

394

GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL REPORT  
EMIL, LEW, DIAMOND BELLE, BLACK BEAR, ETHEL MINERAL CLAIMS  
OWEN LAKE AREA, OMINECA M.D., B. C.

54° 126° S.W.

OWNER - Denison Mines Limited

REPORT BY - G. N. Woollett

J. S. Scott, P. Eng.

GEOPHYSICAL OPERATOR - J. Sirola

SURVEY DATES - September 2nd - October 3rd, 1961.

93L/2E

*J. S. Scott - P. Eng.*

GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL REPORT  
 EMIL, LEW, DIAMOND BELLE, BLACK BEAR, ETHEL MINERAL CLAIMS  
 OWEN LAKE AREA, OMINECA M.D., B. C.

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Appendix "A": Copy of Report on Spontaneous Polarization Survey of Owen Lake Property of Denison Mines Limited by J. Sirola, Geophysical Contractor.

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1. Owen Lake Area: geological map, scale 1" = 1000'
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  4. Distribution of copper assays, geochemical survey.
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  6. Assay plan, Wrinch Creek vein, scale 1" = 80'.
- One map* {

Department of  
 Mines and Petroleum Resources  
**ASSESSMENT REPORT**

NO 394 MAP

*J.S.*

# GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL REPORT

EMIL, LEW, DIAMOND BELLE, BLACK BEAR, ETHEL MINERAL CLAIMS

OWEN LAKE AREA, OMINECA M.D., B. C.

1.

## INTRODUCTION

Denison Mines Limited hold 21 mineral claims by location and 3 mineral claims by option in the Owen Lake area, Omineca Mining Division of British Columbia. These claims cover silver-lead-zinc-copper mineralization, brought to the attention of Denison Mines by Mr. A. Berglund in May, 1961. In September 1961, an examination involving geological mapping, geophysics and geochemistry was made and is described in this report.

## SUMMARY

A diorite stock intrudes Jurassic volcanics immediately north-east of Owen Lake, Omineca Mining Division, B. C. Several mineralized veins containing copper, lead, zinc and occasional gold and silver values are known to be associated with the intrusive. A thin mantle of glacial till covers the area.

A geological, geophysical and geochemical examination was made on 19 claims held by Denison Mines Limited, in September, 1961.

Three anomalies were located by geochemical methods, two of which were confirmed by geophysical means. It is believed that the anomalies are due to sulphide mineralization in narrow veins. The total indicated possible tonnage involved is small.

## LOCATION

The Owen Lake claims are situated immediately north-east of Owen Lake and approximately 30 miles south of Houston, B. The property is accessible by good secondary roads from Houston and Francois Lake.

Latitude 54° 05'N, Longitude 126° 43'W.

# GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL REPORT

OWEN LAKE AREA, OMINECA M.D., B. C.

2.

## HISTORY

The Owen Lake camp has been known since 1912. Various attempts to evaluate the mineralization has been made since that time.

Between 1928 and 1930 the Owen Lake Mining Company explored the Wrinch vein system by means of a 2930 foot adit, collared on the south slope of "Mine Hill". Approximately 12 veins were encountered, several with encouraging values in gold, silver and copper. An 80 foot shaft was sunk on the Cole vein, approximately 7200 feet to the north-east, and two shallow shafts collared on the Chisholm vein, approximately 4000 feet to the east. Work was discontinued in 1930. The Canadian Exploration Company has since acquired the property.

In 1959 a self potential survey was done on the Owl group, owned by Mr. W. MacGowan of Vancouver. Some stripping was done as a result.

In 1961 the attention of Denison Mines Limited was drawn to the area by Mr. A. Berglund, a prospector for Denison Mines Limited. The property was viewed by the author and Mr. J. S. Scott in June, 1961, and as a result a total of 21 claims and fractions were staked. They are as follows:

Emil Nos. 1, 2, 3, 4, 5, 6, 7, 8 mineral claims  
Lew Nos. 1, 2, 3, mineral claims  
Lew Nos. 1, 2, 3, 4, 5 fractional mineral claims  
Pal Nos. 1, 2, 3, 4, mineral claims  
Pal No. 1 fractional mineral claim.

In addition 3 mineral claims (Diamond Belle, Black Bear and Ethel) were optioned from Mr. J. Gould of Houston, B.C. A thorough examination of the property was subsequently made of the above claims except for the Pal Nos. 1, 2, 3, 4 and Pal No. 1 fraction.

## TOPOGRAPHY

The area along the north-east side of Owen Lake (elevation 2450 feet) consists of steeply rolling range and grasslands. Total relief is in the order of 900 feet. At the west end of Owen Lake an elevation of 7065 feet is attained on Mount Nadina.

Numerous streams are present, the majority of which dry up during the summer months. A well developed soil cover supporting a luxuriant growth of grasses occupies the area concerned.

*nd*

# GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL REPORT

## OWEN LAKE AREA, OMINECA MD., B. C.

3.

### SCOPE OF EXAMINATION

Between September 2nd and October 3rd, 1961, an examination of the property was made using geological, geophysical, and geochemical methods.

A base line was established, bearing N50°W, for a length of 6600 feet. Cross lines were cut normal to the base line at 400 foot intervals. Pickets were marked with the co-ordinates and put in at 100 foot intervals along the cross lines. Co-ordinates read north and south from the base line and east and west from cross line 0+00. The Cole shaft was used as a permanent reference point, occurring on line 0+00 at 1100 feet north.

All mapping and surveys were conducted using this grid system.

### GEOLOGY

A detailed report on the geology of the Owen Lake area is published in the Geological Survey Summary Report 1929, Part A, by A. H. Lang; Briefly the picture is as follows:

The Owen Lake area is underlain by a series of andesite porphyries and associated tuffs and breccias of Jurassic age. A few remnants of an overlying sequence of sediments (argillites and graywackes) occur to the west. A microdiorite stock intrudes the Jurassic rocks a short distance northeast of Owen Lake. Tertiary basalts unconformably overlie the volcanics east of Owen Lake.

The Owen Lake Valley has been glaciated and is covered by a mantle of glacial till.

Pleistocene	glacial till
Tertiary	basalts
Probable post Cretaceous	microdiorite stock
Upper Cretaceous	argillite, graywacke
Jurassic	volcanics, andesite porphyry, tuffs and breccias

The microdiorite stock is nearly circular in outcrop. It is believed that the top of the stock is exposed (due to the several inclusions of volcanics and the micro-porphyrific

# GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL REPORT

OWEN LAKE AREA, OMINECA M.D., B. C.

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## GEOLOGY (cont'd)

texture of the diorite).

The diorite often exhibits an alteration (an increase in iron and magnesia, with a decrease in silica and alumina) referred to as propylitization by Lang.

The area concerned in this report is located over the microdiorite stock. Few outcrops are present on the property but andesite porphyry was observed south-east of Emil Lake. Two small outcrops of argillite occur near co-ordinates 54+00W, 1500 S.

A fault likely exists through the canyon formed by Wrinch Creek. Lang cites evidence that movement along the fault has apparently offset veins found on either side.

## MINERALIZATION

Mineralization occurs in fractures and vein zones, striking from N10°W. Generally two types of mineralization is recognized; chalcopyrite-sphalerite and sphalerite-galena. Silver and occasional gold values are associated with the chalcopyrite. Gangue minerals are mainly carbonates, quartz, chalcedony and barite. Lang believes the mineralization to be epithermal.

