GEOLOGICAL, GEOCHEMICAL AND TRENCHING REPORT ON BOLD CLAIMS

OMINECA MINING DIVISION

93N/9W

Lat. 55037' Long. 124023'

ESSO RESOURCES CANADA LIMITED
ESSO MINERALS CANADA
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bу

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October, 1982

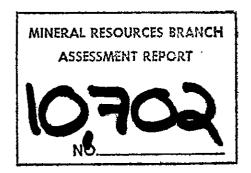
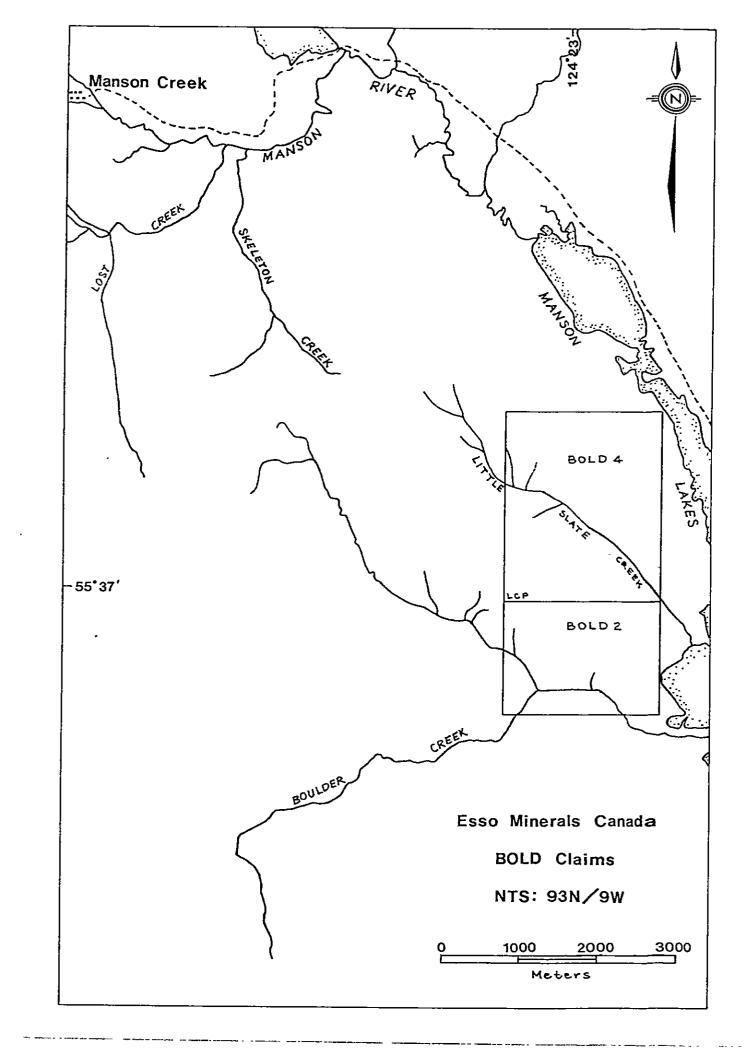


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INTRODUCTION

This report deals with geological mapping, geochemical sampling, and bulldozer trenching which was conducted on the BOLD property, BOLD 2 and 4 mineral claims, owned by Esso Resources Canada Limited. Work was carried out between June 12 and June 23, 1982.

The purpose of the work was to follow-up and further evaluate soil geochemical data obtained in 1978, and to gain a better understanding of the geological framework controlling previously known Pb-Zn-Ag mineralization. Bulldozer trenching attempted to discover the source of high grade mineralization in the main showing area.

LOCATION AND ACCESS

The BOLD mineral claims are located 8.5 km southeast of Manson Creek and 145 km north of Fort St. James, central B.C. (NTS: 93N/9W). Relief within the BOLD claim group is approximately 350 m, ranging in elevation from 900 meters near Boulder Lake to 1250 meters at the height of land on BOLD 4.

Access is readily gained by 4-wheel-drive vehicle from the Omineca Road approximately .5 km north of Boulder Lake. A bridge constructed in 1981 spans Manson Creek allowing passage

for light vehicular traffic. The road parallels the west shore of Boulder Lake and terminates at a camp near the confluence of Boulder Creek with Boulder Lake. Access to the property is gained by a passable 4-wheel-drive road which branchs off the Boulder Lake perimeter road approximately half-way around the lake. During periods of wet weather the BOLD access road is not passable.

