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REPORT FILED UNDER: Lion Mines Ltd

DATE PERFORMED: September 25, 1973

DATE FILED: June 4, 1974

LOCATION: LAT.: 62°35'N

AREA: Minto, Yukon

LONG.: 137°15'W

VALUE \$:

CLAIM NAME & NO.: DARK 47-54 Y76967-Y76974

DARK 61-63 Y76981-Y76983

WORK DONE BY: H.A. Quinn

WORK DONE FOR: Lion Mines Ltd.

DATE TO GOOD STANDING | REMARKS: #14 MINTO

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GEOLOGICAL REPORT ON
THE DARK 47 TO 54 INCLUSIVE & DARK 61 and 63 CLAIM GROUP
MINTO AREA, YUKON TERRITORY
FOR
LION MINES LTD. (N.P.L.)

BY

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SEPTEMBER 25, 1973

*N.M.E.A.P.
Received Ottawa
June 4, 1974.*

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TABLE OF CONTENTS

	<u>Page No.</u>
SUMMARY	1
INTRODUCTION	1
PROPERTY	1
LOCATION AND ACCESS	2
HISTORY	2
REGIONAL GEOLOGY	3
GEOLOGY OF THE DARK CLAIMS	5
CONCLUSION	6
RECOMMENDATIONS	6
ESTIMATED COST OF PROGRAM	7
CERTIFICATE	8

SUMMARY

The Dark claim group of Lion Mines Ltd. N.P.L. are located 2 miles southwest of a major new copper discovery in the Minto area, Yukon Territory made jointly by Silver Standard Mines Asarco Exploration, and United Keno Hill Mines.

The Lion Mines property is largely covered with overburden. It is classified as an unexplored prospect warranting preliminary exploration by geochemical and geological survey followed by bulldozer trenching and diamond drilling. A two phase program of exploration totalling \$36,500 in expenditures is recommended.

INTRODUCTION

This report is based on information gathered by the writer from available government and private reports. It was prepared at the request of Lion Mines Ltd. N.P.L., the present holder of the claims.

PROPERTY

The Lion Mines property comprises a rectangular block of 10 adjacent unpatented mining claims which we registered in Whitehorse, as follows:

<u>Name of Claim</u>	<u>Grant Number</u>
DARK - 47 - 54	Y76967 - Y76974
DARK - 61 & 63	Y76981 - Y76983

092011

LOCATION AND ACCESS

The Dark claims are located about 55 miles northwest of Carmacks and 160 miles northwest of Whitehorse. The town of Minto lies 12 miles southeast on the opposite side of the Yukon River. It is some 150 miles by road from Whitehorse. It has a landing strip for light and medium planes. The nearest landing site on the southwest side of the river is located at the Silver Standard Mines property 2 miles to the north. A winter road was constructed to the Silver Standard property from Minto in the spring of 1972. Helicopter service is available from Carmacks.

HISTORY

The Dark claims were first staked in 1973. As far as is known there was no work performed.

The only recorded find in the area previous to recent activity was a copper showing 8 miles northeast of the claims. It was explored by a short adit in 1902. Widespread copper indications were discovered in the area in 1971 by Silver Standard Mines Ltd. of Vancouver. They report the Minto prospect was found as a result of a crash program of regional geochemistry carried out by Silver Standard and American Smelting and Refining Company in 1970. Detailed geochemical, geophysical surveys, and some drilling, during the summer of 1971, produced encouraging results, and indicated widespread copper mineral of good grade. Drilling continued during 1972 in conjunction with a large scale bulldozing program that was effective in exposing mineralized zones and determining drill targets. Some 9800 feet of drilling was done at this time in 19 holes. Three strongly mineralized areas were discovered that combined to give a modest tonnage of good grade copper. At the same time United Keno Hill Mines

was carrying out a similar program on the ground adjoining Silver Standard on the north and continued drilling into 1973. They were recently successful in intersecting high grade copper along the joint boundary of the two properties and Silver Standard resumed drilling at the boundary. Holes No.s 20 to 45 completed to date over an area 1400 feet by 650 feet have intersected good grade copper intersections on a grid pattern of vertical holes, spaced from 100 to 200 feet apart. North of the joint boundary United Keno Hill are reported to have completed some 20 holes in a grid pattern. Their results have not been officially reported to date. It is apparent that a substantial tonnage of copper mineralization has been indicated in the area. Drilling continues on both properties and a major staking rush has developed.

REGIONAL GEOLOGY

The regional geology of the area is described by H. S. Bostock in G.S.C. Memoir #189. The geological setting of the new mineral discoveries made in the area between Minto and Carmacks in 1970-71 has been summarized by Alan R. Archer, Consulting Mining Engineer of the firm of Archer & Pathro, Vancouver, as follows.

These occur in a large Cretaceous batholith of granodiorite to diorite composition that has intruded Yukon Group metasediments and Mount Nansen Group volcanics. The Yukon Group is a metamorphic complex of Cambrian or older age that forms the basement sequence of southwestern Yukon. The Mount Nansen Group is a highly altered and partially granitized (variably to syenite or monzonite) sequence of volcanic flows and breccias that is largely confined to a narrow northwest trending belt which follows

192011

the Yukon River and defines the position of the Teslin Lineament. The lineament is the major structural feature of the area and although it exhibits no post-Triassic lateral movement, it has been the site of Vulcanism from the Triassic through to recent times. Several younger volcanic events have partially covered the older rocks. These are the Tertiary Carmacks Group, which is the most extensive, and the modern Selkirk Series of flows and breccias.

