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# geological, geochemical alid drilline 

REPORT

DEKALB MINING CORPORATION

MOLY CLAIMS

GRAY CREER, B.C.

NELSON MINING DIVISION

NTS: 82 F 10
LONGITUDE: $116^{\circ} 46^{\prime} 42^{\prime \prime} \mathrm{W}$
LATITUDE: $\quad 49^{\circ} 36^{\prime} 17^{\prime \prime} \mathrm{N}$

AFE: 4454050

1981 EXPLORATIONS

J.A. Ayer

1981 December 14
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The Moly Claims are located on the east side of Kootenay Lake near Gray Creek, British Columbia. Dekalb Mining Corporation optioned the property in 1979. Exploration work to date consists of linecutting, soil sampling, geological mapping, an induced polarization survey and diamond drilling.

Rocks on the property consist of a northerly striking band of Proterozoic metasediments of the Horsethief Creek Group intruded by quartz monzonite stocks. In and adjacent to certain portions of the stocks, molybdenum mineralization occurs as weakly disseminated molybdenite with pyrite in quartz veins. Alteration is locally extensive and is best recognized in quartz monzonite. Propyllitic, phyllic and potassic alteration assemblages are present but no systematic zonation scheme has been identified.

The exploration program revealed several areas with anomalous geochemical and/or geophysical results and these areas were targeted for diamond drilling. The results of the diamond drilling revealed widespread molýbdenum mineralization in subeconomic quantities.
2.0 CONCLUSIONS \& RECOMMENDATIONS

The 1981 exploration program consisted of expanding the coverage of soil sampling; geological mapping, an induced polarization survey and diamond drilling.

Geological mapping revealed numerous quartz veins with disseminated molybdenite concentrated in the periphery of the quartz monzonite stock in the southeast corner of the survey grid and adjacent to the eastern contact of the main quartz monzonite intrusion. Results of the geochemical survey revealed several areas with anomalous molybdenum in soils. The induced polarization survey revealed a pronounced chargeability high trending northeasterly across the survey grid. The diamond drilling on geochemical and/or geophysical anomalies revealed only sub-economic molybdenum mineralization. The best intersection was in $\mathrm{DK}=81 \div 9$ where 12 m of core assayed averaged $0.12 \%$ Mo.

Based on results of the 1981 exploration program, no further work is recommended on this property.

### 3.0 INTRODUCTION

The Moly Claims are located on the east side of Kootenay Lake near Gray Creek, British Columbia (Figure 1). The property is accessible by 3 kn of logging road from Highway 3A. The property consists of 14 units for a total area of 350 hectares.

Dekalb Mining Corporation (DMC) optioned the property from Eric Denny, Jack Denny, David Wiklund and Harry Davis in 1979.

Exploration work in 1981 consisted of the following:
a) The cutting of 12 km of additional line on the grid.
b) 330 soil samples analysed for molybdenum and tungsten.
c) An induced polarization survey over 20.5 km of line.
d) Geological mapping at a scale of 1:2500 over 200 hectares..
e) 10 BQ diamond drill holes for a total of $1,070.5$ meters.
4.0 PROPERTY DESCRIPTION

The Moly Claims consist of 14 units in the following claims:
4 two-post claims:
Mo 1 - Claim No. 1125
Mo 2 - Claim No. 1127
Mo 3 - Claim No. 1128
Mo 4 - Claim No. 1129
3 Modified grid claims
Moly - 4 units - Claim No. 595
Mo 5-4 units - Claim No. 2403
Mo 6 - 2 units - Claim No. 2404.
The total area covered is 350 hectares. Figure 2 shows the location of the various claims.



### 5.0 PREVIOUS WORK

The first recorded work on the property was from 1916 to 1919 when two adits were driven on easterly striking quartz veins with disseminated molybdenite and pyrite.

The next recorded work was in 1966 when United Fortune Mines Ltd. staked the Benderby Group of Claims. Soil sampling, trenching and diamond drilling were conducted to 1969.

In 1979 Dekałb Mining Corporation optioned the Moly and Mo 1 to 4 claims and did exploration work consisting of the cutting of 23 km of line, and the collection and analyses of 460 soil samples.

In 1981 DMC staked the Mo 5 and Mo 6 claims ( 6 units) and undertook the exploration work described in this report.

