82-243-10307

# Geophysical Report
on an
Induced Polarization Survey
on behalf of

DeKALB MINING CORPORATION

Moly claims, Kootenay lake area,
Nelson M.D. NTS 82F/10
Lat. 49°36'17"N Long. 116°46'42"W

AUTHOR: Glen E. White, B.Sc., P.Eng.,
Geophysicist

DATE OF WORK: April 30-May 24, 1981

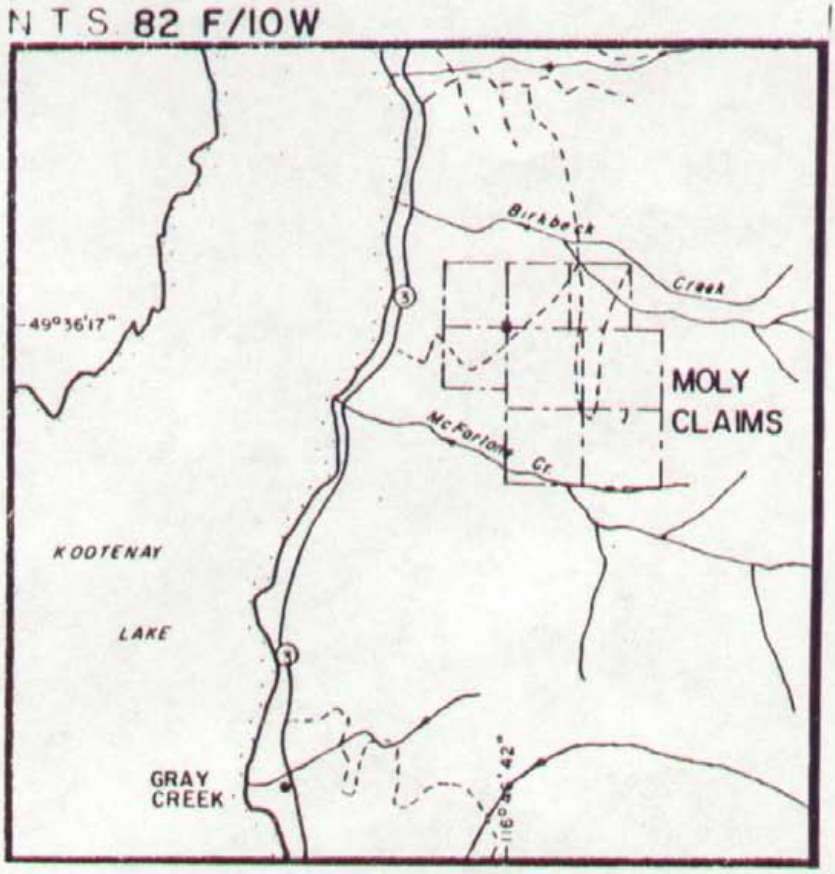
DATE OF REPORT: June 18, 1981

GREY CREEK

# C O N T E N T S



## ILLUSTRATIONS


DEKALB MINING CORPORATION
MOLY CLAIMS
LOCATION AND CLAIMS MAP

Glen E. White
geophysical consulting
& services ltd

FIG. 1

## INTRODUCTION

An induced polarization survey was conducted over the Moly claims during the period April 30 to May 24/81 on behalf of Dekalb Mining Corporation. The purpose of the survey was to examine the area for chargeable sources which could be correlated with the results of a recent geochemical survey.

## PROPERTY

The area surveyed consists of the Moly claims comprising an area of 8 units as illustrated on Figure 1.

