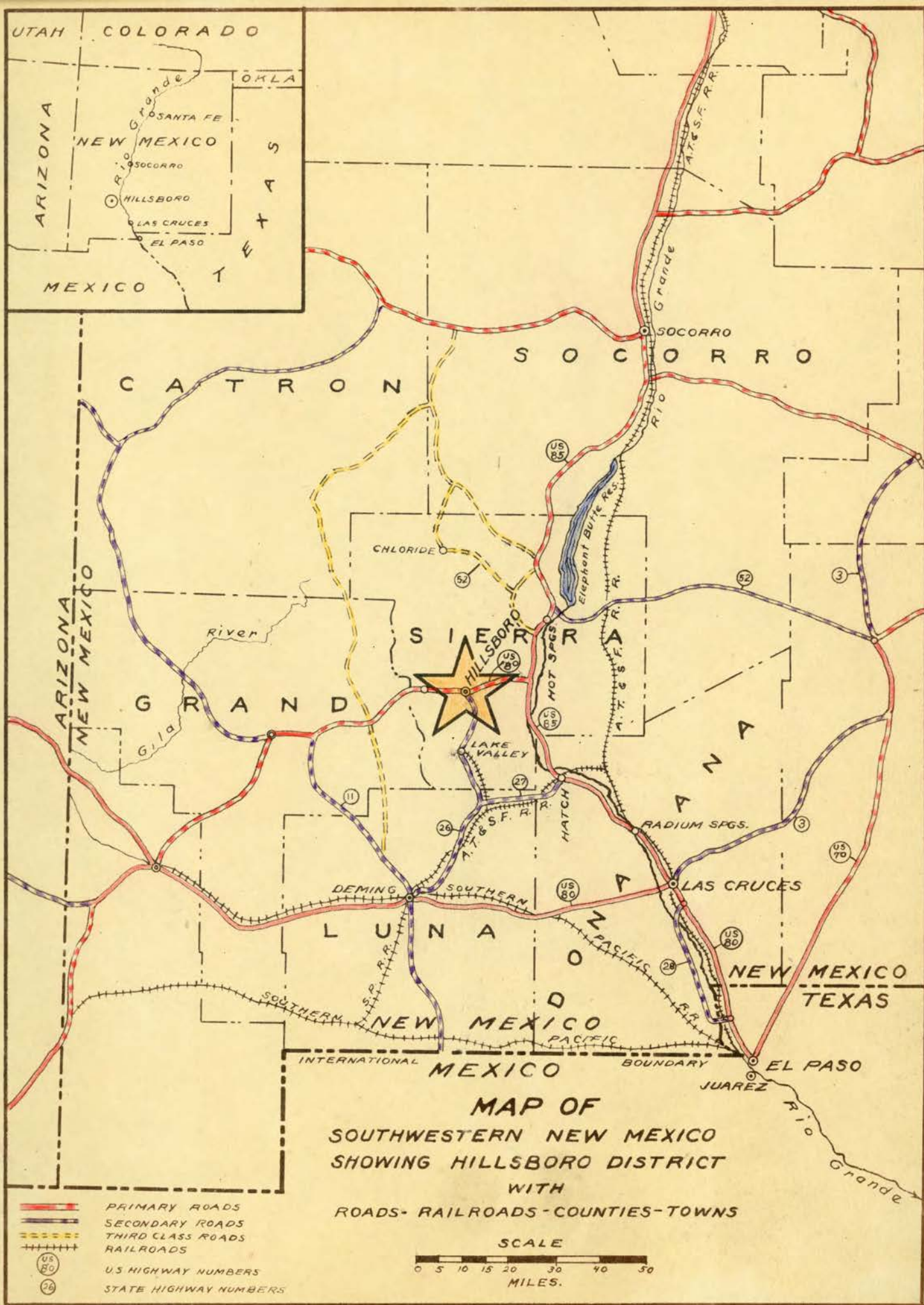


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REPORT
on the
WICKS MINE
Hillsboro, New Mexico

Walter K. Mallette
Consulting Engineer
543 Peyton Building
Spokane, Washington



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THE WICKS MINE
Hillsboro, New Mexico

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P A R T I
INTRODUCTORY REMARKS
by
Walter K. Mallette

THE WICKS MINE
Hillsboro, New Mexico

INTRODUCTORY REMARKS:-

In order to form any comprehensive idea of the Wicks Mine, its past history and its future possibilities, it is essential that one study carefully all of the known facts relative to it. To include, in their entirety, all of the detailed records, letters and statements would result in a record of such formidable proportions as to detract from this objective.

It seems best, therefore, to summarize this data and to include herein such summaries as well as the reports of examining engineers, each of whom has arrived at his conclusions from observance of such portions of the property as were open to inspection at the time that his report was made.

Several of these reports touch upon the geology of the district and, to some extent, upon the economic geology of this deposit. None of them, however, are as fully comprehensive as the geological reports of the United States Government and the State of New Mexico. To include these herein would be inadvisable as they have import only to the geologist or to the mining engineer and are available in printed form for ready reference. In Professional Paper No. 68 of the United States Geological Survey on the Ore Deposits of New Mexico, Lindgren covers the Hillsboro Area on pages 272 to 276. Also, in Bulletin No. 10 of the New Mexico State Bureau of Mines and Mineral Resources, covering the Geology and Ore Deposits of Sierra County, New Mexico, Harley gives geological data and details of the Las Animas District on pages 125 to 170.

THE WICKS MINE

ECONOMICS:-

The worth or value of any mining property lies solely in the net realizable profits which may be obtained from mining its ore bodies. The time required to obtain these profits is an element in the determination of net present worth. These factors are too often disregarded in arriving at the true worth of a mining property. Likewise, the speculative worth of undeveloped portions of the vein or veins, are sometimes entirely neglected but, more often, valued too highly. Future expectations depend, to a great extent, upon proven geological facts. With a vein system of the type and proven continuity of that in the Wicks Mine, it is perfectly reasonable to expect considerable lateral extensions of the orebodies. While there is no positive evidence to warrant the assurance of continuance of values to profound depth and the various engineers differ in their ventured opinions in this respect, it is quite probable that profitable mining can be carried to a considerable depth below the present known ore horizon. There is nothing so far developed to indicate any limitation of values, but, on the contrary, there has been some increase in values as depth was attained.

Profits which may be derived from any mining operation depend upon the continuing worth of the product mined and the cost of mining, preparing and marketing that product. The Wicks Mine is essentially a producer of gold. Silver and Copper are by-products which vary through wide market prices. Gold, however, is quite stable and, until recent years, had an exchange value of \$20.67 per troy ounce. By Congressional Act, this has now an

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exchange value of \$35.00 per troy ounce.

Much has been said and written, pro and con, concerning the future dollar value of gold. When it is realized that this metal forms the universally recognized standard of value and that variations in the number of grains of gold to the dollar, pound sterling, franc, or mark merely results in an upset between international exchange rates, it becomes more apparent that stability in the so-called "price of gold" proceeds from the necessity for maintaining the international balance. The increase from \$20.67 to \$35.00 which took place in the United States, and was, finally established at the latter figure by the Congress, followed earlier inflationary moves in England, Germany and other countries. It was to avoid the upsetting unbalance thus created that the change in the gold dollar seemed essential.

Ultimately gold must be stabilized by international agreement. Such agreement can only take place after adjustment of gold stocks between nations. For many years prior to the change in gold value or, more properly, dollar value, there had been a steady increase in credit exchanges. Increasing trade, both domestic and international, required an expansion of either credits or currency to supply the demand thus created. Unless there is great curtailment in the progress of the world, means must be provided to carry on the increasing exchange between peoples and nations, either by further credit expansions or by a currency increase, or by both. Sound economics indicate that both measures are necessary but that the ratio between currency

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and credit should be preserved within controllable limits.

Sound reasoning leads to the inevitable conclusion that gold will ultimately be stabilized by international agreement at some price at least equal to its present figure.

The Wicks Mine, for many years, was operated with gold at a price of \$20.67 per ounce. The hope of its operators was to develop sufficient tonnage so that a suitable mill could be erected. Haulage, freight and treatment charges were excessive and the shipment of high-grade ores alone would not produce a profit. This effort to develop tonnage has resulted in the development of considerable quantities of ore which, owing to material reductions in transportation and treatment costs, as well as the enhanced dollar value of the metal, may now be mined at an excellent profit. The margin is such that development may be carried on with confidence and paid for from profits.

