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REPORT ON  
SURFACE EXPLORATION  
DELLA MINES LTD.  
MOUNT HASKIN PROPERTY  
LIARD MINING DIVISION, B.C.

January 7, 1972      Geo. L. Lamont, P. Eng.  
Geologist

TABLE OF CONTENTS

<u>SUBJECT</u>	<u>PAGE</u>
INTRODUCTION	1
GEOLOGY	2
DELLA 'A' ZONE	3
FORT RELIANCE SNOW ZONE	4
FORT RELIANCE COBRA ZONE	5
DELLA DAKO ZONE	5
DELLA CHOPPER PAD ZONE	6
CONCLUSIONS AND RECOMMENDATIONS	7

ILLUSTRATIONS

GEOLOGICAL MAP,	FIG. 1	In pocket of Report
MINERAL ZONE MAPS,	FIG. 2 to 6	Insert following Report

DELLA MINES LTD. (N.P.L.)

Report to: Mr. Andrew Robertson, President  
from: Geo. L. Lamont, Geologist  
Subject: SURFACE EXPLORATION  
MOUNT HASKIN PROPERTY, CASSIAR AREA, B.C.

INTRODUCTION

Supplementing the underground exploration project conducted on the Della 'B' zone during the 1971 field season, a program of surface exploration was carried out at a number of locations on Mount Haskin. The purpose of this work was to give an indication of a qualitative distribution of the complex mineralization which occurs at the Della 'B' zone.

The geological map, figure 1, shows the regional geology of the Mount Haskin area and the locations of five mineral occurrences that were investigated. Details of each occurrence are shown on inserts, figures 2 to 6, following this report. Two of the mineral occurrences are located on claims owned by Fort Reliance Minerals Limited, the remainder on Della claims. Fresh pits or trenches were drilled and blasted in the more easily accessible locations and representative samples collected from fresh rock.

In the north central part of the property, bulldozer trenching and stripping was carried out on the flanks of two limestone ridges in an attempt to expose the contact areas. These efforts were unsuccessful and it is apparent that the limestone contacts are covered by thick, swampy overburden.

#### GEOLOGY

The regional geology of the property is shown on figure 1 which is essentially a copy, on a reduced scale, of the map submitted with a report dated March 9, 1970. The enclosed map does not, however, show the extensive drilling carried out in previous seasons.

In summary, the property is located on the eastern flank of a northwest trending syncline and is underlain by a faulted series of late Precambrian to Ordovician sedimentary rocks, intruded by a granite porphyry stock. All the sedimentary, and to a lesser extent the intrusive, rocks have been subjected to extensive metamorphism and structural deformation. The Atan group, host rocks for mineralization, has been mapped in three units - cherty, limestone and hornfel. Detailed studies have not been carried out on the rock units but each is quite complex and the applied name indicates the general characteristic.

Mineralization occurs in all three Atan units, generally as sparsely disseminated sulphides. During the 1969 drilling program, a small concentration of molybdenite was defined, extending from an area of highly fractured chert into the periphery of the granite stock. The molybdenite zone contains about 13.5 million tons grading .157% MoS<sub>2</sub>.

Massive iron sulphides containing chalcopyrite, sphalerite and galena are associated with numerous skarn alteration zones of the limestone. These generally occur at, or near, the hornfel contact. Apart from the Della 'B' zone, several of these sulphide bodies have been explored by surface drilling which gave indications of moderate tonnage having potential ore grades.

Structurally, the sedimentary units appear to have been repeated along strike oriented faulting. Transverse faulting, post-dating mineralization, is very common and has incurred maximum displacement of the rock units amounting to several hundreds of feet.

#### DELLA 'A' ZONE

The Della 'A' zone, figure 2, is located in a massive skarn on the northwest side of Mount Haskin. In late 1968 it was tested by 11 diamond drill holes and the data presented in a report dated February 10, 1969. The zone comprises several highly faulted lenses, traced on surface in a northwesterly direction for about 600 feet. The lenses dip to the southwest at 40° and plunge southeasterly, terminating against the granite intrusive. The zone has been estimated to contain approximately 300,000 tons grading 5.0% zinc, 3.0% lead and less than 1 ounce per ton, of silver. Only minor amounts of copper and traces of gold are present.

Prior to the drilling program, grab samples from pits gave assays as high as 7.6% zinc, 12.8% lead and 2 ounces per ton, of silver. In August, 1971, one of the lenses was trenched across the full width of 57 feet and sampled as shown in figure 2. Weighted averages of the assays show

7.2% zinc, .54% copper, and .5 ounces per ton, of silver, and minor amounts of lead, cadmium and bismuth. These results more closely reflect those of the drilling program.

The work performed, to date, on this zone has not been sufficient to make more than an estimated evaluation. However, it is believed that an ore body of limited tonnage occurs in the zone on which further work is recommended at some future time.

#### FORT RELIANCE SNOW ZONE

This zone, figure 3, is located on claims owned by Fort Reliance Minerals Limited. It is situated at the peak of Mount Haskin at the base of a relatively flat lying limestone and is limited in all directions by erosion. It was mapped and drilled several years ago by the owners who have estimated reserves of 426,000 tons grading 5.44% zinc, 1.94% lead and 1.36 ounces per ton, of silver. The zone has an average thickness of about 10 feet.

During the current investigation by Della Mines, five pits were opened and sampled. Assays of the representative grab samples are shown on figure 3. Averaging these assays shows 6.45% zinc, 2.38% lead, and 1.38 ounces per ton, of silver, which closely confirms the grades reported by Fort Reliance Minerals Limited. Copper, cadmium and bismuth are present as minor accessory constituents.

