MR-114-04

COPY

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May 6th, 1938.

Letter of Transmittal

New Chichagof Mining Syndicate
c/o Mr. J. J. Stocker, Treasurer
Juneau, Alaska.

Gentlemen:

Following your instructions the writer spent May 3rd, 4th, and 5th, 1938, in making a geological examination of your mining property and underground workings situated at the head of Pinta Bay, Chichagof Island, Alaska.

The principal object of this examination was to learn the habit of ore deposition on your property and from that to lay out a program for future exploration. For this reason no examination was made of the claim locations nor title to them.

In carrying out this work, use was made of a transit survey plan of the underground workings kindly supplied by Mr. P. M. Sorensen of the Hirst-Chichagof mine and a former sampling of the quartz ore bodies done by Mr. Sorensen, Mr. B. D. Stewart, Mr. B. B. Nieding and others, all of whose results appear to agree fairly well. As a result of this, only a limited amount of sampling was required to be done at this time and consisted of only five samples taken from the lower tunnel by the writer, assisted by Mr. Max Behrmann in order to learn the value of certain quartz showings.

The results of this examination and the recommendations based thereon are given in the accompanying report and on the geological plan attached to it.

It is a pleasure to state that every possible assistance was given the writer by Mr. Behrmann in carrying out this work.

Yours Very Truly,

P. W. RACEY
Mining Engineer & Geologist

PWR:W

WORKINGS

The workings consist of four tunnels aggregating 988 feet of underground work and some twelve or more opencuts that are mostly caved in at this time.

The upper tunnel which is at an elevation of 245 feet above sea level, has a total of 175 feet of work and exposes the vein fissure for a continuous distance of 110 feet. A length of 40 feet of this vein exposed averages slightly over $17.00 per ton in gold across a width of better than 28 inches but the entire width of the ore has not been exposed.

Two short crosscut tunnels, 19 and 31 feet long respectively, crosscut the mineral zone at 105 and 185 feet southerly from the portal of the upper tunnel. The more northerly of these exposes a width of 9 feet of quartz in its floor from which Mr. Nieding's sample assayed $3.50 and Mr. B. D. Stewart's $9.10 per ton in gold taken at $35.00 per ounce.

The lower tunnel is at an elevation of 160 feet or 85 feet vertically below the upper tunnel. It has approximately 900 feet of workings and exposes the vein fissures in two places for 68 feet in each case. The face of the tunnel is 10 feet in the footwall of the vein fissure so that a diagonal crosscut 15 to 20 feet long driven toward the north would bring the drift back on to it.

Between survey stations Nos. 11 and 13, or 500 feet in from the portal of the lower tunnel, the main vein fissure was exposed for a length 68 feet and shows quartz to be 6 feet 10 inches wide at one place, which assayed $3.50 over 3 feet 4 in. on the hanging wall side and $8.40 over 3 feet 6 in. on the footwall side; this same area having assayed $14.00 per ton in gold as sampled by Mr. J. C. Roehm of the United States Bureau of Mines. (Should be Territorial Department of Mines. BDS) Between this point and the portal of the tunnel the work is in the hanging wall of the vein fissure, which should be explored by at least two short crosscuts placed at 100 foot intervals back from survey station No. 12. Greenstone would be cut by the fissure farther south than that point and it seems unlikely that ore would be found in it.

The quartz outcrops show plainly in opencuts over the upper tunnel and in several additional cuts made for a distance of 300 feet northerly from the north end of the upper tunnel. However, the values found by Mr. Nieding and Mr. Stewart in these more northerly cuts are low, but a rough compass survey made of them by the writer suggests that they may not all be on the main vein fissure.

The various tunnels and opencuts have exposed the main vein fissure from place to place over a distance of slightly more than 525 feet.

GEOLOGY

The formation in which the ore occurs is a limestone of varying degrees of purity, color, texture and alteration. It is reported to be in the form of a long belt one-half mile wide or more and extends for many miles in a northwesterly direction more or less paralleling the Island's coast line. This rock is overlain toward the southwest by a wide belt of greenstones and tuffs, etc. and that in turn by the graywacke formation in which occur the Hirst-Chichagof and Chichagof mines, situated some eight miles southerly from the New Chichagof Mining Syndicate's holdings.

GEOLOGY CONTINUED

The limestones have been intruded by numerous dikes and variously-shaped masses of rock that have been classified as diorite. These intrusions, in so far as could be seen at this time, lay generally in a direction of N. 40° W., or roughly parallel to the formation, but they dip at a great variety of angles both toward the southwest and toward the northeast.