Wall rocks adjacent to the veins have been altered by propylitization.

The veins are sinuous and often offset by faulting. They have been observed to pinch out along strike.

The best known mineralization occurs in the Silver Queen or Wrinch Vein system in vicinity of the Wrinch Creek fault. Movement along the fault likely opened existing fractures and joints in the microdiorite or caused tension fractures and feather joints to occur, forming a loci for the deposition of the ore minerals.

Numerous trenches are present on the Diamond Belle and Black Bear mineral claims. Recent stripping has been done on discontinuous rusty zones of no apparent attitude.

An assay plan published in the Minister of Mines Report 1924, of the No.4 drift east on the Wrinch vein system indicates



GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL REPORT

OWEN LAKE AREA, OMINECA M.D., B. C.

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MINERALIZATION (cont'd)

150 feet of ore averaging 0.103 oz per ton gold, 10.6 oz per ton silver, 2.9% copper, 1.2% lead, 5.3% zinc, with an average width of 4.0 feet.

GEOPHYSICS

In September, 1961, a spontaneous polarization survey was conducted on the property for Denison Mines Limited by Mr. J. Sirola of West Vancouver, B. C. His report for Denison Mines Limited is appended.

Readings were taken at 50 foot intervals over the aforementioned grid system. Two non-polarizing electrodes were used connected by cable to a millivoltmeter with a five megohm input impedance. Holes were dug to insure proper contact. In areas of dry soil conditions, water was first applied to the point of contact prior to determining the reading. Corrections were made for electrode error and the affect of watering.

The base line was surveyed first, zero potential was at 32+00 west on the base line. All cross lines were subsequently tied together through the base line survey.

From the results of this broad survey, seven anomalies were indicated. Short closely spaced grid lines were established to detail them using a local tie line.

Only two of the seven anomalies exceeded -100 millivolts and could be considered as indications of possible mineralization.

- (a) An anomaly of -139 millivolts at 1100 south on line 1#00 west. Possibly associated with a reading of -44 millivolts obtained 100 feet east on line 0+00.
- (b) A prominent anomaly occurs at 2150 south on line 0+00. It strikes S72°E and coincides with a geochemical anomaly. It probably represents sulphide mineralization.

No indication was obtained over the Cole vein.

*J. A. S.*

# GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL REPORT

OWEN LAKE AREA, OMINECA M.D., B. C.

6.

## GEOCHEMISTRY

A geochemical survey was carried out over the claims using the established grid system. Approximately 900 soil samples were collected at 100 foot intervals along the grid lines. The samples were packaged in polythene bags and labelled according to their co-ordinates.

Analysis of the samples for copper and zinc values was conducted at the University of British Columbia, under the direction of Dr. H. V. Warren. A hot sulphuric acid attack was used to extract the metal content.

Due to consistent low metal content of the samples taken from the western half of the property, together with negative spontaneous polarization results, some samples from the north-west corner of the property were not assayed.

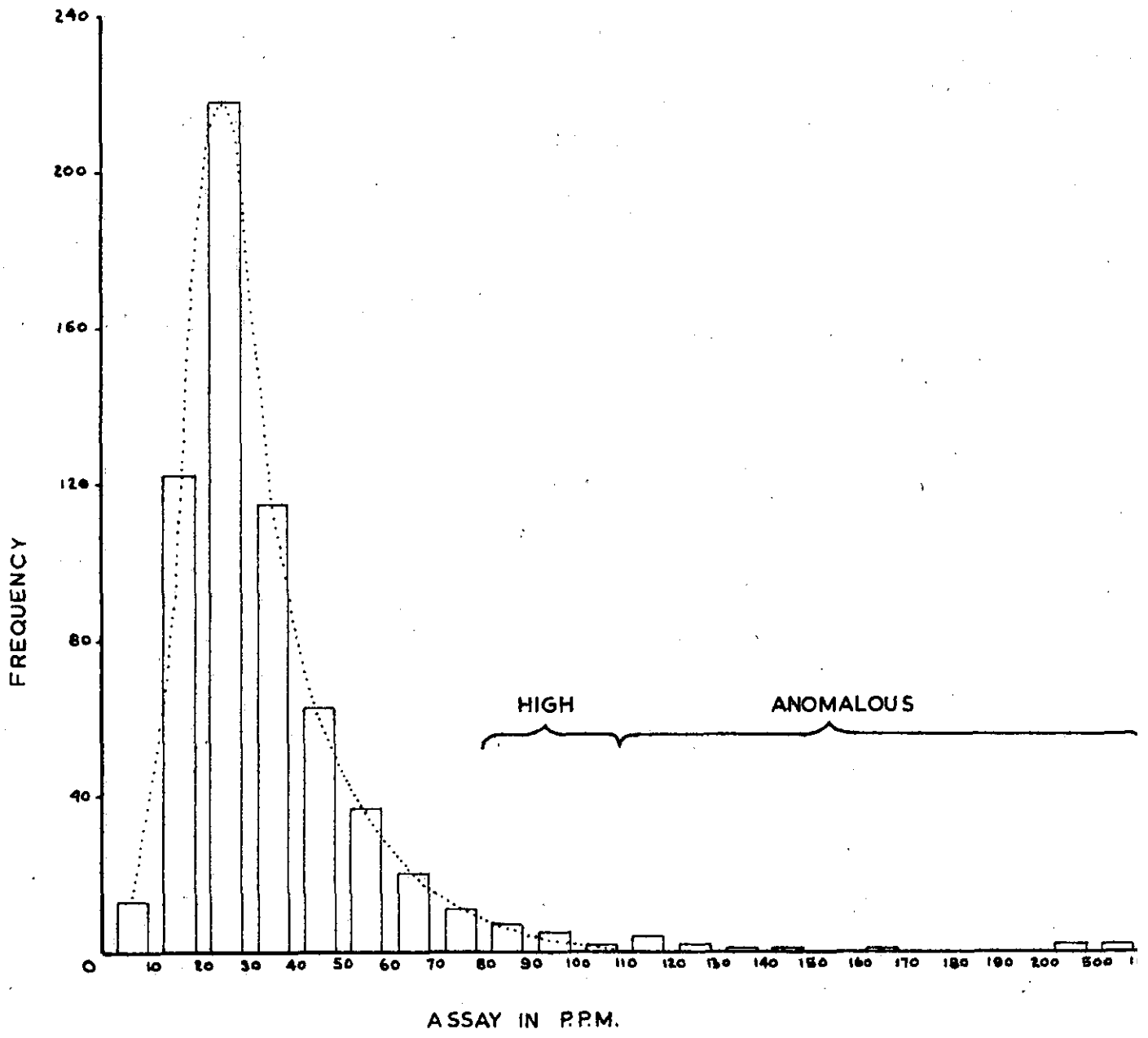
All values were plotted in graph form according to frequency of occurrence and numerical value. The results conform to the pattern for a normal distribution curve. Using this criteria, all zinc values of 110 parts per million or greater, and all copper values of approximately 13 parts per million or greater, can be considered as anomalous values. Similarly zinc values of 80-109 parts per million, and copper values of 5-12 parts per million can be considered as high values.

Relating these divisions to the indication of mineralization one could associate the anomalous values to the "probable" occurrence of mineralization and the high values to the "possible" occurrence of mineralization.

