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Report on :

Moscow - Mohawk Group

by Newton W. Emmons. M.E.

1928.

Lardeau Mining Division

PROPERTY FILE

REPORT

ON THE

MOSCOW-MOHAWK GROUP

LARDEAU MINING DIVISION

WEST KOOTENAY DISTRICT

BRITISH COLUMBIA

CANADA

By

Newton W. Emmens,
Mining Engineer.

1928

Newton W. Emmens
Mining Engineer
2325 York Street
Vancouver, Canada
November 15, 1928

The Board of Directors,
Lardeau Mines Exploration Ltd.,
Vancouver, B. C.

Gentlemen:

In accordance with your instructions I proceeded to Camborne, in the Lardeau Mining Area of British Columbia, for the purpose of examining your MOSCOW-MOHAWK GROUP, and beg to hand you herewith my detailed report thereon, together with the photographs and maps illustrative thereof.

The property comprising the MOSCOW-MOHAWK GROUP consists of five mineral claims, two of which have been Crown granted, and three of which are held by location under the provisions of the Mineral Act of British Columbia. The claims extend from the valley of Poole creek in a southerly direction for a distance of 700 feet and in a northerly for about 3800 feet. They are distant from the town of Camborne three miles and are connected therewith by a good pack-trail which follows along the valley of Poole creek.

Camborne is reached within twenty-four hours of leaving Vancouver, the route being by Canadian Pacific train to Arrowhead, thence by steamer to Beaton and from there by auto-stage. There is a daily (except Sunday) train and boat service.

There are three known veins on the MOSCOW-MOHAWK GROUP, namely, the Moscow-Mohawk, the Fresno, and the Graphite. These veins occur along lines of fissuring in the containing rocks, which fissures are persistent over long distances. The ore occurs as shoots in these fissures and consists of pyrite, galena, and zinc-blende in a quartz gangue.

Development work consists of open cuts and adits, which latter were caved and inaccessible at the time of the writer's visit, on the Graphite vein, and adits on the Moscow-Mohawk and the Fresno veins. No ore of commercial value

has been, as yet, discovered in the Graphite vein, although there is good reason to expect the finding of payable ore shoots therein when the vein is systematically prospected. In both the Moscow-Mohawk, and the Fresno veins good ore has been found, assaying:- 15 to 20 ounces silver: 5 to 14% lead: 20 to 36% zinc over widths of twelve to thirty inches in width, and selected samples of clean galena assayed:- Gold 0.1 ounces: Silver 50.7 ounces: Lead 65.3%: while selected samples of clean zinc-blende, assayed:- Gold, a trace: Silver, a trace: Zinc 62.8%.

While, owing to the limited amount of development work that has been done, there is no ore that can be classed as "Positive" ore, that is ore which is exposed by mine workings in such a way that it can be measured and sampled on all sides, there is ore which can be classed as "Probable ore", amounting to some 435 tons, and in addition, having due regard to the geological conditions under which the ore occurs and what has been found to exist in other mines in the same mineral belt, there is every reason to expect that a sufficient tonnage of payable ore will be found to justify the installation of an adequate mining and milling plant and to yield a satisfactory profit on the capital expended.

The ore can be mined to a considerable depth by means of adits (tunnels) driven into the steep mountain-side from the creek level, thus avoiding the expense of hoisting ore and of pumping the water. There is ample timber on the ground for all purposes, and water power can be obtained from Poole and Mohawk creeks sufficient for mining and milling. There is a good mill-site, and camp-site, on the claims where the buildings will be safe from snow-slides.

The climatic conditions are good, there being no extreme of heat in summer or cold in winter. The snow-fall is quite deep but it does not interfere with continuous operation when the mine is properly opened up and provided with the necessary buildings for the men and equipment.

Your Moscow-Mohawk Group cannot yet be classed as a mine, but it is certainly a good prospect well worth development with every indication of its proving a profitable venture. There are three ore-bearing veins known to exist and the problem is to find the payable ore shoots therein with the smallest expenditure of capital and within the shortest space of time. In the opinion of the writer, this can best be accomplished by making a geophysical survey of the three veins for the purpose of mapping the greatest mineralized areas and then proving their values by means of the diamond drill, preparatory to driving adits and crosscuts to open up and explore the ore bodies thus indicated. By this method both time and expense will be saved and the writer unhesitatingly recommends that such a survey be made at the earliest possible date.

Pending the making of such a geophysical survey, it is recommended:-

1. That a crosscut be driven westerly from the face of the Moscow adit for a distance of 50 feet, or less if ore be sooner found. The object of this crosscut is to explore the fissure upon which the adit was started, and which was left after the first 50 feet had been driven.

