

Report on  
MOUNT SICKER COPPER-ZINC DEPOSITS  
on behalf of  
PEPPA RESOURCES LIMITED

By  
J. H. Montgomery, Ph.D., P. Eng.  
July 6, 1961 *SEK*

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REPORT ON  
MOUNT SICKER COPPER-ZINC DEPOSIT  
VICTORIA MINING DIVISION  
BRITISH COLUMBIA

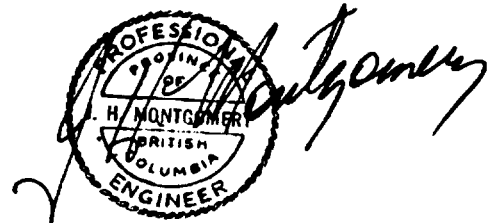
on behalf of

PEPPA RESOURCES LIMITED  
VANCOUVER, B.C.

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## 1.0 INTRODUCTION

Peppa Resources Limited of Vancouver, B.C. has retained me to make an examination of the Mt. Sicker copper-zinc deposits, to study and evaluate the previous work on the properties and, if warranted, to design a program of exploration for the property to determine the potential for additional ore.

The property which is located in Victoria Mining Division near Duncan, British Columbia, has a long history which includes considerable underground development and production. A large amount of geological, geophysical and drillhole data pertaining to the property is available.

This report is based on a personal visit to the property and on a study of much of the available data supplied by S.E.R.E.M. Limited of Vancouver, British Columbia. A program consisting of detailed underground mapping and sampling is recommended and an estimate of costs has been prepared.

## 2.0 SUMMARY AND CONCLUSIONS

Peppa Resources Limited of Vancouver, British Columbia holds title to 26 Crown-granted claims, 14 two-post mineral claims, 5 modified grid claims (34 units) and 2 fractional claims which comprise the Mount Sicker copper-zinc prospects. The claims are located about 10 kilometers northwest of Duncan in the Victoria Mining Division of British Columbia.

The claim group covers former producers of copper-zinc ore (Lenora, Tyee and Richard III). Total production from the properties to date is 305,787 tons of ore which yielded 40,052 ounces gold, 841,276 ounces silver, 20,265,763 pounds copper, 45,960,252 pounds zinc and 2,629 pounds cadmium.

3.3 Cu  
7.5 Zn  
.13 Au  
2.75 Ag

The property last produced in 1951-1952 (9,754 tons). The most recent work has been done by S.E.R.E.M. (1978-1981) during which time they did surface geological mapping, geochemical surveys, VLF-EM surveys, Maximin EM surveys, Induced polarization surveys, magnetometer surveys and some diamond drilling. As a result of their work, recommendations were made for additional exploration but these were not acted upon.

)

The Mount Sicker deposits are now recognized as volcanogenic copper-zinc deposits and with this model in mind, it is recommended that the old mine workings be rehabilitated sufficiently to map them and sample them in detail.

This proposed program is estimated to cost \$462,000.00, and to take about 6 months to complete.

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### 3.0 LOCATION AND ACCESS

The Mt. Sicker copper-zinc deposit is located about 10 kilometers northwest of Duncan, British Columbia in the Victoria Mining Division. See Figure 3-1.

N.T.S. Map Reference: 92B/13    Latitude-48°52'North;  
Longitude-123°46'West.

)

The property is located on the east side of Chemainus River on Big Sicker Mountain at elevations ranging from 400 to 700 meters. Access to the property is Highway 1 north from Duncan, B.C. to Stratfords Crossing, a distance of 9 kilometers. From that point, the road leads easterly up Bonsall Creek to Big Sicker Mountain, a distance of 7 kilometers.

)



figure 3-1  
 Location Map  
 Mt. Sicker Prospect  
**PEPPA RESOURCES LTD.**



#### 4.0 CLAIM INFORMATION

The property consists of 26 Crown-granted claims, 14 two-post claims, 5 modified grid claims (34 units) and 3 fractional claims. See Figure 4-1.

Pertinent claim information is listed in the following tables:

##### Crown-Granted Mineral Claims

NAME	LOT NO.
ESTELLE	53-G
WESTHOLME	54-G
BLUE BELL	51-G
MOLINE FRACTION	50-G
ACME	4-G
TONY	18-G
HELLENA	47-G
WESTHOLME GRACTION	59-G
DIXIE FRACTION.	21-G
GOLDEN ROD	44-G
DONAGAN	18-G
XL	19-G
DONALD	63-G
MURIEL FRACTION	108-G
DOUBTFUL FRACTION	87-G
THELMA FRACTION	85-G
IMPERIAL FRACTION	86-G
HERBERT FRACTION	20-G
PHIL FRACTION	110-G
NT FRACTION	43-G
MAGIC FRACTION	41-G
RICHARD III	39-G
KEY CITY	37-G
LENORA	35-G
TYEE	36-G
INTERNATIONAL FRACTION	60-6