With this in mind the following structures are indicated:

- (a) Near the southern boundary of the Ethel M.C., striking N70°W, indicated length approximately 1000 feet, a "probable" mineralized vein. It intersects line 8+00 east at 1900 south, and line 0+00 at approximately 2200 south. The presence of this structure is confirmed by a coincident S.P. anomaly. It is quite likely that this vein is the same as in the No.4 drift east in Wrinch Canyon.
- (b) Approximately 1000 feet north of (a) striking N60°W, a "probable" mineralized vein. Indicated length is approximately 2000 feet. It intersects line 12+00 east at 800 south, and line 8+00 west at 1200 south.





<b>DENISON MINES LIMITED</b>		
EXPLORATIONS DIVISION		
PROPERTY	OWEN LAKE AREA	
LOCATION	OWEN LAKE B.C.	
MAP TITLE	ZINC ASSAYS, GEOCHEMICAL SURVEY	
SCALE	DRAWN BY GNW	PROJECT.
DATE JAN 9 1962	APP'D BY <i>J. Smith</i>	DWG.

GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL REPORT

OWEN LAKE AREA, OMINECA M.D., B. C.

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GEOCHEMISTRY (cont'd)

- (c) A "possible" extension of a vein exposed in a trench near the intersection of the base line with line 0+00. Strike is N30°W, possible length approximately 1500 feet. It passes through line 0+00 at the base line and line 12+00 east at 400 south.

No anomalous values were encountered in the vicinity of the Cole vein.

CONCLUSIONS AND RECOMMENDATIONS

Three anomalies have been located by geophysical and geochemical methods. These anomalies occur almost entirely on the Black Bear and Ethel mineral claims which Denison Mines Limited hold under option from Mr. J. Goold of Houston, B. C.

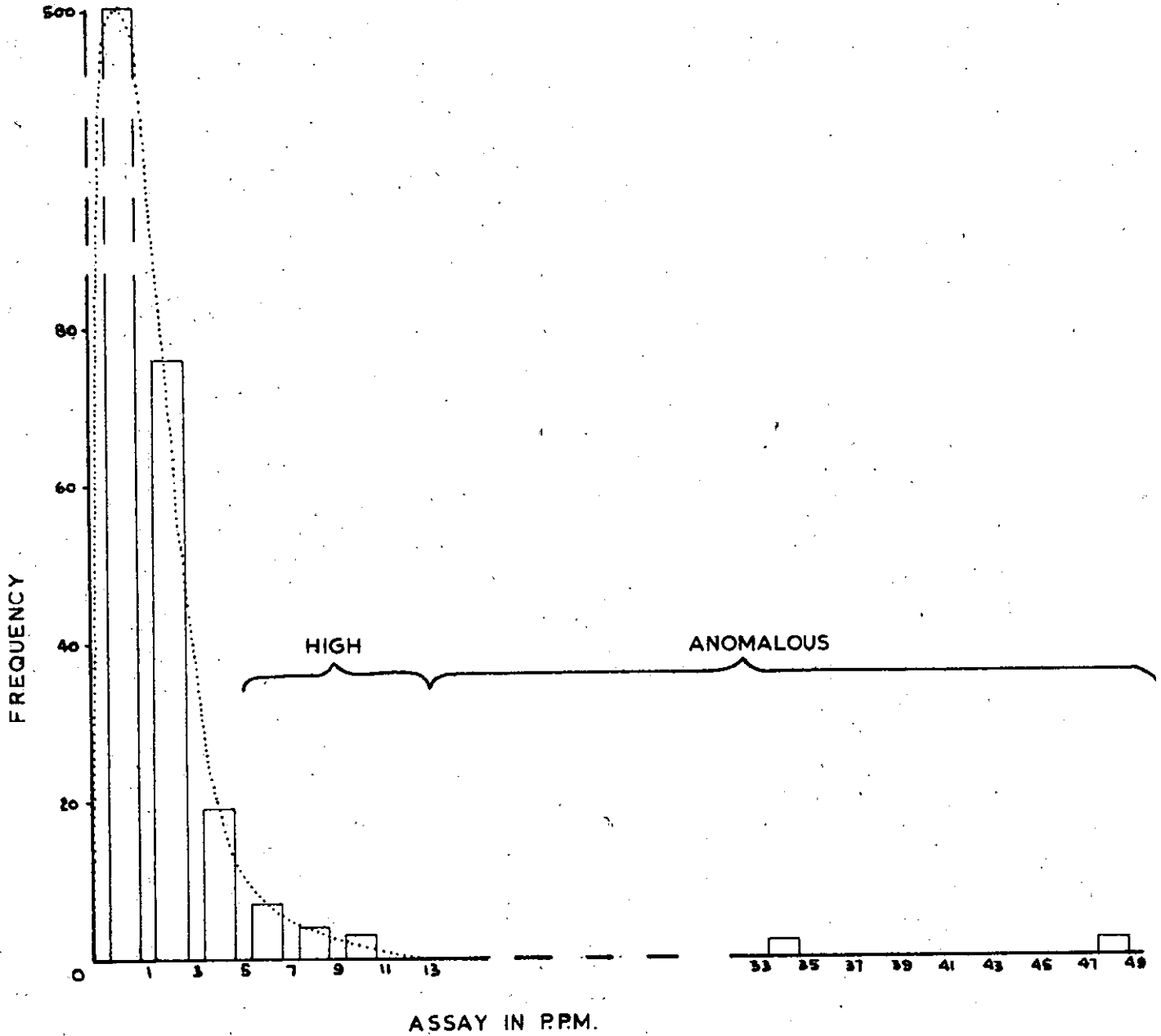
The most northerly anomaly occurring on line 0+00 at the base line is exposed in an old trench. A channel sample taken across a six foot width assayed 0.04 oz gold, 3.3 oz silver, 3.85% lead and 0.83% zinc. This vein is of the sphalerite-galena type and therefore not expected to carry important gold and silver values.

The strongest and most important anomaly occurs near the southern claim boundary and is likely the same vein that is exposed in the Canex, No.4 drift east, collared in Wrinch Canyon, and containing encouraging values in gold, silver and copper. This vein is of the sphalerite-chalcopyrite association. Approximately 1000 feet of this vein occurs on Denison Mines Limited ground and 1800 feet on Canex ground.

In order to support a profitable mining and milling operation, considerably more tonnage must be indicated. The possibility of locating additional mineralization on Denison Mines Limited ground is slight. Kerr-Addison has indicated that little encouragement could be had from S.P. surveys made on their claims adjoining Denison Mines Limited to the east. The metal content of the Canex property, which adjoins Denison Mines Limited to the south and west is not known but is not believed to be sufficient.

On this basis it is recommended that the Goold option be terminated and no further work be undertaken.





<b>DENISON MINES LIMITED</b>		
EXPLORATIONS DIVISION		
PROPERTY	OWEN LAKE AREA	
LOCATION	OWEN LAKE B.C.	
MAP TITLE	COPPER ASSAYS, GEOCHEMICAL SURVEY	
SCALE	DRAWN BY GNW	PROJECT
DATE JAN 9 1962	APP'D BY <i>[Signature]</i>	DWG.

GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL REPORT

OWEN LAKE AREA, OMINECA M.D., B. C.

