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REPORT ON THE

LA REINE GOLD MINES LIMITED

TWP - LaReine.

IN

NORTH-WESTERN QUEBEC

THIS REPORT IS MADE BY ORDER OF THE BOARD OF THE COMPANY. IT OUTLINES THE FORMATION GEOLOGY AND STRUCTURE, TOGETHER WITH SOME NOTES UPON ECONOMIC WORKING CONDITIONS.

BY

R. SHOLTO DOUGLAS, A.R.S.M., B.Sc.

JUNE 9, 1937

LA REINE GOLD MINES LIMITED

SUMMARY

The following report concerns the property known as La Reine Gold Mines Limited. It is located in North-Western Quebec, near the Town of Dupuy, in the Abitibi Mining Division. It is owned by La Reine Gold Mines Limited, whose President is Mr. Oscar R. Smith, Suite 305, C.P.R. Building, 69 Yonge Street, Toronto, Ontario, Canada.

The property consists of twelve claims comprising approximately 1200 acres in the Township of La Reine. It is about three miles due south of the Town of Dupuy, which is located on the Canadian National Railway. It is about 560 miles north of Toronto and approximately 80 miles east of the Town of Cochrane, Ontario. An Electric Power line passes within three miles at Dupuy, and power could be supplied at the rate of $25. per H.P. consumed.

The deposit is in vein formation, the veins being quartz and frequently very highly mineralized. To date five veins have been exposed, but there is every indication that others may be discovered shortly. These veins run from east to west but at present they are covered with a very heavy overburden well covered with thick brush. No.1 vein has been stripped, trenched, and cross trenched for a distance of over 3000 feet. Veins Nos. 2, 3, 4 and 5 lie to the north of No.1 vein and are stripped in like manner. It is my opinion that No.3 is a continuation of No.2 and that No.5 is the same as No.4. On the south side the country is granite and greenstone; then there is a band of quartz monzonite, on the other side of which there is more greenstone.

The ore consists of a definite vein deposit of molybdenite (MoS_2) occurring as the sulphide. This formation is known to be associated with granite, gneiss and syenite. The veins are well defined and massive and

vary in width from 24 inches to 48 inches on the surface, or in the trenches to a depth of 4 feet 6 inches. The value is very high, for in addition to a gold value of about $5.00 per ton, the molybdenite values also run high according to the assays on the channel samples taken by myself and assayed by Thomas Heys and Sons of Toronto. Gold values occur in the highly mineralized parts of the veins, in particular in vein No.5. The mineralization consists of Pyrite and Pyroxene, (Ca(MgFe)(SiO3)2) which is a metasilicate. It contains chiefly Calcium, Magnesium and Ferrous Iron, as bases. Pyroxene is a definite indication of Molybdenite and where it occurs in vein formation similar to that on the La Reine property would indicate a massive structure which may run to great depth. To date 16 diamond drill holes have been put down in various parts of the property. All these have cut the veins at various depths down to 300 feet and the Molybdenite values have been excellent.

Ample labor is available from Noranda, Kirkland Lake, or Timmins. Water is plentiful and very good drinking water is obtained from a spring which rises up a diamond drill hole which was cased for several hundred feet. There is a lot of timber on the property, consisting of spruce and jack pine with some poplar and birch. This will provide ample fire wood and mining timber for some time. Head frame and shaft timber can also be cut on the property. All mining and other stores can be purchased at Toronto prices plus freight and shipped to Dupuy station. There is a good road direct to the property and one can drive a car from Toronto in about twelve hours.

In conclusion I would say that after thorough examination and careful study of all facts pertaining to the property, and the economic conditions regarding its ore, both grade and demand, I can but state in all fairness that in my opinion La Reine is a potential mine of considerable

merit. With careful development and handling this property can be brought to production both speedily and cheaply. Another factor to your advantage is that the metallurgy of Molybdenite is very simple, and this fact will allow you to mill a few tons of ore daily whilst the underground development programme is taking place.

LOCATION AND ACCESSIBILITY

The property of La Reine Gold Mines Limited is situated in North-Western Quebec, in the Township of La Reine, in the Mining District of Abitibi. (See small scale map attached) The nearest railway is the main line of the Canadian National Railway at Dupuy Station, three miles due north of the property, and an excellent gravel road connects the property with the town of Dupuy. All mining, building and food supplies can be shipped to Dupuy. These may be purchased in Noranda or in Kirkland Lake at local prices plus freight to Dupuy. A good motor road serves the mine, the road being the main route from Noranda to La Reine. This is suitable for trucking from breakup to freezeup. In the winter this road may be used by sleighs and with care, by trucks fitted with chains. Last winter a snowmobile was used to deliver supplies to the camp. All telegraph, telephone, express, freight and mail facilities are available from the Town of Dupuy.