The various formations have been cut by a series of faults and shear zones that strike N 18° 30' E. and dip 60° - 70° westerly, One of these fissures is particularly prominent in the mine workings and is the avenue up which mineralizing salutions ascended, probably from the great batholith of much younger quartz diorite known to exist a mile or so distant toward the northeast.

This particular fissure has an apparent horizontal displacement of 50 feet, the east or footwall side having moved southward and down at an angle of 10° relatively to the hanging wall. This fact is of importance when information is required regarding what rock is likely to be found immediately ahead of the north or south working faces in the mine.

The mineral-bearing salutions when ascending this fracture carried considerable quartz, a very small percentage of chalcopyrite and pyrite and the gold values, all of which replaced the limestone on either or both walls of the fracture and formed what now are the irregular, lenticular-shaped and elongated masses of limey quartz that form ore bodies.

It is particularly noticeable that no replacement of the walls whatever took place when both walls of the fracture were composed of diorite, and that conditions were only partially or very slightly favourable to replacement when one wall of the fracture was composed of diorite, even though the other was of limestone. This feature appears to be one of most importance from an economic standpoint and is second only to the fact that limestone must be present through which the main fissure can pass before it is possible to have quartz ore bodies.

As can be seen on the accompanying geological and assay plan of the mine workings, the limestone in the vicinity of the upper tunnel, and directly below in the lower tunnel, is much cut up by diorite intrusions. When limestone shows on both walls of the main fissure, as in the first 65 feet of drift in the upper tunnel, quite wide masses of quartz ore have formed and some of it contains excellent values in gold.

Toward the north from the present mine workings it is to be expected that additional intrusions of diorite will be met for 75 to 100 feet from the north face of the lower tunnel, after which the surface geology, as far as can be seen through the surface soil, etc. suggests that only limestone should be encountered for many hundreds of feet, consequently, the chances of finding good ore bodies appear very high.

The shallowness of the upper tunnel, and the consequent chances of encountering heavy flows of water make it inadvisable to extend that heading at this time.

Returning now to the lower tunnel, it will be observed, as previously noted, that all workings southward from survey station No. 11 are apparently in the hanging wall of the main ore-bearing fissure. Also, that the formation southward from station No. 11 is limestone for over 200 feet. This area should be explored by several short crosscuts, as already pointed out. However, it also should be noted that there is a marked change here in the composition of the limestone, and that it is much less pure than toward the north. It is unknown at this time what effect this may have on the deposition of ore along the main fracture because at some mining districts such impurities assist and at others they hamper the formation of ore bodies.

It appears likely that the ore bodies will form in very irregular shapes, both in a lateral direction and up and down the main fissuring due to the presence of the above mentioned diorite intrusions. For this reason it will be difficult to block out with much degree of certainty any large amount of tonnage, and when selecting a site for a shaft to explore the area at deeper horizons much careful study should be given first to the general geological conditions, so as to avoid as much as possible those sections unfavorable for ore deposition.

RECOMMENDATIONS

It is recommended that the lower tunnel be extended northward for several hundred feet, being careful in doing so to keep on the main fissure. Also, that the same vein fissure be explored from the southerly portion of the tunnel by means of short crosscuts spaced 100 feet apart, as previously outlined. These should be kept carefully within the limestone, for, as already mentioned, it is unlikely that any ore will be formed in the fissure where it passes through the greenstone that lies to the south of the limestone deposits.

When this has been done, the situation should be reviewed as to results obtained, and a new program should be laid out which might include a ventilation raise to the upper tunnel, further drifting toward the north in the lower tunnel, and possibly shaft sinking therefrom. The advisability of this can be determined only after the present program has been carried out and the results recorded.

CONCLUSIONS

The study and mapping of the geological conditions that are just completed suggest that there is an excellent chance of finding commercial ore bodies both toward the north and toward the south of the present exposures of the main vein fissure in the lower tunnel, the former appearing the most promising.

Transportation and harbor conditions are good; temperatures in the winter should not be excessively low due to the nearness of the ocean; timber for present mining requirements is available on the property; water power could be generated nearby if warranted by the size of future ore reserves; and supplies can be obtained readily from either Juneau or Seattle by water.

Against these points are the facts that mining in irregular limestone replacement deposits is usually more expensive than in most other forms of ore deposits; future development and most of the probable production will be mainly from shaft operation with its added expenses for hoisting and pumping; and that it will be difficult, from the nature of the ore deposits, to block out ahead of milling operations any great tonnage reserves.