2. Sink a winze to a depth of 50 feet on the ore showing in the floor of the Moscow adit, beneath the raise.

3. Clean out the old Fresno adit - that is the second working on the Mohawk claim, on the south side of Poole creek, above the Moscow-Mohawk bridge - and drive in another 50 to 100 feet.

In order to do this preliminary work it is recommended that the sum of $10,000 be provided and it is believed that such a sum judiciously expended in the work as outlined above will result in the opening up of sufficient ore to justify an ambitious mining programme and the adequate equipment of the property.

For detailed information, upon which the foregoing is based, you are referred to the accompanying report, attached to and made a part hereof.

Respectfully submitted,

(Signed) Newton W. Emmens
Mining Engineer.

REPORT

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ILLUSTRATIONS

MAPS

PROPERTY and LOCATION

The property comprising the MOSCOW-MOHAWK group consists of the following mineral claims:-

MOHAWK Lot No 4571
MOSCOW Lot No 4500

both of which are Crown granted, and the

HAMILTON
HAMPTON
AMBASSADOR

mineral claims which are not yet Crown granted, but are held by location under the terms and provisions of the "Mineral Act" of British Columbia. All requirements of the Act have been complied with and the claims are in good standing, with titles in good order.

The MOSCOW-MOHAWK group is situate on the south slope of Lexington mountain at the junction of Mohawk with Poole creek. The claims extend from the level of Poole creek, southward for some 700 feet and northward from the creek for about 3800 feet to an elevation of approximately 5000 feet above sea level or 2200 feet above Poole creek. It is in what has been designated as the "Central Mineral Belt" of the Lardeau Mining Division of the West Kootenay District, Province of British Columbia, Canada. Their location with respect to the neighbouring mines and claims, and to the established lines of communication is well shown on the accompanying map.

ACCESSIBILITY

From Vancouver the property can be reached by noon of the second day after leaving the city.

The Canadian Pacific Railroad Company operates trains as far as Arrowhead, a town at the junction of the Columbia river with the Upper Arrow Lake, which lake is really only a widening of the river. From Arrowhead, a

Blacksmith shop

Moscow cabin

Portal of adit

Camp at Moscow-Mohawk Group
on north side of Poole creek.

small steamer connects with the town of Beaton at the head of the Northeast Arm of Arrow Lake, from which place an auto-stage is operated to Camborne, a distance of five miles.

From Camborne to the MOSCOW-MOHAWK cabins, on the banks of Poole creek near the mouth of Mohawk creek, a distance of three miles, there is a good pack-trail that follows along the north bank of Poole creek. This trail at the present time is in good condition for the use of pack animals, and with a comparatively small expenditure in widening the existing trail and in cutting down some of the grades can be made such that tractors, with trailers, may be economically operated between the wagon road at Camborne and the property for the transportation of ores and supplies.

At Camborne there is a hotel and store at which supplies can be purchased in small quantities, but it will be found more advantageous to purchase all needed supplies for extensive operations "on the outside" and to ship them to Beaton where they can be picked up and transported to the scene of operations.

There is a daily mail service (except on Sundays) to Beaton, the nearest post office to the property, but mail intended for Camborne and the mines in that vicinity is usually given to the proprietor of the hotel at Camborne and taken there by him, so that in effect there is a daily mail service to Camborne even though there be no official post office at that place. However, when the mines are operating and the population justifies, this state of affairs will be remedied and a post office will be established at Camborne.

There is a long distance telephone line between Beaton and Arrowhead, which line will be extended to Camborne so soon as its construction is warranted.

TOPOGRAPHY

The Lardeau Mining Division is situate in one of the most rugged and picturesque sections of the Selkirk Range, the higher peaks of which rise to

altitudes of 8,000 to 9,500 feet and are crowned by glaciers and snow-fields.

The mountain sides are steep, in many places precipitous, with deep narrow valleys between, and are heavily timbered with cedar, spruce, hemlock, fir and balsam to elevations of 5,500 to 6,000 feet. The underbrush to elevations of 5,500 feet is dense making travelling off the roads or trails both difficult and arduous. Above timberline the mountains are clothed with grasses and alpine varieties of flowers which add beauty and color to the landscape making it most attractive. The summits of the higher peaks consist entirely of rock and rock-debris except where buried beneath glaciers or snow-fields.

Along the valleys flow streams of water which, owing to the steep gradients of their beds, afford splendid water powers. Many of the creeks are a succession of falls and cascades for miles, often running through narrow rocky canyons that offer excellent sites for the construction of dams. Mohawk and Poole creeks are good examples of these rapidly flowing streams suitable for the generation of hydro-electric power.

