

# 4562

94D/3E,6E  
GEOCHEMICAL & GEOPHYSICAL REPORT

ON THE

RED A, B, C, D, E GROUP OF CLAIMS

WHOLLY OWNED BY:

CANADIAN SUPERIOR EXPLORATIONS LTD.

CLAIMS: Red 1 - 53, 59, 61 - 95  
116 - 123, 125, 127, 129  
131, 133, 135, 137, 143,  
145 - 155, 157 - 198, 200  
202, 204, 206, 208, 210  
212 - 229, 232, 234 - 238  
240.

(RECORD NOS: 114551 - 70, 116173 - 205,  
118891, 893- 924, 948, 949,  
951, 953, 955, 957, 959, 961  
963, 969, 971, 973- 995, 998,  
11900 - 904, 906, 119236 - 288,  
290, 292, 294, 296, 298, 300)

LOCATION: 100 Miles N. of Smithers, B.C.  
50° N 126° W  
OMINECA MINING DIVISION.

PERIOD: June 3rd - July 5th.

<b>Department of</b>	
<b>Mines and Petroleum Resources</b>	
ADDRESS REPORT	
NO	4562
	MINE

TABLE OF CONTENTS

	<u>Page</u>
SUMMARY	1
INTRODUCTION	1
HISTORY & PREVIOUS TECHNICAL WORK	1a
GENERAL GEOLOGICAL SETTING	1a
GEOCHEMISTRY	
SAMPLE COLLECTION, PREPARATION AND ANALYSIS	2
DISUCSSION OF RESULTS	2
GEOPHYSICS	
INSTRUMENTATION AND SURVEY PROCEDURE	3
DISCUSSION OF RESULTS	3
INTERPRETATIONS AND CONCLUSIONS	5
APPENDICIES:	
I ASSESSMENT DETAILS	
II LABOUR COST BREAKDOWN	
III COST STATEMENT	
IV CERTIFICATION	

MAPS

- #1 Geochemical Survey (Cu in Soil)
- #2 Magnetic Survey
- #3 Topographic map Sheet 1
- #4 " " Sheet 2

TABLE OF CONTENTS

	<u>Page</u>
SUMMARY	1
INTRODUCTION	1
HISTORY & PREVIOUS TECHNICAL WORK	1a
GENERAL GEOLOGICAL SETTING	1a
GEOCHEMISTRY	
SAMPLE COLLECTION, PREPARATION AND ANALYSIS	2
DISUCSSION OF RESULTS	2
GEOPHYSICS	
INSTRUMENTATION AND SURVEY PROCEDURE	3
DISCUSSION OF RESULTS	3
INTERPRETATIONS AND CONCLUSIONS	5
APPENDICIES:	
I ASSESSMENT DETAILS	
II LABOUR COST BREAKDOWN	
III COST STATEMENT	
IV CERTIFICATION	

MAPS

- #1 Geochemical Survey (Cu in Soil)
- #2 Magnetic Survey
- #3 Topographic map      Sheet 1
- #4       "               "      Sheet 2

## SUMMARY

Magnetic and geochemical surveying of the Red A, B, C, D and E groups of claims has yielded the following information:

1. The Red groups are underlain by five lithological types:
  - A. An undifferentiated sequence of flows and agglomerates
  - B. A volcanoclastic sequence
  - C. An andesite flow sequence
  - D. A micro-diorite intrusive, and
  - E. A gabbroic sill.
2. Interpreted structural features consist entirely of a set of three NE trending faults all of which have supporting ground evidence.
3. Explained and/or interpreted geochemical anomalies are due to:
  - A. Copper within a reefoid limestone.
  - B. A relatively higher copper background within the andesite flows and micro-diorite intrusive, and
  - C. Intermittent but relatively concentrated occurrences of copper mineralization within volcanic flow tops.

## INTRODUCTION

This report is concerned with geochemical and magnetic surveys conducted over the Red A, B, C, D and E groups of claims which are wholly owned by Canadian Superior Exploration Ltd. These surveys were conducted during the period June 3 - July 5th, 1973.

These five groups of claims were initially staked to protect and allow unimpeded access to a mineralized (copper) reefoid limestone body.

This property is located approximately 100 air miles north of Smithers, B.C. and approximately 10 air miles SE of the junction of the Sustut and Squingula Rivers. Access is by scheduled Trans-Provincial Airlines service to Bear Lake (every Monday, Wednesday, and Friday) and thence to the property by helicopter or on foot (difficult).

A list of personnel involved in the surveys along with the dates worked and rates of salaries is appended to this report as Appendix II.

Other related costs to these surveys being applied for as assessment credits and the Total Survey Expenditures are attached as Appendix III.

#### HISTORY AND PREVIOUS TECHNICAL WORK

The Red groups of claims were staked in August, 1972, to protect a discovery of copper mineralization in reefoid limestone. During this exploration season limited geological mapping was done on the Red A & B groups.