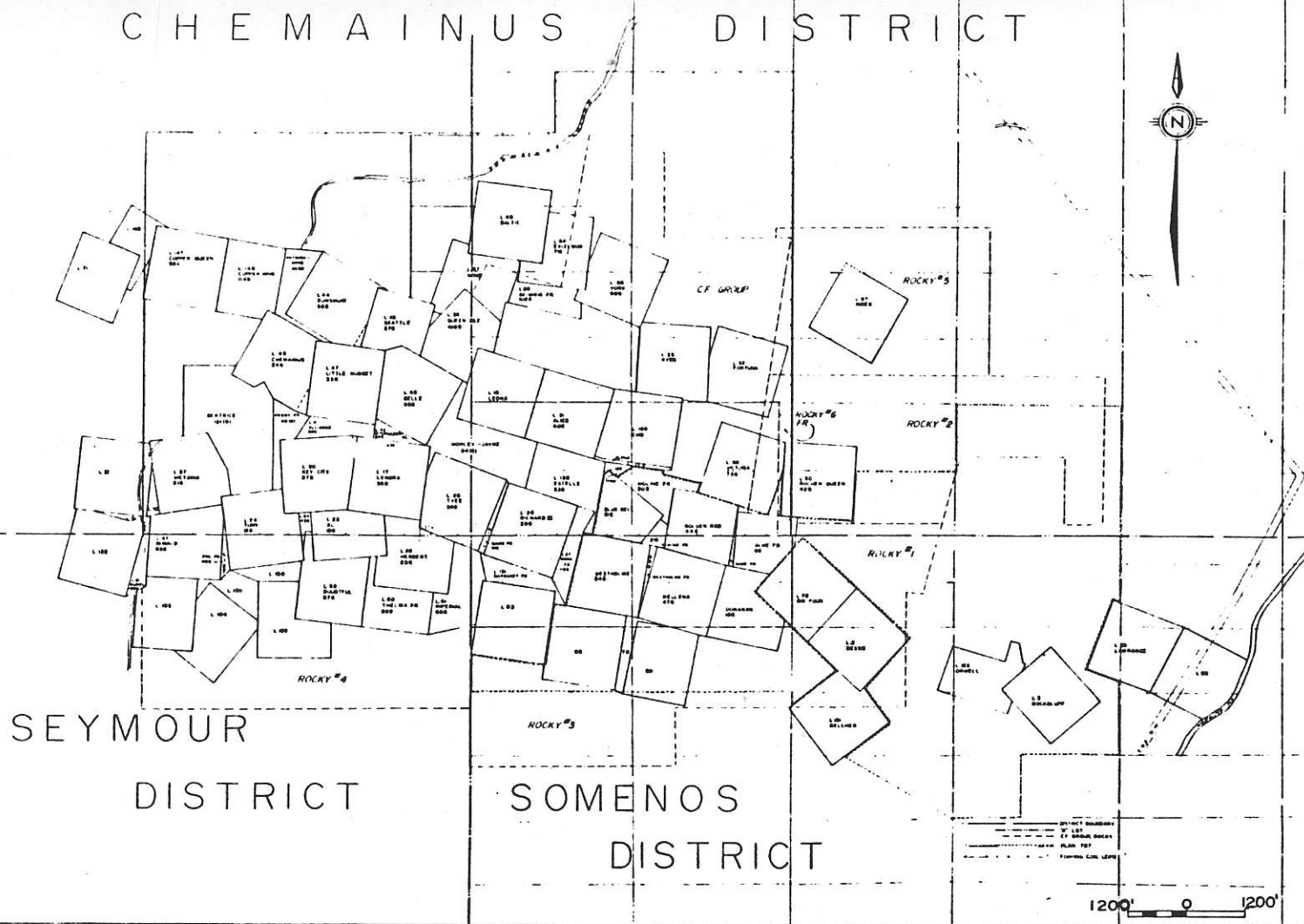


figure 4-1

CLAIM MAP

MT. SICKER PROJECT

**PEPPA RESOURCES LTD.**

Two-Post Claims

NAME (No.)	RECORD NO.	EXPIRY DATE
C.F. GROUP 1-8 (8)	N14150-N14157	1986
C.F. GROUP 13-18(6)	N14162-N14167	1985

NAME (units)	RECORD NO.	EXPIRY DATE
ROCKY 1 (4)	155 (4)	April 20, 1986
ROCKY 2 (8)	156 (4)	April 20, 1986
ROCKY 3 (8)	157 (4)	April 20, 1986
ROCKY 4 (8)	158 (4)	April 20, 1986
ROCKY 5 (6)	247 (7)	July 6, 1986
ROCKY 6 FRACTION (1)	248 (7)	July 6, 1986
ACME FRACTION (1)	254 (8)	July 6, 1984

668-2672

34 Units  
2 fractions

Sicker 1

624 (5)

Sicker 2.

625 (5)

May 31/83

May 31/83

Dec 30 1983

Phil Lieberman

AWARANCE  
check 730 (12)

Claim information was obtained from S.E.R.E.M. Limited and from the Mining Recorder's Office in Vancouver. Figure 4-1 shows the approximate location of claims other than the Crown-granted claims which have been placed on the map accurately.

## 5.0 HISTORY AND PREVIOUS WORK

The Mt. Sicker copper-zinc prospects, which consist primarily of the Lenora, Tyee and RICHARD III claims, have had a long and interesting history including the production of 305,787 tons of ore which contained 40,052 ounces <sup>(0.13oz/ton)</sup> gold, 841,276 ounces <sup>(2.75oz/ton)</sup> silver, 20,265,763 pounds copper, <sup>and</sup> 45,960,252 <sup>7.51%</sup> pounds zinc, ~~504,473 pounds lead and 2,629 pounds cadium.~~ <sup>3.31%</sup>

An excellent summary of the mining and exploration history of the Mt. Sicker area has been presented by Ronning, et al (1978). This summary, compiled mainly from B.C. Minister of Mines Annual Reports is reproduced here:

### LENORA

- 1898 Drifting, crosscutting and sinking. Two parallel ore zones identified.
- 1899 Development and stoped ore stored in dumps. Some handpicked ore sent to a smelter.
- 1900 Lenora-Mount Sicker Mining Company formed.
- to Development and stoping continued. Shipped ore
- mid- by wagon, narrow-gauge railway, E & N Railway,
- 1902 to Ladysmith thence by steamer to Van Anda, Everett and Tacoma smelters.
- Late Railroad completed to the mine. Smelter com-
- 1902 pleted at Crofton. Shortly after shipments commenced to Crofton the mine was closed because of litigation.