The Wicks Mine is a thoroughly developed property which can be readily evaluated. As to what should be included and what should be excluded from such a valuation is wholly a matter of the judgement of the appraiser. It is certainly permissible to accept known facts, as proven by mine shipments, in determining yields. It is likewise conservative to accept the facts exhibited in the reports of examining engineers even though portions of the workings are now inaccessible. It is unnecessary to accept the conclusions of these engineers as to future worth, ore extensions, or other unknown factors, although, because of the standing and reliability of these men, their conclusions

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should be examined with due care and not wholly disregarded. Where such conclusions did not extend too far beyond the known portions of the property, they have been proven to be conservative and subsequent developments have, in most instances, revealed greater values than were predicted.

P A R T II

SUMMARY OF REPORTS

SUMMARY

JOHN B. FARRISH--1895:--

Mine was then opened to the 200 foot level by Compromise Shaft No. 3. Level No. 1 had been run south to the surface and north to the old main shaft (No. 2). Level No. 2 had been run north a distance of 128 feet and south 105 feet. The stope on this level was 160 feet long and 35 feet high.

Records showed 164,885 tons of ore from this section, comprising 7231 sq. ft. of projected area or .0228 tons per sq. ft. with an average value of \$56.50 per ton or a present value of \$95.80 per ton. Values were obtained from the net returns paid by smelters.

He did not value ore reserves.

JOHN A. KRUSE--1896:--

The No. 2 level had been opened for a distance of 535 feet north and 420 feet south of the shaft, a total length of 955 feet, reported all in ore. The No. 3 level had been opened for a total length of 100 feet. Better widths and values were reported on the third level than on level No. 2.

Kruse estimated ore reserves of 5950 tons at a value of \$56.50 per ton, a total of \$336,175.00. At present values this would be a gross value of \$571,490.00.

L. W. GETCHELL--1899:--

Mine had been opened to a point of 95 feet below the No. 3 level. In checking ore values and tonnages Getchell found total ore reserves of 7180 tons with the average value of about \$34.00 or a gross value of \$243,730 and an estimated net worth of \$165,615.00

At present values this was a gross of \$414,341.00.

JOHN A. KRUSE:--1900:--

This report was mainly recommendations for improvements in operations. He commented upon the fact that all portions of the mine workings were in ore and estimated that, with production increased to the point then warranted by ore reserves, there should be a net profit of \$5000.00 per month.

FRED L. BALLARD--1900:--

This report was made by Ballard for his partners and himself with a view to purchase of the property. He excluded extensive blocks of ground which, he stated, contained values which were insufficient to yield satisfactory profits at that time.

He found, exclusive of these areas, 6881 tons of ore in sight with a gross value of \$164,809, or a present worth of \$280,175.00. This included 2970 tons of milling ore from old stope fills with an average value of \$13.30 per ton.

This seems to be the only authentic record of sampling of stope fills.

W. W. WILLIAMS--Supt.--1902:--

Estimates of ore reserves were 6764 tons of shipping ore at \$40.00 per ton or \$270,560.00 gross and 9425 tons of milling ore at \$8.00 per ton or \$75,400.00 gross value. At present metal values this would be \$459,890.00 in shipping ore and \$128,180.00 in milling ore. This included only ores blocked out above the 300 level.

W Rowland COX & STAFF--1912:--

This report, made by C. Dawes Clark, Staff engineer, covered only the southern portion of the property. He pointed out that past production formed an accurate measure of value for ore then blocked out and, in that portion of the property, which was then open for inspection, calculated 1700 tons of smelting grade ore, then valued at \$112,200.00 and 1870 tons of milling grade ore, then valued at \$18,700.00.

He remarked upon the exceptional continuity of the deposit and stated that it was safe to figure twice the quantities given above as "possible" ore.

He recommended closing the operation to await improved conditions.

WALTER K. MALLETTE--1934:--

This report was a reanalysis of the report of W Rowland Cox & Staff based upon the increased dollar value of gold and the existing costs of production.

He calculated ore reserves of 3633 tons with an average value of \$66.00 per ton, or a total, in this section of the mine, of \$239,778.00.

WALTER K. MALLETTE--1938:--

After three years of profitable operation, during which the southern section of the property was reopened, levels extended to the south and about 1000 tons of ore mined and shipped. It was shown that previous estimates of tonnage were too low. Actual production was 1.58 times that estimated. Most of the production

came from ground beyond the confines of the area included in the Cox report.

Ore reserves are calculated at 5474 tons developed ore with a net smelter value of \$361,284.00, 1949 tons of partially developed ore with a net smelter value of \$128,634.00 and 4061 tons of assured ore, with a value of \$268,026.00 or a total assured reserve of 11,484 tons worth \$757,944.00. Net profit is estimated at \$241,164.00.

P A R T III

SUPPLEMENTAL REPORT

made by

Walter K. Mallette

January 20, 1938

PART III
MALLETT-1938

WALTER K. MALLETT

Mr. Mallett is a Consulting Engineer with offices in Spokane, Washington. He has been engaged by many of the most important mining and smelting companies during the past twenty-five years. Among those may be mentioned the American Smelting and Refining Company, the United States Smelting, Refining, and Mining Company, Phelps Dodge Corporation, The Bunker Hill and Sullivan Mining and Concentrating Company and many others.

He is a member of the American Institute of Mining and Metallurgical Engineers.

SUPPLEMENTAL REPORT ON THE WICKS MINE

Hillsboro, New Mexico

Made by

WALTER K. MALLETTE

CONSULTING ENGINEER

FOREWORD

On September 15, 1934, the writer made a report on the Wicks Mine. At that time the mine workings were inaccessible and the report in question depended upon a reanalysis of the facts and data reported by prior examining engineers. Following that analysis, the writer, together with some associates, purchased the property from the Wicks Gulch Mining Company, the then owner, and took immediate steps to unwater and reopen the mine.

A lease was granted to one of several applicants and the property was operated by this lessee for a period of three years, from September 1934 to September 1937, when the lease was terminated. Throughout this period engineering and technical advice was furnished the lessee by a member of the writer's staff.

From this operation much knowledge and information was gained as to the ore occurrence, average values, tonnages, costs and profits. Complete surveys were run and accurate maps prepared of all accessible workings. Precise records were kept of all operations, showing ore tonnages produced from each operating stope or development heading and progressive sampling and geological data was gathered throughout the period.

Thus it is that the writer is now able to add supplemental data and definite conclusions, gathered from actual operations,

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to his prior report which was merely an analysis of the reports of other Engineers.

HISTORICAL RECORD

The early history of the Wicks Mine was sketched in the original report so that the present supplemental report will deal only with its history from the date of acquisition by the writer and associates in September 1934.

At that time it seemed that the easiest access could be had through the inclined Shaft No. 4. The upper portion of this shaft was caved and water stood within 30' of the surface. Work on repairing and retimbering this shaft was started early in October 1934; and sawn timber procured for the shaft work.

The upper portion of the shaft, down to the 300 level, which is 160.8 feet vertically lower than the shaft collar or 172 feet as measured on the incline of the shaft, was badly caved. A great deal of timber and labor was required to properly catch up the ground. All sets were carefully aligned and held in place by key-boards of 2" plank. The work was substantially done and should endure for many years.

At the 300 level a loading or ship pocket was cut into the hanging wall side of the shaft. This has a capacity of 12 tons. A hinged or swinging platform, with counterweight, is located 4 sets below the sill of the level, on which the hoisting bucket rests while loading.

Delays in the completion of the work to this point were occasioned by pumping troubles due to inadequate equipment and, during these intervals an exploratory drift was run in 120' on what is known as the No. 3 vein. This drift, in conjunction

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with numerous old surface pits and cuts on the outcrop of this vein, indicated ore of a similar grade, thickness and character to that already developed in the East Vein and partially explored in the West Vein. The drift had no other value than that of exploration as no mineable depths were obtained.

The 300 level was reached in May 1935 and was opened south of the shaft. Stoping was started and some production had from this level from this level from that time on. Reopening of the 300 level north was carried to a point about 182' from the shaft. It was not further prosecuted and access to the old stope was not obtained.