The mountains are blocky masses, usually terminating in rough, narrow, serrated ridges, the sky-line of which is fairly even, but relieved in detail by a number of pinnacles and spire-like rock masses.

The topographic features are undoubtedly due to erosion by river-action in a region of uplift, but there is much evidence to show that these features have been modified by glaciers. The summits of the ridges have been bevelled off, basins and cirques scooped out, many of which latter are still occupied by ice of the residual glaciers.

The shape of the larger valleys has been changed from a V-shape to that of a steep-walled U, while the ends of the projecting ridges have been truncated. The floors of the main valleys have been deepened to a greater extent than those of the tributary valleys, so that the latter often lie above as "hanging valleys". Mohawk creek is a good example of a hanging valley.

Numerous glaciers and snow fields, some of which are several miles in area, occupy the summits of the higher peaks and ridges. These glaciers are rapidly melting away and retreating, but there is plenty of evidence that the lower parts of many of the valleys were occupied by ice at no remote period.

The present glaciers while comparatively small as regards area are of considerable thickness, often exceeding 200 feet. Their movement is rapid as is shown by the turbid condition of the streams issuing from them, which turbidity is caused by rock-powder with which they are charged, due to the grinding action of the glacial-ice on their ground moraines.

GEOLOGY

Between Beaton and Camborne the rocks consist of dark carbonaceous phyllites, grey silicious schists, green schists, and a rusty-weathering schistose rock which is generally considered to be an altered eruptive, and has been classified as a diabase-schist. These rocks have a general north-west and southeast strike, with a northeasterly dip. They are cut by a series of joint planes having a northeasterly strike and a northwesterly dip.

Along the valley of Poole creek from Camborne to above Mohawk creek, the formation consists of altered sedimentary rocks which are now represented by phyllites, talcose-schists, calc-schists and quartzites, interbanded with rusty-weathering diabase schists and green chloritic schists. The rocks have the characteristic northwesterly strike and northeasterly dip which are cut by master joints striking at right angles and dipping steeply to the northwest.

The discovery of fossils in the rocks of the Lardeau has enabled the bulk of the sedimentaries to be classified as of either Carboniferous or pre-Carboniferous age - the Nisconlith and Selkirk series of Dawson.

ORE DEPOSITS

On the MOSCOW-MOHAWK group there are three veins, known as the MOSCOW-MOHAWK, the FRESNO and the GRAPHITE respectively.

The MOSCOW-MOHAWK vein has a strike of north 30 to 45 degrees west with a steep easterly dip, it has a well defined hanging wall and carries considerable galena, zinc-blende and pyrite in a gangue of quartz with phyllite inclusions. This vein outcrops in the creek (Poole creek) and has been opened by adits both to the north and south, as described later on.

The FRESNO vein has a strike of north 40 degrees west with a dip in an easterly direction of 80 degrees. It is well defined with a gouge of crushed rock between it and the hanging wall. This vein crosses Poole creek a short distance east of where the Moscow-Mohawk vein crosses and it is quite likely that additional development work will show these two to be closely connected. They were probably deposited along two parallel (more or less) breaks in the formation by the same vein making agency and it is likely that cross fissures will be found which connect the two veins and along which ore bodies of some magnitude have been deposited.

The GRAPHITE vein has an east and west strike with a dip to the north of 60 degrees. It is exposed in the bed and sides of Poole creek about a quarter of a mile above the Fresno vein, where it has a width of five feet, of quartz sparingly mineralized with pyrite and containing phyllite inclusions. The hanging wall is schist and the foot wall a graphitic phyllite from which it is separated by a wide gouge of crushed phyllite. The vein shows much evidence of movement along these walls, not only from the finely crushed rock which constitutes the gouge, but from the highly polished condition of the quartz where it lies next to the gouge. This east and west vein traverses the

formation for a long distance in both directions from Poole creek, and is probably closely associated with the quartz veins that have been developed and found to be gold bearing on the Eva and Oyster-Criterion groups on Lexington mountain above the town of Camborne.

DEVELOPMENT

Development work on the MOSCOW-MOHAWK property consists of some surface prospecting along the Graphite vein, and shallow adits on the Moscow and Fresno veins, but insufficient work has as yet been done to either prove or disprove the existence of ore shoots of commercial value although the results are encouraging enough to justify the expenditure of additional capital in the expectation of developing bodies of ore which can be profitably worked, particularly on the Mohawk side of Poole creek.