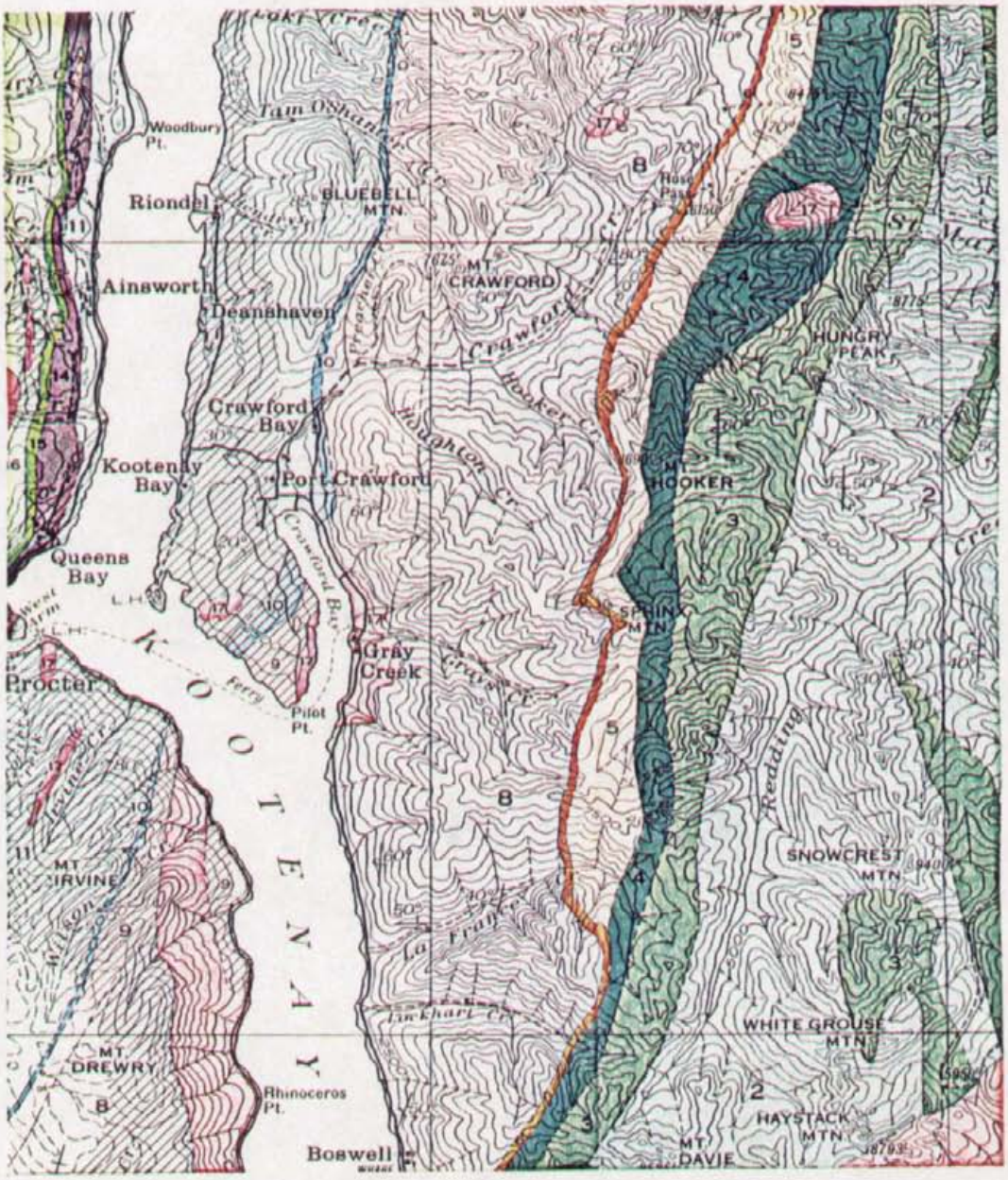
## LOCATION AND ACCESS

The claims are located on the east side of Crawford Bay between Port Crawford and Gray Creek. Lat. 49°36'17"N Long. 116°46'42"W N.T.S. 82 F/10W.

Access is via bushroad from highway #3 between Birkbeck creek and Mcfarlane creek.

## GENERAL GEOLOGY

The general geology of the area is shown on Map 603A Nelson (east half) as illustrated on plate 2. This map shows a small granite intrusive plug of Mesozoic age which has intruded quartzites of the Hamill series and argillaceous quartzites, limestone, arkrose and pebble conglomerate of the Horsethief creek series. Locally a general northeast trending band of schist has been mapped in the center of the claims area.




