REPORT

on the

DELLA MINES PROSPECT

LIARD MINING DIVISION, B.C.

for

ASHLAND OIL & REFINING COMPANY

by

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Vancouver, B.C.

September 3rd, 1969.

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### HAMISTR AWORS

Sections 1" = 100" - at end of report

H-26, 16, 25

H-23, 24, 22, 15

H-21, 20, 19

H-1, 2, 3, 4

Map showing location of drill holes 1" = 100" - in envelope at back

#### 

Della Mines Ltd. holds a large block of claims in the Mt. Haskin area, 12 miles ENE of Caseiar in the Liard Mining Division, B.C.

Robertson and acquired for Della Mines Ltd. \* in which R & P Metals
Corporation Limited and Iso Explorations Ltd. participate. With characteristic energy, Robertson immediately initiated an exploration
program. A road was built 5 miles into the property from the CassiarStewart highway and a tent camp established at the north end of Helen
Lake. A BQ wireline drilling program was initiated on September 14,
1968, and continued until November 16, 1968. Holes H-1 to H-15 were
drilled for a total footage of 6,545 feet.

Early in 1969, Ashland Oil & Refining Company opted to participate in the Della program; drilling recommenced on April 17, 1969, and a second BQ wireline rig started drilling on June 1st.

The writer spent August 24th to 28th on the property to scrutinize the material facts, to appraise the findings to date and, in general, to assess the potential of the property.

At the time of this examination both drills were going full bore. 46 holes have now been completed for a total footage of 22,270 feet.

One unfortunate feature in terms of the examination is the poor core storage facilities at the camp. The core boxes are

stacked in rows instead of being racked properly, with the result that the securing of individual boxes for inspection is usually a tedious job.

A few cores from critical areas are no longer at the property. These include:

Hole H-17: intervals 305\*-325\* 375\*-405\* 495\*-525\*

Hole H-25: interval 204 - 264

The help tendered by George Lamont, resident geologist, during the course of this examination is gratefully acknowledged.

#### SUMMARY AND RECOMMENDATION

The locus of the present program - the margin of a granitic stock - is a classic, time-honoured, target area in B.C. exploration.
Known showings in this setting axiomatically warrant investigation;
hence the original merit of the Della program, as such, is beyond
question.

The Mt. Haskin granitic stock, where presently being investigated, intrudes impure argillaceous and lisy sediments. There is some development of hornfels adjacent to the granite and, in other areas of sediment, skarn has developed. In this environment four types of mineralization are recognized:

- Molybdenite in quartz veinlets in the <u>sediments</u> and to a lesser extent in granite.
- Massive sulphides, chiefly pyrrhotite with varying amounts of pyrite, sphalerite, galena, chalcopyrite and arsenopyrite in <u>skarn</u>.

- 3. The above sulphides scattered throughout wide sections of <u>chert</u> in which they generally constitute considerably less than 5 per cent of the rock.
- 4. Magnetite and sphalerite in skern.

Economic quantities of mineral have not been disclosed by 22,270 feet of drilling along 4400 feet of length in the peripheral area of the Mount Haskin granitic stock.

The base metal occurrences in the skarn are zinc-rich bands and pods of limited size; galena occurs only sporadically and silver is of little consequence. In the chart the same sulphide assemblage is present but in minor amount. Particular attention to those sections supposed to contain antimony revealed no tetrahedrite-tennantite whatsoever, nor any mystery sulphide, particularly in the quantity necessary to return assays of 1.5% antimony or better.

With regard to molybdenum, it has so far not been found in sufficient quantity and value to be of economic interest. A calculation is included to substantiate this statement.

The potential of the property has obviously not been enhanced by the work to date. On the other hand, some apparently favourable ground remains to be appraised. Geological mapping, soil sampling and, perhaps, geophysics should precede any further drilling on the property.

#### GEDLOGY

The layered rocks on Mount Haskin belong to the Atan Group of Lower Cambrian age. They are entirely sedimentary, consisting of argillaceous and limy materials.

Underlying much of Mount Haskin and particularly the northwestern slope is a granite porphyry stock. Its effect on the sediments has been to convert some of the argillaceous rocks to hornfels and the limestones to chert, cherty limestone, and skarn composed of such minerals as garnet and diopside.

