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A Report on the Airborne Geophysical  
Survey of the Wed Claim Group  
Cariboo M.D. , B.C.  
for Totem Minerals Limited

Lundberg Explorations  
Limited.



A REPORT ON THE  
AIRBORNE GEOPHYSICAL SURVEY OF THE WED CLAIM GROUP  
CARIBOO MINING DIVISION, BRITISH COLUMBIA  
FOR  
TOTEM MINERALS LIMITED  
VANCOUVER, B.C.

CLAIM GROUPS:- Wed I, II, III and IV

LOCATION:- Wed Group, 10 miles south of  
Prince George (53° 122° N.W.)

SURVEY PERFORMED BY:- Lundberg Explorations Limited,  
96 Eglinton Avenue East,  
Toronto 12, Ontario.

REPORT PREPARED BY:- R. A. Kautson, Geologist

REPORT APPROVED BY:- Hans Lundberg, President

WORK DONE:- July 17, 18 and 20, 1959.

93G/15W, 15E, 10W

LUNDBERG EXPLORATIONS LIMITED

96 EGLINTON AVE. EAST  
TORONTO 12, ONT.



APPENDIX I

STATEMENT OF QUALIFICATIONS

1. Field work and interpretation was done by and under the supervision of Mr. George Isford. Mr. Isford graduated in Physics from the University of Manitoba and holds an M. Sc. degree from the same institution.
2. Navigating and plotting were performed by Mr. H. Brown. Mr. Brown has worked in geophysics for twenty years and has spent the last ten years in airborne survey work.
3. Instrumental operation was performed by Mr. Howard Ingram, who is licensed as an electrician by the Province of Ontario.
4. Interpretation of the geophysical results was made by :-
  - (a) Electromagnetic - Mr. B.T. Wilson, B.Sc., M.Sc.(P.Eng.Ont.)  
- Mr. G. Isford, B.Sc., M.Sc.
  - (b) Magnetic - Mr. E. Eugene True, B.Sc.This work was supervised by Dr. Hans Lundberg (P.Eng. Ont.), President of Lundberg Explorations Limited.
5. The Report was written by Mr. R.A. Knutson. Refer to File No.166 "Summary of Qualifications" submitted November 16, 1959.

Respectfully submitted,

LUNDBERG EXPLORATIONS LIMITED,

Carl L. Erickson,  
Field Manager



APPENDIX II                      STATEMENT OF EXPENDITURES

Airborne Magnetic and Electromagnetic Surveys comprising 400 miles of profile @ \$17.00 per line mile, making expenditure of \$6800.00.

This cost is made up as follows :-

Flying - July 17, 18 and 20, 1959

|                |                                     |              |        |
|----------------|-------------------------------------|--------------|--------|
| Aircraft costs | - Avro Anson 15 hrs. @ \$125/hour   | 1875.00      |        |
|                | - Piper Apache 15 hrs. @ \$125/hour | 1875.00      |        |
| Aircraft crews |                                     |              |        |
| Operating      | - G. Isford - 1 day @ \$35.         | 35.00        |        |
| "              | - H. Ingram - 3 days @ \$35.        | 105.00       |        |
| Navigating     | - H. Brown - 3 days @ \$35.         | 105.00       |        |
| "              | - G. Isford - 2½ days @ \$35.       | <u>85.00</u> |        |
|                | Total                               | 325.00       | 325.00 |

Mapping

|              |                                |               |        |
|--------------|--------------------------------|---------------|--------|
| Editing      | - H. Brown - 3 days @ \$35.    | 105.00        |        |
| "            | - G. Isford - 3 days @ \$35.   | 105.00        |        |
| Transcribing | - M. Whatley - 20 days @ \$35. | 300.00        |        |
| Plotting     | - O. Malm - 6 days @ \$15.     | 90.00         |        |
| "            | - R. Whiting - 6 3/4 @ \$15.   | <u>100.00</u> |        |
|              | Total                          | 700.00        | 700.00 |

|                                      |        |
|--------------------------------------|--------|
| Maps, enlargements & reproductions - | 200.00 |
| Draughting - C. DeGroot -            | 200.00 |

