1:25

EMARKS:
Rock Type - Grey Chert

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
05	5	10/08/55
SAMPLE DEPTH	SAMPLERS	CONTRACT
1.25m	T.M & RE	NORCEN
LINE	STATION	LOCATION
6W	6N	GJ

SAMPLE DESCRIPTION

COLOUR	RED - BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED 1:30	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED 1:50

REMARKS:
Rock Type - Altered Volcanic - (green-grey)

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
06	6	10/8/55
SAMPLE DEPTH	SAMPLERS	CONTRACT
2.0m	TM/RE	NORCEN
LINE	STATION	LOCATION
6W	8N	G.J.

SAMPLE DESCRIPTION

COLOUR	LIGHT BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED

REMARKS:
Rock Type - Altered Volcanic

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
07	7	10/8/55
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
2.25 m	T.M & RE	NORCEN
LINE	**STATION**	**LOCATION**
6W	10N	GJ

SAMPLE DESCRIPTION

COLOUR	PALE YELLOW - BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED

REMARKS:

DECOMPOSED BEDROCK

Rock Type - Altered Volcanic

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
08	8	10/08/55
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
2.25m	T.M. & RE	NORCEN
LINE	**STATION**	**LOCATION**
6W	12N	GJ

SAMPLE DESCRIPTION

COLOUR	DK. RED BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	
MINERALOXIDE	PYRITE

DRILLING TIME

POINT STARTED 3:20	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED 4:00

REMARKS:

Rock Type - Altered Volcanic

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
#09	9	10/8/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
2.70 m	T.M. & RE	NOR-CEN
LINE	**STATION**	**LOCATION**
2 W	12 N	GJ

SAMPLE DESCRIPTION

COLOUR	RED - BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR, Crumbly
MINERALOXIDE	

DRILLING TIME

POINT STARTED 4:25	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED 4:45

REMARKS:

SAMPLE -> WEATHERED BEDROCK

Rock Type - Altered Diorite

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
10	1	11/8/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
2.25 m	T.M. & R.E.	NORCEN
LINE	**STATION**	**LOCATION**
2 W	10 N	G.J.

SAMPLE DESCRIPTION

COLOUR	YELLOW - BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	PYRITE (?)

DRILLING TIME

POINT STARTED	8:15	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	8:35

REMARKS:

WEATHERED BEDROCK.
Rock Type - Dacite with quartz stockworking

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
11	2	11/8/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
7.25 m	T.M & RE	NORCEN
LINE	**STATION**	**LOCATION**
2 W	8 N	G J

SAMPLE DESCRIPTION

COLOUR	DK. BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	YES

DRILLING TIME

POINT STARTED	8:40	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	10:30

REMARKS: CLAY SAMPLES TAKEN AT 4.25 m & 5.50 m.
Rock Type - Altered Volcanic

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
12	3	11/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
6.0 m	T.M & R.E	NORCEN
LINE	**STATION**	**LOCATION**
2 W	6 N	G.J.

SAMPLE DESCRIPTION

COLOUR	LIGHT - BROWN - RED
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	YES

DRILLING TIME

POINT STARTED	10:50	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	11:25

REMARKS:

Rock Type - Altered Volcanic

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
13	4	11/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
1.75m	T.M. & R.E.	NORCEN
LINE	**STATION**	**LOCATION**
2W	4N	G.J.

SAMPLE DESCRIPTION

COLOUR	RED-BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED 11:35	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED 12:00

REMARKS:
Rock Type - Altered Volcanic

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
14	5	11/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
1.15 m	T.M & R.E	NORCEN
LINE	**STATION**	**LOCATION**
2W	2N	G J

SAMPLE DESCRIPTION

COLOUR	RED - BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED 12:05	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED 12:25

REMARKS:
Rock Type - Altered Volcanic (Tuff?)

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
15	6	11/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
2.15 m	T.M. & R.E.	NORCEN
LINE	**STATION**	**LOCATION**
2W	B.L. 00 N	G.J.

SAMPLE DESCRIPTION

COLOUR	BROWN & BLACK-GREY CHIPS
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR.
MINERALOXIDE	

DRILLING TIME

POINT STARTED 1:00	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED 1:30

REMARKS:
MOSTLY BEDROCK CHIPS.
Rock Type - Altered Volcanic

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
16	7	11/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
4.25	T.M. & R.E.	NORCEN
LINE	**STATION**	**LOCATION**
2W	2S	GJ

SAMPLE DESCRIPTION

COLOUR	LIGHT BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED	1:35	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	3:05

REMARKS: CLAY SAMPLE TAKEN AT 2.25 & 2.50.