GRAPHITE vein. As already stated this vein outcrops in the bed and on the sides of Poole creek about a quarter of a mile up creek from the Fresno vein. Where exposed it is a strong, well defined vein of quartz sparingly mineralized with pyrite and containing inclusions of graphitic phyllite. No work has been done on it at this place but a sample taken across three feet of the more highly mineralized portion assayed:-

Gold, none Silver 0.34 ounces.

This outcrop is on the Mohawk claim. On the Moscow claim the vein has been opened by two or three crosscuts at an elevation of approximately 550 feet above the level of Poole creek. At the time of the writer's visit these old crosscuts were caved and inaccessible, but judging from the material lying on the old dumps nothing of importance was found, as aside from the graphitic phyllite there was only a small amount of mineralized (with pyrite) quartz in evidence. There has not been work enough done on this vein thus far to prove either that it does or does not contain valuable ore shoots.

MOSCOW vein (Moscow-Mohawk). On the Mohawk side of Poole creek this vein outcrops just above low water mark. It has a strike of south 60 degrees east with a steep easterly dip. The hanging wall is well defined and the mineralization consists of galena, zinc-blende and pyrite in a quartz gangue. It has a width of a few inches to four feet and has been opened by a surface cut and short adit (about 10 feet) on the south bank of Poole creek about 15 feet above water level.

Samples of galena from the outcrop just above low water mark taken over a width of eight inches assayed:-

Silver 29.9 ounces Lead 37.5%

A sample of zinc-blende taken across thirteen inches from the same outcrop, assayed:-

Gold 0.25 ounces Silver 6.9 ounces Zinc 8.3%

In the cut and adit the vein narrows up and contains less galena and blende at the face where a sample taken over a width of eleven inches, assayed:-

Silver 1.0 ounce Lead 0.9% Zinc 0.1%

Back from the face of this adit, about 10 feet, there is a nice showing of ore on the west side from which picked samples of clean galena and clean blende were taken to ascertain their respective metallic content with the following results:-

Clean galena assayed:-

Gold 0.1 ounces. Silver 50.7 ounces Lead 65.3%

Clean zinc-blende, assayed:

Gold trace. Silver trace. Zinc 62.8%

On the Moscow side of the creek this vein has been opened by an adit 205 feet long. This adit started on the Mohawk vein but, at a distance of 50

feet in from the portal, was turned off to the east following a "slip" till it encountered a well defined wall 60 feet further on, which wall was then drifted along to the present face. Where this wall was encountered (110 feet in from the portal) there was a streak of ore twelve inches wide extending along the level for a few feet. A raise was put up on this ore for 20 feet and the ore broken in doing the work is stored near the portal of the adit. An average sample of this ore assayed:-

Silver 20.6 ounces. Lead 24.2% Zinc 24.9%

In the floor of the drift, beneath the raise, a sample taken over a width of four inches, assayed:-

Silver 15.4 ounces. Lead 14.7% Zinc 22.4%

The writer is of the opinion that this ore and the wall followed by the adit from the raise to the present face is not that of the Moscow (Moscow-Mohawk) vein, but is probably that along which the Fresno vein is formed, the Moscow fissure having been left where the adit makes its first turn, 50 feet in from the portal. A crosscut to the west of 40 feet will determine this and should be done.

In addition to exploring the fissure along which the Moscow vein is formed, the adit was intended to explore the Graphite vein at depth, but as will be seen by the "Plan of the Moscow adit" it will take 820 feet of a crosscut from the present face in order to reach that objective. If the adit be continued along the fissure it has been following for the last 100 feet the distance yet to be driven in order to reach the Graphite vein will be considerably greater because of the angle of approach.

With the limited amount of knowledge we now have regarding the occurrence of commercial ore bodies in the Graphite vein it does not appear to be good mining to drive such a long distance on the mere chance of finding

payable ore at or near the point of intersection of the adit with the vein.

The crosscut to the eastward, shown on the plan, is in phyllite and shows nothing of importance.

FRESNO vein. This vein outcrops in Poole creek and on the south side thereof where it has been opened by a cut and adit made many years ago. The vein is well defined, of quartz mineralized with galena, zinc-blende and pyrite and has a width of from one to five feet. Its strike is north 43 degrees west and its dip 80 degrees to the east, which is about the same strike and dip as that of the wall now being followed by the Moscow adit. A sample of ore taken across a width of thirty inches in the old workings on this Fresno vein, assayed:-

Silver 15.9 ounces. Lead 5.2% Zinc 36.1%

ORE RESERVES

In estimating ore reserves it is customary to divide them into three classes, namely - POSITIVE ore, PROBABLE ore and POSSIBLE ore; the definitions of which, as used by the writer, are as follows:-

POSITIVE ORE. That block of ore which has been proved to exist by being opened either by two levels with connecting raises or by a level and surface outcrop with a raise from the level to the surface. A block of ground so developed affords access to the ore on all sides so that it can be accurately measured and sampled at not less than five foot intervals giving the data to estimate the tonnage and the average value of the block.