The 400 level was reached late in September 1935 and, during the following month, this level was opened south of the shaft to its face, a distance of 91'. A loading pocket of 8 tons capacity was constructed in the hanging wall of the shaft below the sill of this level.

Drifting on both the 300 and 400 levels was carried on to the south, the ore grade and width being similar to that in all other sections of the mine. Stoping from both of these levels was under way from this time through the period covered by this report.

Unwatering of the shaft and mine workings was completed in January 1936. The shaft was deepened 27.5', or to a point 40' below the sill and a loading pocket of 50 tons capacity was installed below the 500 level. A short drift, about 8' in length was run to the south ~~drift~~ from the shaft bottom to give greater water capacity in the sump. This now has a capacity of between 5000 and 6000 gallons which is ample for the present inflow.

During 1936 the 500 level was cleaned out for its entire

WICKS MINE

length of about 750'. Some 400' of this distance, north of the shaft, was timbered and chutes installed. Stoping was started and carried on in this section, augmenting the tonnage produced from the 300 and 400 levels.

A small amount of drifting was done on this level to the south in 1937. At the same time the 400 level encountered a fault about 295' south of the shaft. The level was not driven beyond this point. The 300 level, was driven to this fault and a cross-cut to the westward picked up the vein again 22½' to the west, this being the apparent horizontal throw of this fault, at the 300 level. Two rounds were shot on the vein beyond the fault merely to observe the character of the ore. Drifting was not continued as there were ample ore reserves available for the immediate production needs.

During the three years covered by this report, complete and accurate surveys of all surface features were run and maps prepared. As rapidly as the mine workings were reopened these surveys were extended and the workings were plotted on the maps. Old workings, as shown on old maps, were plotted in pencil on the tracings as a guide to what might be encountered. Stope maps, production records and all geological data and information was carefully prepared. A system of semi-monthly reports carried details of these developments, the data being annually summarized.

By this means there was developed an accurate picture of the Wicks Mine, its geological peculiarities, its ore occurrence, and its economic features. These facts and data are herein set forth in narrative form, together with the conclusions of the writer relative to the property and to the several features of

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it. Reference should be had to these records for complete details of the facts cited. Some maps, sketches and statistical data are appended hereto for purposes of clarity but the bulk of the material from which this report is compiled is such that the inclusion of all of it would render this report too cumbersome.

ECONOMIC GEOLOGY

The writer's original report of September 15, 1934 gave some data as to the general geology of the district, its location and its topography. Reference was likewise made to Bulletin 68 of the U. S. G. S. and to Bulletin 10 of the State of New Mexico. There need be no repetition herein covering these general features. Access has been had by the writer to private geological reports, notably one by J. Volney Lewis, covering a section adjacent to the Wicks property and this has been supplemented by several personal trips into the district and by detailed examinations of the entire area.

The work carried on in the mine has furnished a fund of information and has made certain points clear while others are still undetermined although logical conclusions may be drawn concerning them.

The ore bodies in the Wicks Mine occur in a sheared area or zone which strikes about north and south with a dip towards the west of about 70° from the horizontal. This shearing has produced a series of longitudinal slips or veins which have become mineralized and form the principal ore bodies of the mine. There are many cross stringers running from one of these slips to another. The intervening country rock, generally andesite,

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is blocky and fractured by the shearing action. In places, the preponderance of cross-stringers has caused some alteration of this andesite and there is some evidence of ^{enrichment} ~~enrichment~~ of its mineral content but this is not, so far as observed, of economic importance at any horizon as yet reached.

The principal mineral carrying material is quartz and any increase in the quartz content apparently indicates a corresponding increase in metallic values. This is not invariably true as some of the quartz seems to be of low grade or nearly barren. The iron content of this quartz is, however, a close indicator of its metallic value. Where a network of stringers occur the entire material may be of sufficient value to mine.

Due to the relative movements of the rock within this shear zone, most of the stringers have a northeast-southwest strike or direction. There are many slips with this general strike which are not mineralized.

Two cross-faults have been encountered in the mine. It is not known whether these extend beyond the confines of the shear-zone but it is probable that, if they do, it is not for any great distance. It would seem most likely that these cross-faults are likewise a result of the shearing action. Cox has pointed out that the fault which lies between shafts numbers 3 and 4 displaces the vein on the 300 level while the reverse is true on the 500 level. The possibility that this is actually a pivotal fault ~~has~~ not been determined by the writer but there is a possibility that Cox may have observed the action in one vein on the 300 and in another vein on the 500 level.

The greatest displacement was in the fault south of Shaft No. 4. This was 22½' towards the West. This corresponds to a movement of almost 7', in the same direction, in the fault which

(6)

WICKS MINE

lies north of this shaft. Both of these faults have a dip of about 65° to the north.

The greater part of the mine workings are on what is known as the East vein. This is, presumably, the most easterly of the veins within the shear zone. Some short cross-cuts run to the east from the 500 foot level show at least one small vein or stringer but, as the andesite in this direction is dense and not much fractured, it seems probable that ^{mineable} ~~mineral~~ ore bodies would not be encountered east of this East vein.

The 300 level, north of Shaft No. 4, was run on the west vein for a distance of 350' or until the fault was encountered. Cross-cuts connect this with the 300 level on the East vein. This is the only extension work which has been done on the West vein. Stopes were carried up on it by former operators 30 to 35' above the level. Tonnage and grade of ore was practically the same as has been produced from the more extensively worked East vein. This West vein was likewise opened, many years ago, by two cross-cuts run from the 200 foot level in the older portions of the mine? The ore widths and values were reported to be similar to those in the East vein.

The No. 3 vein, which lies some 40' west of the West vein, has not been explored underground, but has been exposed by surface cuts, pits and shallow tunnels over a length of nearly 1800'. It is extremely probable that this vein will likewise prove to be a source of much profitable ore when explored at depth.

Cox and other engineers have noted two other veins on the Wicks. While the existence of such other veins is known to the writer, too little concerning their possible ore bodies is known for them to be included in any predictions. Unquestionably, considerable cross-cutting and underground exploratory work is

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warranted on the Wicks and, if this is done intelligently, there is every reason to believe that the present known tonnages of profitable ore will be very greatly enhanced.

The ore in the Wicks veins occurs in lenses of small extent both vertically and horizontally. These lenses are scattered thickly through the vein, however, so that it becomes profitable to mine all of the vein in order to obtain them. The veins themselves are from one to six feet in thickness. In places, the vein filling is sufficiently mineralized to that it would constitute a good milling grade of ore. The writer's opinion is that this material might average between four and five dollars per ton. Portions of it will net considerably more than this while other portions will net less. The economic possibilities of this milling product can only be investigated after the mine workings have been more extensively opened. There is not sufficient tonnages of milling ore fully blocked out in the present accessible mine workings to warrant the construction of a mill.

Since its early history, the Wicks Mine has been operated for its high grade shipping ores. Sorting in the stopes has been the general practice followed, with resulting losses of ore which have made some, at least, of these stope fills mineable in themselves. Values ranging from \$2.50 to over \$20.00 per ton have been obtained from stope fill samples. The material would have to be extracted, screened and sorted to eliminate large pieces of barren andesite and the fine material milled. The writer estimates that this procedure would yield from present stope fills, gross values of about \$65,000.00 with a net profit of nearly \$12,000.00. However, these figures would have to be verified by more extensive sampling and tests.

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As has been pointed out above, the Wicks Mine is essentially a producer of high-grade shipping ore. It has been extensively developed along some eighteen hundred feet in length of one of its several veins and, by means of shafts and 5 levels, to a depth of 500 feet. The mine has been remarkably persistent in its values throughout the area.

For approximately 100' down from the surface, the vein has been almost completely oxidized. Some pockets of very high-grade free gold ore were encountered in this oxidized zone from which very valuable and beautiful specimens were produced. There is no evidence, however, of any great concentration of values in the upper reaches of the mine. On the contrary, there is some evidence of migration of a portion of the gold, and, of course, of the other metals. Sulphides are increasingly abundant as depth is attained and these seem to be somewhat richer in gold content than the surface ores.

A zone of secondary enrichment commences between the 300 and 500 levels. At and below this horizon, both silver and copper minerals have been re-precipitated, either in their native state or as secondary sulphides. There seems to be no increase nor diminution in the gold content at this horizon.