#### GENERAL GEOLOGICAL SETTING

Geological mapping by Canadian Superior Exploration Ltd. indicates that the Red groups of claims are underlain mainly by flow and volcaniclastic sequences of Hazelton volcanic rocks. The Hazelton rocks have been partially intruded by a micro-dioritic pluton.

## GEOCHEMISTRY

### SAMPLE COLLECTION, PREPARATION AND ANALYSIS

Soil samples were taken along flagged and/or blazed lines at two hundred foot intervals with the use of a hammer-mattock (grubhoe). When possible samples were collected from the "B" horizon, however, due to the rugged, alpine nature of the terrain the majority of the samples were taken from the "C" horizon, scree or talus.

These samples were packaged in soil sample envelopes made of high wet-strength kraft brown paper with a wet strength of 32 lbs. and measuring 3 1/2" x 6" when the flap of the envelope is folded.

In the laboratory these samples were dried in a warm oven while still in the bags and then screened through an 80 mesh nylon screen - the fines being used for analysis.

These samples were tested for total copper content as follows: -

The sample of the fines from the screened and dried sample was digested with fuming perchloric acid for four hours in a pyrex beaker. The siliceous sediment was allowed to settle and the solution diluted to a measured volume with distilled and demetallized water. An aliquot of the test solution was then taken and analysed for copper using an atomic absorption spectrometer. Carefully prepared standards were used for control. This copper analysis was carried out by Core Laboratories of Smithers, B.C.

### DISCUSSION OF RESULTS:

#### NOTE:

Background (visual estimate) = 20 - 30 P P M

The geochemical anomalies as indicated by the soil survey have been correlated, spatially, into three groups (i.e. Groups A - C as indicated on Plan #1).

Of the Group "A" anomalies only that one centred at L60S R<sub>1</sub> has been explained and is due to copper mineralization in a reefoid limestone. Attempts at locating explanations for the remaining anomalies met with negligible success and all that can be said about them is that they appear to be associated with the volcanoclastic rocks.

Although no definite physical explanations were found for the Group "B" anomalies they appear to be associated with a red andesitic tuff, which has been intruded by a micro dioritic pluton. These anomalies may represent an increase in copper background due to the intrusion.

All of the group "C" anomalies are unexplained at present. Although chalcocite has been found and is related to distinct flow units, none of these occurrences are coincident with any of the anomalies. A number of these anomalies (e.g. those located between L56E and L112E and 40S and 80S) are coincident with a definite break in the slope gradient and swampy terrain suggesting that these are possibly hydromorphic anomalies.

## GEOPHYSICS

### INSTRUMENTATION AND SURVEY PROCEDURE

Magnetic data was collected using three McPhar M-700 Fluxgate magnetometers which measure the vertical component of the earth's magnetic field. These measurements were taken along blazed and/or flagged lines at 200 ft. intervals.

Durnal measurements in the earth's magnetic field during the magnetic surveys were accounted for by establishing a base station consisting of an additional M-700 magnetometer connected to an analogue recorder. This station recorded the magnetic base level at two second intervals and any variation in this level was removed from the collected data by the normal mathematical process.

### DISCUSSION OF RESULTS

The Isomagnetic Contour Plan (Plan #2) tends to generally delineate the five lithological types evident within the survey area. These are:

- A. An undifferentiated sequence of flows and agglomerates
- B. a volcanoclastic sequence
- C. an andesite flow sequence
- D. a micro diorite intrusive, and
- E. a gabbroic sill.

Magnetic definition between the first two types (i.e., the undifferentiated flows and agglomerates and the volcanoclastic sequence) is not distinct. Both types tend to be within a region of relatively shallow magnetic gradients within a range of magnitudes of  $2000 \gamma \pm 200 \gamma$ . The area containing the flows and agglomerates is differentiated from the volcanoclastic sequence by the presence of easterly trending linear anomalies which are probably related to distinct flow units (i.e. as in the SE Corner of the survey area).

The andesite flows and micro-diorite intrusive occur in the north central section of the survey area between lines 8E and 104E above

40S. Magnetic response due to the andesite occurs as relatively steep gradient, convoluted anomalies with an easterly to SE trend. The micro-diorite intrusive appears as distinct magnetic lows intercalated among the convoluted sequence of anomalies related to the andesite.

The gabbroic sill appears as a distinct and confined, ENE trending, steep gradient, linear anomaly on 40S between L8E and L80E. This anomaly separates the region containing the andesite flows and micro-diorite intrusive from the volcanoclastic sequence.

Structurally, three NE trending faults are evident on the Isomagnetic Contour Plan. From west to east these are positioned as follows: -

- A. Extending along L8E to L0,60S - this fault appears as distinct flexures in the isomagnetic contours and definitely truncates the andesite flows, micro-diorite intrusive and gabbroic sill along their western margin.
- B. extending from L112E, 20S in a SW direction and crossing L88E at approximately 60S and L80E at approximately 80S - this fault appears as flexures in the isomagnetic contours and truncates the andesite flows and micro-diorite intrusive on their eastern margin.
- C. extending from L136E, 20S (approx.) to L112E, 60S (approx) this fault appears as a linear truncation of NW trending isomagnetic contours.

