1190 0020

New. Nev. Soc.
5/82

(181)
ITEM
21

REPORT ON PROPERTY OF THE

COMO MINES COMPANY

Henry C. Carlisle

July 18, 1936

OBJECT OF REPORT:

The Como Mines started operating a 300 ton flotation mill in June 1935. Since that date the operation has lost money each month. The object of this report is to try and determine how the mine may be put on a profitable basis and make recommendations as to what is the best course to pursue in present unfavorable situation. This report is result of five days just spent on the property but this is the fourth visit. An examination without sampling was made in 1920 when the property was operated from shafts and also two brief inspections in 1935. A full description of the property is found in several other reports.

CONCLUSION:

As a first principle it may be said that even in the present money losing operation there is a fine plant and expensive equipment ready to operate. It costs a lot of money to find a good mine and more to equip it. Therefore, if a development campaign has even less chance than the average, this plant being paid for would justify this point if there is any reasonable chance of success. Even although having the above situation very much in mind and after considering every known development chance and change in present procedure the very definite recommendation is to close down the whole operation and abandon the mine. The expenditure of money could improve the mill, save part of the cost of marketing the product and have some chance as always, of finding more ore. There is such a big difference between present tonnage and value and what is needed for a profitable operation that it is believed the new money would have entirely too remote a chance of success.

GENERAL:

The present situation comes in some considerable part from two major breakdowns in original hopes and expectations. First and foremost the ore shoots did not go below the old upper levels with exception of one ore shoot. Secondly, the apparently authentic assay plans left by the 1918-20 operators of the upper levels, when checked, proved to be about three times actual assays. This leaves a mine with practically no added tonnage due to the expensive deep tunnel development. It also largely cuts out the possible ore around the old stopes above. Instead of a mine, with long, wide and profitable ore shoots of unknown depth, there remains a hand to mouth operation largely around caved stopes, with seven different widely detached stopes getting out 100 tons per day at a loss of about $6000. per month.

HISTORY:

The Buckeye, Como and Rapidan shafts and most of the upper levels from these shafts are old workings at least previous to 1918. In 1919-20 there was an intensive operation of the mine. They developed the Rapidan on the 350 level and the Como on the 300 level. A 100 ton cyanide mill was built and operated for nearly three years. Good records of this operation show a mill head of around $8.75 for about 25,000 tons milled from two main stopes in the Como and one on the Rapidan.

During this operation a very complete assay plan was prepared showing large tonnages were left on the sides and below the old stopes. These assay plans were generally believed to be correct and from them a large tonnage was believed available above the old lower levels. In past year very extensive check sampling of these old assay plans has definitely proven them to be inaccurate and way high.

The mine was idle from September, 1920 until about four years ago. The present Como Mines Company has driven the long

Boyle tunnel from the 3450 foot point, some 1300 feet to the Como vein and 2000 feet to end along the Rapidan vein. This struck these veins about 500 feet below the surface and 225 and 100 feet respe respectively below the old lowest level on each. If the old assay plans had been correct and if the ore had kept its value down to the Boyle tunnel there would have been a large tonnage available, but unfortunately neither of these premises came true.

The present company built a 300 ton flotation mill and started to operate in June 1935. This resulted in an operative loss of about $15,000. per month during the balance of 1935. The 1935 part of the operation was run without usual records and efficient organization necessary in an operation. On January 1st, 1936 and to date an unusually efficient management has been in charge with complete sampling records and a tremendous effort has been made to develop more ore and run the operation at least without loss. The mill is being run on one shift only and mine on two shifts. All stoping on the Rapiden vein has stopped due to the complete oxidation of the vein even on lower levels, and work is confined to the Como where a better extraction can be obtained.

1935 OPERATION:

During this seven months operation four main stopes were worked in upper levels. The stopes were worked over wide widths, probably an average of about 12 feet and shrinkage stoping was used. The walls were not good, dilution was excessive and the wide widths did not make real ore. The stopes were started where the 1920 assay plan showed values and these supposed good values did not materialize. Results of this 1935 operation were as follows:-

MONTH		Dry Tons Milled	Value per ton Au.$	Ag.$	Total	Total Gross Value
1935	June	1835	$ 0.81	$ 1.14	$1.95	$3578.25
	July	5370	1.73	1.53	3.26	17506.20
	Aug.	7504	2.43	1.86	4.29	32192.16
	Sept.	7311	1.82	1.49	3.31	24199.41
	Oct.	5422	2.49	1.50	3.99	21633.78
	Nov.	5843	2.92	1.85	4.77	27871.11
	Dec.	2405	2.51	1.61	4.12	14055.41
		36690	$2.20	$1.64	$3.84	$141,016.32

The mill recovery was 80.9% and with marketing loss a net value of $69,028.65 was received for the concentrates. This made a loss of about $15,000. per month.