## 6.0

GEOLOGY
The property has limited exposure with an estimated $5 \%$ outcrop over the total area. Topography ranges from moderate in the west and central portions to steep in the eastern portion of the property. Coniferous forest covers the whole property which has been selectively logged in the eastern and central portions.

The claims are underlain by Proterozoic metasedimentary rocks of the Horsethief Creek Group intruded by Cretaceous (?) stocks of quartz monzonite. Rocks of the Horsethief Creek Group occur in the eastern half of the property and consist of fine-grained mica schists, schistose metasandstone, metaconglomerates and amphibolites. Locally these metasediments have been altered to garnet and epidote=beăring laminated skarn rocks, where they occur adjacent to the quartz monzonite stock in the south-eastern corner of the property (Figure 3).

The quartz monzonite is predominantly light grey and mediumgrained with 5 to $10 \%$ biotite in a subhedral-granular textured groundmass with occasional coarse-grained alkali feldspar phenocrysts. Minor younger phases of equigranular and leucocratic (less than 5\% biotite) medium-grained alaskite and fine-grained aplite are also present. In several drill holes (DK-81-2 \& 3) popphyry dykes with fine-grained alkali feldspar phenocrysts were observed cutting metasediments.

The foliation and bedding in the metasediments ate generally northerly striking with genties easterly dips in the northern portion and steep easterly and westerly dips in the south. No major folds have been identified but minor folds are visible in outcrops and drill core. Jointing is best developed in the quartz monzonite with the dominant direction being northeasterly. Quartz veins commonly occupy northeast to east-west trending joints and fractures.

### 7.0 ECONOMIC GEOLOGY

Disseminated molybdenite and pyrite occur in quartz veins which range from less than 1 cm to over 1 m in thickness. The molybdenite bearing veins appear to be most abundant in the vicinity of the stock in the south-eastern corner of the property and at the eastern contact: of the main quartz monzonite intrusion in the central portion of the claims (Figure 3).

Alteration appears to be best developed in quartz monzonite rock. Alteration zones consist of potassic, propyllitic and phyllic assemblages. Potassic alteration results in a pink coloured quartz monzonite with a relatively high proportion of potassium feldspar and biotite altered to chlorite. Propyllitic alteration results in a greenish grey quartz monzonite with epidotization of plagioclase and biotite altered to chlorite. Potassic and propyllitic alteration zones are pervasive, however no systematic zonation has been recognized. Phyllic alteration of quartz monzonite is texture destructive, resulting in an equigranular rock rich in quartz and muscovite. This type of alteration has only been recognized in the selvages of quartz veins.

The first nine diamond drill holes (DK-81-1 to 9) were shallow holes targeted on geochemical and/or geophysical anomalies. Many of the holes intersectedd numerous mineralized quartz veins, but the best intersection mas in $\mathrm{DK}-81-9$ with 12 m ( 87 ft . to 126 ft .) averaging 1,200 ppm ( $0.12 \%$ ) molybdenum.

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The tenth diamond drill hole (GY-81-10) was a deep vertical hole ( 351.7 m) to check for economic concentration of molybdenite at depth in the vininifyyof DDH DK-81-9. However, only minor mineralization was observed in the core from this hole (see Appendix for details on the diamond drill logs).

### 8.0 EXPLORATION PROGRAM

8.1 Linecutting: In April and May of 1981 an additional 12 km of line was added to the existing grid. This was to expand coverage to lines spaced at 50 m intervals rather than 100 m in areas of interest. The total linecutting on this property by DMC is 35 km .
8.2 Geochemistry: Soil sampling was conducted in April and May of 1981. Samples were collected at 25 m intervals on the new lines and between the original sample locations on the old limes in areas of interest. 330 samples were collected to bring the total number of samples to 790.