GENERAL INFORMATION

(1) The country is undulating to hilly, and the general elevation of the country is about 1200 feet. Such hills as there are have an elevation of about 200 feet. One stream crosses the property from east to west. This stream is about five feet in width and flows at four miles per hour. This water is good but drinking water is drawn from a well on Claim 52.

(2) The summer lasts from the breakup about May 1st to the freezeup in November. The temperature may rise to 100 degrees during the summer months, and about six inches of rain may fall. The winter runs from the freezeup in November to the breakup in May. During this period approximately five feet of snow may fall. It is possible to work from April to December out of doors in the bush, but all the year round on the property when equipped for mining underground.

(3) Experienced miners are readily available as they can be obtained from the mining centres of Noranda and Kirkland Lake. Their wages would be the rates as laid down by the Minister of Mines for Ontario. Labour is non-union.

(4) The water supply is derived from streams and from a marsh on Claim 53. Approximately 5000 gallons per minute are available. Drinking water is from a well on Claim 52. (See photograph of the pump) This water is a spring which rises in a diamond drill hole which is cased for several hundred feet. I estimate that the sinking pump would clear 3000 gallons of water per hour from the shaft sump when this is completed. No water rights are necessary.

(5) Electric Power is readily available. The power line is three miles away at Dupuy, and the cost of electric energy is $25. per H.P. consumed.

(6) Timber is available on the property. This consists of spruce and jack pine with some poplar and birch. Mine and shaft timbers can be cut and dried and there is ample wood for wood-burning stoves. This can be cut in the summer so that it is dry for winter use.

(7) All supplies such as steel, explosives, tools and other necessaries can be obtained from Toronto, plus freight.

(8) There is a tax of 50¢ per acre payable until the claims are patented. This may be effected within five years from the date of staking the claims. These claims were staked on May 5th, 1936. They are now clear of all encumbrances.

(9) The nearest producing Mines are the Beattie, Nugold, Noranda and Sisco.

(10) The nearest Assay Office is at Noranda, but the Company's assays have been run by Thomas Heys and Sons, Toronto. The latter is one of Canada's best known firms of Assayers.

HISTORY OF PROPERTY

The property was first staked on May 5th, 1936. In this district of Quebec each claim is approximately 100 acres. There are twelve such claims or approximately 1200 acres. The claims are leased from the Quebec Government and are due for Patent on May 5th, 1941. There are no former owners or lessees. Development to date consists of the employment of a Diamond Drill which has put down 16 holes; 5000 feet of stripping; 2000 feet of trenching five feet in depth; and the employment of a Dragline Excavator to remove the overburden in places where this was heavy. A crew of twelve men has been employed on the property for the last year on this work. There is a good building erected for the drill setting and the drill cores are kept there. The setter is Mr. Fred. Taylor who is well known amongst mining men. A new camp consisting of three buildings is now in course of construction. These will be used as Bunkhouse, Cookery and Office.

OWNERSHIP

The claims are located in Range 4 and are numbered from 46 to 57 inclusive. The main zone of operations so far has been on claims 52 and

LA REINE GOLD MINES LIMITED

53. The Company was organized in Ontario on September 15th, 1936. The Authorized Capital of the Company is 3,000,000 shares of $1. par value each. The vendors received 1,200,000 shares and these are held in escrow subject to release by the Ontario Securities Commissioner. The Directors of the Company are as follows:- Oscar R. Smith, (President) Diamond Driller, Toronto; W.J. Wadsworth, (Vice-President) Coal Merchant, Toronto; C.W. Anderson, (Secretary-Treasurer) Barrister, Toronto; Charlotte Campbell, Widow, Toronto; Martha S. McGuire, Married Woman, Toronto. The office of the Company is at the C.P.R. Building, 69 Yonge Street, Toronto, Ontario. The telephone is WAverley 5801.