High up on the southwestern side of Hount Haskin the sediments dip westward at 20 degrees. On the highly rust coloured, northeastern flank they dip northward at 45-50°. In the vicinity of the drilling west of Helen Lake the rocks are mainly cherts and minor limestone that dip steeply westward.

In the campsite area, where most of the mineralization has been disclosed, the sedimentary-granite contact runs approximately east-west. The sediments here strike WMW and dip southwards, into the stock, at angles of 45 to 70 degrees.

From the top of Mount Haskin a very obvious fault strikes N 30° W and passes about 800 feet east of the easternmost drill holes - Holes G-6 and G-7. The fault is marked by a very steep guich in its lower reaches and is presumed to dip vertically because of its extremely uniform trace at the surface. It is to the east of this fault that the sediments dip northward whereas, to the west of the fault, they dip southward towards the granite porphyry.

#### MINERALIZATION

Heavy magnetite-sphalerite mineralization occurs north of the granite stock and is separated from it by about 100 feet of chert. It is intersected at the top of Holes H-1 to H-4 where it is associated with garnet diopside skarn. This occurrence is of academic interest only.

Actually, skarn mineralization consisting of heavy pyrrhotite and pyrite with lesser sphalerite and minor chalcopyrite and
galena is intersected in the H-5, 6, 7, 8 section as well as H-1, 2, 3, 4.

It can be traced on surface intermittently for a length of 600 feet.

The sphalerite is a dark brown to black, marmatitic variety; grades
average about 5% 2n in the skarn area. The best intersection was
in Hole H-6 which cut 62 feet of 6,7% 2n, 1.71% Fb and 1.01 oz. Ag.

Nothing approaching this interval was cut in adjacent Holes H-5, 7
and 8 or elsewhere in the skarm.

Numerous holes drilled vertically and eastward on the west side of Helen Lake have intersected chert lightly mineralized with pyrrhotite, pyrite, sphalerite and sporadic chalcopyrite, galena and arsenopyrite. This mineralization is fine grained but not to the point that mineral identification is a serious problem. Particular attention was paid to the "antimony sections" and there is just no antimony mineral present. An assay of 1.4% 5b would require the presence of 2% stibnite which could hardly be overlooked, particularly when amounts of less than 0.5 per cent chalcopyrite, galena, and arsenopyrite are readily identifiable. Furthermore, work at the

Department of Geology, U.B.C. failed to recognize any antimony-bearing mineral in well mineralized core from Hole H-17.

(The antimony puzzle is obviously one of confusing arsenic with antimony in the assay process used by one particular assay office. The writer submitted a sample of pure arsenopyrite (not from Bella) to this assay office and received an assay return of 4.75% Sb.)

The mineralization discussed above is, of course, of academic interest only. So is the molybdenum occurrence in the northwest sector of the Mount Haskin stock, but it is closer to being econonic than the predominantly gine mineralization.

The main mass of the Mount Haskin stock is essentially barren. Even in the northwest sector, it is poorly mineralized and it is the hornfels and chert that contain the most molybdenite - which occurs with quartz in veinlets. Hole H-16 is said to be a good solybdenite hole but it is difficult to confirs this when 3/4 of the core has been sent for assay.

In order to obtain a very "round" figure for the amount and grade of molybdenum found to date, the writer has indulged in a geometric exercise involving the following sections:

- 8-26, 16, 25, 8-23, 24, 22, 15, 8-21, 20, 19, 8-1, 2, 3, 4,

These sections are included at the end of the report and on each a "mineralized area" is indicated plus what is considered to be a reasonable grade based on assay returns from J.R. Williams.

The shapes of the mineralized areas are not to be confused with possible mineable sections. They are areas based solely on the drill hole results and nothing more.