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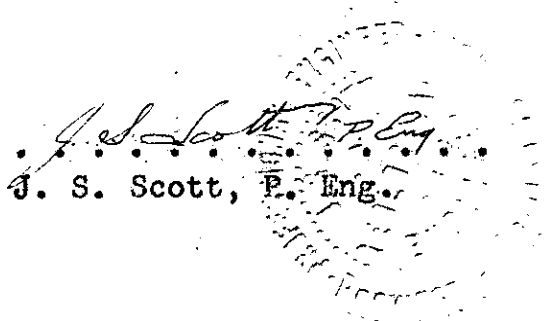
REFERENCE

1. Annual Report Minister of Mines, 1924.
2. Annual Report Minister of Mines, 1929.
3. Owen Lake Mining Camp by A. H. Lang, Summary Report 1929, Part A, Geological Survey.

*G. N. Woollett*  
.....  
George N. Woollett

Vancouver, B.C.  
January 12th, 1962

*J. S. Scott, P. Eng.*  
.....  
J. S. Scott, P. Eng.



APPENDIX "A"

COPY OF REPORT

ON

A SPONTANEOUS POLARIZATION SURVEY

OF

THE OWEN LAKE PROPERTY

OF

DENISON MINES LTD.

BY

J. SIROLA, GEOPHYSICAL CONTRACTOR

C O P Y

REPORT  
ON  
A SPONTANEOUS POLARIZATION SURVEY  
OF  
THE OWEN LAKE PROPERTY  
OF  
DENISON MINES LTD.  
HOUSTON, B.C.

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INTRODUCTION

The Owen Lake area has attracted the attention of mine seekers since 1912. In that year the first find was made in Wrinch Canyon by James Holland, a member of a land survey party. Subsequent activity between 1912 and 1928 resulted in mineral discoveries and development work on the Chisholm and Diamond Belle properties. Drifiting was done on some of the veins in the Wrinch Canyon in 1923 by the Federal Mining and Development Co. In 1928, F.H. Taylor organized the Owen Lake Mining and Development Co. and bonded the Silver Queen, Diamond Belle and Midnight (Chisholm) groups. The Cole shaft was sunk on the Diamond Belle and a long adit was started from the west side of Mine Hill with a northeasterly heading to intersect the Wrinch Canyon veins. This adit which is approximately half a mile in length reached its objective in the winter of 1929-30. Many veins are said to have been encountered unexpectedly in the adit some of which carried encouraging values in gold and silver as well as lead, zinc and copper minerals. Some veins were reported to be of mining width but were difficult to follow owing to the complexity of faulting encountered. Work was discontinued and this property was later acquired by the Canadian Exploration Co. of Vancouver.

Very little work appears to have been done from 1930 to 1959. In 1959 a self-potential survey was carried out on the Owl claims owned by W. MacGowan of Vancouver. This was followed by stripping of some of the anomalies by bulldozer.

In the spring of 1961 Denison Mines Ltd. staked claims on the east and west sides of the Diamond Belle, Black Bear and Ethel claims and optioned the latter three from J. Goold of Houston. A self-potential survey, geological survey and soil sampling program were conducted in September of the same year.

The principal centre of interest geologically, in this area, is a diorite stock a little more than a mile in diameter which has intruded volcanic rocks. The occurrence lies in the transition zone east of the Coast Range Batholith. The

diorite has been sheared and fractured and the shears frequently contain vein material and sulphides. Banded veins of quartz, rhodocrosite and barite contain, principally, either galena and sphalerite and pyrite or chalcopyrite, galena and pyrite. Gold and silver are found in some of the veins especially in the latter type. Areas of intense alteration (propitilization) have been observed in the diorite particularly near its contacts but also near veins well within the stock.

### THE PROPERTY

The property on which the survey was performed comprises the following mining claims:

Emil No. 1, 2, 3, 4, 5, 6, 7, 8	= 8
Lew No. 1, 2, 3	= 3
Lew Fractions 1, 2, 3, 4, 5,	= 5
Diamond Belle L1684H	= 1
Black Bear L1685H	= 1
Ethel 7363H	= 1

Total 19 mining claims

### LOCATION AND ACCESS

The property is situated on the east side of Owen Lake approximately thirty miles south of Houston, B. C. It is accessible by gravel road from Houston on the north or from Burns Lake on the east via Francois Lake.

### TOPOGRAPHY

The area is one of moderate relief. The elevation at Owen Lake is 2450 feet, while the elevation of the highest point on the property is 3480 feet.

### THE SURVEY GRID

With the Cole shaft as a permanent reference point, a transit line was run southwesterly a distance of 1100 feet on a bearing of N-39°-20'E. The base line was started from this point 1100 feet southwest of the Cole shaft and run on a bearing of North N-50°-30'W for a distance of 6600 feet. It crosses the water on George Lake near the north shore. The base line also runs southeasterly on the same bearing 2000 feet from the starting point. Cross-lines were established perpendicular to the base line at 400 foot intervals. These were picketed and chained and the chainage marked on pickets set at 100 foot intervals. All points on the grid are identified as either west or east of the zero reference

line and either north or south of the base line except where the points are on the zero line or base line. Thus a point in the northwest quadrant might be identified on the pickets as 8W - 5N, a point in the southeast quadrant as 8E - 5S, or a point on the west portion of the base line as BL - 12W.

### GEOPHYSICAL SURVEY

The spontaneous polarization survey was conducted on the fore-mentioned grid. Non-polarising electrodes were used and connected by cable to a millivoltmeter with a 5-megohm input impedance. The reading interval was fifty feet. Holes were dug to ensure contact with moist earth. Watering of the holes became necessary in the eastern portion of the grid because of the extremely dry state of the overburden. Corrections were made for electrode error and for the effect of watering.

The base-line was surveyed first and formed the datum for the cross-lines, zero potential being at 32+00 west on the base-line. Anomalies resulting from a survey of the reconnaissance grid were subsequently surveyed on more closely spaced grids using a local datum.

### RESULTS OF THE SURVEY

That portion of the survey west of line 4+00 west revealed no significant anomalies with one exception. At 1500 feet south on line 54 west a negative potential of 40 millivolts was recorded. Subsequent detail work showed a lesser anomaly at the same point with no improvement on other lines. Outcrops in the vicinity reveal a fine-grained siliceous rock containing disseminated magnetite.

More definite response was observed on lines 400 west, 0 and 400 east. The anomalies are shown on the detail plan accompanying this report. Traverses across the Cole vein and the showing at the base line on line 0 showed little if any difference of potential.

### INTERPRETATION

Of the seven anomalies on which detail work was performed only two exhibit potentials exceeding -100 millivolts. The remainder are from 50 to 72 millivolts and one is less than 50 millivolts. Of the latter group very little can be said. They appear to conform with observed trends and some occur in the vicinity of known mineralization. They may represent minor mineralization or formational contacts.



They occasionally lead to the discovery of larger anomalies as was the case on a neighbouring property or, in conjunction with other information, may prompt further investigation. The 91 millivolt reading at 850 feet south on line 'O' coincides with a bulldozer cut which was probably made along a vein or mineralization of interest at the time. An anomaly of -44 millivolts appears at 1100 south on line 'O' and one of -139 millivolts 100 feet west on line 1 west. This suggests a southeast strike but at line 2 west there is very little indication of continuity.

The most prominent anomaly appears at 2150 south on line 1 east with a maximum reading of -145 millivolts. The anomaly has a strike of S-72-E and the 100 millivolt contour encloses a length of 325 feet. It probably represents sulphide mineralization in a zone which extends into the property on the west. It does not appear to be of sufficient length to have commercial possibilities.