- 1903 Minor work done and small shipments of ore  
to from the dump made to Crofton.  
1907
- 1924 Re-opened under lease and bond by R.G. Mellin,  
primarily to re-examine the north ore zone, which  
was reported to assay 2% copper, 7% zinc, with  
\$1.50 in gold and silver. This ore had become  
attractive because of advances made in separating  
copper and zinc by flotation.
- 1925 No work.
- 1926 Ladysmith Tidewater Smelters Ltd. took over  
assets of Tyee mine and smelter and leased the  
Lenora. Under the direction of R.G. Mellin an  
adit was started on the Lenora to connect both  
mines to provide efficient working conditions.
- 1929 The lease on Lenora was dropped and work ceased.

TYEE

- 1897 Explored and developed the property with drifts,  
to crosscuts and shafts. Made a small shipment of  
1901 sorted ore in 1901, which ran 8% copper, \$5 in  
gold and \$5 in silver per ton. The bulk of  
production stored in surface dumps.
- 1902 Completed construction of aerial tramway to  
to Somenos where ore was transshipped by Tyee Smelter  
1907 at Ladysmith. A 1250 foot shaft sunk to develop  
lower grade ore zone found on 1000, 1150 and  
1250 levels. Much development, exploration and  
production during these years. Concentration  
tests were being made on low grade ore when  
mine closed due to low price of copper. Work  
done on Tony, XL, Key City and Westholme claims  
disclosed some copper mineralization.
- 1898 Developed and explored sporadically but lacked  
to sufficient working capital for efficient operations.  
1907 Shipped some ore from dump to Tyee Smelter.  
When work stopped ore was showing on floor of the  
500 level.

Plans of the early development work, particularly that undertaken in the deeper parts of the Tyee shaft and on levels and winzes below the general Lenora-Tyee 200-Horizon, are apparently non-existent. However the Minister of Mines reports provide some rather general information on the early development results.

- 1903 (a) Initial development operations within the Tyee (South) orebody showed it to have a maximum width of 40 feet, with general average widths of 25-30 feet.
- (b) At the bottom (closely below the 400-foot level) of the Tyee shaft green schists carrying about 2% copper were encountered—similarly mineralized as the schists flanking the ore lenses in the upper levels.

- (c) Throughtout Lenora 3-level mineralization of the schists was observed at several places, but.....did not constitute ore of shipping (min. 4% Cu) grade.
  - (d) Schists intersected by winze and crosscut 100 feet below Lenora 3-level showed marked mineralization, and appear to be looser (effect of folding-crumpling) than at any other point below 2-level.
- 1905 At the 1000 ft. level about 3 ft. of mineralized rock (Cu-Au-Ag assoc. with barite) was intersected 205 ft. south of the shaft.
- 1906 The same "low grade orebody" was intersected at the (Tye) 1250-foot level...as had been intersected at the 1000 ft. and 1150 ft. levels.
- 1924 Victoria interests undertook further exploration to  
1925 of north ore zone through drifting, crosscutting and sinking after which no further work done until the beginning of World War II.
- 1928 Tye holdings taken over by Pacific Tidewater Mines Ltd. which then obtained from Mellin the Lenora lease. The adit being driven on the Lenora towards the Tye was continued and ore was encountered.
- 1929 Pacific Tidewater Mines, Ltd. taken over by Ladysmith Smelters, Ltd. No work done on Tye or Lenora, and Lenora lease dropped.



SHEEP CREEK GOLD MINES LTD.

- 1939 Sheep Creek optioned Lenora, Tyee and Richard III.
- 1940 A considerable amount of diamond drilling and development was done before option dropped due to low zinc price. Geophysical survey (Spril 1940).

TWIN "J" MINES LTD.

- 1924 Taken over by Twin "J" Mines Ltd. who drilled  
to and sampled followed by underground rehabilitation  
1944 and preparation of mine site. Milling began in  
mid 1943 and 125-150 tons daily. Much exploration  
and development done. Operations suspended  
in 1944 when sales contract with Wartime Metals  
Corporation was cancelled. Most production came  
from the Lenora North ore zone.
- 1946 Retimbered underground operations. Mining and  
1947 milling resumed. Concentrate shipped to Tacoma  
and Trail. Closed in September.
- 1949 Property taken over by Vancouver Island Base  
Metals, Ltd. They repaired Tyee shaft, retimbered  
tunnels, developed and drilled before ceasing work.
- 1951 Re-opened and milled 9,754 tons. Modest exploration  
1952 program carried out. Closed in January 1952.
- 1964 The present interests blasted an outcrop on the  
to Lenora and shipped 167 tons to Tacoma Smelter.  
1966 Subsequently, Mt. Sicker Mines Ltd. was formed  
1967 to work the property. A feasibility study has  
been made with regard to leaching of copper from  
the ore zones and dumps.
- 1968 A V.L.F. magnetometer survey was carried out  
by Mt. Sicker Mines outlined strong conductors  
to the north and south of the main ore zone.  
A magnetometer survey was carried out over portions  
of the claim block.  
Some stripping was carried out over area of  
#2 portal.