This part of Yukon exhibits gentle, rolling topography, with topographic relief of less than 1500 feet. It is dry with annual precipitation of less than 15 inches. Vegetation cover, although not dense, is widespread and outcrop is usually less than 1 per cent. The western advance of Pleistocene glaciation has deposited various quantities of loosely consolidated till in the valleys to an elevation of about 3500 feet above sea level. Although outcrop is scarce, overburden rarely exceeds 10 feet in thickness above the glaciated valleys and is composed mainly of decomposed bedrock. The southern portion of the Minto area has a cover of recent volcanic ash up to 12 inches thick immediately below a few inches of moss and peat. Permafrost is extensive but is not intense or deep.

The three recent discoveries, the Dawson Range Joint Venture Williams Creek Property and the Silver Standard and United Keno Hill properties, are all quite similar. Mineralization is found in schistose zones within the main dioritic intrusion. These zones have an orientation sub-parallel to the Teslin lineament, and are somewhat similar in composition to the enclosing granitic rocks, but with more biotite and hornblende.

The main ore minerals are bornite, chalcopyrite, chalcocite and traces of molybdenum. Pyrite and pyrrhotite occur in minor quantities. Weathering has resulted in conversion of copper sulfide to copper oxide at surface with little change in grade. Published drill results by Dawson Range Joint Venture and Silver Standard Mines Ltd. suggests that individual schistose zones are fairly continuous both horizontally and vertically and have a width ranging from a few feet to a little over 100 feet. Assays over these widths range from 1 per cent to 3 per cent copper with minor gold and silver credits. Soil geochemistry, using copper as the indication metal, has proven to be the most effective exploration tool in locating the mineralized zones. The only geological guidelines in exploration for other mineralized zones appears to be proximity (within 10 miles) of either the Teslin lineament or the Mount Nansen volcanics which follow the lineament. Also, all the showings of economic interest occur within the batholith rather than the older volcanics. The younger volcanics are not favourable for mineralization.

GEOLOGY OF THE DARK CLAIMS

The published geological map of the area (Map 340A by H. S. Bostock) indicated the Dark claims are underlain by the same favorable granitic host rocks as the Silver Standard - United Keno discovery. This is further confirmed by government aeromagnetic map 3314G which outlines the granitic intrusive as a uniform northwest trending high anomaly surrounded by a series of small low-order anomalies that represent volcanic contact phases

092011

of the intrusive. The magnetics of the Dark group show a similar magnetic pattern to the copper bearing area on the adjoining Keno Hill - Silver Standard properties.

The property is mostly covered with shallow overburden and swampy ground. Indirect methods of exploration such as magnetometer survey is recommended for initial exploration, followed by bulldozer trenching and diamond drilling if warranted.

CONCLUSION

Due to its proximity to the discovery area two miles to the north and the possibility of similar granitic rocks underlying the claims, a preliminary program of exploration, consisting of a magnetometer survey, is warranted.

RECOMMENDATIONS

An initial program of magnetometer survey on a 400 foot grid system over the claim group is recommended. Readings should be taken at 100 foot intervals. If anomalies are found, an extensive program of bulldozer trenching and diamond drilling should be carried out.

ESTIMATED COST OF PROGRAM

PHASE I

Line cutting - 10 miles @ \$100.00 per line mile	\$1,000.00
Magnetometer survey, 10 miles @ \$100.00 a mile	1,000.00
Travel and contingencies	<u>1,000.00</u>
	\$3,000.00

PHASE II (Depending on results of Phase I)

Bulldozer trenching 100 hrs. @ \$35.00/hr.	<u>3,500.00</u>
Sub Total Phase I & Phase II	\$6,500.00

PHASE III (Depending on results of Phase II)

Diamond drilling 2,000 ft. @ \$15.00/ft.	<u>30,000.00</u>
Total Program	\$36,500.00

092011

CERTIFICATE

I, Harold Arthur Quin, do hereby certify that:

1. I am a practising Consulting Geologist and Mining Engineer with offices and residence at 8 - 784 Thurlow Street, Vancouver, Province of British Columbia, Canada.
2. I have received the following university degrees:
 - a. B.Sc. (hons.) in Mining Engineering from Queen's University, Kingston, Ontario, 1941.
 - b. M.Sc. in Geology from Queen's University, 1942.
 - c. Ph.D. in Geology from Cornell University, Ithaca, New York, U.S.A., 1950.
3. I have practised my profession for more than 25 years.
4. I am a member, in good standing, of the Associations of Professional Engineers of the Provinces of Ontario, British Columbia, Alberta and Yukon Territory.
5. I am a fellow of the Geological Society of America, the Geological Association of Canada, and the Royal Canadian Geographical Society, and a member of the Canadian Institute of Mining and Metallurgy.
6. I am the author of 20 published reports, articles, papers and maps on mining and geological matters in Canada and various other countries.
7. This certificate is part of the attached report on Dark 47 to 54 Inclusive & Dark G1 and G3 Claim Group.
8. This report is based on study of published data on the area and on my experience.
9. I have no direct, indirect or expected interest in the properties or securities of Lion Mines Ltd. (N.P.L.) nor do I expect to receive any such interest.

Harold A. Quin
M.E. P.Eng. Ph.D. P.Geol.
(Ontario, B.C., Alberta & Yukon)

Vancouver, B. C.,
September 25, 1973