Below the 300 level and at about the 400 foot depth, the foot wall or East vein, on which the No. 4 Shaft was sunk, seems to dip more steeply. The change is gradual until, at the 500 level, it has a dip of about 80° . The effect which this change in dip had under the shearing action was, apparently not recognized by examining engineers. A series of small slips occurred in the vicinity of this change in dip, often shattering the ore lenses and scattering them through the vein. Two separate ore

streaks have been noted in most portions of the East vein. One of these follows the foot-wall quite closely and is accompanied by considerable talc. The other is called the "hanging wall streak" and is less regular in strike, being found, at times, near the foot-wall streak and, at other times over in the hanging wall outside of the apparent limits of the vein.

This is probably due to the fact that the sheared zone lies on the hanging wall side and that the lines of weakness did not always follow the exact strike of the foot-wall. Such a streak is evident in the hanging wall between the 400 and 500 levels. It was opened on the 400 when widening the shaft for the ship pocket. At that point the streak was about five inches wide in a seam or vein of 8 to 12 inches. About 2½ tons were mined at this point and gave values of \$193.00 per ton. On the 500 level, the skip pocket did not require the removal of this ore but it was penetrated by one drill hole and, later, was exposed on the south side of the shaft, where it was five inches in width and gave values of \$120.00 per ton.

There is a possibility that this is the West vein which seems to approach the East vein in the vicinity of Shaft No. 4. No actual intersection or juncture of these two veins was found or recognized in the drifts south of the shaft and it is possible that the West vein still lies in the hanging wall in that section. In either event, this known streak or vein should be explored as it gives promise of an excellent grade of ore.

The lower reaches of the shaft sump shows ore of excellent grade. Calcite appears as a secondary mineral in the ore here. There seems to be little other change except for the continuance at this lowest horizon of redeposited copper and silver, showing that the zone of secondary enrichment has not, yet, been com-

pletely penetrated.

On the north end of the Compromise claim a short tunnel was run in on what from its relative position in the shear zone, should be the No. 3 vein, a vein of hard, white, dense quartz with little value was drifted upon about 27'. This vein is about 10" in width at this point.

MINE WORKINGS 13

During the past three years, the No. 4 shaft was reopened and retimbered and the southern portion of the property was cleaned out and placed in operation. Drifts were extended to the south. The workings, as they are now, are shown in plan and elevation on the appended map which was plotted from accurate transit surveys. Elevations were taken from the United States Geological Survey.

Those portions of the mine which have not yet been reopened are shown in dotted lines on the map. This was taken from former mine maps and surveys and are assumed to be approximately correct as all surface connections of adits, shafts and raises checked very closely with our surveys.

ORE RESERVES

It has been pointed out by other examining engineers that the uniformity of the occurrence of the ore lenses in this mine are such that ore tonnages and grade can be confidently predicted on the basis of previous production. After three years of experience with the production from this property, the writer has demonstrated that this is true and that such basis forms in fact, a much closer estimate of such ore tonnages than the most careful sampling of exposed faces.

There have been limited areas where the production has

been high and corresponding areas where the reverse was true. However, the average production per square foot of stope has not varied to any appreciable extent throughout the entire area so far mined. When it is considered that this includes all mining done from both old and newer portions of the mine, this becomes a more dependable basis for gauging remaining tonnages than any method of sampling which might be devised. In other words the production figures may be regarded as bulk sampling of the several areas mined and, as these are based upon the net smelter returns, the values used would be the net values rather than the assay values. There is, of course, no chance for inadvertent salting under such a method of figuring ore worth.

In the older portions of the mine, which lie north and south of the No. 3 drift, ore extraction as noted in the reports of the superintendent and confirmed by two independent mining engineers of note ranged from .005 tons per square foot to .032 tons per square foot of projected stope area. The average figured close to .02125 tons per square foot with an average net worth (old prices) of \$56.50 per ton. This covers some 900' in length on level No. 1, 900' in length on level No. 2 and 650' in length on level No. 3 and represents a production of \$129,547.00 net value of ore at present worth. This includes some 1356 tons shipped and milled, the ratio being about 75% shipping ore and 25% of milling grade, the latter averaging \$22.64 per ton (old prices.).

In his 1912 report, Cox covered the newer portion of the mine which was developed from the No. 4 shaft. He carefully sampled all accessible workings and calculated ore tonnages in given blocks. He concluded that, from these samplings, the

WICKS MINE

block which lay between the 300 and 500 levels north of No. 4 shaft and up to the fault contained the best values.

During the past three years, mining has been carried on south of this shaft in an area in which Cox found little value from his sampling. However, the ^{values recovered} sales-received by actual mining have shown that this area yielded .0201 tons per square foot of stoped area with an average value of \$66.38 per ton. The relatively small area which has so far been mined from that section which gave the best values, according to the Cox sampling, has yielded slightly less than this in both tonnage and grade. It was estimated that the yield would be 0.013 tons per square foot with a grade of \$66.00 whereas the actual yield, from 8085 square feet of stoped area, was 0.0137 tons per sq. ft. with an average value of \$53.25 per ton. This is not, of course, a complete analysis of this block of ground which originally (Cox figures) contained 61,300 square feet of ore. It will be readily seen that only 13.2% of this area has, so far, been stoped.

An analysis of these areas, scattered over the entire length and depth so far mined show an average production of 0.02239 tons of ore per sq. ft. with an average net value per ton of \$65.27 or a net worth of \$1.46 per sq. ft. of projected area. This covers only shipping ores and does not include any tonnages of low grade or milling ores.

To arrive at an estimate of tonnages in the Wicks Mine, several classifications are necessary. Consider as DEVELOPED ORE are those areas which are block out on at least three sides of a rectangle or on two sides of a triangular section. ASSURED ORE is considered as that section below the lower level on a

WICKS MINE

horizontal line through the bottom of the shaft, or the lowest point to which ore has been exposed. This line is carried south to the fault and north to a point 100' beyond the present face of the 500 level; thence on a diagonal line to the bottom of a shallow shaft north of the north portal of the 100' tunnel level. Owing to the remarkable uniformity of the vein, this classification of the area considered is extremely conservative. Classified as PROBABLE ORE is that portion sixty feet below the bottom of the shaft, 100' south of the fault and north to the line of the shallow shaft north of the north portal of the 100' level.

The total of the areas considered are classified as REASONABLY ASSURED ore and will, in the writer's opinion, be found exceedingly conservative. Such ore has been considered for only one vein although, as previously noted, several veins exist. Likewise, the surface pits, float and vein outcrop indicate that this vein extends well beyond the end lines of the property or nearly twice the developed length. Extension of the present levels, the faces of which are all in ore, will add rapidly to the tonnages given and the opening of the known parallel veins by cross-cutting and drifting, will undoubtedly greatly increase these figures. In the writer's opinion, total production will prove to be at least eight times that calculated from the areas included as REASONABLY ASSURED.

In the appendix to this report, a tabulation of the data on which the estimates of ore and the grade are based is given. While it would seem that these figures could be applied to calculations of ore reserves without change, conservatism and caution would lead the writer to reduce them by 10%. Therefore,

WICKS MINE.

INSERT: For page 14 of Walter K. Mallette's Report of 1938.

* During the Spring of 1938, the south drift on the 300 foot level was driven an additional distance of about twenty feet so as to determine what character of ore could be expected South of the fault on this level.

Where first encountered, the ore was somewhat scattered, contained considerable pyrites, and, while picked samples gave values of over 4.00 ozs. gold, the average was a little over an ounce. As this drift progressed, the ore greatly improved in character, showed increasing copper values and more silver, as well as a greater width and stronger vein characteristics. Two average samples were taken of this. The average width was 5 inches in both cases. One sample showed 2.86 ounces gold, 16 ozs. silver and 10.5% copper. The other sample gave values of 2.65 ozs. gold, 8.30 ozs. silver and 3.0% copper. It is apparent that this ore is of somewhat better grade than the average and indications are that it will persist.

An excellent grade of float has been found almost to the South end line of the property, indicating that this ore will continue upwards to the surface, a vertical distance of 400 to 500 feet.

This insert has been added to the report by the writer to indicate the results of this small amount of prospecting in the zone South of the fault or in an area which has been classified with the caption of "PROBABLE ORE".

Walter K. Mallette.