Rock Type - Altered Volcanic

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
17	8	11/08/~~77~~
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
2.50m	T.M. & RE.	NORCEN
LINE	**STATION**	**LOCATION**
2W	4S	GJ.

SAMPLE DESCRIPTION

COLOUR	BROWN & BLACK
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED	3:10	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	4:10

REMARKS: BEDROCK?? END OF THE SAMPLER WAS THE BLACK ROCK FRAGMENTS .... THE CRYSTAL QUARTZ WAS ABOVE THIS..

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
18	9	11/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
1.65 m	T.M. & R.E.	NORCEN
LINE	**STATION**	**LOCATION**
00 W	10 S	G.J.

SAMPLE DESCRIPTION

COLOUR	BLACK. RUST
TEXTURE	
SOIL TYPE	
FRAGMENTS	VOLCANIC BEDROCK
MINERALOXIDE	—

DRILLING TIME

POINT STARTED	4:30	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	5:00

REMARKS: NO RESIDUAL SOIL... CLAY THEN BEDROCK.

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
19	10	11/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
1.15m	T.M. & R.E.	NORCEN
LINE	**STATION**	**LOCATION**
L 00 E	8S	G.J.

SAMPLE DESCRIPTION

COLOUR	RED - BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	—

DRILLING TIME

POINT STARTED 5:10	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED 5:40

REMARKS: Rock Type - Tuff (quite unaltered)

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
20	1	12/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
.65m	T.M & R.E.	NORCEN
LINE	**STATION**	**LOCATION**
00 W	6S	G.J.

SAMPLE DESCRIPTION

COLOUR	RED - BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	YES

DRILLING TIME

POINT STARTED 8:00	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED 8:25

REMARKS: Rock Type - Unaltered, Tuffaceous Volcanic

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
21	2	12/08/55
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
1.05 m	T.M & R.E.	NORCEN
LINE	**STATION**	**LOCATION**
00 W	00N (B.L.)	G.J.

SAMPLE DESCRIPTION

COLOUR	LIGHT BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	? - YES - ?

DRILLING TIME

POINT STARTED 8:45	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED 9:05

REMARKS: Rock Type - Felsitized Rock

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
22	3	12/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
.75 m	T.M & R.E	NORCEN
LINE	**STATION**	**LOCATION**
00W	2 N	

SAMPLE DESCRIPTION

COLOUR	DK BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR BEDROCK - BUFF BROWN
MINERALOXIDE	PYRITE

DRILLING TIME

POINT STARTED 9:15	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED 9:35

REMARKS:
Rock Type - Feldspized Rock (Volcanic)

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
23	4	12/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
2.20 m	T.M & R.E	NORCEN
LINE	**STATION**	**LOCATION**
00W	4N	G.J.

SAMPLE DESCRIPTION

COLOUR	YELLOW-BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED 9:40	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED 10:25

REMARKS: TWO SAMPLES TAKEN, 1st NOT BEDROCK.

Rock Type - Altered Volcanic

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
24	5	12/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
1.25 m	T.M. & R.E.	NORCEN
LINE	**STATION**	**LOCATION**
00N	6N	GJ

SAMPLE DESCRIPTION

COLOUR	YELLOW - BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED 10:45	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED 11:45

REMARKS:
Rock Type - only calcite veining

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
25	6	12/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
2.1 m	T.M. & R.E	NORCEN
LINE	**STATION**	**LOCATION**
00 W	8 N	G.J.

SAMPLE DESCRIPTION

COLOUR	GREY - BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	PYRITE

DRILLING TIME

POINT STARTED	12:30	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	2:00

REMARKS: BEDROCK ??? PT. ROD WAS PUT DOWN PAST 2 m BUT EACH TIME IT WAS BADLY BENT. Rock Type - Alt. Volcanic

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
26	7	12/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
2.25 m	T.M & R.E	NORCEN
LINE	**STATION**	**LOCATION**
00W	10 N	GJ

SAMPLE DESCRIPTION

COLOUR	YELLOW - BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	YES

DRILLING TIME

POINT STARTED	2:10	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	2:50

REMARKS: WEATHERED BEDROCK

Rock Type - Altered Diorite

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
27	8	12/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
5.60 m	T.M. & R.E	NORCEN
LINE	**STATION**	**LOCATION**
00W	12 N	G. J.