Ground evidence has been found to substantiate all three faults interpretations.



INTERPRETATIONS AND CONCLUSIONS

Correlation between the magnetic and geochemical data (and their resulting interpretations) does little to help clarify the large number of unexplained geochemical anomalies aside from placing them within a lithological type. The coincidence between the Group "B" geochemical anomalies and the anomalous magnetic region interpreted as being due to andesite flows intruded by a micro-diorite pluton tends to substantiate the interpretation that these geochemical anomalies are due to an increased copper background within this area. Coincidence between distinct geochemical and magnetic anomalies also occurs in the SE region of the survey area where certain Group "C" geochemical anomalies appear to be directly relatable to linear and confined magnetic features which have been interpreted as being distinct flow units. This suggests that the geochemical anomalies are derived from intermittent, but relatively concentrated occurrences of copper mineralization within these flows.

Aside from the geochemical anomalies that have been previously explained the remaining anomalies can only be described as apparently emanating from sources primarily within the volcaniclastic rocks and should be considered problematical.

Dated this 10th day of September, 1973.  
at Kamloops, B.C.

*G.R. Brace*  
-----  
G.R. Brace

*W. Rainboth*  
-----  
W. Rainboth, P. Eng.



APPENDIX I

ASSESSMENT DETAILS

PROPERTY: RED A, B, C, D & E Claim Groups.

OWNER: Canadian Superior Exploration Ltd.  
2201 - 1117 West Hastings St.,  
Vancouver 1, B.C.

LOCATION: 100 miles N. of Smithers, B.C.  
Approx. 10 air miles SE of the  
Junction of the Sustut & Squingula Rivers.

NUMBER OF  
CLAIMS: 188

NATURE OF  
SURVEYS: A. Geochemical  
B. Geophysical  
(i) Magnetics.

INSTRUMENTS: McPhar M-700 fluxgate magnetometers.

NUMBER OF  
SAMPLES  
TAKEN: 1997

NUMBER OF  
READINGS  
TAKEN: 1997

APPENDIX III  
COST STATEMENT

LABOUR

Salaries as per Appendix II \$ 4301.00

GEOCHEMICAL ANALYSIS

1997 Samples @ \$ 1.25 2496.00

EQUIPMENT RENTAL

4 - M 700 Magnetometers @ \$36.00  
per day for 30 days 1080.00

HELICOPTER COSTS

Used for positioning crews on  
property 16 hrs. @ \$ 220. 3520.00

ORTHO PHOTO MAPS

Used as Topographic control maps 3500.00

BOARD AND LODGING

4500.00

\$ 19397.00

APPENDIX IV


CERTIFICATE

I, GARRY R. BRACE, of the City of Kamloops, Province of British Columbia, do hereby certify that:

1. I am a geophysicist resident at 207 - 1956 Curlew Road, Kamloops, British Columbia.
2. I am a graduate of the University of British Columbia (1971) with a B.Sc. degree in Geophysics.
3. I have been practising my profession for two and a half years.
4. I am an associate member of the Society of Exploration Geophysicists.

Dated at Kamloops, B.C.

This 10th day of September, 1973.

  
-----  
Garry R. Brace, B.Sc.

APPENDIX II

LABOUR COST BREAKDOWN

	<u>Days Worked</u>	<u>Total Days</u>		<u>Rate</u>	<u>Total</u>
<u>SUPERVISORY PERSONNEL</u>					
W. Rainboth (Geologist)	June 22, 23	2	x	\$ 75.	\$ 150.00
T.I. Sharps (Geologist)	June 4-6, 18-20	6	x	\$ 75.	450.00
G.R. Brace (Geophysicist)	June 3 - July 6	34	x	\$ 30.	1020.00
<u>GEOCHEMICAL PERSONNEL</u>					
J. Battmaker	June 3- 14	12	x	\$ 18.	\$ 216.00
C. Hoeburg	June 5 - 28	24	x	\$ 18.	\$ 432.00
M. Nobbes	June 19-28,30	11	x	\$ 15.	165.00
D. Sheppard	June 22-28,30	8	x	\$ 15.	120.00
R. Webb	June 4	1	x	\$ 20.	20.00
G. Whetter	June 3 - 11	9	x	\$ 18.	162.00
<u>GEOPHYSICAL PERSONNEL</u>					
S. Bowden	June 3-28,30				
	July 5	28	x	\$ 20.	\$ 560.00
G. Pierce	June 3-28	26	x	\$ 20.	520.00
A. Rockingham	June 3-28,30	27	x	\$ 18.	486.00
<u>TOTAL SALARIES</u>					<u>\$ 4301.00</u>