Taking these areas and measuring distances between the sections, and beyond in the case of the end sections, the writer comes up with the following townage and grade figures:

	TONNIGE (1/10 Vol.)	
H-26, 16, 25	81,900 fr. 2 x 300* = 2,457,000	0.175% 16082
H-23, 24, 22, 15	110,400 ft.2 x 300° = 3,312,000	0.125%
H-21, 20, 19	$\frac{128,000 \text{ ft.}^2 \times 450^4}{10} = 5,760,000$	0.11%
H-1, 2, 3, 4	23,000 ft. 2 x 6001 = 1,380,000	0,113%
	12,909,000 T.	+ 0.127% No52

Now, because J.R. Williams NoS2 assays appear, on comparison, to be low in the higher ranges, the writer performed a further exercise based on a comparison of assays from Hole H-19 (Sample Nos. 553 to 562). For this 100 foot interval, the average assay obtained by Williams was 0.160% NoS2 whereas that obtained by Dondar-Clegs was 0.213% NoS2. If one now adjusts the grade of the deposit according to the ratio 213:160, the figures obtained are: 12.909,000 T. of 0.17% NoS2.

It should be emphasized that the above calculations are not considered realistic; they represent a mathematical exercise.

If taken at face value, however, they indicate clearly that the molybdenite found to date does not constitute an economic deposit.

#### CONCLUSION

The exploration to date has not been particularly encouraging. Some molybdenum has been found in sub-commercial amounts. Zinc-lead mineralization in the Atan Group sediments has been known for decades and the possibility of developing a commercial operation on these metals is not considered good.

The cores, particularly in the lisy sections, should be checked for tungsten.

Respectfully submitted,

BACON & CROWNERST LID.

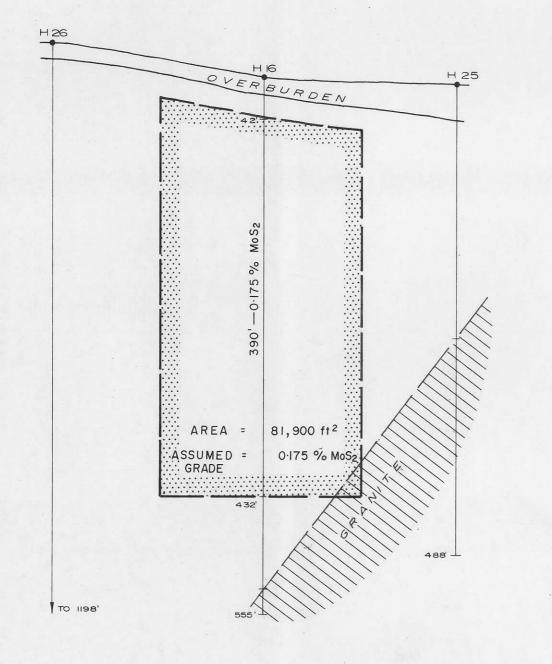
W.R. Bacon, Ph.D. P.Eng.



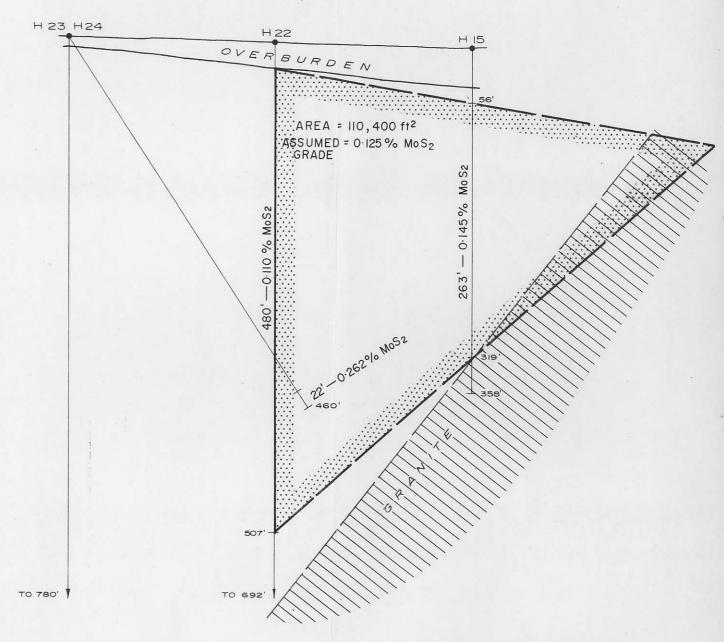
EL. 3500' -

EL. 3500 '