SAMPLE DESCRIPTION

COLOUR	RED - BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED	3:15	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	4:15

REMARKS:

Rock Type - Broken, fractured Altered Volcanic

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
28	1	13/8/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
9.1m	T.M. & R.E	NORCEN
LINE	**STATION**	**LOCATION**
18E	2N	GJ

SAMPLE DESCRIPTION

COLOUR	WHITE GREY
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	PYRITE

DRILLING TIME

POINT STARTED	10:45	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	11:45

REMARKS: very little residual soil ... mostly bedrock fragments.
Rock Type - Diorite

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
29	2	13/8/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
2.1 m		NORCEN
LINE	**STATION**	**LOCATION**
18E	B.L.-00N	G.I.

SAMPLE DESCRIPTION

COLOUR	DK BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED	11:50	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	12:30

REMARKS: ADDITIONAL SAMPLE TAKEN AT 1.0m MARKED SAMPLE "?". Rock Type - Quartzite

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
30	3	13/8/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
2.20m		NORCEN
LINE	**STATION**	**LOCATION**
18E	2S	GJ.

SAMPLE DESCRIPTION

COLOUR	RED - BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR POOR
MINERALOXIDE	PYRITE

DRILLING TIME

POINT STARTED	1:10	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	1:40

REMARKS: Rock Type - Altered Fine-Grained Intrusive

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
31	4	13/8/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
1.50 m	T.M. & R.E.	NORCEN
LINE	**STATION**	**LOCATION**
18E	6S	GJ

SAMPLE DESCRIPTION

COLOUR	LIGHT BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	PYRITE

DRILLING TIME

POINT STARTED	1:50	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	2:15

REMARKS: N.B. STATION 18E/4S LEFT OUT ... ON OUTCROP.
Rock Type - Chert

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
32	5	13/8/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
3.25 m	T.M. & R.E.	NORCEN
LINE	**STATION**	**LOCATION**
18E	8S	G.J.

SAMPLE DESCRIPTION

COLOUR	YELLOW-BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED	2:45	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	3:12.

REMARKS:
Rock Type - Chert (grey, black banded)

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
33	1	14/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
2.25 m	T.M. & R.E.	NORCEN
LINE	**STATION**	**LOCATION**
22E	18S	GJ

SAMPLE DESCRIPTION

COLOUR	GREY - BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	PYRITE

DRILLING TIME

POINT STARTED	8:45	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	9:15

REMARKS:
Rock Type - Chert, Volcanics and Sediments (black and grey)

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
34	2	14/08/77
SAMPLE DEPTH	SAMPLERS	CONTRACT
3.0m	TIM & RE	NORCEN
LINE	STATION	LOCATION
22E	16S	GJ.

SAMPLE DESCRIPTION

COLOUR	RED - BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	PYRITE

DRILLING TIME

POINT STARTED	10:00	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	10:25

REMARKS:
Rock Type - Cherty Volcanics and Sediments (black and grey)

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
35	3	14/08/77
SAMPLE DEPTH	SAMPLERS	CONTRACT
2.0 m	TIM & R.E	NORCEN
LINE	STATION	LOCATION
22E	~~16~~ 14S	G.J.

SAMPLE DESCRIPTION

COLOUR	YELLOW - BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	PYRITE.

DRILLING TIME

POINT STARTED	11:00	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	11:30

REMARKS:
Rock Type - Cherty Volcanics and Sediments (grey-green)

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
36	4	14/08/77
SAMPLE DEPTH	SAMPLERS	CONTRACT
4.1 m	TIM & R.E.	NORCEN
LINE	STATION	LOCATION
22E	12S	GJ

SAMPLE DESCRIPTION

COLOUR	RED-BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED	12:00	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	12:40

REMARKS:
Rock Type - Chert

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
37	5	14/08/77
SAMPLE DEPTH	SAMPLERS	CONTRACT
1.50m	T.M. & R.E.	NORCEN
LINE	STATION	LOCATION
22E	10S	G.J.

SAMPLE DESCRIPTION

COLOUR	RED-BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	?

DRILLING TIME

POINT STARTED	2:00	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	2:30

REMARKS:
Rock Type - appears to be an Altered Volcanic

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
38	6	14/08/77
SAMPLE DEPTH	SAMPLERS	CONTRACT
2.1	T.M & RE	NORCEN
LINE	STATION	LOCATION
22E	8S	G.J.

SAMPLE DESCRIPTION

COLOUR	DK. BROWN
TEXTURE	
SOIL TYPE	?
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED	2:35	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	2:55

REMARKS:
Rock Type - Altered Volcanic

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
39	7	14/08/77
SAMPLE DEPTH	SAMPLERS	CONTRACT
2.35	TM & RE	NORCEN
LINE	STATION	LOCATION
22E	6S	G.J.