It is interesting to observe that the principal sulphide showings and the S.P. anomalies occupy a zone approximately 1000 feet wide with its long axis having a northeast-southwest direction. The possibility of structural control by northeast-trending faults is suggested.

#### CONCLUSIONS

1. The survey disclosed a number of minor anomalies none of which appear to warrant further work.
2. The self-potential method did not show significant response over the Cole vein nor a lead-zinc-pyrite vein on the base-line at 0+00.
3. The Cole vein, the mineralization at 0+00 on the base-line and the S.P. anomalies lie in a zone approximately 1000 feet wide. This suggests the possibility that mineral deposition was influenced by pre-mineral faults with a northeast-southwest strike.

#### RECOMMENDATIONS

No follow-up work can be recommended on the basis of the geophysical results. The geophysical, geochemical and geological results should be studied collectively. If promising

C O P Y

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geochemical results are obtained or if favourable geological structures are indicated further work may be in order. In that event the nature and amount of work should be decided from the combined results. In the absence of encouragement from geological and geochemical surveys, little basis remains for further expenditures.

Respectfully submitted

(sgd) John Sirola

John Sirola  
Geophysical Contractor

West Vancouver, B.C.  
October 20th, 1961.

References:

A.H. Lang, GSC Summary Report 1929  
Part A, Owen Lake Mining Camp.

APPENDIX "B"

STATEMENT OF QUALIFICATION  
OF  
J. SIROLA  
GEOPHYSICAL CONTRACTOR

JOHN SIROLA

Geophysical Contractor

Summary of Qualifications and Experience

Haileybury School of Mines, Haileybury, Ont.,  
Four years mining, exploration and related subjects.  
Graduated in 1931.

1931-1943. Practical experience in various phases of  
mining exploration, mainly geophysical surveys. Some  
experimental work and equipment design.

1943-1945. RCAF, Electronics, Lab and field work.

1945-1954. Geophysical exploration in Ontario and  
Quebec. Also experimental work surface and underground,  
in Cobalt Area in search of geophysical methods to locate  
small, high-grade, silver veins.

1954-1958 Operated private firm "Exploration Geophysics"  
conducting ground and air surveys. During this period  
developed and tested a geophysical method of locating  
silver veins in underground workings.

1958 - 1962 Geophysical contracting in B.C. also  
research and development.

2226 Mathers Ave.  
West Vancouver, B.C.

*John Sirola*

John Sirola.

APPENDIX "C"

STATEMENT OF COSTS  
OF  
SURVEY

DOMINION OF CANADA:  
PROVINCE OF BRITISH COLUMBIA.

In the Matter of

To WIT:

I, J. S. Scott

of 515 - 402 West Pender Street, Vancouver,

in the Province of British Columbia, do solemnly declare that the following costs were incurred on a geological, geophysical and geochemical survey of the Emil Nos. 1 to 8 (inclusive) Mineral Claims, Lew Nos. 1, 2, 3 Mineral Claims, Lew Nos. 1, 2, 3, 4, 5 Fractional Mining Claims, Diamond Belle, Black Bear and Ethel Mining Claims:

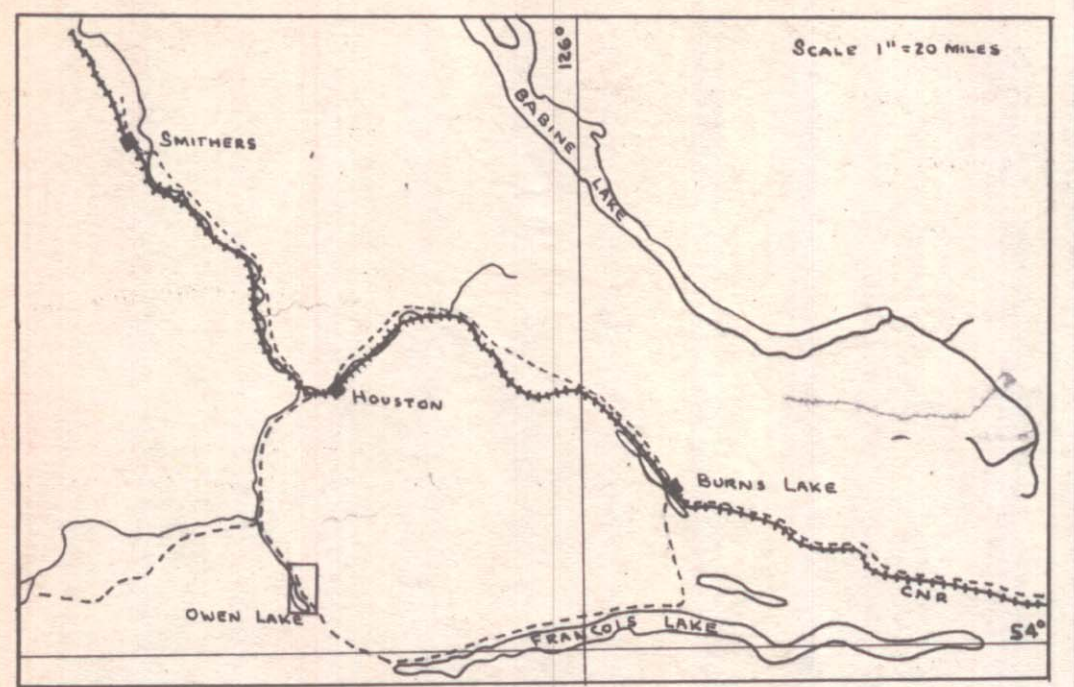
Supervisor - 5 man days @ \$35.00	\$175.00
Geologist - 30 man days @ \$20.00	\$600.00
Geophysics -	
line cutting, chaining, picketting-33 man days @ \$15.-	\$484.00
helper - 22 man days @ \$12.00	264.00
21.5 line miles of S.P. survey at \$50/mile	<u>1075.00</u>
	\$1824.00
Geochemistry -	
line cutting, chaining, picketting-33 man days @ \$15.-	\$484.00
sampling - 20 man days @ \$15.00	300.00
661 soil samples analyzed @ 70¢	<u>462.70</u>
	\$1246.70
Vehicle rental -	
2 vehicles for one month-\$250.00 and \$300.00	\$ 550.00
	<hr/>
Total Cost	<u><u>\$4395.70</u></u>

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the *City*  
of *Vancouver*, in the  
Province of British Columbia, this *2*  
day of *Feb* *1962*, A.D.

*J. S. Scott*

*Jill Surprenant*  
Sub-Mining Recorder  
A Commissioner for taking Affidavits within British Columbia or  
A Notary Public in and for the Province of British Columbia.