Interpretation & Report

|              |                    |               |                       |
|--------------|--------------------|---------------|-----------------------|
| E.E. True    | - 10 days @ \$35.  | 350.00        |                       |
| B.T. Wilson  | - 5½ days @ \$50.  | 275.00        |                       |
| R.A. Knutson | - 7 days @ \$35.   | 245.00        |                       |
| H. Lundberg  | - 2½ days @ \$100. | 250.00        |                       |
| G. Isford    | - 3 days @ \$35.   | <u>105.00</u> |                       |
|              |                    | 1225.00       | 1225.00               |
| TOTAL        |                    |               | <u><u>6800.00</u></u> |

Respectfully submitted

LUNDBERG EXPLORATIONS LIMITED,

*Carl L. Erickson*

Carl L. Erickson  
Field Manager



I N D E X

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INTRODUCTION

The Wed Claim Group was staked in March, 1959 on a magnetic anomaly encountered during a routine reconnaissance survey in the Fall of 1958. It was thought that the aeromagnetic indication might represent a favourable location for base metal deposits. In order to evaluate these claims, a detailed airborne electromagnetic and magnetic survey was undertaken in July, 1959. The two plane rotary field electromagnetic method and a vertical component airborne magnetometer were used on these surveys.

Three flights, on July 17, 18 and 30, 1959 were required to cover the claim group. These flights included some additional flying which was necessary to fully delineate the anomalous trends encountered on the property. The map shows a total of 695 miles of line, of which 400 miles have been applied towards the assessment work. No ground follow-up work was undertaken on the property during the 1959 field season.

### Location & Access

The Wed Claim Group is located in the Cariboo Land District one-half mile west of the Fraser River and about ten miles south of the City of Prince George. The claims occupy sections L.2009, L.2017, L.2018, L.1874, L.1873, L.1872, L.1876, L.1877, L.1878, L.2019, L.1880, L.1881. The latitude and longitude of the centre of the claim group is  $53^{\circ} 46'$  and  $122^{\circ} 45'$ .

The property is accessible by logging road from Nadsilnich Lake, locally called West Lake.

### Topography

The property, located in the Fraser River Valley, rises gently from the river on the east to about the centre of the group and then gradually descends to the west. Drainage streams on the property are characterized by deep V-cut valleys, particularly approaching the Fraser River.

Forest cover on the claim group is heavy consisting chiefly of spruce, fir and poplar. Alder swamps are common throughout the area.

### Geological Conditions

Owing to heavy overburden in the area, very little is known of the bedrock geology. Outcrops southeast of the property in the



Fort George Canyon of the Fraser River near the mouth of Redrock Creek have been described by Douglas Lay (Fraser River Bulletin No. II, B.C. Department of Mines) as follows:

"These rocks consist of an assemblage of wide alternating bands of andesitic and basaltic volcanic flow rocks and limy argillites probably of Mesozoic age, which strike from north 12 - 42 degrees west and dip 35 degrees northeast to nearly vertical". The interbedded sediments and lavas are overlain by conglomerate and interstratified argillite and coarse grained sandstone, striking north 50° west and dipping 35° northeastward. Although the distance from the outcrop to the claim group is too great to project geology, the age and type of rocks is probably typical. However, the presence of the magnetic anomaly suggests that a basic intrusion underlies the claim group.

### THE GEOPHYSICAL SURVEY

#### The Survey Methods

The Lundberg vertical field magnetometer was used to measure the magnetic variations in the area. This instrument is gyro stabilized and has a sensitivity of (plus-minus) 20 gammas.

Electrical conductors were mapped by means of the Two Plane Rotary Field Electromagnetic method. This method involves two aircraft flying eight hundred feet apart. The trailing aircraft contains two

diagonally mounted coils through which equal 880 cycle current is passed. The current in one is 90 degrees out-of-phase with the other and this produces the rotary electromagnetic field. The lead aircraft contains the "pick-up" coils mounted in a bird towed about 100 feet behind, and the necessary amplification and recording instruments. The Real and Imaginary component of the electromagnetic field are measured. The magnetometer is also located in the lead aircraft.