- 1969 DDH's number S-1 and S-2 were drilled. Hole S-2 encountered mineralization from 59 to 87 feet. Assay #4756, 80.5'-87.0' graded Au 0.19, Ag 2.50%, Cu 3.10%, Pb trace, Zn 10.40%, BaSo4 38.20%. DDH's S-3 and S-4 stopped before objectives completed.
- 1970 Magnetometer and V.L.F. surveys completed over 30 line miles. Geological mapping. Three X-ray diamond drill holes totalling 250' in N.E. showings.
- 1971 Geochemical soil sampling for copper and zinc revealed several targets. Bulldozer trenching on N.E. zones, north of Westholme shaft and north of Richard III shaft.
- 1972 Ducanex optioned Mount Sicker property. Grid was expanded and geologically mapped by Ivor Watson. A C.E.M. survey was completed over property revealing no anomalies. Approximately 3000 feet of diamond drilling in 5 holes completed.
- 1973 IP survey over N.E. zone.
- 1974 Assessment Report #5164 indicates diamond drilling of eight holes by Dresser Industries. Drill holes MS 74-1 through MS 74-8 were relogged and results are included in Appendix 2.
- 1978 Esso Minerals Ltd. tested an Apex Parametrics Maxmin II on Mt. Sicker by running 4 test lines across the strike of the orebodies between the Lenora #3 adit and the Tye shaft. Near the Lenora #2 adit ore is near the surface and the instrument responds well with both the in-phase component and the out-of-phase component. However, on a line crossing near the top of the Tye shaft, where the orebodies are (or were) at a depth of between 100 and 400 feet below surface no response was obtained.

The Mt. Sicker claims were optioned by S.E.R.E.M. Limited of Vancouver, B.C. in 1978. During the period of their option (1978-1981), S.E.R.E.M. completed surface geological mapping, geochemical surveys, VLF-EM surveys, Vector Pulse EM surveys, Maxmin EM surveys, Induced Polarization surveys, magnetometer surveys, diamond-drilling re-logging of previous core drilling and a compilation and study of all previous data obtainable. Much of the work was concentrated on the regions adjacent to the old mine workings but no attempt was made to rehabilitate the old workings or do underground geological mapping.

As a result of their work on the property, S.E.R.E.M. delineated several exploration targets and recommended additional work on them. These recommendations were not acted upon.

Figure 5-1 shows the extent of the underground workings in the area of the Lenora, Tyee and Richard III mines and the relative positions of the original north and south orebodies. The mines were last worked about thirty years ago. The Mt. Sicker deposits are now considered to be volcanogenic copper-zinc deposits but no underground mapping or sampling has ever been done with such a model in mind.

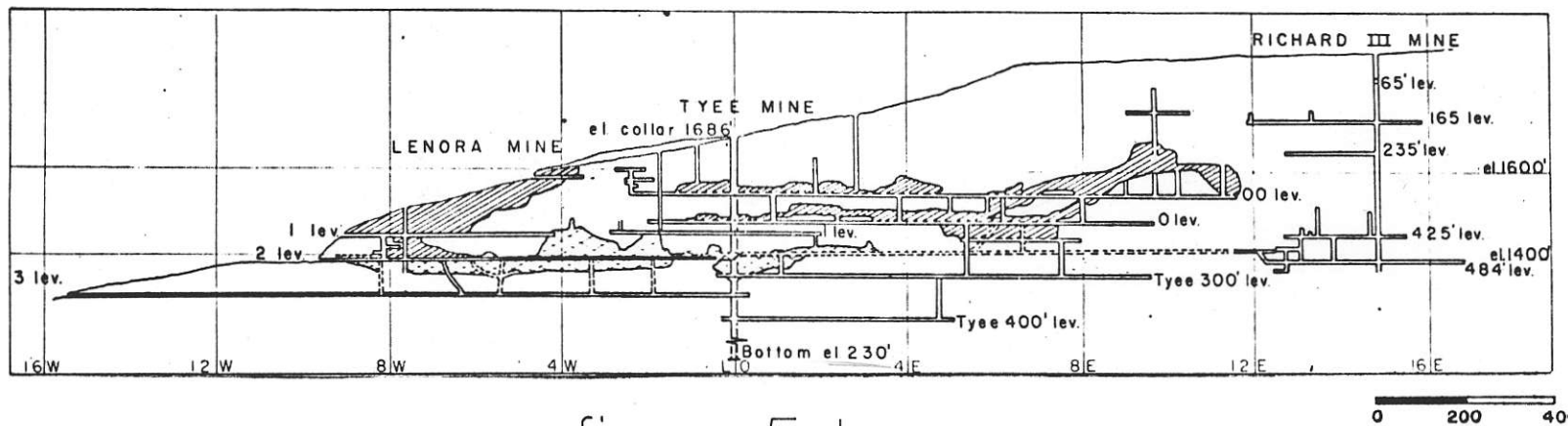
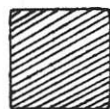



figure 5-1

MINE WORKINGS IN LONGITUDINAL SECTION

# PEPPA RESOURCES LTD.



-  Original South Orebody
-  Original North Orebody

## 6.0 GEOLOGY

### 6.1 Regional Geology

The regional geology of the area surrounding Mt. Sicker has been mapped by Rice (1957) and Muller (1977). Figure 6-1 shows a portion of Rice's compilation. The Mt. Sicker area is underlain mainly by rocks of the Sicker Group of Paleozoic age. Rice describes the rocks as "mainly chert, pyroclastic rocks, and limestone.

More recently, Muller (1977) has divided the Sicker Group into a lower volcanic formation, a middle greywacke-argillite formation, and an upper limestone formation. These are described in more detail in the next section.

Other rocks in the general area include the Vancouver Group (Unit 6c on Figure 6-1). This group is comprised of andesite, pyroclastics; minor basalt and rhyolite, shale, argillite, slate, quartzite, limestone, greywacke, chlorite schist, greenstone, gneiss and some associated intrusive rocks. The Nanaimo Group is comprised of sandstone, shale, conglomerate, arkose and coal. These sedimentary rocks are of upper Cretaceous age (Rice, 1952).