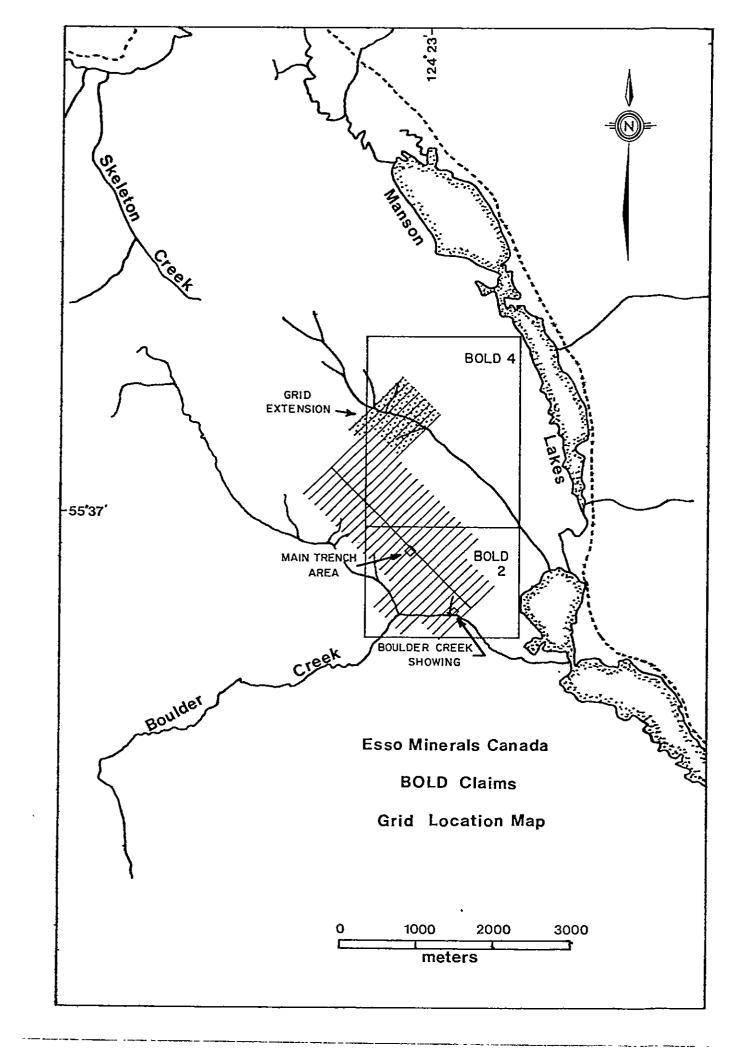
CLAIM STATUS

The BOLD 2 and 4 mineral claims are owned by Esso Resources Canada Limited, and were staked in September 1977.

| CLAIM | ANNIVERSARY DATE | UNITS | RECORD NO. |
|----------|------------------|-------|------------|
| Bold 2 | September 16 | 12 | 788 |
| Bold 4 . | September 16 | 20 | 790 |

PREVIOUS PROPERTY EVALUATION

Previous exploration in the Boulder Creek area dates back to 1940 when the Berthold lode gold prospect located about 1 km south of Boulder Creek was examined. A three meter wide



silicified fracture zone containing pyrite, galena, gold, and silver was trenched. Several quartz veins along Boulder Creek were trenched and sampled during 1966-1968 by Omineca Base Metals Ltd. Only weak base metal values were encountered.

During 1972 and 1973 Northern Tungsten Mines Ltd. conducted extensive surface property evaluation between Boulder Creek and Little Slate Creek to the north. Work in 1972 consisted of road construction, soil sampling and trenching. In 1973 work consisted of additional soil sampling, trenching, geological mapping, an E.M. survey, and minor Induced Polarization, and diamond drilling of 8 drill holes totalling 862 metres.

Minor amounts of placer gold, scheelite, and cessiterite have been recovered from Boulder Creek since 1940.