Altitude is maintained by means of a radio altimeter (APN-Type) and a continuous record is made of altitude where the terrain is such that aircraft cannot maintain constant altitude above the terrain as an aid to interpretation of results. The lead aircraft flies about 300 feet above the terrain. The trailing aircraft flies on the same level as the bird (i.e. 250 to 260 feet). Distance between the two aircraft is maintained by means of a series of flashing lights on the lead aircraft. These lights are coupled to the primary input from the trailing aircraft. Thus, by maintaining a fixed distance between the aircraft the primary field at the lead aircraft can be held constant.

Navigational control and positioning is visual and is maintained by an experienced operator in the lead aircraft. Fiducial marks on the records correspond with those on the map. British Columbia Forestry planimetric maps 93 G 10E, 93 G 10W, 93 G 15W and 93 G 15E were used for this survey. Flight line spacing is one-quarter mile in a northeast-southwest direction. In order to facilitate interpretation

of the results, lines were flown normal to the above at quarter and half mile intervals in a northwest-southeast direction.

Anomalies encountered with the E.M. method occur midway between the two aircraft. This factor coupled with instrumental delay causes a total lag of 750 feet. That is, the anomalies occur 750 feet behind their indicated position on the chart. Magnetic response is instantaneous, thus no lag occurs on the magnetic charts.

#### Results of the Surveys

Three maps drawn to a scale of 1 inch equal to 1000 feet accompany this report. Map No.27-471-19 shows the location of the flight lines, line numbers are shown at the ends of the lines. Fiducial marks are shown as circles on the lines.

Map No.27-471-20 shows an interpretation of the results of the magnetic survey.

Map No.27-471-22 shows an interpretation of the results of the electromagnetic survey.

The magnetic survey shows a well defined anomaly of 2000 plus gammas. This anomaly has an elliptical shape, is elongated in an east-west direction and strikes N 70° E. The most likely cause of the anomaly is a basic intrusive of diorite or gabbro composition. The strike of the anomaly, which is normal to the regional strike, is further evidence of an intrusive body. The steeper magnetic

gradient on the south side of the anomaly suggests the body has a southward dip. While no mathematical determinations of depth have been made it would appear from the sharp nature of the curves that the body is less than 200 feet below surface.

The electromagnetic results show a series of conductors striking in a northwesterly direction which parallel the regional strike. These anomalies are located north and south of and at the east end of the magnetic zone. Because of the proximity to the basic intrusion indicated by the magnetic anomaly these electrical anomalies might represent injections of sulphides from the basic intrusion into the surrounding country rock.

The strongest electrical indication occurring on the claim group show a real component intensity of about 10% of the primary field. Anomalous zones occur on claims numbers 80, 75, 72, 62, 37 and 39. The general strike of these indications is northwest with some minor deviations. The longest and best defined electrical anomalies occur on claims 37, 39 and 62. The other indications are relatively weak and have a short strike length. The importance of these anomalies is their proximity to the magnetic anomaly and for this reason they merit further investigation.

CONCLUSIONS

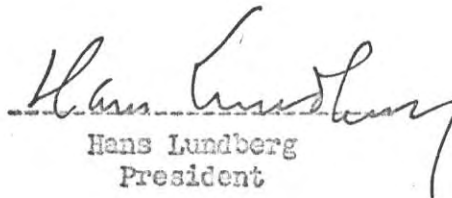
The aeromagnetic survey of the Wed Minerals claims has outlined a zone thought to represent a basic intrusion. The airborne electromagnetic method has described several conductive zones which could represent sulphide bodies derived from this intrusive. A ground geophysical program employing a deep penetrating electromagnetic or resistivity method is recommended to detail the anomalous zone. The results of such surveys will determine if diamond drilling is warranted.

Respectfully submitted,  
LUNDBERG EXPLORATIONS LIMITED



R. A. Knutson,  
Geologist

APPROVED:

  
Hans Lundberg  
President

Toronto, Ontario  
March 4  
1960