# GENERAL GEOLOGY

Glen E. White geophysical consulting services ltd

PLATE 2

# LEGEND

## MESOZOIC AND (?) CENOZOIC

### POST-TRIASSIC

18 — *Syenitic intrusives; agglomerate*

17 — *Chiefly granite, granodiorite and quartz diorite*

## MESOZOIC

### TRIASSIC

**SLOCAN SERIES**

16 — *Slate, argillite, quartzite, limestone; schists*

**KASLO SERIES**

15 — *Lavas, tuffs, breccias; allied intrusives; schists*

## PALAEOZOIC AND MESOZOIC

### UPPER CARBONIFEROUS AND TRIASSIC

MILFORD GROUP

14 — *Slate, argillite, chert, limestone; schists; some greenstone*

## PALAEOZOIC

### CAMBRIAN

#### LOWER CAMBRIAN

13 — *EAGER FORMATION: olive-green, purple and grey shale*

12 — *CRANBROOK FORMATION: silicious, white, rose, purple and grey quartzite and conglomerate*

## PROTEROZOIC (LATE PRECAMBRIAN)

### WINDERMERE

**LARDEAU SERIES**

11 — *Micaceous and chloritic schists; quartzite and limestone; paragneiss*

10 — *BADSHOT FORMATION: magnesian limestone*

**HAMILL SERIES**

9 — *Grey, green and white, silicious quartzite*

**HORSETHIEF CREEK SERIES**

8 — *Green, argillaceous quartzite; blue-grey limestone, arkose, pebble conglomerate*

7 — *IRENE VOLCANIC FORMATION: sheared, andesitic volcanic rocks*

6 — *TOBY FORMATION: conglomerate*

### PURCELL

#### UPPER PURCELL

5 — *MOUNT NELSON FORMATION: laminated argillite, magnesian limestone, quartzite*

4 — *DUTCH CREEK FORMATION: laminated argillite, magnesian limestone, quartzite*

#### LOWER PURCELL

3 — *KITCHENER-SIYEH FORMATION: chiefly var coloured magnesian limestone and argillite; calcareous quartzite*

2 — *CRESTON FORMATION: green, purple and g argillaceous quartzite; some argillite*

1 — *ALDRIDGE FORMATION: grey, rusty weathe argillaceous quartzite and argillite*

Glen E. White geophysical consulting & services ltd

PLATE 2A

INDUCED POLARIZATION

The equipment used on this survey was the Huntec pulse-type unit and Mark III receiver. Power was obtained from a Briggs and Stratton motor coupled to a 2.5 KW 400 cycle, three phase generator, providing a maximum of 2.5 KW D.C. to the ground. The cycling rate is 1.5 seconds "current on" and 0.5 seconds "current off", the pulse reversing continuously in polarity. Power was transmitted to the ground through two potential electrodes, $P_1$ and $P_2$. Which were deployed in the three electrode array with an "a" spacing of 100 m and separations of n = 1 and 2, some 23 km of surveying was conducted.

The data recorded in the field consists of careful measurements of the current (I) in amperes flowing through electrodes $C_1$ and $C_2$, the primary voltage ($V_p$) appearing between electrodes $P_1$ and $P_2$ during the "current on" part of the cycle, and the secondary voltage ($V_s$) appearing between electrodes $P_1$ and $P_2$ during the "current off" part of the cycle. A cycle time of 4 seconds was and with a duty ratio of 2.2-1, Tp .20ms and Td 60ms.

The apparent chargeability (M') in milliseconds, is calculated by $T_p$ ($M1 + 2M_2 + 4M_3 + 8M_4$) = M', where $T_p$ is the basic integrating time in tenths of seconds. $M_1$, $M_2$, $M_3$ and $M_4$ are the chargeability effects at various times on the voltage decay curve following

switch off of the transmitter, measured as a percentage of the primary voltage, $V_p$ recorded during the "current on" time. By the use of these factors, one can gain an estimate of the decay curve in terms of chargeability for the given time $T_p$. This gives a quantitative value to the data measured.