In 1978 Esso Minerals Canada conducted an extensive evaluation program on their BOLD claims consisting of linecutting totalling 27.2 line kilometers, geological mapping at a scale of 1:2,500 covering 240 hectares, geophysical surveys including magnetometer and horizontal loop electromagnetic, both surveys covering 25.2 line kilometers. Geochemical sampling consisted of collecting 958 soil samples and analysing these for lead, zinc, copper, silver, and molybdenum. The work was confined to the area northwest of Boulder Lake between Boulder and Little Slate Creeks.

SUMMARY OF WORK DONE

Work completed by Esso Resources Canada Limited on the BOLD 2 and 4 mineral claims in 1982 consisted of: trenching, geological mapping and sampling of the Boulder Creek showing; rehabilitating the trenchs in the main showing area and geologically mapping these in detail; remapping the southern half of the BOLD property; extending the soil geochem grid in the northeastern corner of the property; and excavating three soil profile pits in the area of a lead anomaly in the northeastern corner of the property.

GEOLOGICAL SURVEY

The objective of geological mapping was to establish the geological features controlling sulfide mineralization as observed on the BOLD claims. The overall geology of the property was examined, virtually all rock exposures were remapped at a scale of 1:2,500. In addition, two mineralized areas were mapped in detail at a scale of 1:500, these include the main trench area and the Boulder Creek showing.

A total of seven rock types are identified as occurring within the confines of the BOLD property. The oldest rocks are those of the Upper Triassic and Later, Takla Group. These

rocks have been subjected to intense deformation and subsequently intruded by two separate intrusive events. The first intrusive event was the emplacement of an ultrabasic sill-like body within the Takla Group. The ultrabasic unit belongs to the Post-Permian-Upper Triassic Trembleur Intrusions. A second intrusive unit, a fine grained quartz-diorite is of dubious origin.

Upper Triassic Takla Group

The Takla group consists of a sequence of thinly bedded shales, limestones, calcareous shales, sandstones, siltstones, metamorphosed equivalents, and an andesite.

The limestones are white to light grey to tan, fine grained, and thinly bedded, generally from 1 cm to 30 cm thick. The limestones are locally silicified with an increase in hardness and grain-size. Pyrite is present as medium to coarse euhedral crystals disseminted comprising 10% by volume of rock. In the vicinity of the main trench, the limestone has been intensely folded, and contorted with individual folds plunging 20° to 21° at 305° to 324° .

The shales are thinly bedded, black, fissile, graphitic rocks. Pyrite is occasionally present as medium to coarse crystals making up to 10% of the rock. The shales in part are

calcareous and grade into the limestone unit or exhibit intimate interbedding with the calcareous unit.

The siltstones are white to buff in colour, fine grained rocks that have an appearance very similar to the limestone. The siltstones are thicker bedded and slightly more massive than the limestone and contain quartz grains in a finer grained muddy matrix. Pyrite occurs as disseminated grains through the unit comprising up to 15% of the rock.

The sandstone unit is somewhat similar to the siltstone, however it contains abundant quartz grains. In the vicinity of the Boulder Creek showing abundant quartz grains have been fused and the rock assumes the character of a quartzite.

The andesites are dark green, fine grained massive rocks only slightly foliated. Locally medium grained ankerite crystals occur within the andesite. Pyrite occurs as euhedral, medium grained disseminations comprising 5-7% by volume of rock. The unit would appear to be slightly chloritized and weakly carbonitized.

Post-Permian, Upper Triassic Trembleur Intrusions

The Trembleur intrusions consist of sills, stocks, and batholiths of peridotite, dunite, and pyroxenite, and their serpentinized and steatitized equivalents. Numerous small

bodies of serpentine and altered serpentine are exposed along the Manson fault zone. All of them are conformable with the bedding of the intruded rocks and therefore are probably sills. Most of the serpentine is altered to carbonate, quartz, and mariposite. Within the confines of the BOLD claim group the ultrabasic rocks have been altered to a talc-ankerite schist. This unit is a buff to light brown weathering schistose rock generally containing about 30% light brown to coarse crystals of ankerite. The remainder of the rock is composed of quartz-feldspar, talc sericite. Mariposite is an ubiquitous component, occurring commonly within the ultrabasic unit.