WICKS MINE

in the tabulation of ore tonnages and values, he has taken predicted production at 0.02 tons per sq. ft. and values at \$65.00.

On this basis there is, in the 322,000 square feet of developed mineable area, 5440 tons of ore of a total worth of \$418,600.00. In the 114,650 square feet of partially developed area which is considered to contain "assured" ore, there is 2293 tons with a total worth of \$149,000.00. That area which is classified as "Probable" ore comprises 238,900 sq ft. with ore calculated 4778 tons and a total worth of \$310,500.00. This gives a total for the "reasonably assured" ore of 13,511 tons with a total worth of \$878,100.00.

PROSPECTIVE ORE

Many engineers see fit to include estimates of prospective ore far beyond the known limits of the deposit in their figures on ore reserve, while others neglect this important feature altogether. It is the writer's practice to include such estimates in reports but separated from the known deposit so that the prospective value of the property may be determined and evaluated without reference to the known net worth of the property.

The values as given for ORE RESERVES are only these included in the East Vein. The West Vein has been opened north of Shaft No. 4 on the 300 level for a distance of 340' and stoped to a height of 30 to 50' above this level. The character of this vein, the yield and grade were about the same as was found in the more extensively worked East Vein.

In the older portions of the property, this West Vein was opened north and south of the No. 3 shaft on the 200 level by cross-cuts. It was reported to be of about the same width but of better grade than the East Vein in that section. Surface

WICKS MINE

pits and outcrop show that this vein extends throughout the northern portion of the property. It seems to contact or join the East Vein in the vicinity of the No. 4 shaft.

In excavating on the hanging-wall side of the No. 4 shaft for the skip pocket below the 400 level, a vein 8 to 10" in width was disclosed. About 2.25 tons averaging \$193.00 per ton was taken from this small area. It is quite possible that this is the West Vein.

The same vein was encountered when the skip-pocket below the 500 level was installed. It was further from the shaft at that level and was not mined but left in the hanging wall. Samples, however, showed values of considerably over \$100.00 per ton.

With this evidence, it seems most probable that this West Vein will yield as much ore per sq. ft. as the East Vein. It is likewise safe to predict that this vein will extend north from Shaft No. 4 a distance of 900 feet to where it was cut in the cross-cuts from the 200 level. With the 400 feet of depth, this would give 360,000 sq. ft. of area or, 0.02 tons per sq. ft. 7200 tons of ore, which, at \$65.00 would have a value of \$468,000.00. It is most likely that this vein will also extend northward to the north end line of the property.

Surface pits, shallow shafts and outcrop show that the East Vein extends to the end lines of the property and beyond these end lines for a long distance. The character and grade of the ore is quite similar throughout the entire length of the property. There is every reason to expect that this vein will be found on all levels of the mine and that the extensions will yield the same quantities and grades of ore as those which have already been developed. This would add 805,000 sq. ft. of area or 16,100

WICKS MINE

tons of ore worth \$1,046,500.00.

The No. 3 Vein has, as previously noted, been exposed on the surface for a length of about 1600'. Nothing is known as to its persistence in depth but, as it is in the same shear zone as the East and the West veins and shows the same general surface characteristics.

Stope fills and low grade milling ore have been mentioned without evaluating these factors. However, Mr. Fred L. Ballard sampled certain of these stope fills in 1900. He figured a total (at that time) of 6000 tons of vein filling. His sampling was carefully done and he found that, by screening this through a 1" mesh screen, he obtained 49.5% of fines with an average value of \$13.30 per ton at old prices. There was six tons of samples taken from all stopes, the fines from which were crushed and quartered down to 50 pound samples.

In our own sampling of stope fills in the latest portion mined, we obtained values ranging from \$2.75 on the plus 3/4" material to \$19.70, and on the minus 3/4" material from \$6.24 to \$16.95 per ton (present prices).

The writer would estimate that there are about 13,000 tons of recoverable fills which would have a value, at a most conservative estimate, of \$5.00 per ton or a total worth of \$65,000.00

Very little is known about milling grades of ore. There is mention of this in various reports but no specified widths, tonnages nor exact values. There is every reason to expect that such grades of ore exist in the mine as valuable vein filling alongside high grade ore bodies or, as has been observed by the writer, in sections which are impregnated with quartz, stringers, and seams. Any conclusions as to tonnages or worth cannot be made at this time, nor until it is possible to examine and thoroughly (17)

sample all areas.

Two other veins have been noted by Cox and by others. One of these enters the side line of the Ross Claim just west of No. 4 shaft and converges towards the Wicks vein to the north. This is undoubtedly one of the cross fissures which are observable throughout the district. It should intersect the Wicks veins north of any present workings. No exploration of it has been undertaken for ^{except} some old shallow tunnels and pits. It contains observable ore but the writer has neither sampled nor assayed it and is unwilling, without some actual data, to make any predictions concerning it.

MINING COSTS

In 1912, Cox figured a total cost and deductions for mining 61300 sq. ft. of vein of \$26695.00 or 43½ cts per sq. ft. This did not include any development work. From 1934 to 1937, costs figured 76¢ per sq. ft. including all factors. These costs can be materially reduced by improvement in mining methods and the higher recovery of ore from the areas mined. The writer figured a total cost of 66 2/3¢ per sq. ft. including all costs except smelter deductions. This figure is probably high.

In order to be fully conservative, however, the actual costs obtained by the lessee will be applied. This gives a total cost of \$38.00 per ton of ore, leaving an operating profit of 41%. Figuring overhead, amortization and taxes, which will amount to almost \$7.50 per ton or 15¢ per sq. ft., the total cost would be 91¢ per sq. ft. and the net profits would be 39¢ per sq. ft. or 30%. The lessee's net profits were 31.6% before deducting royalties paid.

EVALUATION

It is quite possible to evaluate the worth of the property in so far as the assured ore is concerned on the hypothesis of the tonnages, values and costs deduced above. The factor of present worth must be taken into consideration and this is governed by the time required to extract the ore.

Careful calculations have been made by the writer as to the economical rates for mining. This indicates between 150 and 200 tons of shipping ore per month. Using the lower figure as most conservative, it is seen that the time to required to extract the 6440 tons of developed ore would be 3.6 years. The net profit in this ore would be \$125,580.00 which would have a present worth of \$113,022.00.

In the same manner, the 2293 tons of "probable" ore has a net profit of \$43,700.00 which would have a present worth of 34,610.00. Likewise the 4778 tons of possible ore would show a net profit of \$93,150.00 and have a present worth of \$65,670.00.

Thus the ore which is classified as reasonably assured, consisting of 13511 tons, would have a net profit of \$270,430.00 and a present worth of \$213,302.00.

Evaluating further extensions of the veins or the worth of ore in veins which have not yet been developed except to some small extent is wholly a matter of the judgment of the examining engineer. From the economic geology of the Wicks and the observable features of fracturing and ore deposition, it would seem most probable that two at least, of these veins will prove equally productive of profits.

The writer feels that is fully conservative to state that the production from these other veins and extensions is certain to yield

WICKS MINE

twice as much ore and net profits as has been calculated for the ore which is classed as reasonably assured. It, therefore, becomes safe to say that the ultimate production of the property will be upwards of 40,000 tons with a total value of \$2,600,000.00 and a net profit of \$780,000.00. It is the writer's honest belief that this will be found to be less than a third of the ore in the mine, but this added amount cannot be safely predicted at this time.

CONCLUSIONS AND RECOMMENDATIONS

It is clearly shown that the Wicks Mine is a well developed property with valuable deposits of gold ore. There are sufficient tonnages now opened up so that profitable operations may be carried on without capital investment for other than a normal operating period. Some improvements should be made in plant and equipment and mining methods should be revised in order to obtain the maximum in ore extraction and in profits.

To properly develop the mine so that mining can be carried on to the best advantage it is recommended that this development proceed in an orderly and steady manner so as to maintain ore reserves at their present level. Development should not be pushed beyond this without a corresponding increase in production as, otherwise, maintenance of drifts and other openings will be too high in cost.

The 500 level should first be extended south to the fault and the ore beyond the fault reached. A through raise should then be run up about the center of this block to connect with the No. 4 level. This ore will then be ready to mine.

The surface adit south of the No. 4 shaft should be cleaned out and extended to explore the ore beyond the fault. All ore in

WICKS MINE

the southern end of the property above this level should be mined from it. It will likewise be used as a service entrance to the stopes below it.