The apparent resistivity, in ohm-meters is proportional to the ratio of the primary voltage to the measured current, the proportionality factor depending on the geometry of the electrode array used. The chargeability and resistivity obtained are called "apparent" as they are values which that portion of the earth sampled by the array would have if it were homogeneous. As the earth sample is usually inhomogeneous, the calculated apparent chargeability and apparent resistivity are functions of the actual chargeabilities and resistivities of the rocks sampled and of the geometry of the rocks.

## DISCUSSION OF RESULTS

The induced polarization data is illustrated on Figures 2 and 3, the chargeability and apparent resistivity respectively. The molybdenum values above 15 ppm are shaded on the chargeability map for convienence of correlation.

The background chargeability is some 4 to 5 milliseconds which indicates some 1% chargeable materials in the country rocks. A pronounced chargeability high trends northeast across the survey grid. This ridge like trend reaches a high of some 17.8 milliseconds. The highest values recorded were 20.7 and 21.4 milliseconds chargeability on line 10+00E. Detail induced polarization surveying with seperations n = 2 and 3 on line 9+00E indicate an increase in chargeability response with increasing separation. This anomalous chargeability response is caused by some 5% to 10% chargeable materials by volume.

The large northeasterly trending ridge of high chargeability values appears to follow a band of schist that has been mapped on the claim group. This rock unit appears to be sandwiched between granitic rocks to the east and to the west. The apparent resistivity map, Figure 3 shows a pronounced resistivity high along the west side of the survey area which is flanked by low values to the east. This feature may possibly represent a geological contact between the granites to the west and schist to the east possibly in association with a major fault zone. Above background chargeability values up to 8 milliseconds are associated with this high. The granites which are reported to be on the south-east side of the survey area do not show up as an area of high resistivity values. Geological notations

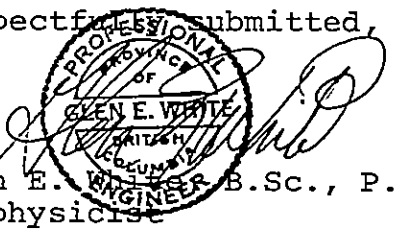
in this area refer to a mixture of altered quartz granodiorite with sericite schist, chlorite and talc. This would account for the moderate resistivity values of 300 to 500 ohm-meters obtained.

In summary then the induced polarization survey has located a zone of 4 to 5 times background chargeability values which correlate to a zone of schist containing low to high resistivity values. A second area of only two times background chargeability was delineated which correlates with high resistivity values and likely relates to an area of unaltered granites. Thus further exploration should be focused on the high chargeability areas within the schist unit as well as on the resistivity high and 2 times background chargeability values. A molybdenum bearing quartz stockwork with a low pyrite content would give a low order anomaly.

## CONCLUSION AND RECOMMENDATIONS

During the month of May 1981 a program of induced polarization surveying was completed on the Moly claims. The survey delineated several areas of high chargeability which should be further examined by diamond drilling. However a low order chargeability anomaly with high resistivity values was also detected. This anomaly may possibly be caused by sulphide mineralization in unaltered granitic materials and should also be tested.

Respectfully submitted,




Glen E. White, B.Sc., P.Eng.,
Geophysicist

# INSTRUMENT SPECIFICATIONS

## INDUCED POLARIZATION SYSTEM

A. Instruments

(a) Type - pulse

(b) Make - Huntec

(c) Serial No. - transmitter #107 - receiver #3016

B. Specifications

(a) Size and Power - 2.5 KW

(b) Sensitivity - 300 x 10.5 volts

(c) Power Sources - 2.5 KW 400 cycle - three phase generator

(d) Power - 8 H.P. Briggs and Stratton @ 3000 R.P.M.

(e) Timing - electronic, remote and direct.

