# GEOPHYSICAL REPORT

of the

# GROUND MAGNETOMETER SURVEY

on the

GRASSLAND BONANZA MINERAL CLAIM

MERRITT, B.C. AREA

NICOLA MINING DIVISION

Longitude: 120°34'W Latitude: 50°02'N

N.T.S. 92I/2W

on behalf of

QUINTANA MINERALS CORPORATION

| CLAIM NAME | RECORD NO. | ANNIVERSARY |
|---|---|---|
| Grassland Bonanza | 122 | June 24 |
| Axedental | 121 | June 24 |

PART 2

by:

P.P. NIELSEN, B.Sc., GEOPHYSICIST

NIELSEN GEOPHYSICS LTD.

VERNON, B.C.

July, 1977

6333

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## INTRODUCTION

During the period from April 19 - 22, 1977, a ground magnetometer survey was executed over the Grassland Bonanza mineral claim located near the headwaters of Quilchena creek southeast ot the town of Merritt, B.C.

The work was carried out by Nielsen Geophysics Ltd. on behalf of Quintana Minerals Corporation in an attempt to assist in the geological mapping of the overburden covered property.

A total of six man-days was required to install the grid and to complete the magnetic survey.

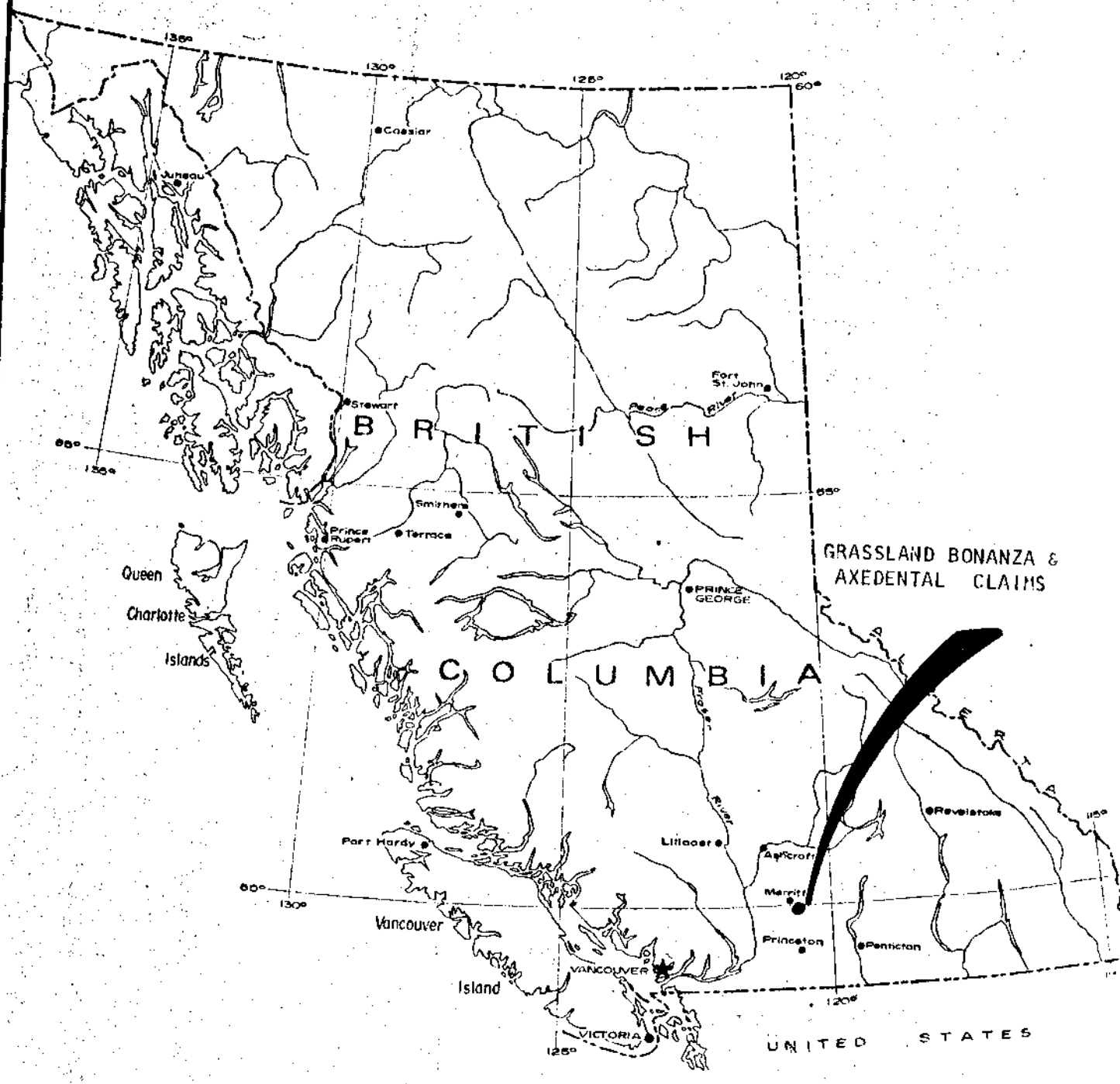
The grid consisted of a Baseline and five crosslines (each 2 Km.long) and one traverse at the south end of the property resulting in a total of 12.3Km. of line being surveyed.