This was an attempt to mine wide widths on the veins in best places known to be available and make a tonnage operation rather than selecting the narrower and better widths remaining. It failed and due to the better places having been picked out a similar attempt to mine 200 tons per day now would result in a similar loss even if the present efficient management should try it.

1936 OPERATION:

The present management stopped mining the wide widths of low grade ore which had resulted in a large monthly loss. They narrowed the stopes to the better values, have done about 3000 feet of development, taken thousands of samples and raised the mill heads to $7.73 on about a 100 ton per day operation. This has reduced the monthly loss to about $6000. per month. At present it is distinctly a cleaning up operation with seven small stopes working and three of these promise to play out within a few days. There is one other place only where a stope is known that should take the place of one of these. There is no major development now going which will change this situation.

The results on the 1936 mill operation are as follows:-

MONTH	TONS MILLED	VALUE PER TON	GROSS VALUE
Jan.	2871	$6.77	$19,438.00
Feb.	2019	7.42	22,404.00
Mar.	3406	8.76	29,840.00
Apr.	3000	8.85	26,594.00
May	3000	7.04	21,115.00
June	5055	6.53	33,014.00
July (to 11th)	1473	5.85	8,616.00
TOTAL	20,824	$7.73	$161,021.00

Mill tailing s loss and marketing expense reduced this gross figure to a $105,883.00 cash return.

COMO VEIN:

This vein has been developed to greater extent and produced mor ore than any other. In the western half of the upper levels there is a very wide quartz vein on the footwall which averages from 10-30 feet in width. This is very impressive when walking through the mine and having only the 1920 assay plan. It gives the idea of very large tonnages of ore. This footwall quartz is not the real ore and has been proven to generally average about $1.50 to $3.00 per ton. Usually, on the hanging wall there is a soft crumbly vein material about four feet in width which is the real ore. Around the Buckeye shaft there are two of these soft veins within the wide quartz mass each about four feet wide. In places there may have been a third worked many years ago and now caved. Generally, however, there is only the one soft rather narrow vein.

From the 100 level to the surface on the Buckeye shoot there are places where a width of ore has filled between two of the narrow veins mentioned above making a 15 to 25 foot width over a short distance.

The eastern half of the Como vein is largely without the footwall quartz and is a crumbly vein matter with andesite walls from 2 to 7 feet wide probably averaging 4½ feet.

The Como vein in general has been developed along the strike for about 1600 feet, is oxidized or partially oxidized down to the 250 level and sulphide below. Values in shoots went down to this 250 foot point in certain ore shoots. Below the vein is practically barren with exception of the gold sheet which will be described later.

Values are in gold and silver with ratio of about 60 ounces silver to one ounce gold. The 1920 assay plans are figured on $1.00 silver and $20.00 gold which makes total value very close to present metal prices.

There were four main stopes above the 200 level which totaled about 500 feet in length which when mined four to seven feet in width would average about $7.00 to $8.00. With exception of the wider places mentioned above and the gold sheet which went deeper this is a general statement of the Como vein ore. There were enough places where two parallel stopes were mined within the big width to make a general average width of 6½ feet. This is estimated from total tonnage removed and stope areas. With exception of a few wide places of real ore mentioned above the attempts to mine wide widths caused values to drop to between $3.00 and $4.00. As stated the wide widths of low grade quartz only occurs in the western or Buckeye section where the good, soft, narrow ore has now largely been mined out. Therefore what remains as real width runs something close to $2.00 or $2.50.

The low level Como development has been very extensive and costly. With exception of the small gold shoot the results have been negative. The Boyle tunnel is 225 feet below the old 300 level and in drifting 1000 feet the Boyle Tunnel has developed under all the mineralized length above.

The Boyle tunnel struck the Como vein at the west end of ore shoots above. From this point East for a distance

of 690 feet no ore shoot was found and probably $1.50 was best average in any stoping length. Then the gold shoot was found. This 690 feet went under the main stopes in the mine about 225 feet below the old 300 level. The work was done over a long period due to developing a vein at right angles called the Yerkes, and also to some faulting and rambling around past the Yerkes. During this period "shift boss sampling" of the better parts delayed getting the definite information that this 690 feet under the old stopes found no ore shoots.