In considering production of the small ore body, the attitude and elevation of the mineralized zone would readily lend itself to an open pit operation. Its future development however, will probably depend on

a joint effort among the several property owners in the Mount Haskin area.

#### FORT RELIANCE COBRA ZONE

The Cobra zone, figure 4, is also owned by Fort Reliance Minerals Limited. It is located at the footwall of a thick limestone in contact with hornfel. Heavily mineralized skarn is exposed intermittently for about 1500 feet on the side of a steep gorge having an elevation differential of at least 750 feet. The zone strikes N 50° W and dips 45° to the southwest. The outcrop shows maximum widths up to 30 feet.

Three pits were opened across heavily weathered skarn near the top of the ridge. Some good assays were obtained from grab samples, ranging as high as 11.56% zinc, .42% copper, and 1.1 ounces per ton, of silver, but the distribution of the various metals is probably very irregular. Lead is apparently not a major constituent.

Except for a few very old pits there is no evidence of any extensive work having been done on this zone.

#### DELLA DAKO ZONE

The Dako zone figure 5, has been mapped as a southeasterly extension of the Cobra zone. Continuity of mineralized skarn, however, is obscured by heavily treed overburden in an intervening gorge. The skarn zone can be traced in float for a distance of 600 feet, with heavily weathered skarn exposed for about 70 feet on the crest of a ridge. On the outcrop the zone is at least 20 feet wide.

Visible sulphides are very sparse and consist primarily of finely

disseminated sphalerite. Figure 5 shows the location of a series of pits which were opened and sampled. Assays of grab samples show zinc to be the dominant constituent, having a very irregular distribution. However, since the effects of weathering extended below the base of the pits, the sampling was probably not representative of the zone. A 5 foot adit, opened on the scarp face by previous owners, also shows deep weathering.

In view of some encouraging zinc assays, further work is warranted on this zone. The area is accessible without road construction and bulldozer trenching and sampling of fresh rock is recommended.

CHOPPER PAD ZONE - DELLA MINES LTD.

Fig. 6

This zone of mineralization is located about 900 feet northeast of the Della 'A' zone, in quartzitic beds of the Cherty Unit. The beds strike eastwest and dip steeply north, parallel to the granite contact. Pods of heavy sulphide mineralization had been sampled in 1968. The objective of subsequent drilling was the peripheral zone of the granite for molybdenite. Two holes showed only sparsely disseminated sulphides in the cherty beds.

Hand stripping of light overburden over an area 40 x 10 feet showed additional pods of heavy sulphides containing sphalerite galena and chalcopryite. Assaying of samples from fresh pits gave interesting values in silver, copper, zinc, lead and bismuth. The exposed bedrock showed the mineralization to occur in very small but numerous and closely spaced lenses. The dimensions of the mineralization has not been determined.

Because of the encouraging assays obtained, additional work is recommended on this zone. For the most part the terrain is very steep, but



it is accessible to equipment, by an existing road.

In addition to the zones outlined above, there are a few others which should be mentioned. The Dalziel zone is located in a steep gorge, south of the granite intrusive. Heavily mineralized skarn, up to 30 feet wide, has been traced for a distance of about 3000 feet. During 1969, the property was optioned by Spartan Exploration Ltd., who carried out a program of trenching and drilling. Averaged assays indicated about 10% combined lead and zinc with additional values in silver and copper. Spartan dropped the property because of excessively high option payments before a conclusive evaluation was made of this zone.

During 1969, the Della 'C' zone, located in Joem #4, was trenched and tested with one drill hole. Results were not encouraging and no further work has been done on this zone. However, owing to the lenticular nature of the mineralization, it is felt that this zone has not been fully evaluated.

Near the southeast corner of Joem #4, there is a weathered skarn which may be a faulted extension of the Della 'C' zone. Several weathered samples from an old pit gave assays up to 4.5% zinc and .5 ounces per ton, of silver.

#### CONCLUSIONS AND RECOMMENDATIONS

Numerous zones of mineralized skarn are widely distributed in the Mount Haskin area. For many of these, exploration has been very cursory, but in a few cases drilling programs have provided data for estimating preliminary tonnages and grades.

Some characteristics general to all the zones is evident and which reflect a common origin in the granitic intrusive activity:

- in outcrop, mineralization is intermittent and frequently obscured by heavy weathering,
- the mineralization is complex, comprising at least seven metals of varying economic importance,
- almost without exception zinc is the most predominant and persistent constituent,
- silver, copper, lead and bismuth, having a very irregular distribution, are important locally,
- gold, cadmium and other metals are present in all zones, but only in minor amounts.

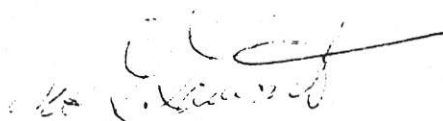
Because of the intermittent occurrence of the mineralization and the irregular distribution of the individual minerals, it has been shown, by the work done at the Della 'B' zone, that exploration of the skarn zones should be followed with persistence. The data derived from an initial examination of contact metamorphic mineralized zones is difficult to evaluate, and a hasty conclusion can often lead to premature abandonment of a property.

It is therefore recommended that surface exploration of the Della property should be pursued in conjunction with continued development of the Della 'B' zone. The program should include bulldozer stripping and trenching of all accessible zones, particularly the Chopper Pad, Dako zone and the 'C' zone south extension. The more encouraging results should be

followed up with shallow diamond drilling.

A program involving two weeks bulldozer work and 2000 feet diamond drilling would require a budget of approximately \$20,000.00.

Respectfully submitted,



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Vancouver, B.C.  
January 7, 1972