## SECTION H-26, 16, 25



# SECTION H-23, 24, 22, 15



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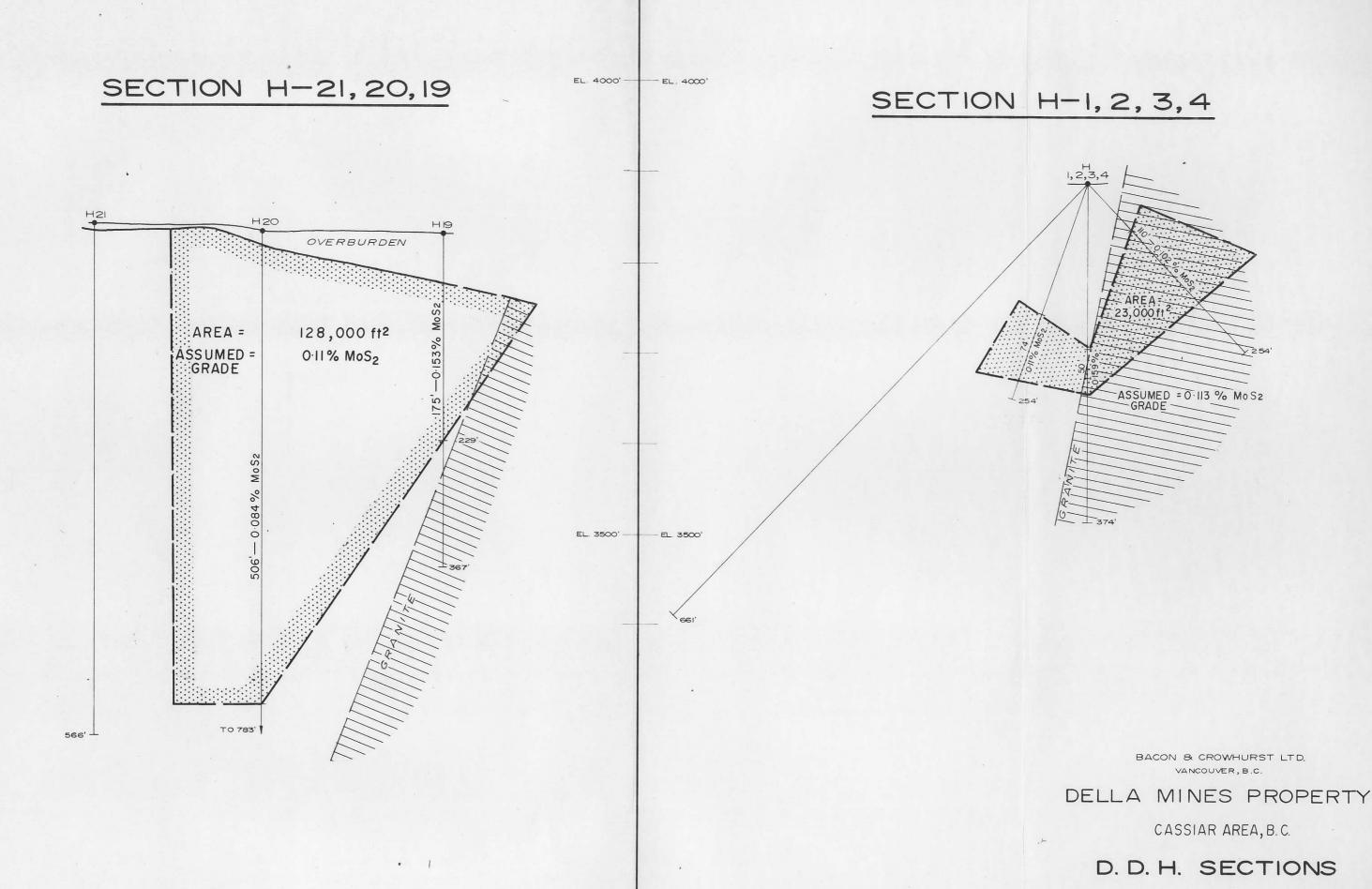
DELLA MINES PROPERTY

CASSIAR AREA, B.C.

D. D. H. SECTIONS

SCALE : 1"=100'

SEPT. 3, 1969



SCALE : 1" = 100'

SEPT. 3, 1969