Then a raise was run from the Boyle Tunnel to the 300 level, under the center of the old stopes above, and found no ore. The 425 level was driven 400 feet as a sub level along the vein and did not find an ore shoot. Eventually the 1936 management drove a raise up from the 300 level under the center of one of the best shoots above and found ore at the 250 level. This is the exact point where the Como vein changes from the oxidized to sulphide zone.

From later sampling it was proven that the gold shoot only came down to even the 300 level, and the 250 level is probably about the level where all other shoots on the Como cut out.

GOLD SHOOT:

This is the best ore shoot in the mine and is the furthest east stope. It is 142 feet long above the 300 level and six feet wide as stoped according to old reports. This ore shoot was taken out down to the 200 level by old operators previous to 1918 and nothing is known about the grade. From the 300 to 200 levels it was mined in 1919 with about a $13.00 grade at present prices and said to be six feet wide.

This ore shoot has a much higher percentage of gold than silver and is evidently a different period of mineralization. It is the only ore shoot that goes down to the Boyle Tunnel. On

the Boyle level it was more or less continuous for 180 feet and averaged about $15.00 for a 5.5 foot width. This is the one real orebody found in the entire Boyle Tunnel development.

The orebody has been intensively worked in past six months for 160 feet above the Boyle Tunnel and stopes have proven the ore bunchy with no such lenth of ore as on the Boyle Tunnel. There has been mined 6180 tons with average of $9.30 and less than one fifth this amount remains below the 160 foot point above. Counting this 20% as coming out there would be 7437 tons at $9.30 in 160 feet of depth. This makes $69,071 gross value or$43,200. per hundred feet. This obviously is not enough for winze work below with heavy pumping.

If we take the Boyle Tunnel sampling of this ore only it would be $75,000. gross value per 100 feet. This orebody is small above the level but of course may spread out below and is the best known chance on the property for more real ore. The ground above makes difficult mining as wet, broken up or soft and requires very careful work with square sets and filling. It would be much more costly mining below the tunnel with 200 or so gallons of water per minute and unless having a lot of luck in improved size and grade the operation would lose money.

EXTENSIONS OF COMO:

The 1936 development has amounted to 3000 feet. A large part has been to find ore bodies within the proven zone. Both ends of the Como workings have also been extended. A sub-level above the Boyle Tunnel was driven 210 feet past the gold shoot to the east without results.

The Star of the West vein is a narrow cross vein some 200 feet further east which will intersect the Como vein. As vein intersections appear to cause most of the ore shoots above, this would be a chance for another ore shoot. It would be tried on

the upper levels so as to get any ore bodies that went down to the sulphide zone only as is usual on the vein. The Star of the West itself is not of interest from sampling recently done and appearance on the surface. The 200 level is caved on the east end and the 300 level may be too low, as well as requiring 400 feet to reach the Star of the West vein.

On the west end of the Como, there is a much more interesting section if it had not been found cut up by early operators in work from the Lincoln Tunnel. 200 feet has recently been driven on the end of the 200 level to the west. This is on the hanging wall narrow soft vein. It is generally three feet wide with one bulge out to fourteen feet which was real ore for about twenty feet. Aside from this the drift averaged about $4.00. This is plent. of encouragement as there is a good wide outcrop of the footwall quartz above on the surface. The trouble is that old strap iron rails are found 35 feet above which is the Lincoln Tunnel level. The dump from this 700 foot crosscut tunnel shows that considerable drifting was done. 128 tons from the better part of this dump recently averaged $4.54 when hauled to the mill. If the whole wide quartz were ore as once supposed from the 1920 assay plans, this would be an attractive end. Now knowing that this end was once developed by the Lincoln tunnel, also that the real vein is narrow and has been tridd for 200 feet further recently there is not much encouragement left on the west end.

RAPIDAN VEIN:"

This vein produced a considerable part of the tonnage mined in 1918-20 and also over 9000 tons of the 1935 operation. It is reached by a long branch of the Boyle Tunnel and developed for 1220 feet by this tunnel. The Rapidan vein strikes at right angles to the Como and is about 1000 feet to the north. It may be the same as the Yerkes found branching

The Rapidan is thoroughly oxidized down to a point 170 feet below the Boyle Tunnel, as shown by a winze and is not a flotation ore. It will cyanide well and was so treated by the 1920 operators. The 1936 management stopped all stopes on this vein due to a 30 to 40% extraction and low values. It can only be considered if enough ore were indicated to erect a new cyanide mill.