SAMPLE DESCRIPTION

COLOUR	DK. BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED	3:15	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	3:45

REMARKS:
Rock Type - Altered Volcanic

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
40	8	14/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
1.75m	T.M. & RE.	NORCEN
LINE	**STATION**	**LOCATION**
22E	4S	GJ

SAMPLE DESCRIPTION

COLOUR	LIGHT BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	?

DRILLING TIME

POINT STARTED	3:50	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	4:15

REMARKS:

Rock Type - Altered, Silicified Volcanic

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
41	9	14/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
3.75m	TM & RE	NORCEN
LINE	**STATION**	**LOCATION**
22E	2S	GJ

SAMPLE DESCRIPTION

COLOUR	YELLOW-BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	MPITE

DRILLING TIME

POINT STARTED	4:25	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	5:00

REMARKS:

Rock Type - Chert (brecciated)

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
42	1	15/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
2.50m	T.M. & RE	NORCEN
LINE	**STATION**	**LOCATION**
L.22E	B.L.-00N	G.J.

SAMPLE DESCRIPTION

COLOUR	DK. BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR (BLACK)
MINERALOXIDE	?

DRILLING TIME

POINT STARTED	8:10	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	9:00

REMARKS:

Rock Type - Diorite Porphyry?

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
43	2	15/08/77
SAMPLE DEPTH	SAMPLERS	CONTRACT
1.25 m	TM & RE	NORLEN
LINE	STATION	LOCATION
22E	2N	G.J.

SAMPLE DESCRIPTION

COLOUR	RED-BROWN & BLACK CHIPS
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED	10:25	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	10:45

REMARKS: NOT VERY MUCH RESIDUAL SOIL ... LARGE BEDROCK CHIPS.
Rock Type - appears to be a boulder

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
44	3	15/8/77
SAMPLE DEPTH	SAMPLERS	CONTRACT
6.15 m	TM & RE	NORLEN
LINE	STATION	LOCATION
22E	4N	GJ

SAMPLE DESCRIPTION

COLOUR	DK. BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	PYRITE

DRILLING TIME

POINT STARTED	10:50	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	12:30

REMARKS: DRILLED THROUGH HARD PEBBLY CLAY TAKING SAMPLES AT 3 & 4 metres.
Rock Type - Granite

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
45	4	15/8/77
SAMPLE DEPTH	SAMPLERS	CONTRACT
4.35M	TM & RE	NORLEN
LINE	STATION	LOCATION
26E	2N	GJ.

SAMPLE DESCRIPTION

COLOUR	WHITE - BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR Rock Type -
MINERALOXIDE	YES Likely Granite

DRILLING TIME

POINT STARTED	1:15	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	3:30

REMARKS: LOST SAMPLER & ROD TO RECOVER ... SAMPLE IS MOSTLY CLAY WITH SOME BEDROCK CHIPS ... INTERFACE CLAY THEN BEDROCK - NO REGOLITH [illegible]

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
46	5	15/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
5.0m	TM & RE	NORCEN
LINE	**STATION**	**LOCATION**
26E	BL. 00N	GJ

SAMPLE DESCRIPTION

COLOUR	LIGHT - BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED	3:40	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	4:25

REMARKS:

Rock Type - Fine Diorite

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
47	6	15/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
1.25 m	TM & RE	NORCEN
LINE	**STATION**	**LOCATION**
26E	2S	GJ

SAMPLE DESCRIPTION

COLOUR	LIGHT - BROWN
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED	4:30	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	5:00

REMARKS: SAMPLE CONSISTS OF CLAY & ROCK FRAGMENTS ... LITTLE OR NO RESIDUAL SOIL.
Rock Type - Fine Diorite

BEMA INDUSTRIES LTD.
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
48	7	15/08/77
SAMPLE DEPTH	**SAMPLERS**	**CONTRACT**
3.25 m		NORCEN
LINE	**STATION**	**LOCATION**
38E	2S	GJ.

SAMPLE DESCRIPTION

COLOUR	BLACK/RED plus CLAY
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	—

DRILLING TIME

POINT STARTED	5:30	SAMPLER STARTED	
POINT STOPPED		SAMPLER STOPPED	
POINT EXTRACTED		SAMPLER EXTRACTED	6:00

REMARKS: INTERFACE CLAY THEN BEDROCK ... IMPOSSIBLE TO DRILL FURTHER.

Rock Type - ?? . black, volcanic?

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
49	1	16/8/77
SAMPLE DEPTH	SAMPLERS	CONTRACT
5.40 m	TM & RE	NORCEN
LINE	STATION	LOCATION
38E	B.L. 00N	G.J.