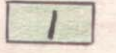


394 Map 1





Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 394 MAP 1

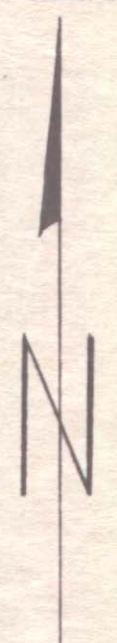
(M)

GEOLOGY

-  APPROX. OUTLINE MICRODIORITE
-  ANDESITE PORPHYRY

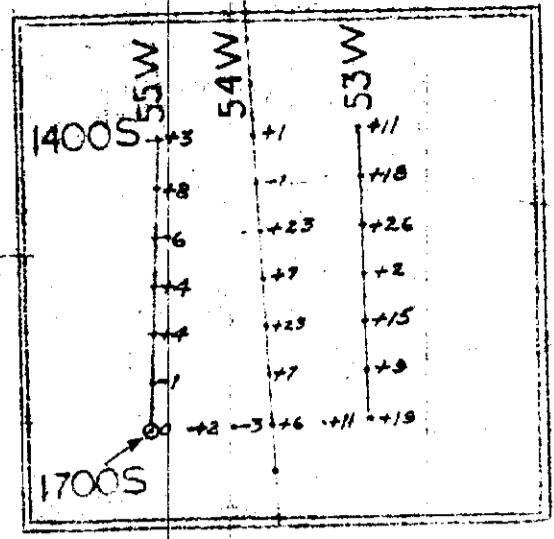
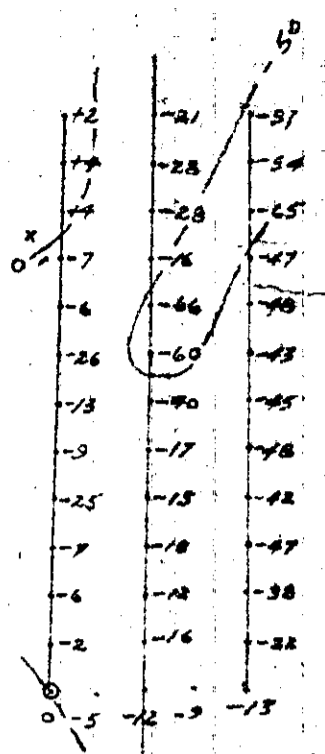
LEGEND

-  VEIN
-  DENISON ANOMALY
-  SHAFT
-  ADIT



*J. H. Smith*  
January 19, 1962

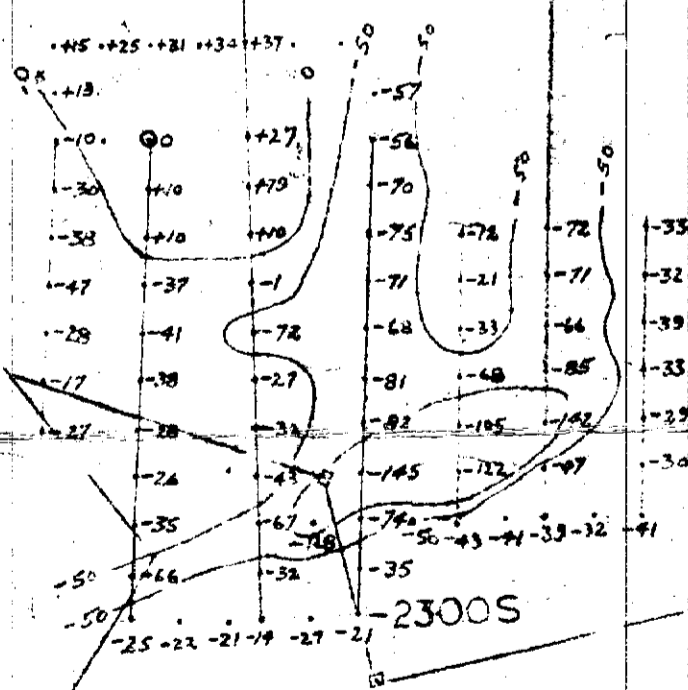
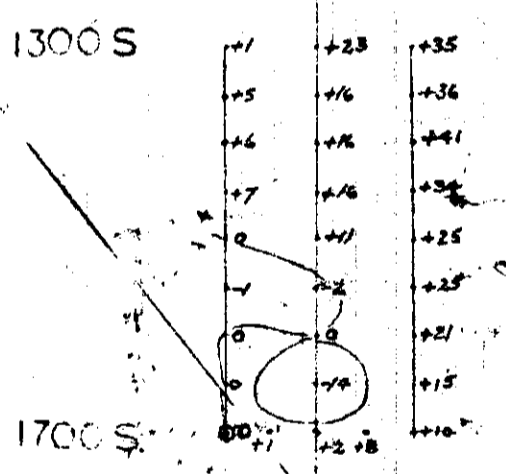
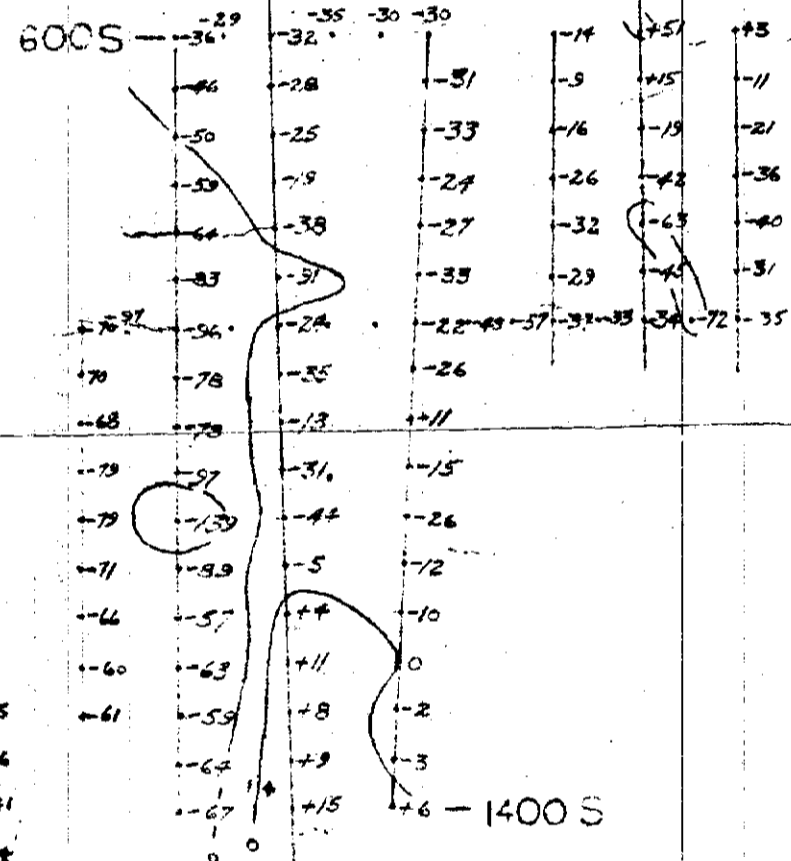
<b>DENISON MINES LIMITED</b>		
EXPLORATIONS DIVISION		
PROPERTY	OWEN LAKE	
LOCATION	OMINECA M.D.	
MAP TITLE	GEOLOGY	
SCALE	1" = 1000'	DRAWN BY
DATE	JAN. 11, 1962	APPRO. BY
		REVISED
		BY
		PROJECT
		ENGINEER



BASE LINE

4W

4E



394  
Map 2

DENISON MINES LTD.  
OWEN LAKE PROPERTY  
HOUSTON, B.C.