There were some stopes above the 200 level mined in 1918-20 which averaged about $8.00 per ton similar to the upper Como stopes and with good width. From recollection believe the main ore was fifteen feet wide. The old 200 level was more or less worked out so the 1935 operators started five stopes on the 350 level. The records show that the last 9128 tons drawn from these stopes averaged as follows:

STOPE	TONS	VALUE PER TON
287 No.	346	$4.06
356 So.	253	3.47
352 So.	507	5.85
351 So.	1789	3.45
351 No.	6227	3.19

A recent thorough sampling of the raises above the Boyle Tunnel and on the backs of the above stopes show lower values in the raises and perhaps 15,000 tons in around the 350 level that averages about $8.00 per a six foot width.

The Boyle Tunnel which is about 100 feet under the 350 level on the Rapidan did not find an ore shoot. Just past the Rapidan shaft there is a well sampled section 230 feet long, six feet wide that averaged $1.30. Then there is a long stretch where the vein was split and hard to follow which is off the vein. This is followed by a 165 foot length, 8.72 feet wide which averaged $3.56.

A winze has been sunk 170 feet which is said to be all oxidized and the assay map shows an average of about $1.80.

It was inspected only down to present water level at 100 feet where oxidization is complete.

Thus the Rapidan vein acted about the same as the Como in having values drop with depth and there is no commercial ore on Boyle Tunnel level. The amount of oxidized ore above, some 15,000 tons, is of course not sufficient for a change to cyanide treatment.

SAMPLING:

The 1920 operation left very full assay maps of the three old levels on the Como workings. They showed a long length of ore averaging almost as much as the old $8.50 to $9.00 mill heads. The crosscut samples indicated good widths. Knowing those in charge of this operation it seems difficult to believe these results are not accurate. During the past fifteen months however, these upper level assay maps have been definitely proven to be two or three times higher than actual and only for narrow widths. Thus the $8.00 ore comes down to about $3.50 and the basis for saying there is a large tonnage of even $3.50 ore above the 300 level vanishes. The 300 level itself had no ore except the old mined gold shoot and practically no stoping was ever tried on the level.

In accepting the fact that the Como mine should now close down it is impo tant to compare the 1920 assay maps with sampling done since and be convinced that the old results are definitely way too high and the new results do not show ore. For this purpose attached are sample results of the 1920 sampling as compared with the company samples taken in 1935. Taking the drifts, without crosscuts, the average of the 1920 samples is $10.97 and $7.67. On same sections the 1935 sampling is $4.52 and $2.09 respectively. This occurs generally in same ratio when checked but above results are only two areas picked

mill is all in the Como and as follows:

STOPE	TONNAGE	VALUE PER TON	GROSS VALUE
802 W.	1480	$6.75	$10,049.00
801 W	2800	6.38	17,[illegible]6.00
3442	280	11.00	3,[illegible]0.00
3460	360	8.82	3,087.00
2482	550	8.60	4,730.00
5542	550	14.00	7,700.00
5528	230	8.00	1,840.00
4528	2040	9.00	18,360.00
801 W (possible)	2475	6.65	16,[illegible]5.00
TOTAL	10755	$7.73	$83,198.00

The best ore is in the gold shoot which will come out slowly and average for next month or two would probably be about $7.00. The grade of ore necessary to break even is about $9.00 including New York office expense.

TOTAL PRODUCTION COMO MINES:

The original operators previous to 1918 did a lot of development, but probably did much less stoping than the 1918-20 operation. This early production is not known. The grade and value is definite for 1918 and 1919 but estimated at same rate for the nine months worked in 1920. This makes the total since 1918 as follows:-

	Tons	Value	Gross
1918-20 Operation	25,000	[illegible]	$215,750.00
1938 "	36,700	5.84	140,928.00
1936 "	20,800	7.75	160,784.00
TOTAL	82,500	[illegible]	[illegible],462.00

The metal prices in 1918-20 make just about same total per ton as at present. Silver was about $1.00 and gold $20.00.

MILLING:

There is a very good 300 ton mill mechanically but it needs some money spent on it to make it a good gold saver. There is about a 20% tailin s loss. Laboratory tests give around 90% and this 10% extra might be saved if added flotation machines were installed. It is probable also that more refinments in the way of jigs, tables, and other traps would add to the saving.

at random.

The present 1936 management has repeatedly tried to check the good sections shown on the 1922 maps and generally gets from $1.00 to $2.00. These maps have been checked so many times that there is no doubt remaining.

The sampling can be summed up as consisting of four main periods. The very complete sampling in 1920 which is way high, a period of "shift boss sampling" on better places while the Boyle Tunnel drifting being done, then a correct and thorough sampling in certain areas in 1935 and finally a comprehensive checking in 1936 of any places where ore was possible.