SAMPLE DESCRIPTION

COLOUR	BLACK WITH BROWN CLAY
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	Rock Type - black chert

DRILLING TIME

POINT STARTED 8:15	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED 10:30

REMARKS: CLAY INTERFACE. IMPOSSIBLE TO DRILL INTO THE VOLCANIC BEDROCK, ∴ A LARGE PORTION OF CLAY IN SAMPLE.
TOOK CLAY SAMPLE AT 4.0 M. –

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
50	2	16/08/77
SAMPLE DEPTH	SAMPLERS	CONTRACT
5.40 m	TM & RE	NORCEN
LINE	STATION	LOCATION
38E	2N	G.J.

SAMPLE DESCRIPTION

COLOUR	LIGHT BROWN, BLACK FRAGMENTS & BROWN CLAY
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR
MINERALOXIDE	

DRILLING TIME

POINT STARTED 9.50	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED 10145

REMARKS: IMPOSSIBLE TO DRILL FURTHER INTO BEDROCK... INTERFACE CLAY - BEDROCK.

Rock Type - DK. Grey chert

BEMA INDUSTRIES LTD·
19790-88 Ave. R.R.4
Langley, B.C. V3A4P7 530-7772

OVERBURDEN DRILLING LOG

SAMPLE NO.	DRILL HOLE NO.	DATE
51	3	16/08/77
SAMPLE DEPTH	SAMPLERS	CONTRACT
2.55 m	TM & RE	NORCEN
LINE	STATION	LOCATION
38E	4N	GJ

SAMPLE DESCRIPTION

COLOUR	BROWN-BLACK with BROWN CLAY
TEXTURE	
SOIL TYPE	
FRAGMENTS	ANGULAR (BLACK)
MINERALOXIDE	

DRILLING TIME

POINT STARTED 10:50	SAMPLER STARTED
POINT STOPPED	SAMPLER STOPPED
POINT EXTRACTED	SAMPLER EXTRACTED 11:30

REMARKS:
Rock Type - ?? volcanic ?

APPENDIX 2

GEOCHEMICAL ASSAY SHEETS

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE: 604
TELEX: 043-52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 41412

INVOICE NO. 21558

RECEIVED Aug. 23/77

ANALYSED Aug. 26/77

TO: Norcen Energy Resources
Mineral Exploration
715 5th Ave., S. W.
Calgary, Alta.

ATTN: Project G.J.

SAMPLE NO. :	PPM Copper
1	40
1A	34
2	26
2A	74
3	46
4	18
5	108
6	144
7	16
8	347
9	1400
10	122
11	310
12	114
13	106
14	118
15	72
16	100
17	44
17A	56
18	54
18A	44
19	52
20	88
21	102
22	28
23	12
23A	48
24	18
25	84
26	182
27	890
28	375
29	210
29A	290
30	615
31	1880
32	795
33	60
34	132
Std.	100

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: .....

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE: 604
TELEX: 043-52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 41413

INVOICE NO. 21558

RECEIVED Aug. 23/77

ANALYSED Aug. 26/77

TO: Norcen Energy Resources
Mineral Exploration
715 5th Ave., S. W.
Calgary, Alta.

ATTN: Proj. G.J.

SAMPLE NO. :	PPM Copper
35	164
36	415
37	1480
38	745
39	985
40	650
41	565
42	2760
43	138
44	168
45	305
45A	310
46	152
47	520
48	192
48A	295
49	89
49A	148
50	50
50A	76
51	130
51A	136

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY:

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE: 604
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO. 32738

INVOICE NO. 21041

RECEIVED July26, 1977

ANALYSED July 28, 1977

TO: Norcen Energy Resources
Mineral Exploration
715 - 5th Ave., S.W.
Calgary, Alta.

ATTN: Glen Garratt c.c. D. Good (Stewart, B.C.)

SAMPLE NO. :	% Cu
7G-1	0.05
2	<0.01
3	0.13
4	0.17
7G-5	0.03

CTA MEMBER CANADIAN TESTING ASSOCIATION

REGISTERED ASSAYER, PROVINCE OF BRITISH COLUMBIA

APPENDIX 3

TRENCH DESCRIPTIONS

TRENCH 7G1 (L27+25'E/4+25'S)

Bearing:	010 degrees
Depth:	1 m (3 feet)
Assay Width:	3.5 m (12 feet)
Assay (% Cu):	0.05
Lithology:	Diorite porphyry - porphyritic nature is not obvious in all hand specimens, but is in others. Quartz veins up to 1/2 cm and calcite veins occur throughout the rock. The calcite veins are 2-3 times more abundant. The density of the quartz veins is 3 or 4/foot. Some specimens are quite magnetic.
Alteration:	Like elsewhere on the property, the rock is quite altered (chlorite). Some k-feldspar is visible which appears to be secondary and pervading the matrix.
Mineralization:	Minor chalcopyrite and pyrite occur in the quartz veins at random. Chalcopyrite appears to occur without pyrite much of the time.