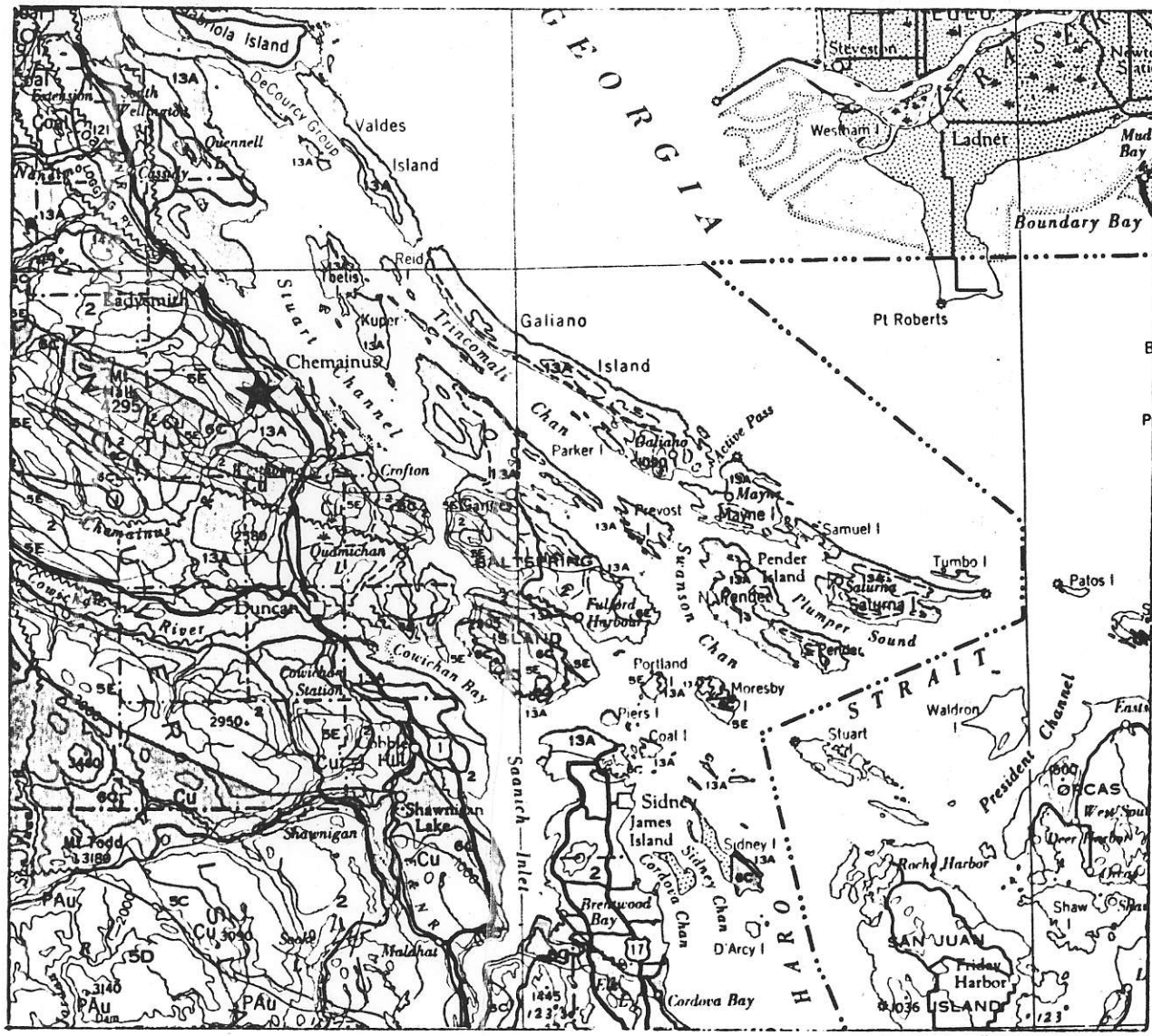


figure 6-1  
 REGIONAL GEOLOGY  
 MT. SICKER PROJECT  
 PEPPA RESOURCES LTD.

- 13A — Nainimo group
- 6c — Vancouver group
- 5 — δ-Leach River formation    ε-Sicker group
- 2 — Coast Intrusive

Rocks belonging to the Coast Intrusive complex are also present in the general area.

The mineral properties of primary concern in this report are Lenora, Tyee and Richard III, all of which are located on the same mineralized structures. Other properties of interest in the area are Copper Canyon (Cu), Key City (Cu), Queen Bee (Au), Belle (Cu) and NE Copper Zone (Cu). Detailed descriptions of the three main properties are given in the following section.

## 6.2 Local Geology

The geology of the Mt. Sicker mine area has been mapped most recently by geologists of S.E.R.E.M. Limited, most notably by Peter A. Ronning (1979, 1980). A portion of his map has been reproduced in Figure 6-2.

The rock units underlying the map-area in Figure 6-2 are Units 1, 1b, 1c, 1d, 5, 14, 14a, 14b, and 14d. These are described below and are taken mainly from a report by Ronning (1980).

Unit 1, (1a, 1b, 1c, 1d) - Quartz Schist includes most rocks in the central part of the property. In its usual form, thin laminae of very fine-grained, siliceous-appearing material are separated from each other by micaceous foliations consisting of sericite with variable but lesser chlorite. The siliceous material consists of a very finely crystalline mixture of quartz and intermediate to sodic plagioclase feldspar. A few percent of white phenocrysts up to 3 mm. across often shaped like subhedral feldspar, usually occur in Unit 1. They are plagioclase in the oligocene-andesive range, often partly to completely replaced by quartz.