The 300 level should be extended south to develop the ore on that level in this section of the property. Through raises should be run at proper intervals (about 150' apart) to connect with the surface adit south of the shaft. As rapidly as blocks of ore are made ready for mining, stoping may start and should be continuously prosecuted until the block is mined out.

Abandonment of the 400 level is recommended and the use of the 300 and 500 levels as main haulage ways. Stopes should be carried up horizontally to a point about midway between the two levels and a sub-level should then be established at this mid-point. This will cut down chute wear and reduce mining costs. The through raises will serve as ore passes for the sub-level to the haulage level below.

Floor pillars should be left below each haulage level. These can be subsequently recovered either from the stopes below or by under-hand stoping when the haulage level is finally abandoned.

A cross cut should be run westward at some strategic point on the 500 level to explore the west vein and the No. 3 vein. Drifting on these veins should be carried on in accordance with the ore encountered and the possibilities thereby revealed.

An airway should be opened through the old No. 3 shaft and winze so that circulation may be had and a second egress provided for this section. This can best be accomplished by clearing out the debris from the No. 3 shaft, spiling off the waste over the top of the winze and then clearing the latter. Skeleton timbering of the shaft to carry ladderways and prevent injury from falling rocks should suffice as this shaft is in a hard, dense

andesite and is open.

The 507 raise should be carried through to a connection with the 300 level and the latter should be cleaned out and reopened so as to give access to this raise. This will then serve to service the stopes and as an airway for ventilating them.

The old portions of the mine should be reopened as rapidly as possible and mining started therein. Sampling and testing of the old stope fills should be carried on to determine the worth of this material. It should be stock-piled as removed so as to be available for future recovery.

Stopes should be carried as narrow as possible to avoid handling undue amounts of waste. Hand drilling should be tried as this should reduce the amount of over-break and, if air drills are used in the stopes, these should be light stopers or mounted jack-hammers and as close an approach as possible made to the hand-mining results. All ore should be taken down on canvas and all sorting should be done on the surface. By mining and hoisting the vein matter only, all of the values will be on the surface and the second class of material or the rejects from the sorting will be available for treatment if that seems advisable. No waste, from stoping operations, should be hoisted if it can possibly be avoided.

The present gasoline powered hoist and other equipment should be replaced, as conditions warrant, by modern diesel powered equipment. Electric battery lamps are recommended to replace the present carbide mine lamps.

It is recommended that a new road be constructed on the south side of the gulch to connect with the highway. This will greatly facilitate haulage.

There is no question but that the Wicks Mine, if properly

WICKS MINE

and vigorously mined, will earn a handsome profit over many years. There are no problems connected with its operation or geology and there are ample ore bodies already fully developed so that mining operations may proceed in an orderly and profitable manner from the beginning.

Respectfully submitted,

WALTER K. MALLETT
Consulting Engineer

543 Peyton Bldg.
Spokane, Washington
January 20, 1938

P A R T IV

ORIGINAL REPORT

made by

Walter K. Mallette

September 15, 1934

PART IV
MALLETTE-1934

REPORT ON THE WICKS MINE.

Hillsboro, Sierra County, N. M.

September 15, 1934

PURPOSE OF REPORT:-

Rapid changes in the economic situation in the United States which have been taking place during the past year have had a stimulating effect upon the mining of the precious metals.

The dollar value of gold has risen from \$20.67 to \$35.00 per

ECONOMIC CHANGES
HAVE RESULTED IN
HIGHER PRICES FOR
GOLD AND SILVER
AND HAVE CREATED
CONDITIONS WHICH
MAKE GREATER PRO-
FITS POSSIBLE.

fine ounce. Foreign prices for gold were advanced fully a year prior to the advanced prices paid by the United States and these foreign prices are, in many instances, in excess of the present United

States price.

Silver has recently been enhanced in value and newly mined silver is now being purchased on the basis of 64 $\frac{1}{2}$ ¢ per fine ounce. By Congressional act, the Treasurer of the United States was instructed to purchase silver until the monetary stocks of that metal should equal twenty-five per cent of the total. Owing to the enormous purchases which this entails, prices paid for silver are certain to increase and it is probable that further advances in the price of gold will also be necessary.

It is not possible, within the scope of a mine report, to enter into a detailed discussion of the general economic situation throughout the world, but a study of this situation, particularly in its relationships to the credit and monetary structures of the principal nations, leads to the inevitable conclusion that gold will ultimately be stabilized, as a monetary

WICKS MINE

base, by international agreement, at a higher value than was previously in effect. This will be brought about because of the need for stabilization of trade relations and trade balances and the necessity for the retirement of the vast flood of governmental obligations, the interest payments on which, today, are too severe a tax upon the industrial life of all countries.

The increased price for gold will undoubtedly result in some increase in commodity prices and in wages, but such increases will only be effected after a balance has been struck between production and consumption. As long as there exists production capacity in excess of demand, any price increase will be slow. Industrial and agricultural profits will be low and there will continue to be a distinct advantage in favor of the miner of the precious metals for some time to come.

This improved situation makes it essential that gold mining properties, such as the Wicks Mine, be fully investigated and analyzed anew, so as to determine their possibilities for profitable operation. It is the purpose of this report to provide, both from a physical examination and from a comprehensive study of the available data, such an analysis and to determine whether a reopening of this mine is warranted.

SOURCES OF INFORMATION:-

The data upon which this report has been compiled has been derived from a great variety of sources. A personal examination of the mining property and of the district generally has been the basis for the geological data and commercial conclusions. Partial records of former operations have added

WICKS MINE

some conclusive knowledge regarding tonnages and values of shipping ores. Letters, engineering reports and opinions, covering the period from 1893 up to 1912 have been studied for data and facts. A recent publication of the State Bureau of Mines and Mineral Resources, namely, Bulletin No. 10, entitled "The Geology and Ore Deposits of Sierra County, New Mexico" has added its quota of information and United States Geological Survey, Professional Paper No. 68 on "The Ore Deposits of New Mexico" has been consulted.

Of the examining engineers whose reports were partially or wholly available for study, may be mentioned Mr. John B. Farrish, of Denver, Colorado, who was, for some time, associated

with the Rothschild interests; Mr. Fred L. Ballard, of Colorado Springs, of the firm of Tucker, Ballard & Company, extensively interested in several of the larger producing mines of Cripple Creek; Mr. John A. Kruse, of Chicago, Illinois, a mining engineer for Chas. T. Yerkes of London; and W. Rowland Cox and Staff, consulting mining engineers, of

New York City. These sources are particularly noted as the facts and data derived from them may, because of their wide experience and unquestioned integrity, be given utter credence. It is worthy of note that, while there was some variation in the opinions and conclusions of these various men, there was a remarkable uniformity in the facts and data relative to available tonnages and values. These facts were further corroborated by actual mine operations on which data is available, so that it becomes quite possible to reach very definite conclusions concerning tonnages and grades of ore available in the property

WICKS MINE

even though, at the present time, it is not possible to gain access for the purpose of sampling the mine.

LOCATION AND TOPOGRAPHY:-

The Wicks Mine comprises one full and two fractional claims known as the Compromise No. 3, the Ross, and the Smuggler, all held under United States Letters Patent and located in the Las Animas Mining District about four miles northeast of Hillsboro, the County Seat of Sierra County, New Mexico.

ONE FULL AND TWO FRACTIONAL PATENTED LODGE CLAIMS COVER 3300 FEET OF THE WICKS VEIN SYSTEM. MINE IS FOUR MILES NORTHEAST OF HILLSBORO IN LAS ANIMAS MINING DISTRICT.

TOPOGRAPHY MODERATELY RUGGED WITH AN EXTREME DIFFERENCE IN ELEVATION OF ONLY 1400 FEET.

The Animas Hills, in which the Las Animas or, as it is more recently called the Hillsboro District, is located, form an almost unbroken chain of hills from the northern to the southern limits of the county. They are fairly rugged but of comparatively low elevation. The

hills in this district surround a small roughly circular, erosional area known as Copper Flat, which ~~roughly circular~~ drains towards the eastward and is included in the Rio Percha drainage area.