PROBABLE ORE. This is ore that has been opened on two sides, by levels, a level and a raise or winze, a level and surface, and the extension of the ore beyond a block of positive ore in the direction of the strike and dip of the ore shoot where all the workings, defining such a block, are in ore.

POSSIBLE ORE. This is ore which it is reasonable to expect will be found and made available for extraction by the development work, the extension of known ore shoots beyond the zone of positive and probable ore, and ore which is indicated by geological information or by the results of geophysical surveying. It is at best only a rough estimate, often based on a general knowledge of the behavior of ore bodies in other mines having a similar occurrence and similar geological conditions and is always subject to revision as development work proceeds and additional data becomes available.

From the account given in this report of the development work done it will be apparent that there is no tonnage of POSITIVE ore as yet opened up on the property and that the tonnage of PROBABLE ore is that which is exposed in the raise from the Moscow adit and that which lies between the low water mark in Poole creek and the faces of the old workings on the Mohawk claim on the Mohawk and Fresno veins. These tonnages are about as follows:-

Moscow raise: ore streak, 20 feet by 30 feet by 3/4 foot, at 10 cubic feet to the ton = 60 tons, the average content of which may be placed at 17 ounces silver; 20% (400 pounds) lead and 24% (480 pounds) of zinc to the ton, which, at the present prices of the contained metals and allowing for concentration and smelter losses, has a value of gross value of $27.48 per ton.

Mohawk vein on south side of creek: block 15 feet by 100 feet by 1 foot = 150 tons that will probably average 12 ounces silver, 15% (300 pounds) lead and 20% (400 pounds) zinc to the ton having a gross value, after allowing for concantration and smelter losses, of $20.96 per ton.

Fresno vein on south side of the creek: block 15 feet by 100 feet by 1½ feet = 225 tons that should average 12 ounces silver; 4½% (90 pounds) lead, and 30% (600 pounds) zinc to the ton having a gross value, after allowing for concentration and smelting losses, of $18.58 per ton.

This gives a total gross value to the PROBABLE ore of $8,973.30.

With regard to the POSSIBLE ore tonnage it is very difficult to give any figures which mean anything because of the extremely limited amount of development work that has as yet been done, but it may be stated that having regard to the geological formation in which the ore occurs and what has been found in other mines in the district which are in the same general mineral belt, there is every reason to expect that sufficient tonnage of payable ore will be developed to justify the installation of an adequate milling plant and to yield a satisfactory profit on the capital expenditure.

ORE TREATMENT

At the present time, because of the lack of tonnage of ore actually developed in the mine, it is a little premature to say much about the correct method of treatment, but from the nature of such ore as has been found and from what is known of the ores found elsewhere in the same mineralized area and in a similar geologic formation it may be stated that there is no difficulty in making a satisfactory separation of the several metallic minerals by selective flotation.

A mill therefore, to treat this ore, would probably consist of a crushing plant, coarse concentration, re-grinding of the tailings and flotation. The concentrates produced would be shipped to the smelter of the Consolidated Mining & Smelting Company, of Canada, Limited, at Tadanac, B. C. where they would find a ready market.

When the time comes to provide the requisite milling plant it will be the part of wisdom to ship 30 or 40 tons to some ore testing plant where proper experiments can be made and the most efficient "flow sheet" worked out, and where also the plans and specifications for the mill can be prepared.

MINING FACILITIES

The claims comprising the Moscow-Mohawk group, situate as they are on the steep hill sides forming the north and south sides of the Poole creek valley, afford the opportunity of mining the ore bodies by means of adits (tunnels), thus not only avoiding the expense of hoisting the ore through shafts, but saving the heavy cost of pumping water from the mine, a not inconsiderable item in the Lardeau where the ground contains much water.

In the vicinity of the present Moscow cabin there is a good site for whatever plant may be found necessary to install for the economic mining and milling of the ore, and, as will be seen from the photographs accompanying this report, there is ample timber for all purposes.

In both Poole and Mohawk creeks sufficient water can be obtained for power and milling purposes by the installation of the necessary dams and pipe-lines.

While the present trail is only suitable for pack animals, it will be a comparatively easy and inexpensive matter to widen it, and cut down the grade in two or three steep places, so that tractors can be operated over it and there will be no difficulty in using the road all the year round as there are no snow-slides to bother.