TRENCH 7G2 (L36E/2+75'S)

Bearing:	000 degrees.
Depth:	1 m (3 feet)
Assay Width:	3.5 m (12 feet)
Assay (% Cu):	0.01
Lithology:	Chert-grey and black on fresh surfaces, gossanous weathering. Most fragments are angular.
Mineralization:	Only minor pyrite is visible.

TRENCH 7G3 (L34+20'E/7+180'S)

Bearing: 135 degrees.
Depth: 1 m (3 feet)
Assay Width: 3.5 m (12 feet)
Assay (% Cu): 0.13
Lithology: Quartz monzonite - this is similar to the quartz monzonite seen in the starburst holes with small euhedral feldspar lathes. In places, it looks more like the diorite texturally. Quartz and calcite veinlets occur throughout. Most of the quartz veinlets are no more than 1 mm in width. Rock is slightly magnetic in places.
Mineralization: Minor pyrite and chalcopyrite occur in small amounts in the quartz veins.

TRENCH 7G4 (L32E/6+10'S)

Bearing: 030 degrees.
Depth: 1.5 m (5 feet)
Assay Width: 2.5 m (8 feet)
Assay (% Cu): 0.17
Lithology: Altered volcanic - in places, quite silicified. The rock is highly fractured with abundant calcite surrounding the brecciated volcanic fragments. No quartz veins were observed.
Mineralization: Minor pyrite and chalcopyrite occur in the volcanic fragments as disseminations.

TRENCH 7G5 (L4+100'E/12N)

Bearing: 085 degrees.
Depth: 1.5 m (5 feet)
Assay Width: 3 m (10 feet)
Assay (% Cu) 0.03
Lithology: Chert - gossanous along fractures. The grey chert is slightly more crystalline (quartzite) like sourrounding outcrops, but definitely closer to chert than quartzite.
Mineralization: Very fine stringers of pyrite and possibly a trace of chalcopyrite along fractures.

APPENDIX 4

INDUCED POLARIZATION SURVEY

by

Peter E. Walcott, P. Eng.

APPENDIX 5

STATEMENTS OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Douglas R. Good, of #306 - 620 - 67 Avenue S.W., in the city of Calgary, Alberta, declare

1. that I graduated from the University of Alberta in 1976 with a Bachelor of Science degree majoring in Geology,

2. that I have had four years of field experience in mineral exploration, three of which have been in the British Columbia Cordilleran,

3. that I am presently employed by Great Plains Development Company of Canada, Ltd. as a geologist.