West of the range of hills is a small, bolson-like valley some fifteen miles in length in a northerly-southerly direction. Directly west of this valley lies the foothills of the Black Range. To the east of the Animas Hills stretches gently sloping alluvial fane for a distance of some twelve to fourteen miles to the Rio Grande, which here flows towards the south. The alluvial plain is cut by a series of washes or gullies which are normally dry but carry, in flood conditions, considerable flows of water derived from the heavy rainfalls of the summer months. The general drainage is towards the east into the Rio Grande.

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Cutting through the Animas Hills on the southern boundary of the Hillsboro District is the Rio Percha, a small stream which has its headwaters in the Black Range, some twelve miles to the west. The flow in the Rio Percha is largely underground except in periods of rainy weather or high water. There are, however, water holes or springs at various places along its course and water for all purposes is readily obtained from shallow wells in the bottom lands of its valley.

Hillsboro, located on the Rio Percha, has an elevation of 5236 feet above sea level. The hills reach an elevation of about 6400 feet. There is an extreme difference in elevation, therefore, of about 1160 feet. This occurs within the area comprising the district and roughly included within sections 1, 2, 3, 4, 9, 10, and 11 of Township 16 South, Range 7 West of the New Mexico Principal Meridian and is sections 25, 26, 27, 33, 34, 35, and 36 of Tsp. 15 S., R. 7 W. Relative elevations are indicated by the contour lines on the geological map of the district (PLATE II of the appendix to this report). The general location of the district is shown on PLATE I of the appendix:

ACCESSIBILITY:-

Rail transportation is from Lake Valley, the terminus of a short branch line of the Santa Fe Railroad. Lake Valley is connected with Hillsboro by 17 miles of excellent highway. Running eastward from Hillsboro is United States Highway 180, an excellent, hard surfaced and gravelled road which connects with U. S. Highway 85 about 18 miles to the east. Highway 85 is an excellent oiled road leading north through Hot Springs,

WICKS MINE

RAIL TERMINUS AT
LAKE VALLEY SEVEN-
TEEN MILES SOUTH OF
HILLSBORO. EXCELLENT
HIGHWAYS AFFORD TRUCK-
ING OUTLET TO EL PASO
126 MILES AWAY. CLI-
MATIC CONDITIONS ARE
IDEAL

Albuquerque and Santa Fe to Denver, Colo-
rado and south, through Las Cruces, to
El Paso, Texas. The Wicks Mine is about
 $\frac{1}{2}$ mile from Highway 180 with which it is
connected by a short stretch of fair

private road.

Haulage by truck is feasible throughout the year. Cli-
matic conditions are ideal and the vast improvement in roads and
in transportation facilities which have occurred since the Wicks
Mine was last operated, have been of great value to the property
and to other mines in the district. Where wagon haulage to Lake
Valley plus freight to El Paso was formerly over \$18 per ton, this
cost has now been reduced to between \$4.00 and \$5.00 per ton.

HISTORY:-

Gold was first discovered in the district in 1877. Two
prospectors picked up some float which is said to have assayed
GOLD DISCOVERED IN \$160 per ton in gold and silver. Con-
1877. WICKS MINE siderable excitement ensued and several
LOCATED IN 1855 AND mining claims were located. Placer gold
OPERATIONS FROM 1893 was found in November of that year in
UNTIL 1912. ORES WERE Rattlesnake and Wicks gulches. During
SHIPPED TO SMELTER. the winter of 1877-1878 it is reported
that a miner named Geo. Wells recovered \$90,000.00 in gold dust
and nuggets from Wicks Gulch just below what is now the Wicks
Mine.

Periods of activity in the district were followed by periods
of quiescence. During periods of general prosperity, goldmining
has been curtailed because of increased labor and commodity costs.
During periods of depression, gold mining has been stimulated

WICKS MINE

because of the lowering of these costs. The Hillsboro district has been no exception to this rule so that mining, while it has been more or less continuous throughout the entire time, has been subject to this economic rise and fall. It is estimated that there has been produced around \$7,000,000.00 most of which came from six of the mines, namely, the Mary-Richmond, The Bonanza, the Snake, the Opportunity, the Wicks, and the El Oro-Andrews.

The Wicks Mine was one of the early locations. The first work consisted of shallow tunnels, pits and shafts on the veins. In the early nineties the property was purchased by Chicago men and a period of intensive development followed. The mine was in more or less continuous operation from that time until 1912 when it was closed down and it has remained idle up to the present time.

A careful inquiry into the facts surrounding the closing of the property shows that the operation was then being carried on by a prominent Chicago engineer who had extensive interests in addition to this operation. Owing to this man's knowledge of munitions and their manufacture, he was called into war work at the commencement of hostilities in Europe. For some two years or more prior to that time he had been increasingly occupied with other matters than the mine which was being developed under his management and, largely, at his personal expense. Mining was carried on over a very limited area, it being the effort of this operator to develop a large tonnage and ultimately erect a milling plant. The results were not productive of any profit and a report, made in 1912, was so disheartening that the property was closed down until this man could find time enough to devote

WICKS MINE

to a solution of its problems. Letters show that this was to be a temporary suspension and that he had fully intended to reopen the property at a later date. He was so fully occupied during the war years that it was not possible for him to devote any time to the property, in addition to which prices of labor and supplies had risen to a point which made operations prohibitive. Before conditions reached a point where the mine could be reopened, this man passed away and it is only recently that matters of titles have been straightened out so that operations may again be resumed.

The Wicks Mine was always operated as a high grade mine. The ores produced were shipped direct to the smelter. Early shipments went to Denver. Later, shipments went to Silver City and lastly, to El Paso, Texas. A mill was, at various times, projected for the property but no milling plant was ever erected. This was probably due to the failure of tests which were made by shipments to small customs mills in the vicinity to recover sufficient values. Milling equipment was, at one time, purchased and stored on the property but this was not set up.

GEOLOGY:-

The productive veins in the Hillsboro district have occurred in the andesite and latite flows which cover the earlier limestones of this district. Intrusive through these flows are monzonite and porphory dikes and there are likewise some more basic dikes as well as patches of rhyolite and basalt. In general, fracturing occurred in an upthrust in the vicinity of Animas Peak or Copper Flat.

The veins and dikes radiate from this general locality.

WICKS MINE

A decided fault escarpment in the southeast portion of the district indicates a displacement of about 1400 feet vertically.

VEINS IN FRACTURE
ZONES IN ANDESITE ORE
OCCURS AS VEINS OR
STRINGERS IN BRECCIA-
TED ANDESITE WITH
SOME ALTERATION OF THE
LATTER AND THE VEIN
FILLING IS SOMETIMES
COMMERCIAL ORE. THE
PRINCIPAL VALUES ARE
IN GOLD AND SILVER.
COPPER AND IRON ARE
THE CARRYING MINERALS
AND SOME BISMUTH IS
PRESENT.

Here the underlying limestones are exposed.

E

Evidently the igneous rocks which overlies these sedimentaries flowed through vents

along this and other fault planes and

covered over this section. These flows

were later fractured and intrusive dikes

cut through. The veins follow, in general,

the course of these dikes although they

are not, necessarily associated with them. There are, (a) fissure veins in the andesite flows, (b) disseminated deposits in the monzonite porphyry, and (c) replacement deposits in the limestone.

Erosion has been quite severe throughout the district, as evidenced by the detrital plains lying to the east. It is probable that 1000 to 1200 feet have been eroded from these hills.

The most important type of deposit in the district are the fissure veins. Practically all of the productive mines are located on this type of structure. In some instances, these veins consist of shear zones of greater or less width, the ore within these occurring in rather small lenses arranged "en echelon." It is quite likely that all of the fissure veins are of this general type, modified mainly by the extent of the shearing action, so that, in the less extensive sheared areas or veins, the ore lenses are so closely adjacent as to assume all of the aspects of a continuous quartz vein.

The ore usually occurs in veins and stringers within a brecciated andesite. The more productive veins have followed one wall of a latite or porphyry dike. Fault gouge or talc

WICKS MINE

occurs sometimes on the footwall and sometimes on the hanging wall of the vein. The veins range from 2 to 8 feet in width but some are reported to be much wider (up to 40'). There has been some alteration of the andesite in the vicinity of the veins, this alteration extending several feet laterally.