The climatic conditions are good with neither extremes of heat in summer nor of cold in winter. The snow-fall is quite deep but does not interfere with work being carried on throughout the winter when the work is being done underground and proper living quarters are provided. The tractor can easily keep the road open without any difficulty.

At the present time there are two cabins on the property with sufficient accommodation for six men. There is also a blacksmith shop together with sundry tools, steel, track in the Moscow adit, ore car, etc.,

Looking up Mohawk creek from the Moscow camp-site, on the north side of Poole creek.

sufficient for a small crew of men doing the work by hand.

In order to expedite development work it would be advisable to install an air compressor capable of supplying air for two small drills operating simultaneously, together with the requisite steel, drill-sharpening tools, etc. for its efficient operation. This machine could be driven either by water-power obtained from the creeks or by a crude-oil engine, whichever was considered the most economical to install and operate. In all probability a water operated machine will prove to be the least expensive as the water can be obtained from Mohawk creek with a short pipe line, as will be noted from the photograph of Mohawk creek presented herewith.

MINING and MILLING COSTS

A good class of miners and laborers is obtainable in the district at approximately the same wage scale as is prevalent in the Slocan, namely:-

MINERS	$5.00 per day of 8 hours
MUCKERS and LABORERS	$4.50 per day of 8 hours
BLACKSMITHS	5.50 ditto
TIMBERMEN	5.50 ditto

The cost of underground work depends to a great extent on the facilities provided, but the following may be taken as a guide:-

DRIFTING and CROSSCUTTING	$12 to $17 per foot
Raising	10 to 15 " "
Sinking (winzes) by hand	20 to 30 " "

Wherever possible it is a good policy in development work to have it done by contract at an agreed price per foot. In this case the mine-owner provides the contractor with all necessary tools, track, cars, air-pipe, etc., and sharpens the caps, light in the workings, does such timbering as is necessary, lays the track and puts up the air-pipe.

The per ton cost of mining and milling is a variable amount which

cannot be definitely stated without knowing the width of the stopes, the amount of dead ground to be handled and the distance the ore has to be trammed. The ratio of dead work to the ore tonnage, the distance from the mine to the mill and the daily tonnage put through the mill are also important factors that have to be taken into consideration.

As a general thing it may be stated that the greater the daily tonnage handled the lower will be the per ton cost because of the fixed charges - such as superintendence, office expenses, etc. - which do not increase proportionately as the output of the mine becomes greater. In the case under consideration with a plant handling 50 tons of ore per day the mining and milling costs will probably be found to be between $7 and $10 per ton.

MARKETING OF THE ORE

The ultimate value of an enterprise is its earning power and the profits that it returns upon the capital expended. In other lines of business this matter is given due and careful consideration, but in the case of mining, particularly those in which lead, zinc, and copper are the chief products, not only is little consideration given to such an important matter but a wrong basis is used in arriving at the value of the ore.

In the majority of cases the values of the ores, as given in the reports and other literature issued by some Companies are based on a recovery of 100% of each of the metals contained in the ore, as shown by assay, at the New York prices for such metals. This, unfortunately, is a very long way from the truth because, not only is there always a loss of metal in the concentration plant and in the smelting, but the New York prices are NOT used as a basis of settlement in the case of lead and zinc.

In British Columbia the nearest smelter to which ore and concentrates

can be sent from the Lardeau area, is that of the Consolidated Mining & Smelting Company, at Tadanac, and their schedule for silver-lead, zinc ores is as follows:-

> Pay for 95% of the silver contained in the ore, as shown by assay, at the New York quotation for foreign silver.
>
> Pay for 92½% of the lead as determined by dry assay, at the London, England, quotation for soft Spanish lead, converted into Canadian currency, less 1¼ cents per pound.
>
> When ores shipped as "lead ore" contain zinc, a penalty of 30 cents for each 1% of such zinc will be charged.
>
> When zinc ore or zinc concentrates are shipped and contain 50% or over metallic zinc, that metal will be paid for on a basis of 85% as shown by the assay, at the London, England, quotations for zinc, converted into Canadian currency, less 2½ cents per pound.

In arriving at the value of the ore as set forth on page 10 of this report, the following basis was used:-

After allowing for milling AND smelting losses it is estimated that a recovery of 80% of the silver and of the lead, as shown by assay, will be made.

In a like manner it is estimated that a recovery of 70% of the zinc, as shown by assay, will be made.

The price for silver has been taken at 58 cents per oz.

The price for lead has been taken at £22:0:0 per long ton (2240 pounds), which at $4.86 exchange, less 1¼ cents per pound, makes the price actually received from the smelter for the lead, 3½ cents per pound.