Consideration of all these points, coupled with the fact that good-sized quartz bodies have been formed each time when limestone showed on both walls of the main fissure, indicates that further development is warranted and that results therefrom may lead to the installing of a mill.

The chances for success of this undertaking, appear at this time to be better than even.

Yours very truly,

PWR:MW

P. W. Racey

CHICHAGOFF MINING COMPANY

DATA ON HOISTING, SIGNALLING & VENTILATING SYSTEMS

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DATA ON HOISTING, SIGNALLING & VENTILATION SYSTEMS

Mine Telephons System

All telephones located underground are Western Electric or Stromberg-Carlson Mine Telephones with iron cases.

Telephone on main system located in Compressor House outside.

Mine: Phones

Main Tunnel Level:
No. 2 Hoist
Fuse House

700 Level
700 Station No.2 Shaft and at No.3 Hoist

1200 Level
No. 4 Hoist

No. 4 Shaft has another system not connected to main system, with telephone on 1200 Level at No. 4 Hoist and on 1400 and 1500 levels at stations.

Hoist Signal Systems

The signal systems used in No. 2 and No.3 Shafts consists of a single stroke bell and light at hoist also light on each level for calling skip. These are operated by mine signal switches located on station side of shaft timber.

The operating signal to hoistman is given by mine signal switches located in shaft side of timbers with pull wires running down to the next level below. These operate Benjamin Industrial Buzzers located at the hoist and on each level.

The systen in No. 4 Shaft is the same except a vibrator bell is used for an operating signal from 1400 and 1500 levels and the buzzer is operated from the shaft below 1500.

As soon as the shaft sinking is completed the vibrating bell will be discontinued and buzzers used as operating signals from all levels the same as in the other shafts.

These systems operated from 220 Volt lighting current.

HOISTS - All operated by compressed air.

No. 2 Shaft - Skip on rails.

Lidgerwood No.64 Hoist - 10 x 12 - double cone friction - band brake.

Drum 46" Diam. 42" long, grooved for 7/8" rope.
Hoisting speed 750ft. per min.
" " 350ft " " with men on.

No. 3 Shaft - Skip on rails.

O & S Special Hoist - 7 x 10, positive clutch on crank shaft,

Post brake - Drum 30 x 41 - grooved for 5/8" rope.

Hoisting speed 450ft. per min.
" " 330ft " " with men on.

No. 4 Shaft - Bucket on Skids

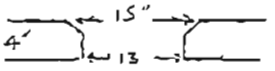
Lidgerwood Hoist - 6½ x 8 - single friction - band brake.

Drum 14 x 18 - 5/8" rope.

Hoisting speed 300ft per min.
" " 200ft " " with men on.

Bucket 29" diam - 36" deep.

Small bucket (not in use now) 24" diam. 32" deep.

Guides 

Distance end plate to pipe across shaft 47"

Ventilating Fans.

On 1100 Level - discharging out into drift.

Western Blower Co. No. 24 - 8" intake and discharge -

Direct connected to motor - 1735 R.P.M.

On 1200 Level - discharging into 8" pipe to 1000 fan.

Sturtevent No.4 - 10" intake and discharge - 2333 RPM.

Belted to 5H.P. motor - 1750 RPM.

Discharge reduced to 8" to connect to 8" pipe.
Intake 10" pipe into 1200 Drift South of 1401 Raise.

Canvas door North of raise.

Fire Doors

Close fitting fire doors to cut off all draft located at mouth of main tunnel and near fuse house between No. 1 Shaft and No. 2 Shaft.

Compressors

Located in compressor building 300ft from mouth of tunnel and connected to large rock receiver near No.2 Shaft by two 4" pipe lines .

Compressors

Two Ingersoll-Rand - 19 x 12 x 16, 880 cu. ft. air per minute - belt driven by 150 H.P. motors.

One Ingersoll-Rand Compressor - 16 x 10 x 14 - 400cu. ft. air per minute - belt driven by 100 H.P. motor.

Record of Mine Temperatures taken March 20th 1933.

Outdoors	38	Deg. F.
Collar No. 4 Shaft	70	"
Face 1200 Drift South	68	"
1400 Drift (25ft. south of shaft)	72	"
" " (5ft. past last raise from 1501 stope)	74	"
1501 Stope - 12th floor	73	"
1500 Drift - last chute south	73	"
" " Station	72	"
" " face North	73	"
700 Station - bottom #2 Shaft	60	"
6th floor drift - 1405 Raise	73	"