Unit 1 is broken into four sub-units (1a,1b,1c,1d) depending on the amount of chlorite visible and whether or not augen are present.

The schists are believed to have originated as felsic to intermediate volcanics, mostly flows but probably including some pyroclastic material.

Unit 5 - Tuff covers a multitude of pyroclastic rock types. In most cases, tuffs have been assigned to either the felsic sub-unit 5a or the more common andesitic sub-unit 5b. However, southwest of the mine, many rocks are recognizably pyroclastic but their compositions are not clear. These have been assigned to undifferentiated Unit 5.

Sub-Unit 5a - contains rhyolitic to dacitic pyroclastics, mostly light greenish grey but varying from white to dark greenish grey. They usually have a hard, siliceous, cryptocrystalline groundmass, probably containing quartz, feldspar, and some epidote. Plagioclase feldspar crystals, averaging 1 to 2 mm. but ranging to 8 mm. in diameter with rounded anhedral to subhedral shapes make up from less than 5% to more than 60% of the rock. Macroscopic quartz grains are rare, apparently restricted to small amounts in the more schistose parts of the unit.

Small rounded grains of chlorite (less than 1mm.) form a few percent of some of the darker green rocks.

Rarely, recognizable dacitic rock fragments occur as clasts in the tuff. They are up to a centimeter in size, with sub-rounded to sub-angular shapes. Variations in the concentrations of macroscopic grains sometimes produce centimetric layering in the tuffs. All the felsic tuffs are schistose, though the schistosity may only be readily apparent on weathered surfaces. Most rocks of sub-Unit 5a lack diagnostic textures. Some do, however, have distinct clastic textures, and they often grade into sediments. These bits of evidence indicate that they are probably pyroclastic.

Sub-Unit 5b - forms broad east to southeast trending belts in the northwest and southwest parts of the property. Because there are distinct textural differences between the andesitic tuffs in the south and those in the north, they will be described separately.

#### Southwest

The southernmost part of sub-Unit 5b appears to be interlayered with andesitic flows, grading northward to an andesitic tuff-sediment sequence, bounded on the north by sub-Unit 5a. There is some interlayering of 5b and

5a near the contact, with interbedded sediments common on both sides of it.

The andesitic tuff is generally dark greenish with the groundmass a finely crystalline aggregate of feldspar, epidote, chlorite (+ biotite and hornblende) and quartz. One to two millimeter feldspar phenocrysts form 20 to 50% of the rock. They are equidimensional, and well rounded to subhedral. Macroscopic grains of chlorite, 1-2 mm in diameter, occur as both sub-rounded lithic fragments and as pseudomorphs after hornblende. Some rocks contain isolated larger, chloritic, chip-shaped, lithic fragments, up to 1 cm in diameter.

Lapilli tuffs and agglomerates form discontinuous belts several tens of meters wide. Sub-rounded to sub-angular andesitic to rhyolitic rock fragments form up to 50% of the total rock. Felsic fragments become more common near the contact between sub-Unit 5b and the more felsic 5a.

Schistosity is generally weaker in sub-Unit 5b than in most of the other volcanics, often being completely absent.

### Northwest

Andesitic tuffs of the northwest are generally finer grained than those of the southwest. Macroscopic feldspar grains form zero to 30% of the rock, being about 1 mm in diameter, sub-rounded to sub-angular, and often partly epidotized. Indistinct, millimetric, rounded chlorite grains, forming up to 80% of the rock, are commonly smeared out along the schistosity.

The northwestern andesitic tuffs often have centimetric colour banding in shades of grey, and in a few places strings of small siliceous pebbles mark layering.

Epidote "nodules", ellipsoidal bodies of silicified and epidotized rock, are common in the northwest. They are up to several centimeters long and may be strung out along certain horizons in the rock. Epidotized feldspar crystals sometimes form up to 30% of the "nodules", which may be blocks or bombs within the tuffs. Andesitic tuffs in the northwest are generally schistose and grade laterally and vertically into chlorite schists. Interlayering of the andesitic tuffs with more felsic rocks, uncommon in the southwest, is frequent in the northwest.

Unit 14 - Gabbroic Intrusions occupy nearly 50% of the mapped area. They are probably dikes, ranging in thickness from a few meters to a hundred or more. As a rule, gabbros are the most resistant and best exposed rocks on the property.

The common primary minerals of the gabbro are plagioclase (25-60%), dark green pyroxene (40-60%), magnetite or ilmenite (up to 15%) and minor pyrite. Secondary minerals include chlorite, actinolite, epidote, quartz, calcite, and hematite. Chlorite and actinolite replace the pyroxenes in some places. Epidote replaces plagioclase or occurs in patches and veinlets. Calcite occurs in veins with quartz or interstitially between crystals of other minerals. Occasionally specular hematite replaces magnetite.

Grain sizes range from fine (sub-Unit 14b) through medium to coarse (sub-Unit 14a), with textures from hypidiomorphic granular to porphyritic with feldspar phenocrysts. Locally and uncommonly mafics form less than 25% of a dyke and the composition appears to be almost intermediate. These rocks are assigned to sub-Unit 14c, Diorite.

In Unit 14 schistosity varies from absent to very strong. If the schistosity is well developed the rocks are assigned to sub-Unit 14d.

Structurally, little is yet known of the geology in and around the old mine workings. No detailed underground mapping (with a volcanogenic model in mind) has been done.

Preliminary interpretations have been made by Ronning (1980) based on surface mapping, old records and limited diamond drilling. Figure 6-3 shows this interpretation which was made from the configuration of gabbro dykes which have been folded into "normal to tight, occasionally isoclinal folds whose axes trend northwest."