Several small quartz diorite dike-like bodies occur in the southeastern corner of the map area. The rock is medium grained, equigranular, dark grey, and massive. Free quartz was observed in several locations. The overall areal extent of this unit is minimal and the relationship with surrounding rock units is unknown.

The Takla Group sedimentary-volcanic sequence occupies the central portion of the property which coincides with the height of land. The sedimentary units are intimately interbedded, tightly folded and contorted resulting in a complex structural setting. The general strike of the sedimentary sequence is 282° to 343° with gentle dips of 20°-35° either northeasterly or southwesterly. Farther to the northwest

several large exposures of andesite occur. The relationship between the sediments and the andesite is unknown although the foliation developed in the andesite strikes $283^{\circ}-287^{\circ}$ and dips northerly suggesting a similar bedding attitude as that observed in the sediments. Geophysical data obtained by Esso in 1978 suggests that graphitic-shaley units in the form of narrow, linear, parallel bands, trend northwesterly into areas of extensive overburden. The extent of the volcanic sequence is unknown primarily due to a lack of rock exposure.

The sediment-volcanic sequence lies unconformably on the talc-ankerite schist unit which occupies the majority of the south-central portion of the map area. The contact between the two units was observed in the vicinity of the main trench and is characterized by a 20 cm wide clay-talc assemblage - a fault contact. From previous drill results the contact between the overlying sediments and the underlying ultrabasic rocks dips 15° to 20° to the northeast. Similarly the contact between the ultrabasic unit and the underlying quartzite was observed to be a fault contact in Trench 2, characterized by a narrow 20 cm zone of white clay-talc material. The measured fault plane surface strikes 104-1150 and dips 30-380 northerly. Bedding measurements obtained from the underlying quartzite suggest an attitude very similar to that of the fault plane, $095^{\circ}-120^{\circ}$ and dips of $24^{\circ}-49^{\circ}$ northerly. This evidence would suggest that the ultrabasic unit is a sill-like mass readily conformable with bedding.

GEOCHEMICAL SURVEY

Geochemical sampling consisted of: extending the original grid at its northeastern extremity in order to delineate a lead soil geochem anomaly outlined in the original 1978 soil sampling conducted by Esso; the excavation of three pits in order that profile sampling could be performed to determine the true nature of the above lead soil geochem anomaly; and sediment geochemical sampling of Boulder Creek and Little Slate Creek.

Procedure

Soil samples were collected at 25 meter stations along lines spaced 100 meters. The average depth of sample collection was 30 cm. A prospector's mattock was used to collect the samples and an attempt was made to collect 'B' horizon soils. Several sample stations were not sampled due to wet marshy conditions.

Samples were collected in brown Kraft paper envelopes, dried and sent for analysis to Min-En Laboratories in North Vancouver, B.C. Geochemical samples were analysed for lead and zinc only.

Grid Extension Soil Sampling

A total of 240 soil samples were collected along chain and compass lines at intervals of 25 meters. The lines were spaced 100 meters similar to the established 1978 picket grid. 'Six lines, L5+00N to L10+00N inclusive, were extended from 7+00E to 15+00E and two additional lines, L11+00N and L12+00N were established to further extend the grid to the northwest.

Background and threshold levels established in the 1978 geochem survey were adopted for lead and zinc. Background for lead is 75 ppm, threshold is 150 ppm, and background for zinc is 140 ppm, threshold is 280 ppm.

Four distinct lead anomalies were outlined in the 1982 sampling including a large elongate anomaly originally partially outlined in the 1978 sampling. Anomaly 1 extends from L5+00N to L12+00N and attains a width of 75 to 100 meters. Lead values are greater than 150 ppm and generally less than 300 ppm. This anomaly is open to the northwest. Zinc values are near background to slightly above background. Anomaly 1 occurs on a wet, northeasterly dipping slope of approximately 15°. The slope is covered by a heavy stand of balsam and it is suspected that overburden may be substantial considering the lack of outcrop in the area.

Anomaly 2 is parallel to and northeast of anomaly 1, extends across L10+00N to L12+00N, and attains a maximum width of 50 m. This anomaly strikes northwesterly, has a length of

125 metres and is open to the northwest. Lead values range from 152 to 296 ppm, and zinc values range from 162 to 283 ppm.