The price paid for the zinc has been taken at £24:0:0 per long ton (2240 pounds), which at $4.86 exchange, less the smelter deduction, makes the price actually received by the shipper, 2½ cents per pound for the zinc.

By the time your mine is ready to ship ore in quantity it is pro-

bable that not only will both lead and zinc command a higher price than at the present time, but it is also likely that the basis of settlement will be changed in favor of the shipper owing to improvements in smelting operations and a higher recovery of the base metals.

It is also probable that other mines will be operating in the same district making steady shipments of ore to Tadanac, and that better provisions will be made for the handling of such shipments from Beaton to the smelter which will result in lowering the freight costs.

RECOMMENDATIONS

From what has been stated it will be evident that while the Moscow-Mohawk group cannot be classed as a "mine" at the present time it is a prospect well worth systematic development.

There are three well defined ore-bearing fissures on the property, in two of which some good ore has been found and in the third of which - the Graphite vein - it is reasonable to expect that profitable ore shoots exist. The problem is to find these ore shoots with the least amount of work and in the shortest time.

In the opinion of the writer this can be best accomplished by having a geophysical survey made, by the Radiore or some other equally satisfactory method, along these veins for the purpose of mapping the areas of greatest mineralization, and then to prove the same by means of diamond drilling preparatory to driving of adits or crosscuts necessary to open up and explore the ore bodies indicated by such survey. The writer unhesitatingly recommends that such a survey be made at the earliest possible moment.

Pending such survey, it is advised:-

1. That a crosscut be driven west from the face of the Moscow

adit for a distance of 50 feet, or less if ore be sooner found. The object of this crosscut is to cut the fissure upon which the adit was started and which was left after the first 50 feet had been driven.

2. Sink a winze 50 feet on the ore showing in the floor of the adit beneath the raise.

3. Clean out the old Fresno adit - that is the second workings on the Mohawk claim on the south side of Poole creek, above the Moscow-Mohawk bridge and drive in another 50 or 100 feet on that vein.

The information obtained from doing this work, especially the valuable data from the geophysical survey, will give a far better idea as to the ore possibilities than is obtainable now and will enable a plan of development to be laid out that should result in opening up ore bodies of sufficient commercial value to justify the capital expenditure necessary to place the mine on a producing basis, as there is little doubt, in the opinion of the writer, as to the existence of such ore bodies.

Respectfully submitted,

(Signed) Newton W. Emmens
Mining Engineer.

Vancouver, B. C.
November 15, 1928

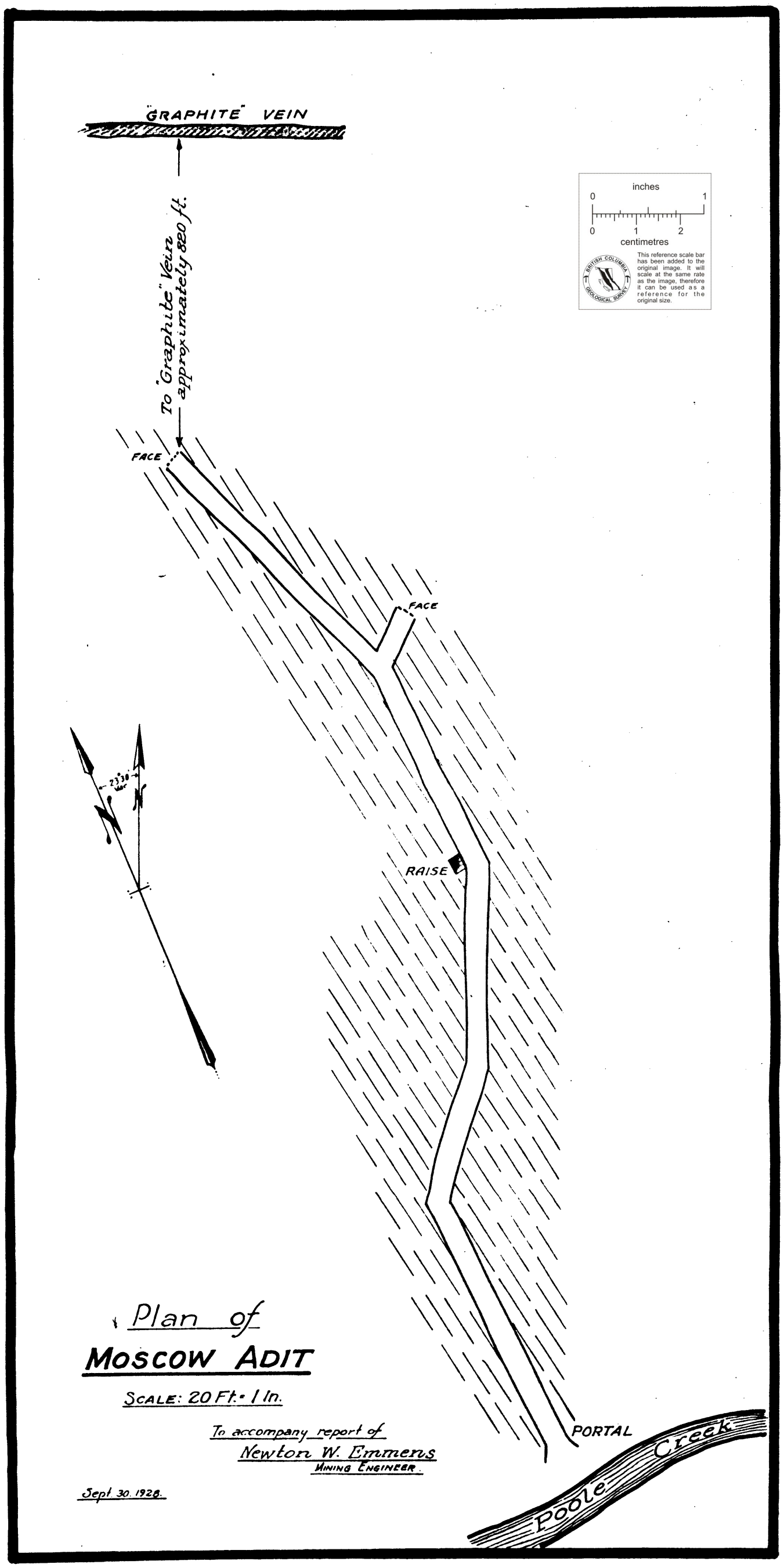
G. S. ELDRIDGE & CO.