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 394 MAP 2

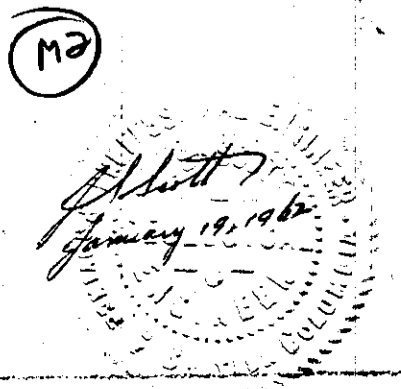
SPONTANEOUS POLARIZATION SURVEY

DETAIL OF ANOMALOUS AREAS

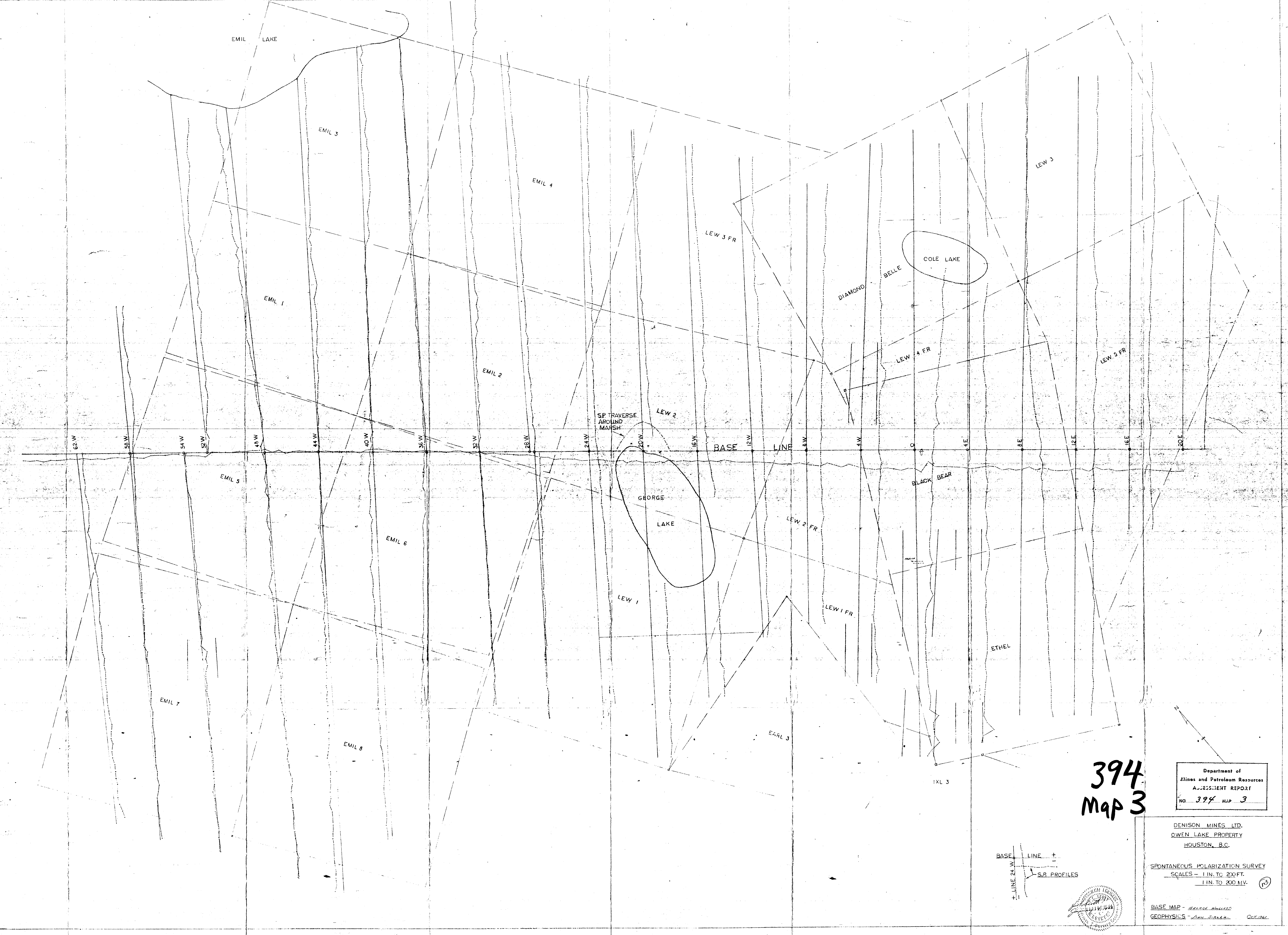
SCALE — 1 IN. TO 200 FT.

POTENTIALS IN MILLIVOLTS

JOHN SIROLA  
OCT. 1961







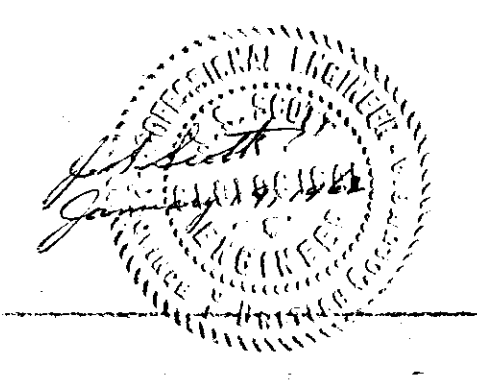
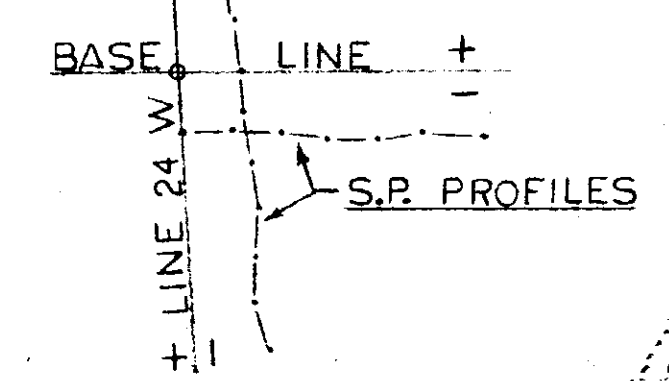
394  
Map 3