Anomaly 3 is northeast of anomaly 2 and maintains a similar northwesterly strike trend. This anomaly has a length of 225 m and a width of 50 m and is closed at its extremities. Lead values range from 154 to 320 ppm and zinc values range from 129 to 216 ppm.

Anomaly 4 is northeast of anomaly 3 and also trends northwesterly. Two samples on adjoining lines resulted in values of 210 and 320 ppm lead, and 186 and 213 ppm zinc. This anomaly is 100 m long and 25 m wide, and is closed at both ends.

It is suspected that anomalies 2, 3, and 4 may have resulted from hydromorphic accummulation considering that all three anomalies occur in a low, wet area near the junction of two small intermittent streams with Little Slate Creek. The western portion of anomaly 1 straddles Little Slate Creek and in part may reflect organic enhancement of metals.

Profile Sampling - Anomaly 1

A proposed bulldozer trench in the vicinity of L9+00N, 6+85E, Anomaly 1, was not attempted due to the moderate northerly slope and wet ground conditions. Alternatively three hand pits were excavated with the following results for lead and zinc:

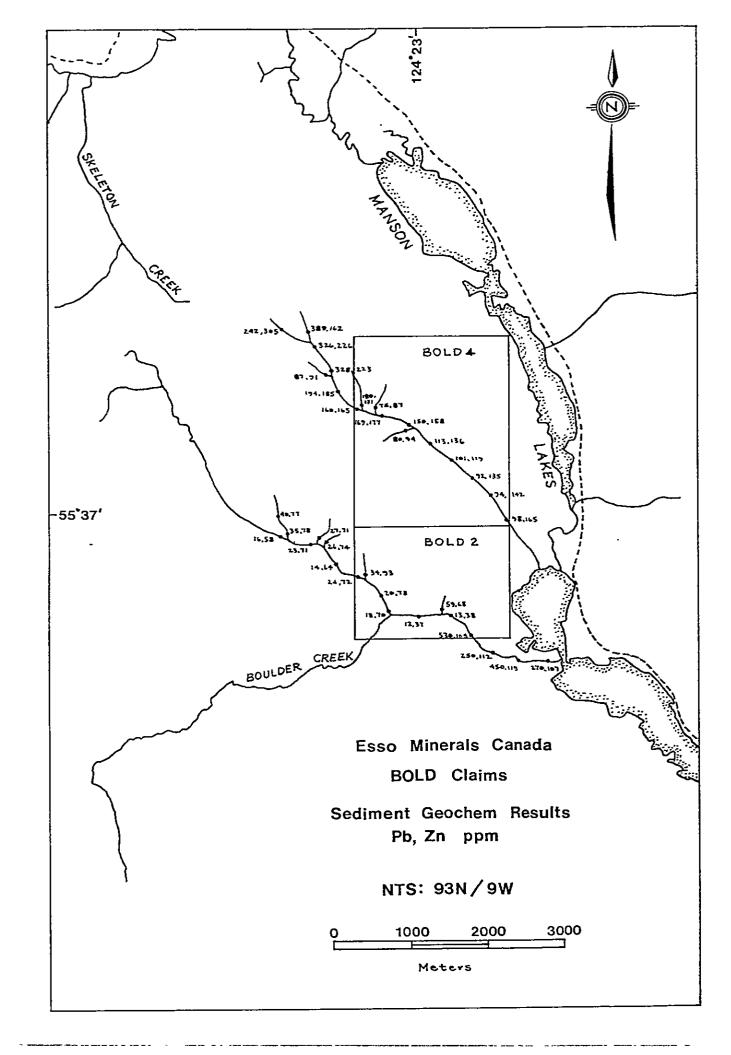
| | Line | Station | Depth | Lead (ppm) | Zinc (ppm) |
|---|--------|---------|---------|------------|------------|
| | L9+00N | 6+50E | surface | 460 | 224 |
| | | | 30 cm | 188 | 157 |
| | | | 50 cm | 340 | 116 |
| | | | 70 cm | 275 | 117 |
| | | | 90 cm | 192 | 98 |
| | | 6+75E | surface | 320 | 231 |
| ` | | | 30 cm | 285 | 220 |
| , | | | 50 cm | 420 | 164 |
| | | | 70 cm | 310 | 106 |
| | | • | 90 cm | 320 | 128 |
| | | 7+00E | surface | 360 | 177 |
| | | | 30 cm | 220 | 178 |
| | | | 50 cm | 230 | 124 |
| | | | 70 cm | 340 | 112 |
| | | | 90 cm | 380 | 133 |
| | | | | | |