Mineralization is of two types -

barite ore - fine-grained pyrite, chalcopyrite, sphalerite and minor galena in a barite-quartz-calcite gangue.

quartz ore - pyrite and chalcopyrite with minor sphalerite and barite and traces of galena in a quartz gangue with some calcite.

According to old mine plans, the orebodies appear to be zoned with barite-rich cores enveloped by quartz-rich ores.

—600m

—550

—500

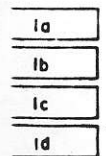
—450

LEGEND: x



GABBRO

GRAPHITIC SCHIST



QUARTZ SCHIST

SERICITE SCHIST

CHLORITE SCHIST

TUFF

DACITE

RHYALITE

ORE HORIZON (known)

POSSIBLE ORE HORIZON

SCHISTOSITY

DRILL HOLE

DRILL PROPOSAL

MINE WORKINGS

1a—Sericite

1b—Sericite Augen

1c—Chlorite Sericite

1d—Chlorite Sericite Augen

5a—Felsic Tuff

5b—Andesitic Tuff

MS74-1

TYEE

SRM 1

MS 74-2

Drill Hole "A"

INDEPENDENCE FAULT

MINE FAULT

1 (8,9)

1d(5)

5,1

5,1

figure 6-3

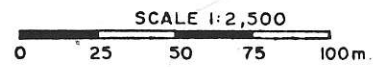
# STRUCTURAL INTERPRETATION

(after Ronning, 1980)

## MT. SICKER PROSPECT (TYEE)

# PEPPA RESOURCES LTD.

MONTGOMERY CONSULTANTS LTD.



JULY 6, 198

Two orebodies are known at present (north and south orebodies) separated by the "Mine Fault". Ronning describes them as "irregular cylindroids, up to 10 meters thick, 30 meters high, and extending discontinuously over 500 meters in an east-west direction.



## 7.0 RECOMMENDATIONS

In January, 1980, Ronning recommended additional work on the Mt. Sicker copper-zinc prospects. This work consisted of geophysical surveys (including possible airborne surveys) geological mapping, diamond-drilling and limited rehabilitation of some of the underground workings (NE Copper Zone).

The target areas selected for this proposed program include the Mine area the "C" Zone (a geophysical target), the Herbert (a geochemical anomaly), the Northeast Copper Zone (old tunnel reported to carry widespread copper mineralization).

The present writer feels that the key to structure and ore controls might best be interpreted by detailed underground geological mapping of old workings. These are presently inaccessible and other than knowing that caving has blocked tunnel entrances, their condition is unknown. The old records of underground sampling, drilling and production suggest that additional ore reserves are possible and it is recommended that a thorough study be made of all such records, that as much of the old workings as practicable be rehabilitated and mapped and sampled. If warranted a follow-up stage of underground and surface drilling will be required.

8.0 COST ESTIMATE1. PERSONNEL

(a) Geologist - 6 months -	36,000.00
(b) Assistant - 6 months -	18,000.00
(c) Underground Crew (4 men, 3 months)	36,000.00
(d) Mining Engineer (consult.)	15,000.00

2. REHABILITATION WORKINGS

(a) <u>Preliminary</u> - shaft manway	100,000.00
(b) <u>Second Phase</u> - levels	150,000.00

3. TRANSPORTATION

Truck Rentals (2 for 6 months)	15,000.00
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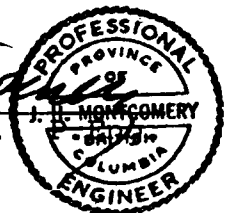
4. SAMPLING AND ASSAYS 10,000.005. ENGINEERING AND SUPERVISION 40,000.00

Sub-Total	\$420,000.00
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6. <u>CONTINGENCIES</u> - 10%	42,000.00
TOTAL	<u>\$462,000.00</u>

Respectfully submitted,

*J. H. Montgomery*  
 J. H. Montgomery, Ph.D.  
 Vancouver, B.C.  
 July 1981,



9.0 BIBLIOGRAPHY

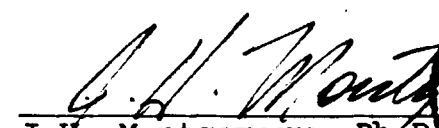
1. Ronning, P.A. (1980) - "Mount Sicker Project, 1979 Summary Report" - private report prepared for S.E.R.E.M.
2. White, G.E. (1979) - "Vector Pulse Electromagnetometer Survey Report #2 on behalf of SEREM Ltd. - unpub. geophysical report.
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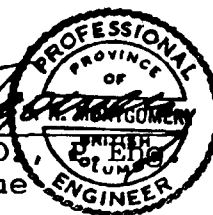
10.0 CERTIFICATE