The samples were collected from the $B$ soil horizon using a long narrow spade. Samples were collected from holes up to 70 cm deep or wherever a good undisturbed B Horizon was encountered. Samples were placed in brown kraft envelopes and forwarded to Chemex Laboratories in Calgary for analysis. Chemical analysis of the samples employed standard procedures beginning with the drying and sieving of the sample to a minus 80 mesh. A 0.5 gram sample was then treated with nitric acid and finally digested totally in perchloric acid, then dilutied to 25 ml . and analyzed with an atomic absorption instrument. Samples were analysed for molybdenum and tangsten with results reported in parts per million. The location of soil samples and the results of the analyses are plotted on Figures $4 \& 5$.
8.3 Geophysics: An induced polarization survey was conducted on 20.5 kn of line during the period April 30 to May 24 by Glen E. White, Geophysical Consulting and Services Limited of Vancouver, B.C. The method used and results of the suryey are included in a separate report submitted by the consultant.
8.4 Geological Mapping: In April and May the property was mapped at a scale of 1:5000 and remapped in more detail at a scale of 1:2500 in August and September (Figure 3).
8.5 Diamond Drilling: Nine shallow holes (less than 125 m ) were drilled in July and a tenth vertical hole 351.7 m long was drilled in October. All diamond drill holes are BQ size and a total of 1070.5 m was drilled. Location of the diamond drill holes are indicated on Figure 3.

Core samples selected for assaying were split and sent to Chemex Laboratories Limited of Calgary, Alberta. The results of thex assaying are included in the diamond drill logs listed in the Appendix.

Core from the drilling program is stored in a core rack on the property of Mr. Kenneth Shaub in Boswell, B.C.

### 9.0 PERSONNEL

Geological mapping in April and May was conducged by A.J. Morris, B.Sc. Linecutting and soil sampling in April and May was supervised by A.J. Morris and conducted by J. Pritchard, A. Multamaki, M. Bailey, J. Dutt and M. Anderson.

The induced polarization survey was contracted to Glen E. White, Consultant Geophysical and Services Ltd., of Vancouver, B.C. .

The diamond drill program was supervised by J.A. Ayer, M.Sc., with the assistance of S. Irwin.

Detailed geological mapping was conducted by J.A. Ayer in August and September with the assistance of S. Irwin.
10.0 QUALIFICATIONS OF WRITER
J. A. AYER
A. I, John A. Ayer, am by profession a Geologist residing at 6395 Chatham Street, West Vancouver, V7W 2E1, in the Province of British Columbia.
B. I graduated in the year 1976 from Carleton University, Ottawa, Ontario with an honours Biseceg degree in Geology.
C. I graduated in the year 1979 from Carleton University, Ottawa, Ontario, with a M.Sc., degree in Geology.
D. I have been employed full time in exploration and mining geology since graduation.


John A. Ayer, B.Sc., M.Sc.

## COST BREAKDOWN

| Personnel | Dates | Wages |  | tal |
| :---: | :---: | :---: | :---: | :---: |
| A.J. Morris | April 9 - $25 \&$ April $28-\mathrm{May} 4$ | \$ 225 | \$ | 5,400 |
| J. Pritchard | April 15 - May 4 | 67 |  | 1,340 |
| A. Multamaki | April 20-24 | 67 |  | 335 |
| M. Bailey | April 18 - May 4 | 67 |  | 1,139 |
| J. Dutt | April 15-18 | 67 |  | 268 |
| M. Anderson | April 18 - May 4 | 67 |  | 1,139 |
| J. Ayer | June 16 - July 30, Aug. 5-6 <br> Aug 31 - Sept. 3, Oct. 13 - 26 | 135 |  | 4,185 |
| S. Irwin | June 10 - July 30, Aug 5-6 | 80 |  | 1,360 |
| Meals \& Accommodations @ \$40/day/man |  |  |  | 5,400 |
| Transportation, $4 \times 4$ all inclusive @ \$80/day |  |  |  | 4,400 |
| Diamond Drilling |  |  |  | 83,774 |
| Induced Polarization Survey |  |  |  | 22,100 |
| Assays \& Geochemistry |  |  |  | 5,158 |
| Total.... |  |  |  | 135,998 |

## Diamond Drill Record

## DEKALB MINING CORPORATION

Hole No. DK-81-1
Property Grey Creek
Project No. 4050
Commenced 6-30-81
Completed 7-1-81

| Length | 272 Ft. |
| :--- | :---: |
| Bearing | $090^{\circ}$ |
| Dip | $45^{\circ}$ |
| Lat. | $1+005$ |
| Dep. | $7+95 \mathrm{E}$ |
| Elev. |  |

Elev.