Geochemical Sediment Sampling

Two main drainages skirting the perimeter of the BOLD property were sampled including Boulder Creek and Little Slate Creek. A total of 34 sediment samples were collected and analysed for lead and zinc. Values in Boulder Creek were depressed for the most part ranging from 12 to 59 ppm Pb and 37 to 78 ppm Zn. Immediately below the Boulder Creek showing lead geochem values increase drastically to 530 ppm and zinc values increase moderately to 119 ppm.

Geochem values obtained from Little Slate Creek resulted in significant lead and zinc concentrations. Lead values range from 75 to 389 ppm with values increasing up stream. Zinc values also increase upstream with values ranging from 87 to 305 ppm.

The source of the anomalous Pb-Zn sediment geochemistry in Boulder Creek is quite obviously the Boulder Creek showing while the source in the Little Slate Creek drainage basin has not been discovered and must be present beyond the headwaters of Little Slate Creek possibly on the divide opposite Skeleton Creek.



TRENCHING

Physical work on the BOLD property consisted of excavating two trenchs in the Boulder Creek showing and rehabilitating the trenchs in the main showing area.

Boulder Creek Showing

The Boulder Creek showing was discovered early in 1982 when mineralized quartzite debris was uncovered in a bulldozer cut near Boulder Creek. Trench 1 is 30 m long and exposes a sequence of thinly bedded siltstones and interbedded calcareous beds striking 095°-120° and dipping 36° to 49° northerly. Trace amounts of galena were observed in all three samples collected, 1079, 1080 and 1081, however, results for Mo, Cu, Pb, Zn, Ag, Au proved negligible. The samples were collected perpendicular to and along the stratigraphic sections.

Trench 2 was excavated approximately 6 meters stratigraphically above trench 1 for a length of 45 m. The contact between the ultrabasic rocks and underlying quartzites was unearthed revealing a fault relationship. The underlying quartzites are thoroughly shattered and weathered, however several 'blocks' less than 1 m^2 are preserved and these exhibit thin whisps of sulfide mineralization conformable with bedding in the quartzites. The purpose of trench 2 was to

expose a constant stratigraphic horizon in order that the lateral continuity of sulfide mineralization could be evaluated. Four cross-stratigraphic assay samples were collected at 10 meter intervals along the stratigraphic horizon, the results for Mo, Cu, Pb, Zn, Ag, Au are presented on Map 4. A 1.1 meter sample, #1075, ran 0.286% Mo, 4.35% Pb, 1.30% Zn, and 3.72 oz/t Ag. Sample #1078 contained minute disseminated flakes of molybdenite hosted by the quartzite, this sample assayed 0.156% Mo, 0.90% Pb, 0.25% Zn, and 0.19 oz/t Ag. Samples 1076 and 1077 assayed low in all elements tested, possibly a function of the weathered nature of the quartzite.

Assay samples collected from trench 2 are encouraging, however the depth potential, cross-stratigraphic, is definitely limited considering the weak assay responses from samples collected in trench 1.

Main Trench Area

Several existing trenchs in the main showing area were scraped out, washed, and geologically mapped at a scale of 1:500. The purpose of the trench rehabilitation was to determine the source of hi-grade Mo-Pb-Ag mineralization discovered in float during the 1978 field season. A short segment of well mineralized vein material was discovered in a

trench approximately 30-40 cm long and 20 cm wide. Further trenching did not establish a strike orientation.

Several mineralized quartz veins were discovered as shown in Map 3. The veins are generally thoroughly contorted and do not exhibit any particular trend. Sulfide mineralization is very erratic, spotty, and consists of coarse grained pyrite, galena, and minor sphalerite. The surface sulfide mineralization in the main showing area was the target of four drill-holes drilled by Northern Tungsten Mines Ltd. in 1973. The drill-holes intersected very weak mineralization at depth.