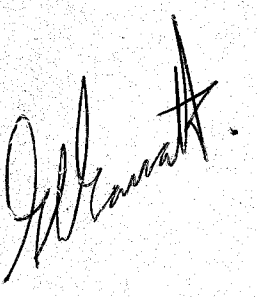
Doug Good

Douglas R. Good

November, 1977

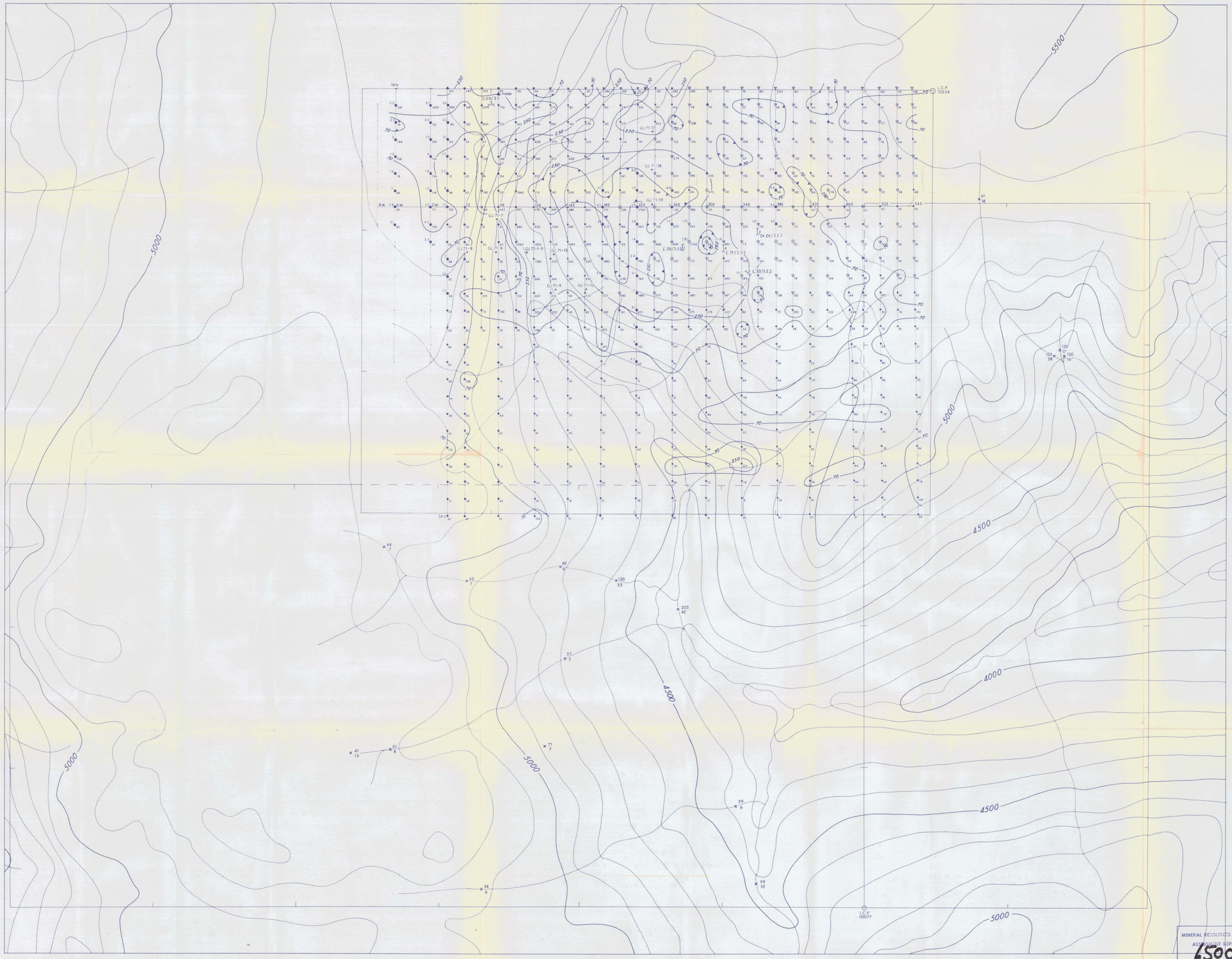
STATEMENT OF QUALIFICATIONS

I, Glen L. Garratt, am a qualified Geologist having graduated from the University of British Columbia in 1972 with a Bachelor of Science degree majoring in Geology. I have worked in the mineral exploration industry in British Columbia since 1969 and am presently employed by Great Plains Development Company of Canada, Ltd., as Regional Geologist.



G. L. Garratt, P. Geol.

November, 1977



LEGEND

- Background 0 - 70 ppm Cu
- Threshold 70 - 250 ppm Cu
- Anomalous > 250 ppm Cu

SYMBOLS

- Claim Boundary
- Legal Corner Post
- Grid Lines (stations)
- Topographic Contour (100 ft. intervals)
- Geochemical Contour
- Geochemical Low
- Soil Sample Location - ppm Cu Value
- Soil Sample Location - Depth of overburden to bedrock in meters (estimate in brackets)
- Samples from average depth .23 meters (1976)
- Samples taken by hand-auger to .75 meters (1976)
- Samples taken by post-hole auger to 1.5 meters (1976)
- Samples taken from pits (1976)
- Samples taken at overburden-bedrock interface by Bema Industries (1977)
- Trench Location [Copper Assay in % / Sample Width in Meters
- Silt Sample Location: Total extractable Cu value (ppm) / Cold extractable Cu value (ppm)
- Amoco Diamond Drill Hole (1970, 1971)