Hor. Comp.
Ver. Comp
Etch. at 272 ft .
True Dip
Logged by John Ayer
Dale Logged 5-6-81

| Analysis $P P M$ |  |
| :--- | :--- |
| Lengti | $M O$ |


| Assay No. | Assay <br> Length | A |
| :--- | :--- | :--- |
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## Diamond Drill Record

## DEKALB MINING CORPORATION

| Hole No. DK 81-1 |  |  | Length | Hor. Comp. |  |  |  |  |  |  |  |
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| Properly |  |  | Bearing | Ver. Comp. |  |  |  |  |  |  |  |
| Project No. |  |  | Dip | Elch. at |  |  |  |  |  |  |  |
| Commenced |  |  | Lat. | True Dip. |  |  |  |  |  |  |  |
| Completed |  |  | Dep. |  |  |  |  |  |  |  |  |
|  |  |  |  | Date Logged |  |  |  |  |  |  |  |
| $\cdots$ |  |  | Descriptioncontinued | Assay No. | Assay Length |  |  |  |  |  |  |
| Elev. | From | T0. |  |  |  | $\text { length Mo } \mathrm{MO}(\mathrm{z})$ |  |  |  |  |  |
|  | 53 | 161 | Veinlets of qz with py. \& diss. moly, often parallel | 1513 | 53-54 | 1 | 6 |  |  |  |  |
|  |  |  | to filiation. |  |  |  |  |  |  |  |  |
|  |  |  | 53-54' Contact zone qz. vein with diss. moly | 14 | 54-64 | 10 | 182 | 0.014 |  |  |  |
|  |  |  | 54-64' Filiation paralle1 to C.A. | 15 | 64-74 | 10 | 36 |  |  |  |  |
|  |  |  | 64-74' Filiation at $20^{\circ}$ w.r.t. C.A. | 16 | 74-84 | 10 | 195 | 0.022 |  |  |  |
|  |  |  | 77-78' Several $5-10 \mathrm{~cm}$ qz veins with diss. moly | 17 | 84-94 | 10 | 197 | 0.022 |  |  |  |
|  |  |  | at $80^{\circ}$ w.r.t. C.A. | 18. | 94-104 | 10 | 100 | 0.010 |  |  |  |
|  |  |  | 79.5-80' Slip surface with moly smear parallel to | 19 | 104-114 | 10 | 64 |  |  |  |  |
|  |  |  | C.A. | 20 | 114-124 | 10 | 26 |  |  |  |  |
|  |  |  | 89-95' 1 cm mud seam with moly smear | 21 | 124-134 | 10 | 12 |  |  |  |  |
|  |  |  | parallel to C.A. |  |  |  |  |  |  |  |  |
|  |  |  | $96.5^{\prime} \quad 5 \mathrm{~cm}$ qz vein with py \& v.f.g. diss Moly |  |  |  |  |  |  |  |  |
|  |  |  | foliation at $10^{\circ}$ w.r.t. C.A. |  |  |  |  |  |  |  |  |
|  |  |  | 124-125 ${ }^{\prime} 3 \mathrm{~cm}$ mud seam at $30^{\circ}$ W.r.t. C.A. |  |  |  |  |  |  |  |  |
|  |  |  | foliation at $10^{\circ}$ w.r.t. C.A. |  |  |  |  |  |  |  |  |
|  |  |  | $132-134^{\prime}$ Several gz veins with moly at $60^{\circ} \mathrm{C}$. A. |  |  |  |  |  |  |  |  |
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## Diamond Drill Record



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Hor. Comp.
Ver. Comp.
ue Dip
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Dale Logged

## Diamond Drill Record



## Diamond Drill Record

Hole No. GC-81-10
Properly Gray Creek__
Project No. 54040
Commenced Oat. 14, 1981
Completed Oct. 25, 1981

| Length | 1143 ft |
| :--- | :--- |
| Bearing |  |
| Dip | $-90^{\circ}$ |
| Lat. | $2+75 \mathrm{~S}$ |
| Dep. | $1+00 \mathrm{E}$ |

Elev.

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## Diamond Drill Record

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## Diamond Drill Record



## DEKALB MINING CORPORATION

Hor. Comp
Ver. Comp.
Etch. at
True Dip
Logged by
Date Logged

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