DESCRIPTION OF ORE DEPOSIT

The ore is in vein formation, the principal ore being Molybdenite. The ore also contains gold values of approximately $5 to $8 per ton. Gold is contained in the very highly mineralized parts. It is not locked up in Telluride form but adheres to the Pyrite and Pyroxene which form a part of the Molybdenite ore. Molybdenite values run very high indeed and in many samples this has proved to exceed 10%. There is a great demand and ready sale for Molybdenite, as it is absolutely essential to modern high grade steel as well as having a number of other uses. Its present price is around 75¢ per pound and the demand far exceeds the supply. The ore is evenly distributed through the veins. The hanging and foot walls are monzonite and greenstone and these are very well defined. The veins are approximately 200 feet apart and parallel to each other. Their strike is north-east and south-west whilst the dip is 35 degrees to the north. The maximum width of the vein that I saw exposed was 54 inches whilst the average width may be accepted as 28 inches. The ore is softer than the wall rock and would

be very easily sorted from it on a picking belt if necessary. The above remarks apply to all the veins as yet located.

DESCRIPTION OF ORE

The ore consists of white quartz highly mineralized with Pyrite, Pyroxene and a small quantity of Chalcopyrite. There is a high percentage of Molybdenite (MoS_2). In my opinion the ore would run about $5 per ton in Gold and about 10% Molybdenite or a total value of about $155 per ton, taking the Molybdenite at 75¢ per pound. The Gold is very finely divided and attached to the sulphides but this fact would present no difficulty in its metallurgical treatment. (See notes on milling) There is a little gold in the wall rock where this is mineralized. Throughout all the veins I noticed considerable quantities of Molybdenite. The structure of this and the veins very nearly approximate that of the Climax Molybdenum Mines, in Colorado, only that the deposit at La Reine is much higher in percentage.

ESTIMATE OF ORE RESERVES

At the present stage of development it is impossible to give any kind of estimate of ore reserves. Before this is done it will be necessary to carry out considerable underground development. It is possible, however, to state in all sincerity and with confidence that the tonnage will be large and of high grade.

MINING

In order to rapidly develop the property, proving the same whilst at the same time doing so with the minimum of expense, it is now necessary to stop further work along the lines employed to date and to sink a shaft

immediately. This shaft should be located about 50 feet to the north of No.1 vein; that is between veins Nos. 1 and 2 at a point immediately north of the water pump shed. The shaft should be sunk to 125 feet with the first station cut at 100 feet on the west side of the shaft. A drift can be run to intersect No.1 vein to the south, and as this vein has a dip of 35 degrees to the north, this drift will cut the vein almost immediately on leaving the station which should be 20' x 15'. A drift can also be run to No.2 vein on the north. On meeting the vein the south drift can turn to either the right or left, whichever direction seems the best for development at the time. The foot wall will be in greenstone and the hanging wall in Monzonite. Waste rock can be trammed to a suitable dump very near the shaft. I have an idea for obtaining some immediate production of MoS2, whilst these operations are in progress. (See notes on Milling)

This shaft is the only way to prove your property rapidly and cheaply; cheaply because it will save time and the expense of maintenance; and rapidly because it is almost impossible to continue development from the surface owing to very heavy overburden and surface water. Shaft timbers can be cut on the property and these should be 12" x 12". The shaft should be 12' x 9' overall and contain two compartments, one (used as a ladder way, when sinking the first 30 feet) should be sunk using a derrick which can be made on the property at a cost of about $10. for iron work. This will avoid the possible risk of damage to a head frame from surface blasting. After 30 feet the head frame can be erected, about 40 feet in height. It will be necessary to obtain a compressor of approximately 410 foot capacity and a hoist, a one ton bucket, a cable and chev wheel, three combined sinkers and drifters of good make, an extra air receiver for the compressor, air and water hose and a 5000

gallon wood stave tank, together with a number of other smaller fittings.

All these parts can be purchased from George W. Crothers Ltd., of Millwood Road, Toronto. I am unable to state definitely, but I believe that a complete sinking outfit could be obtained for about $10,000. By sinking yourself you might limit the cost to about $30. per foot, but it is doubtful if a contract price could be obtained for less than $45. per foot even with the contractor using your own equipment. The cost per foot naturally includes the cost of all labour, powder, and fuel oil for the compressor. I have complete confidence in your property and realise that it deserves good treatment. I would very willingly take on the job of Consulting Engineer and bring the property to production, spending whatever time I found necessary on the property each month. For actual management on the property I cannot speak too highly of Mr. Jack Clayton of R.R.2, Ashdad, (Renfrew County) Ontario. Mr. Clayton is a first class miner and shaft sinker. He has been with me on several operations and his services are available at $200. per month. It will be necessary to employ a Cameron or other suitable sinking pump because the sump will make a lot of water both whilst sinking and later.