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA, LTD.
BRITISH COLUMBIA

GJ OPTION

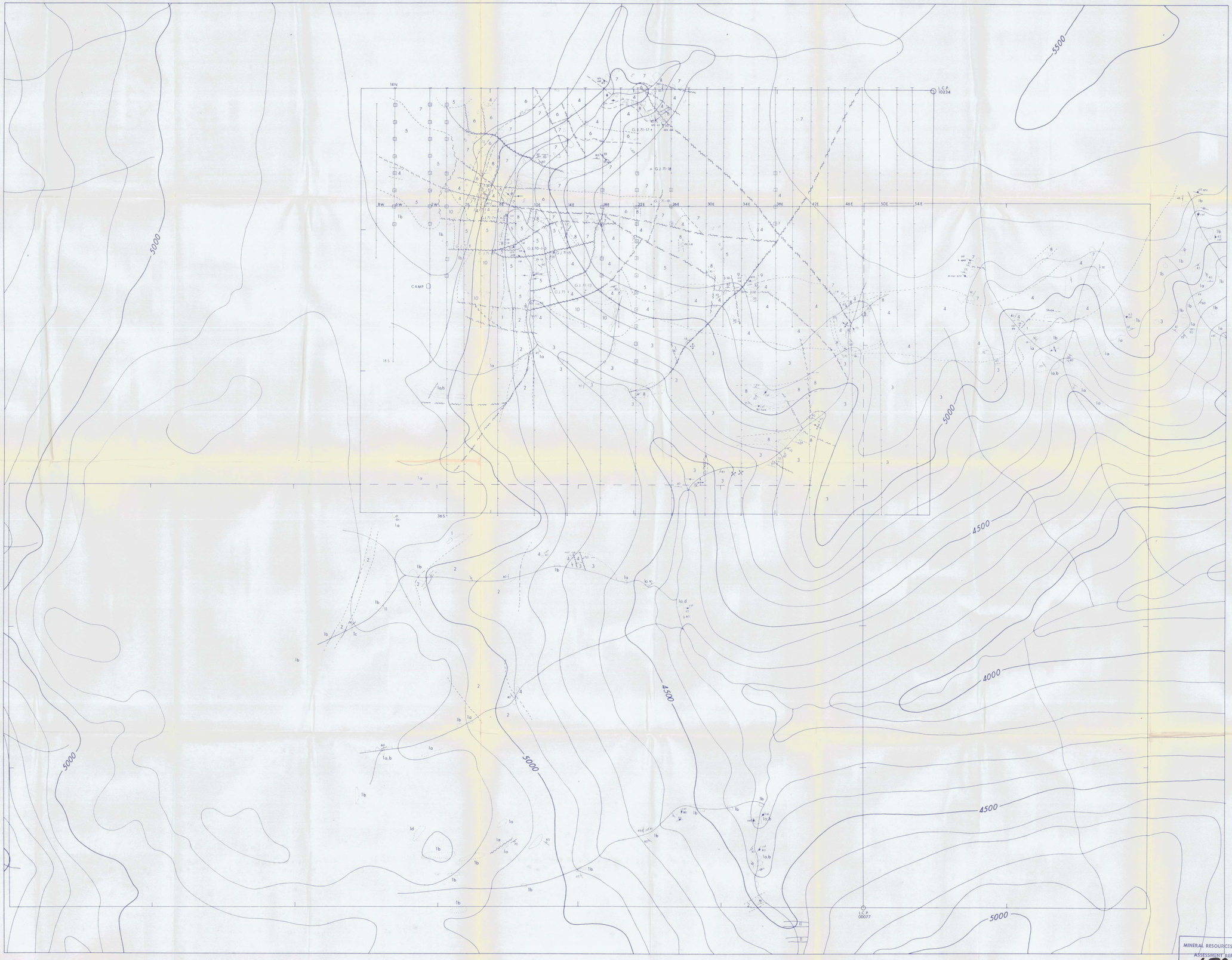
GEOCHEMISTRY COMPILATION

0 400 800 1200 FEET
0 100 200 300 400 METERS

LIARD M.D.
NTS 104-G-9

PLATE 2

D. GOOD
SEPTEMBER, 1977



N

LEGEND

post L. JURASSIC	11	Undivided Dykes and Sills
L. JURASSIC to U. TRIASSIC	10	Felsitized Rock
	9	Quartz Monzonite
	8	Diorite Porphyry
	7	Diorite
U. TRIASSIC to M. TRIASSIC	6	Quartzite
	5	Altered Volcanics
	4	Chert
	3	Cherty Volcanics and Sediments
	2	Sedimentary Rocks: lithic arkoses, siltstone, minor shale
	1	Andesitic Volcanic Rocks: 1a - flows; 1b - tuffs; 1c - agglomerates; 1d - porphyritic, amygdaloidal flows

SYMBOLS

- Claim Boundary
- Legal Corner Post
- Grid Lines (stations)
- Topographic Contour (100 ft. intervals)
- Outcrop
- Bedrock chip from overburden drilling
- Geological Boundary (definite, approximate, assumed)
- Fault (definite, approximate, assumed)
- Strike and Dip of Bedding
- Fractures: Strike and Dip: dry, Filled
- Plunging Anticline, Syncline
- G.J. 1970, 71 Diamond Drill Holes
- py, cp, mal — Pyrite, Chalcopyrite, Malachite

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA, LTD.
BRITISH COLUMBIA

GJ OPTION

GEOLOGY

0 400 800 1200 FEET
0 100 200 300 METRES

LIARD M.D.
NTS 104-G-9

PLATE 3

D. GOOD
SEPTEMBER, 1977

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 6500

Part 2 of 2