(f) Readings - (i) ampls (ii) volts primary and secondary

(g) Calculate (i) Resistivity - ohm-meters (ohm-feet)

(ii) Chargeability - milliseconds

C. Survey Procedures

(a) Method - power supplied to mobile probe along TW 18 stranded wire from stationary set-up

(b) Configuration - Pole-dipole (three electrode array) Plot point midway between $C_1$ and $P_1$

D. Presentation

Contour Maps (i) Chargeability - milliseconds

(ii) Resistivity - ohm-meters (ohm-feet)

# STATEMENT OF QUALIFICATIONS

| | |
|---|---|
| NAME: | WHITE, Glen E., P.Eng. |
| PROFESSION: | Geophysicist |
| EDUCATION: | B.Sc. Geophysics - Geology<br>University of British Columbia |
| PROFESSIONAL ASSOCIATIONS: | Registered Professional Engineer, Province of British Columbia |
| | Associate member of Society of Exploration Geophysicists. |
| | Past President of B.C. Society of Mining Geophysicists |
| EXPERIENCE: | Pre-Graduate experience in Geology - Geochemistry - Geophysics with Anaconda American Brass |
| | Two years Mining Geophysicist with Sulmac Exploration Ltd. and Airborne Geophysics with Spartan Air Services Ltd. |
| | One year Mining Geophysicist and Technical Sales Manager in the Pacific north-west for W. P. McGill and Associates |
| | Two years Mining Geophysicist and supervisor Airborne and Ground Geophysical Divisions with Geo-X Surveys Ltd. |
| | Two years Chief Geophysicist Tri-Con Exploration Surveys Ltd. |
| | Ten years Consulting Geophysicist |
| | Active experience in all Geologic provinces of Canada |

## COST BREAKDOWN

| PERSONNEL | DATE | WAGES | TOTAL |
|---|---|---|---|
| M. Gray | April 30-May 24/81 | $145.00 | $ 3,480.00 |
| T. Spring | April 30-May 24/81 | $130.00 | $ 3,120.00 |
| R. Callis | April 30-May 24/81 | $120.00 | $ 2,880.00 |
| C. Purcell | April 30-May 24/81 | $120.00 | $ 2,880.00 |

| | |
|---|---|
| Meals and Accomodations @ $40/day/man ..... | $ 3,840.00 |
| Instrument lease @ $120/day ..... | $ 2,880.00 |
| Vehicle 4x4 all inclusive @ $80/day ..... | $ 1,920.00 |
| Drafting and plotting ..... | $ 375.00 |
| Interpretation and reports ..... | $ 725.00 |
| Total ..... | $22,100.00 |

10,307

PART 2 of 2

LINE 9+00E

5+00N 4+00N 3+00N 2+00N 1+00N 0+00N 1+00S 2+00S 3+00S 4+00S 5+00S 6+00S 7+00S 8+00S 9+00S 10+00S

Ma (Milliseconds)

30 25 20 15 10 5 0

N3
N2
N1

Pa (Ohm-Meters)

N1 N2 N3

100m 50m 0 100m 200m 300m

1 : 5,000

INSTRUMENT HUNTEC 2.5 KW TIME DOMAIN

C2 C1 P2 P1

Pole Dipole

PROFESSIONAL ENGINEER PROVINCE OF B.C. GLEN E. WHITE

Glen E. White geophysical consulting & services ltd.

To Accompany Geophysical Report on DEKALB MINING CORP
The Moly Claims
Date JUNE/81
By GLEN E. WHITE · B.Sc. ..... GEOPHYSICIST

# DEKALB MINING CORPORATION

## MOLY CLAIMS

NELSON MINING DIVISION — BRITISH COLUMBIA

## INDUCED POLARIZATION SURVEY

PROFILE OF LINE 9+00 E

Glen E. White geophysical consulting & services ltd.

| | |
|---|---|
| INTERPRETED BY | E.T.P. |
| DRAWN BY | N.L.P. |
| CHECKED BY | G.E.W. |
| DATE | JUNE / 81 |
| PLATE | 1 |