Geophysical surveys conducted by Esso Resources Canada in 1978 failed to detect any significant conductors in the main trench area which reflects the very weak nature of the sulfide mineralization intersected in the 1973 diamond drilling.

The potential for discovering any substantial tonnage in the main trench area is negligible considering the very shallow nature of the ultrabasic contact and the very weak mineralization discovered to date.

CONCLUSIONS AND RECOMMENDATIONS

Three target areas were examined on the BOLD property during the 1982 field season.

The Boulder Creek showing was trenched, geologically mapped, and sampled. Sulfide mineralization in the form of molybdenite, galena, and minor sphalerite occurs as thin whisps in a well bedded quartzite beneath an ultrabasic sill. One sample ran 0.286% Mo, 4.35% Pb, 1.30% Zn, and 3.72 oz/t Ag over 1.1 meter. Depth potential for the mineralization is limited as a trench 6 meters stratigraphically below the upper trench yielded trace values for Mo, Cu, Pb, Zn, Ag, Au.

The Main Trench area was closely examined and geologically mapped in detail. Coarse grained galena, sphalerite, minor chalcopyrite, and molybdenite occur in widely scattered patchs in intensely contorted quartz veins. A short vein segment of high grade Mo, Pb, Ag could not be traced over any appreciable strike length. The sedimentary sequence overlying the ultrabasic sill is approximately 25 meters thick, thereby limiting the depth potential of sulfide mineralization contained in the thinly bedded limestone.

The grid extension has outlined four lead soil anomalies, three of which are hydromorphic accumulations while Anomaly 1, the largest anomaly, measuring 700 meters in length and 75-100 meters in width appears to represent a bedrock source.

Sediment geochemistry at the headwaters of Little Slate

Creek suggests the presence of a lead source near the divide of

Little Slate Creek and Skeleton Creek.

One claim of 20 units should be staked adjoining and to the west of BOLD 4 in order that Anomaly 1, its westerly projection is adequately covered.

Anomaly 1 should be further delineated by soil sampling and trenched to expose the bedrock source.

Soil geochem sampling should be extended to cover the area at the headwaters of Skeleton and Little Slate Creeks.

COST STATEMENT

BOLD PROPERTY - 1982

| 1. | LABOUR | | |
|---------|--|--|-------------------------------|
| | June 9-23 1982 Assistant | 34/day for 15 days 79/day for 15 days 75/day for 15 days | 2010.00 1185.00 1125.00 |
| 2. | ROOM & BOARD | | |
| | 3 men @ \$30/day for 15 days | | 1350.00 |
| 3. | FIELD SUPPLIES | | |
| | Miscellaneous | | 383.00 |
| 4. | EQUIPMENT RENTAL | | |
| | i) Truck @ \$1100/month for 15 ii) U-Haul trailer @ \$20/day f | days or 14 days | 550.00 280.00 |
| , 5. | TRENCHING | | |
| | 37 hours Cat Tractor @ \$50.00 | 1850.00 285.00 | 2135.00 |
| | Fuel | | 2100.00 |
| | Trench 1 50 m x 5 m x 5 m = Trench 2 50 m x 5 m x 5 m = Main Trench 50 m x 5 m x 1 m | 1250 m ³ 1250 m ³ = 250 m ³ | |
| | TOTAL | 2750 m ³ | |
| 6. | ANALYSIS COSTS | | |
| | Geochem 317 soil samples (Pb, Assay 7 (Mo, Cu, Pb, Zn, Ag, A | Zn) @ 3.75 u) @ 49.25 | 1188.75 344.75 |
| | TOTAL | | 10,551.50 |

STATEMENT OF QUALFICATIONS

I, Walter D. Melnyk of North Vancouver, British Columbia hereby certify the following qualifications:

I obtained a B. Sc. (Eng.) in 1972 in Geological Engineering from the University of Saskatchewan, Saskatoon.

I am a registered member of the Association of Professional Engineers in the provinces of British Columbia and Ontario.

I have been practising my profession as a geologist in .

Canada for the past eleven years.

Walter D. Melnyk

Esso Resources Canada Ltd.

LIST OF REFERENCES

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