## LOCATION AND ACCESS

The property is accessible by a dirt road easterly from a point 9 miles south of Merritt on Highway #5. One proceeds easterly for about 5 miles to the Quilchena Reserve main road and thence south on this road for about 4 miles until the southern boundary of I.R. No.7, which is marked by a fence, is met. This fence also forms the north boundary of the property.

A local dirt road transects the property from North to South.

Co-ordinates are Longitude: 120°34'W; Latitude: 50°02'N.




PROPERTY LOCATION MAP

SCALE: 1 " = 100 mi.

## TOPOGRAPHY AND GROUND CONDITIONS

The property is situated on a broad, gently rolling plateau with a range in elevation from 3,000 feet to 3500 feet A.S.L. (ie. 915 - 1067 meters). The Quilchena River valley occurs to the east of the claim and the higher hills border the claim to the west.

Vegetation consists of grasses and a few poplar groves resembling a parkland physiography.

## GRID INSTALLATION

The grid was installed using the chain and compass method with wooden survey stakes driven at a 200 meter station interval. Orange flagging was tied to grass clumps or tree branches at a station interval of 50 meters.

A baseline was run north-south through the center of the claim for a length of 1300 meters. Five crosslines with an interline spacing of 300 meters were turned off the baseline, running 1000 meters in each direction resulting in a total of 11.3 km. of grid lines.

GENERAL GEOLOGY (after W.E. Cockfield & C. Kowall)

The property is shown on the G.S.C. map #886A (Nicola) to lie within a narrow north trending belt of Upper Triassic to Lower Jurassic, basic to intermediate volcanics intruded in places by co-eval plutons known to host porphyry copper deposits in the area.

Locally, these rocks are overlain by tertiary sediments and volcanics and by glaciofluvial cover. One outcrop has been observed on the claim and consisted of Nicola volcanics. Several pieces of float containing chalcopyrite, malachite, and pyrite mineralized Nicola adesites have been found and outcrops of Nicola adesites to the northwest of the property exhibit propylitic alteration of epidote and calcite stringers with minor pyrite.

It would appear that the contact between the mineralized intrusive on the east and the mineralized sediments and volcanics to the west lies under the overburden covered Grassland-Axedental claims. This contact or a hidden intrusive is thought to represent a good porphyry or scarn-type copper exploration target.

## THE GROUND MAGNETOMETER SURVEY

### Comment:

A total of 12.3 km. was magnetically surveyed at a station interval of 50 meters resulting in a total of 251 readings having been taken. This includes the baseline and a 1 km. reconnaissance traverse along the south boundary of the claim.

### Instrument Used:

A McPhar Model 700 Fluxgate magnetometer was used to measure the relative variations in the earth's vertical magnetic field. It is hand held and levelled using a bubble level on the face of the instrument. Units of measurement are displayed on a meter in gammas. The instrument has five ranges and a polarity switch for a total range of ± 100,000 gammas (γ's).

### Treatment of the Data

The readings, time of readings, Station and Line number were recorded in a metal-free field book and transferred to a planimetric map for contouring after the diurnal and day-to-day corrections to the gamma values were made.

The scale of the values and contour map is 1"=137 meters (1"=448 feet) which happened to be the scale of the air-photo enlargement supplied by Quintana.

The values are contoured at an interval of 100γ's with areas below 600γ's shown "ticked" and areas in excess of 1000γ's "hachured". Prominent features such as roads, creeks, lakes, grid-lines, and claim lines are also included on this map.

## DISCUSSION OF RESULTS AND INTERPRETATION

The relative magnetic values vary from 230 ℽ's at Stn. 7+50W; Line 12S to a high a high of 1610 ℽ's at Stn. 7+00E; Line 0 for a maximum relief of 1380 ℽ's for the survey.