Provincial Assayers, Analytical and Consulting Chemists
Metallurgists and Cement Inspectors

We hereby certify that the following are the results of assays made by us upon samples of ore herein described and received from Mr. Newton W. Emmens, 15th November, 1928.

Marked	Gold Ounces per ton	Silver Ounces per ton	Lead per cent.	Zinc per cent.
1.		20.6	24.2	24.9
2.		15.4	14.7	22.4
3.	0.25	6.9		8.3
4.		29.9	37.5	
5.		1.0	0.9	0.1
6.		15.9	5.2	36.1

(Signed) G. S. Eldridge
Provincial Assayer



MCD 41

BRITISH COLUMBIA DEPARTMENT OF MINES AND PETROLEUM RESOURCES

MINERAL DEPOSIT INVENTORY

Property No. 940 Metal ☐ Industrial Mineral ☐ Placer ☐ Coal ☐ Lapidary ☐

Name: Current Mohawk Previous

C.G. and No. Mohawk L 4571

Operator/Yr.

Claim Owner

Operator Year

Claim Owner

Operator Year

Claim Owner

Operator Year

Location: Map No. 82K/NW-41 N.T.S. 82K/13E Lat. Long.

M.D. Revelstoke In park E. & N. ☐ El.

Location plotted Precision 1

Status: Producer ☐: Active ☐ Inactive ☐ L+ ☐ L ☐ M ☐ S ☐ S– ☐

Non-producer ☐: Pot. prod. ☐ Under exploration ☐ Prospect ☐ Occurrence ☐

Reserves: L+ ☐ L ☐ M ☐ S ☐ S– ☐ Tons Grade

Est. potential: L+ ☐ L ☐ M ☐ S ☐ S– ☐ Grade

Product(s) Ag, Zn, Pb

Development: Surface

Underground adit

Drilling

Surveys: Geochem. ✓ Geophys. ✓ Geol. ✓

References: M.M.A.R. 1898-1064, 1899-672 1900-981, 1903-107 1909-104, 1914-261, 1924-207 1928-E11, 1947-173, 1963-A79

Dept. expl. forms

Asses. rept.: Geol. Geophys. Geochem.

Geological and maps Mem. 161, p. 89, GSC Map 235A #73

Recorded by pg 12/23/'70 Revised by Lib. Res. Comp.

Summary description Sulphides occur in 2 to 4 veins cutting siliceous schists

Attitude of deposit: Strike N27°W / N15°W Dip Azimuth Plunge

Size: Length Width Depth

Mineralogy: Major Quartz, pyrite, sphalerite, galena

Significant

Minor

Significant minor elements:

Assays:

Production: Tons 9 (1963) Grade: Au Ag 434 Cu Pb 2993 Zn 3746

Others

Remarks

Property No. 82K/NW-41 940