Once you decide to begin operations you should figure on the lowest estimate for sinking. The following figures can be only approximate but their cost will be spread over say two months as that is about the time it will take to sink the 125 feet. Cost of equipment $10,000. Cost of sinking 125 feet $3,750. Cost of extra timber for compressor and hoist house and mine dry, tools, etc., $2,000. Say roughly $15,750.00. Perhaps this may seem a lot of money but if you realize what work it represents you will see that it is but a conservative estimate. It will be necessary to use about one to one and a half cases of powder per day.

LA REINE GOLD MINES LIMITED

CHANNEL ASSAYS

The six channel assays referred to below were cut by myself on the 1st, 2nd, 3rd and 4th of June, 1937. They were sealed and brought by me in my car to Toronto, and there assayed for molybdenite by Thomas Heys & Sons. All the samples were from six to ten pounds in weight, and were composed of small chips. The channels were cut approximately $\frac{1}{2}$ inch deep and two inches in width for the full width of the vein at the point where the sample was taken.

(1) From No.1 Vein (24 inches wide) sample cut 275 feet east of the excavator in trench seven feet deep..... Assay 4.14%

(2) From No.1 Vein (26 inches wide) sample cut 150 feet east of the excavator in trench seven feet deep..... Assay 2.53%

(3) From No.1 Vein (31 inches wide) sample cut 600 feet east of the excavator in trench five feet deep..... Assay 2.51%

(4) From No.1 Vein (30 inches wide) sample cut 300 feet east of the excavator in trench 4'8" deep.....Assay 4.48%

(5) From No.1 Vein (38 inches wide) sample cut at east end of open pit made by excavator and now full of water. Sample taken 3'6" below ground level..... Assay 6.03%

(6) From No.2 Vein (33 inches wide) sample cut 400 feet east of the excavator in trench three feet deep..... Assay 1.94%

CORE ASSAYS

The following samples of diamond drill core were selected by myself and assayed by Thomas Heys & Sons of Toronto. All three holes were sunk on the same drill site but at different angles. At the mine these holes are known as Nos. 13, 13B and 13C, but actually they are 13, 14 and 15, so that the present hole now being drilled is No. 16. The gold value is based on $35. per ounce.

NO.	HOLE	DEGREES	FOOTAGE	GOLD	MOLYBDENITE
1	13	45	158-159	$1.05	2.80%
2	14	60	153-155	1.05	2.55%
3	15	70	67-68	72.10	.30%

These samples demonstrate not only the consistency of the values, but also the very high grade of the gold and molybdenite values.

LA REINE GOLD MINES LIMITED

MILLING

Milling of this ore will be very simple as its metallurgy is not complex. In order to recover the Molybdenite (MoS2) it is only necessary to have very coarse grinding, say to 48 mesh. This ore is fed to a bank of flotation cells where it receives agitation with coal oil and pine oil, no reagent being necessary at all. The concentrate (MoS2), is caught and dried on a wire screen and then bagged. It should assay approximately 75% MoS2. The tailings should be retained and given fine grinding in cyanide. This is followed by Agitation, Thickening, Primary Filtration, Secondary Agitation, Secondary Thickening, and Final Filtration. The pulp is then sent to waste and the solution to the Gold Tank. From here it is pumped to a vacuum press for precipitation, and the precipitate is reduced to bullion in a retort furnace.

Whilst the underground development was in progress it would be possible to mill certain high grade molybdenite ore taken out in drifting by the employment of a coarse grinding machine and a bank of four flotation cells with a small callow screen. The tailings should be retained for treatment to recover the gold values at some later date when equipped for doing so. Some time ago I designed a machine called the D.L.O.G. Crusher and I think it might be possible for me to obtain a 10 ton capacity machine on loan from Buffalo. If I did, it would serve our purpose and at the same time give that Company all the advertisement they need. We only need 48 mesh but the machine can be adjusted to grind up to a fineness of 95% or 325 mesh. This is a point well worth considering. The President of D.L.O.G. is a friend of mine and his name is Mr. Ralph Badger of Buffalo.

COSTS

I should estimate that your mining costs in the early stages would not exceed $4 per ton. This would include all overhead costs such as Management, Tramming, Hoisting, etc. Milling for Molybdenite would not exceed $1 per ton and the later treatment for Gold might cost $2 per ton. These figures are exclusive of the cost of the equipment.

CONCLUSIONS

I wish to make it clear that I visited your property with an open mind, prepared to accept your property as I found it. Having been there it is difficult for me to express completely the satisfaction and confidence I feel in the prospects of your property. All factors are in its favour, Geology, Structure, Position and Formation. May I wish you every success.

R. Sholto Douglas

R.S.H.V. SHOLTO DOUGLAS, A.R.S.M., B.Sc.