PRESENT STOPES AND ORE RESERVES:

There are at present seven stopes being mined producing 100 tons per day of about $7.00 ore. Two of these are in the Gold shoot and the others are above the 250 level in vicinity of the Buckeye shaft. Three of these stopes will be ended within ten days and there is only one other known stope which can be started to replace them. The mine is losing an average of $6000. per month and with no major development going which might better the outlook, it will soon lose more than $6000. per month. Three of the present stopes are directly along side of old filled stopes which makes for slow and costly minin . The present operation is wide by scattered over a big area cleaning up remnants of ore with no stope from which a large tonnage can be drawn.

The 1935 operation was by shrinkage stoping which failed due to a poor hanging wall and heavy dilution. The present method is cut and fill usually on a rill system.

The known places where ore remains suitable for a flotation

marketing expense of 15% could partly be saved by cyaniding concentrates on the property. The present management has had exhaustive tests made and if ore were available to justify changes the net recovery would probably be raised some 15% or $1.10 per ton on present grade.

In the 1935 operation the actual cash returns from the ore was about 50% which was not much of a milling process. The 1936 operation saved 66% of the gross value, which is still very low. If the ore were available or there was some development chance worth taking, a substantial added saving could be expected by the expenditure of about $20,000.

The 1936 operation has produced 613 tons of concentrate with gross value of $123,475. from gross value of ore amounting to $161,032. The actual cash return from those concentrates was $105,883.

POSSIBLE DEVELOPMENT AND OUTLOOK

When the new management took charge the first of this year it was with the idea of doing development to try and find new ore. Some 3000 feet of new work has not been successful. It might even now be said the Como vein could be developed for 300 or more feet each way, the winze could be sunk on the gold shoot and the Eglin vein could be developed further, etc. This, and other possibilities with the loss in running the mill can easily use up a development fund of $50,000. or $100,000. If the property had responded to development at all or some of the things hoped for at the start had come true this would be in order. After the unusually efficient management and thorough working over it has had this year, and the very thorough sampling of every known chance there seems no doubt that the development period has past.

The several large veins on the surface still remain. The Eglin had an ore shoot running $4.15 for 1907 tons. A

70 foot drift off the end averaged about $1.00 and a general sampling of the vein did not show any other shoot of even $4.00. Several of the other veins sampled on the surface were nearly blank. As can be said of any district veins are not worth development merely because they are veins. There must be a showing or a reason for developing them.

This operation started with the very reasonable expectation that the 1920 assay plan was authentic. This was generally believe by those who knew the mine to be absolutely correct. The expectation that the values above would go down to the Boyle level was also a reasonable expectation. The old levels were under water and the assay plan showed good widths of ore. The very wide outcrops aided in the general idea of wide veins of ore. When the mine was opened the wide widths of quartz when walking through the mine also gave this false impression on the upper levels on account of the old assay plans.

The development of the mine up to the dates when the Como and Rapidan veins were struck on the Boyle Level was well justified by the evidence of width and value. From that time on the veins should have been sampled in sections at five foot intervals an and large muck samples taken each round. This was not done and what few samples are known to have been taken in the long lower drifts were in places which gave a wrong impression of average values. For a long time the mine was run by men who were given about as much authority as the usual mine foremen. It lacked a manager although some of these men if given authority wmight have proven good managers. This lack of sampling in the Boyle Tunnel and the long delay in proving that the 1920 assay plans were wrong made the enterprise a costly one. If the very efficient staff that took charge in January 1936 had been in charge when the veins were first struck in the lower tunnel, the mill would never have been built and a lot of money --

SUMMARY AND RECOMMENDATIONS:

The ore definitely did not come down to the Boyle Tunnel level with exception of one rather small ore shoot. The old upper level assay plans made in 1920 were definitely proven unreliable. The 2000 feet or more of drifting on the Boyle tunnel level, being 90% without an ore shoot takes away any large tonnage idea and the failure to check the old assay plans takes away the important tonnage thought to exist above the 500 level. The wide width idea vanished with the assay plans and experience in mining.

This leaves a cleaning up operation largely around old caved stopes and a struggle to supply 100 tons per day of about $7.00 ore to a mill which is making about a 86% extraction with marketing cost taken into account. The loss has averaged about $6000. per month plus New York office expense.

The 1936 intensive development period has recently been suspended without finding any important orebody. There seems to be no reason to start this development now.

The mine should be closed down immediately and all expense stopped as soon as possible.

Respectfully submitted,

Harry D. Carlisle

July 18, 1936