There appears to be a strong north-south magnetic trend which is due, in part at least, to the 6:1 grid bias caused by the sampling interval used. The choice of this sampling interval was affected by the budget available and by the knowledge that the regional strike of the rocks in this area is predominantly North-South.

Also of interest is that there is generally an inverse relationship between the magnitude of the magnetics and the elevation of the ground surface, (ie.the higher the elevation, the lower are the magnetic values). Local magnetic "lows" are observed at the base of some local hills, however.

Smooth, though dashed, contours are shown between L12S and L18S and it is suggested that had more survey lines have been run in this area, a much more complicated magnetic pattern would have resulted. L18S was run in an area of known basalt flows to aid in the interpretation of the main survey area.

The apparent changes in overburden thickness, the probable increase in thickness of the valley basalts towards the east, local eratic magnetic highs due to basaltic boulders and magnetic terrain effects make interpretation difficult, especially with the survey lines so far apart.

However, the only observed outcrop of Nicola andesite just north of L0; Stn. 4W suggests that those areas between 600 and 1000 's could be underlain by this rock-type. Areas below this level (ie., 600') could be represented by thicker overburden, Coldwater beds or, possibly, sub-outcropping acid intrusive rocks. The eastern one-third of the grid area (to the east of the 900' contour running from L0; Stn. 6+50E to L18S; Stn. 3+00E is thought to be mantled by valley basalt.

The long, narrow, magnetic high linear across the eastern portion of the grid could be due to a dike-like structure or a basalt-filled topographic depression. No faulting can be discerned from the magnetics.

## CONCLUSIONS AND RECOMMENDATIONS

It is thought that the magnetic survey has assisted in delineating rock-types to some degree although a great deal of ambiguity and speculation as to what underlies the property still remains. It is doubtfull if a more detailed survey (ie., smaller line-spacing) would add significantly to the knowledge of the property.

It is recommended that, if the property is to be drilled, a small Induced Polarization survey be carried out along existing grid lines from Stn. 10W to Stn. 6E prior to drilling to assist in keeping costs to a minimum. If no significant I.P. response is forthcoming then the property should be abandoned.

Respectfully submitted,

P.P. Nielsen, B.Sc., Geophysicist

## PERSONNEL

| | | |
|---|---|---|
| P.P. Nielsen, B.Sc., | - | Geophysicist, magnetometer operator and author of report. |
| R. Klanjscek | - | Line-cutter |

## STATEMENT OF COSTS

The following are the charges of Nielsen Geophysics Limited to carry out the work described in this report.

| | | |
|---|---|---|
| 1. | Grid Installation; 6.8 miles @ $45/mile | $ 306.00 |
| 2. | Magnetometer Survey; 7.4 miles @ $60/mile | 444.00 |
| 3. | Report and Administration | 320.00 |
| | TOTAL CHARGES | $1,070.00 |

I DO HEREBY STATE:

1. I am the author of this report and carried out the work described herein.

2. I have been actively and responsibly involved in all aspects of mining geophysics in Canada, the United States, Africa and Australia over the past 12 years.

3. I graduated with a B.Sc. degree in Geophysics from the University of B.C. in 1969

4. I am President of Nielsen Geophysics Ltd. with business address at #205 - 2910-30th Avenue, Vernon, B.C. V1t 2B7

5. I am a member of the S.E.G., CIMM and the B.C.G.S.

Signed P.F. Nielsen

Date July 20/77.

10W 8W 6W 4W 2W 2E 4E 6E 8E 10E

L.C.P.

GRASSLAND | AXEDENTAL

L 0

L 35 S

L 97 S

L 67 S

L 125 S

L 185 S

N

RIVER

QUILCHENA

6333

PART 2

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. _____

TO ACCOMPANY REPORT BY
P.P. Nielsen
P.P. NIELSEN, B.Sc., GEOPHYSICIST.

CONTOUR INTERVAL :- 100 γ
VALUES RELATIVE - VERT. COMPONENT
OF EARTH'S FIELD
UNKNOWN

INSTRUMENT :- McPHAR M-700
VERT. FLUXGATE

# QUINTANA MINERALS CORP.

GRASSLAND - AXEDENTAL CLAIMS
MERRIT AREA, B.C.

GROUND MAGNETOMETER SURVEY

VALUES & CONTOUR MAP
(IN GAMMAS)

MAP 1

NIELSEN GEOPHYSICS LTD
VERNON, B.C.

NICOLA M.D. 0 100 200 300 N.T.S. :- 92I/2W

DATE :- JULY '77 SCALE IN METERS DRAWN BY :- P.P.N.