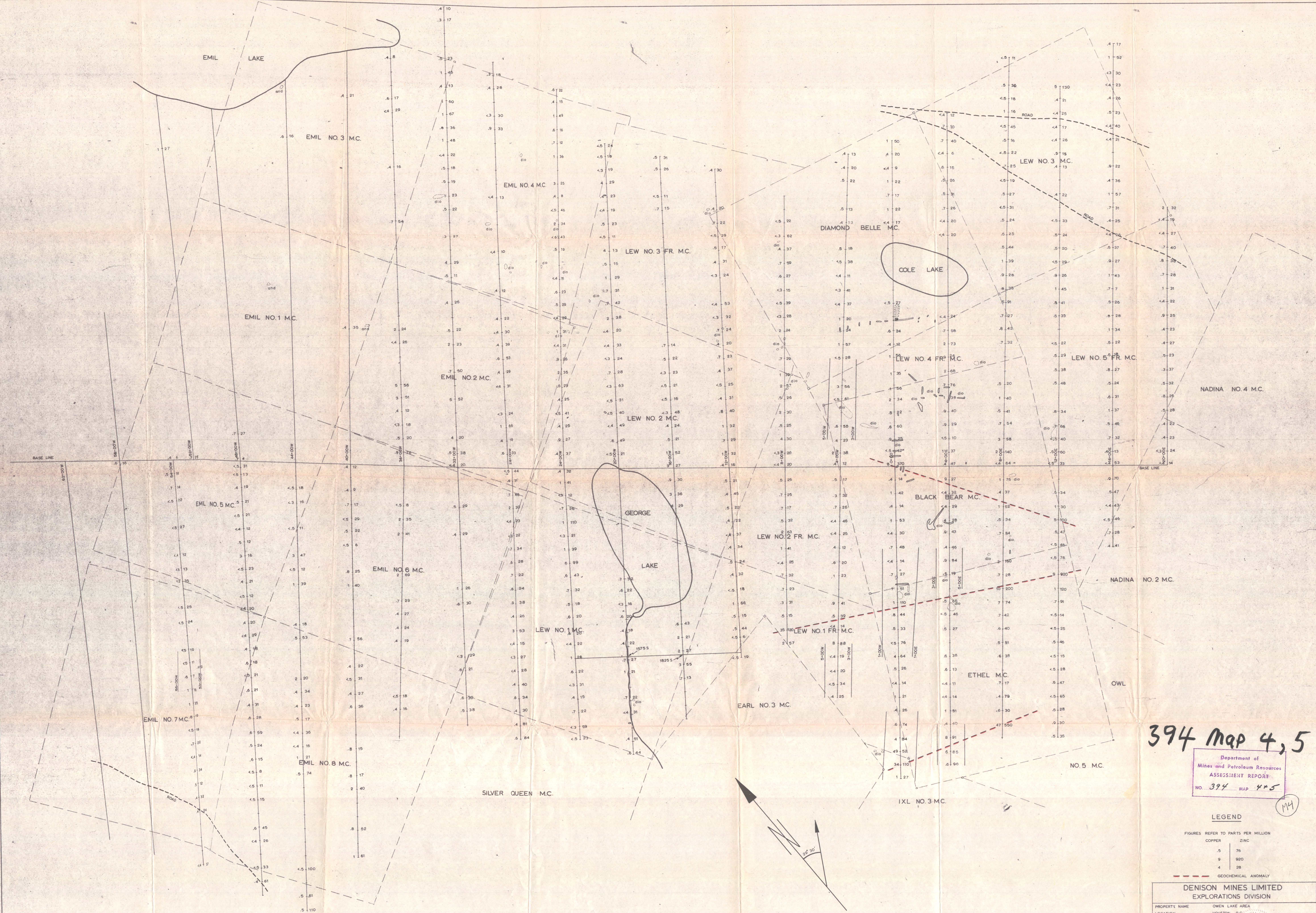
Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 394 MAP 3

DENISON MINES LTD.  
OWEN LAKE PROPERTY  
HOUSTON, B.C.

SPONTANEOUS POLARIZATION SURVEY  
SCALE - 1 IN. TO 200 FT.  
1 IN. TO 200 MV.

BASE MAP - GEORGE MULLER  
GEOPHYSICS - BOB DALLAN  
OCT 1961





394 Map 4, 5

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 394 MAP 4\*5

LEGEND

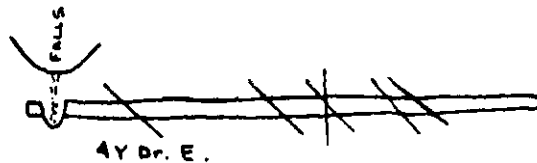
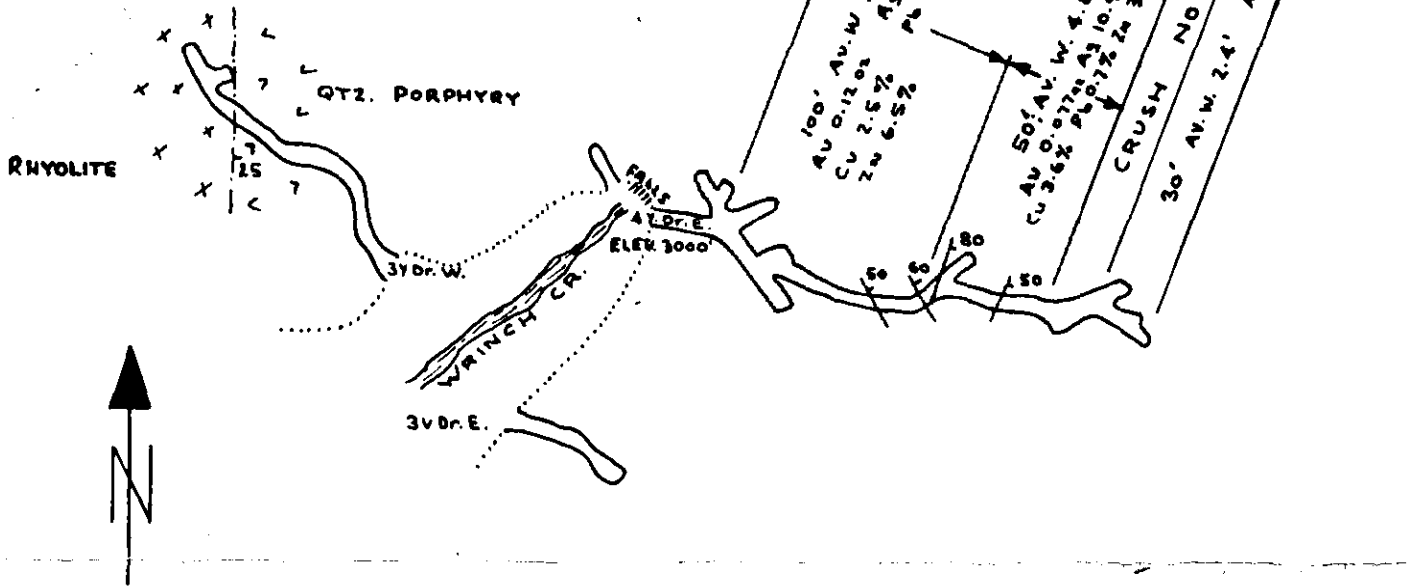
FIGURES REFER TO PARTS PER MILLION	
COPPER	ZINC
.5	76
9	920
4	28

DENISON MINES LIMITED  
EXPLORATIONS DIVISION

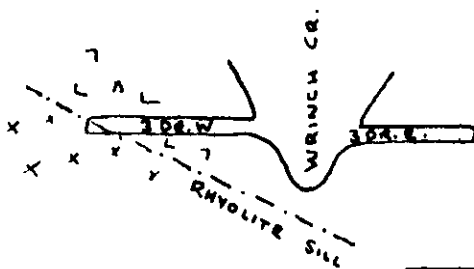
PROPERTY NAME	OWEN LAKE AREA
LOCATION	HOUSTON B.C.
MAP TITLE	SOIL SAMPLE ASSAY PLAN AND GEOLOGY
SCALE	1 in. = 200 ft.
DATE	DEC 23 1961
DRAWN BY	G. WOLLETT
PROJECT	EX 421
APP'D BY	DWG.

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT

NO. **394** MAP **6**



**394**  
**Map 6**



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RESIDENT MINING ENG., HAZELTON B.C.  
MINISTER OF MINES REPORT 1924

**DENISON MINES LIMITED**  
EXPLORATIONS DIVISION

PROPERTY SILVER QUEEN, TYEE, M.C.  
LOCATION OWEN LAKE, B.C.  
MAP TITLE ASSAY PLAN AND SECTION

SCALE 1" = 80'  
DATE DEC. 18 / 61

DRAWN BY GNW  
APP'D BY *J. Galloway*

PROJECT  
DWG.

(MS)