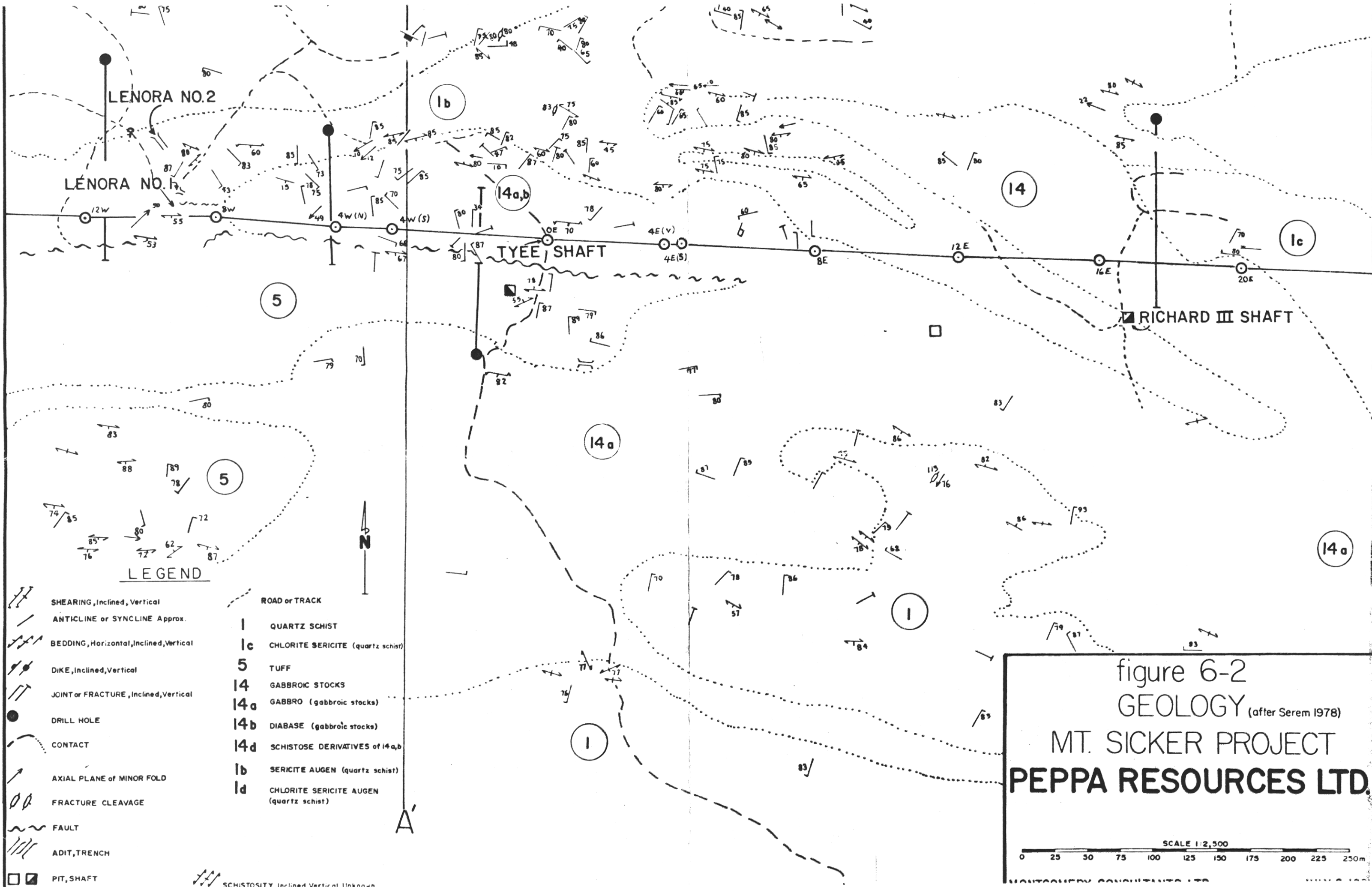
I, J.H. Montgomery, of Vancouver, British Columbia hereby certify that:

1. I am a geological engineer and reside at 4153 West 11th Avenue, Vancouver, B.C.
2. I am a graduate of the University of British Columbia; B.Sc. in 1959, M.Sc. in 1960, Ph.D. in 1967.
3. I have practiced my profession since 1959.
4. I am a member of the Association of Professional Engineers of British Columbia.
5. I have no interest, direct or indirect, in the Mt. Sicker properties nor in Peppa Resources Limited nor do I expect to receive any such interest.
6. I have based this report on a personal visit to the property and on a study of available government publications, maps and previous Engineer's reports.
7. This report may be used by Peppa Resources Limited for a Prospectus, Statement of Material Facts, Shareholders' newsletters, etc., in whole or in part.

DATED at Vancouver, British Columbia, this 6th day of July 1981.

  
 J.H. Montgomery, Ph.D.,  
 4153 West 11th Avenue  
 Vancouver, B.C.





**LEGEND**

- |  |  |  |  |
|--|--|--|--|
|  | SHEARING, Inclined, Vertical             |  | ROAD or TRACK                              |
|  | ANTICLINE or SYNCLINE, Approx.           |  | 1 QUARTZ SCHIST                            |
|  | BEDDING, Horizontal, Inclined, Vertical  |  | 1c CHLORITE SERICITE (quartz schist)       |
|  | DIKE, Inclined, Vertical                 |  | 5 TUFF                                     |
|  | JOINT or FRACTURE, Inclined, Vertical    |  | 14 GABBROIC STOCKS                         |
|  | DRILL HOLE                               |  | 14a GABBRO (gabbroic stocks)               |
|  | CONTACT                                  |  | 14b DIABASE (gabbroic stocks)              |
|  | AXIAL PLANE of MINOR FOLD                |  | 14d SCHISTOSE DERIVATIVES of 14a,b         |
|  | FRACTURE CLEAVAGE                        |  | 1b SERICITE AUGEN (quartz schist)          |
|  | FAULT                                    |  | 1d CHLORITE SERICITE AUGEN (quartz schist) |
|  | ADIT, TRENCH                             |  |  |
|  | PIT, SHAFT                               |  |  |
|  | SCHISTOSITY, Inclined, Vertical, Unknown |  |  |

figure 6-2  
**GEOLOGY** (after Serem 1978)  
 MT. SICKER PROJECT  
**PEPPA RESOURCES LTD.**

SCALE 1:2,500  
 0 25 50 75 100 125 150 175 200 225 250m

inches  
 0 1  
 centimetres  
 0 1 2  
 This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.