Mineralization has accompanied the silicious deposits so that the pay ore is found in the quartz veins. At places this silicification has so penetrated the brecciated vein filling as to render it commercial ore. The principal values are in gold. Silver is likewise present as a recoverable product. All of the veins show copper, iron and other metallics. Bismuth is present in nearly all of the ores. The copper occurs in the usual primary and secondary forms. The gold accompanies the pyrite, calco-pyrite and other copper and iron minerals.

Surface ores have produced considerable amounts of free gold. Sulphide ores encountered at depths of 100 to 300 feet from the surface have less free gold but are, in many instances, of better grade. None of the mines of the district are deep

SURFACE ORES PRODUCE enough to have penetrated into the primary FREE GOLD BUT SUL- PHIDES OCCUR AT FROM zones so that it is not possible to state 100 TO 300 FEET BELOW THE SURFACE AND ARE just what will be found. However, the RICH IN GOLD AND SIL- VER. IT IS LIKELY THAT presence of manganese indicates the pro- VALUES WILL EXTEND TO bable downward movement of some of the gold SOME DEPTH. values and there is a possibility that rich ores will be found at or in the vicinity of the underlying limestone.

It is quite possible that values may extend below the limestone. There may be a barren zone or horizon in the vicinity of this limestone but, should this be penetrated, it is not ~~lik~~ unlikely

WICKS MINE

that extremely valuable deposits may be found at depth. The conditions are somewhat similar to those of the Cripple Creek area in Colorado.

VEIN STRUCTURE:-

There are three distinct veins, which the writer has observed, on the Wicks property. The main, or east, vein can be readily traced for over a mile and well beyond the end lines of the property. A second vein, known as the West vein, lies to the west of this a distance of from ten to forty feet. It seems to approach the East vein in its course towards the south and may intersect it at some point within the limits of the property. Vein No. 3 lies some sixty feet west of the main vein and converges towards it on the north. Some pits and shallow workings seem to be on still another vein which lies between the East vein and the West vein.

THREE DISTINCT VEINS OBSERVED ON THE WICKS. OTHER ENGINEERS NOTE FIVE VEINS. ONE VEIN HAS BEEN EXTENSIVELY OPENED UP AND ANOTHER HAS ABOUT 500FT. OF DRIFTING AT THE 300 LEVEL. NONE OF THE OTHERS HAVE BEEN EXPLORED.

One of the engineering reports notes 5 distinct veins on the property as exposed in surface and underground workings. Where observed, the veins seem to be typical of the district and to have the same general characteristics. Development work has been generally confined to the East vein, although the West vein was opened by one drift on the 300 foot level for a distance of approximately 500'. The ore widths and tenor seem to be about the same as were found in the East vein. It would seem that some further exploration work would be warranted by underground cross-cuts and drifting on any promising veins which were encountered.

WICKS MINE

The general strike of the Wicks veins is north and south with a dip towards the west of from 70 to 80 degrees. They have widths ranging from 2 to 6' with a quartz ore seam from 2" to 24"

VEINS STRIKE NORTH- in width. The average width of this ore
SOUTH AND DIP TOWARDS seam is $7\frac{1}{2}$ inches. Shipping ore has
THE WEST 70 TO 80 DE- averaged \$66 per ton. Records of the
GREES. RANGE FROM 20 TO 6 FEET WIDE WITH A QUAR-
TZ SEAM OF 2 TO 24 IN- low grade are not available but have been
CHES AND AVERAGE WIDTH variously reported as from \$6 to \$22.60
 $7\frac{1}{2}$.

SHIPPING ORE HAS AVER- per ton. Presumably the discrepancy in
AGED \$66 PER TON AT value of this product depends upon the
FORMER PRICES.

tonnage which is considered as low grade ore. Some reports have included three classes of ore, namely, shipping ore, milling ore, and low grade. The above values are based upon former metal prices.

SURFACE CONDITIONS:-

The surface has been entirely denuded of buildings or equipment although, at one time, it had some rather extensive structures and was thoroughly equipped. There are some fairly extensive

SURFACE ENTIRELY DENUDED dumps, some of which may produce ore of
AND AND STRIPPED OF ALL a paying grade. However, this would
STRUCTURES AND EQUIPMENT. SOME EXTENSIVE DUMPS
MIGHT YIELD A SMALL PRO- have to be carefully investigated as
FIT IF SCREENED & TREATED general grab samples do not indicate

sufficient values in total to warrant recovery. There is evidence that several carloads of ore were, at one time, stored on the side of the dump near the inclined shaft but this has been hauled away, possibly by leasers. There are some small amounts of ore remaining but not sufficient to be of commercial importance. Resort to screening and washing may yield some worth-while values from some of these dumps and this should be investigated.

WICKS MINE

In any operation of the property, it will be necessary to start anew, construct a short stretch of road, erect the necessary buildings and provide all equipment. Accompanying photographs show the surface conditions as they are at present.

MINE WORKINGS:-

The mine has been rather extensively developed over a length of about 1400 feet and to a depth of about 500 feet. The

MINE DEVELOPED OVER 1400' IN LENGTH AND 500' DEPTH. OPERA- TION IS THROUGH SHAFTS OF WHICH NOS. 3 AND 4 HAVE BEEN USED FOR HOISTING. NO. 3 IS VERTICAL WHILE NO. 4 IS INCLINED.	map and elevation (PLATES V and VI in the appendix) show the workings as they were when the property was closed down in 1912. The latest work was done through shaft No. 4, which is an inclined shaft sunk on or near the vein to a depth of about 250 feet. The 100' and 200' levels were originally opened by adits on the north end of the property. Shaft No. 1 was sunk (probably raised from the 100' level) and the 200' level was opened up. In order to give better access to the property and to equalize the haulage distances, shaft No. 3 was sunk. This was connected with the previous drifts and was continued to about 350 feet. This was a vertical shaft sunk in the andesite footwall. While it is now devoid of timber, it seems to be open and will probably serve for ventilation when the mine is unwatered.
---	---

Shaft No. 2 may have been sunk but the absence of sufficient dump would indicate that it was run as an upraise. This shaft is probably caved at some point about the 100' level.

Other surface workings consist of short tunnels, shallow shafts and pits which have no development value but serve as exploratory openings to add some knowledge of the veins and their possibilities.

WICKS MINE

Access to the mine could not be had by the writer, but the No. 4 shaft is caved at a point about 60 feet below the collar.

LITTLE WORK WOULD BE REQUIRED TO PUT NO. 4 SHAFT IN REPAIR There is some evidence of subsidence but it is not likely that the caving is very extensive as no stoping was done in the vicinity of this shaft and it should require little work to put it in repair. The mine has been filled with water throughout its closed period so that the timbering below the water level should be in good condition.

ORE RESERVES:-

In the calculation of ore reserves in the mine it is necessary to confine ourselves to known facts. The operation, over a number of years, revealed the fact that there was a very persistent width of ore throughout the length opened up and for the entire depth of the mine. No authoritative data is available concerning low grade ores nor have we any records of stope fillings. Some reference has been made by examining engineers to the fact that the entire vein was ore of milling grade but, as no widths, assays, nor tonnages are available, these statements will have to be set aside until they can be verified and actual calculations made.

In order that we may be as conservative as possible, it seems advisable to select the most adverse of the reports as the basis for our calculations as, if this, upon analysis, indicates a profitable operation, there is a certainty that the property will yield a profit fully equal to this and probably greatly in excess of it. While the Farish report indicates one ton of shipping ore for each 32 square feet of projected stope area, the Cox report shown only one ton of shipping ore for each

WICKS MINE

160 square feet of projected stope area. We will, therefore, select the Cox report as the basis of ORE RESERVES DERIVED FROM REPORT OF W. ROWLAND COX CONSIST OF 1700 TONS OF \$112.00 ORE AND 1670 TONS OF \$25.30 ORE ALSO 3740 TONS OF \$4.27 ORE. TOTAL GROSS VALUE IS \$253,680.00 our ore reserve calculations. There is a remarkable agreement between all examining engineers as to the average grade of shipping ore. These range from \$56.80 per ton to \$67.00 per ton. The actual results obtained throughout the operations have been an average of \$66 per ton. It is safe to assume the grade previously produced as the grade of shipping ore which can be produced. This is further confirmed by the extensive sampling done by Cox.

Cox, in his report, points out the persistence of the vein and states that it is safe to figure the ores to extend throughout any block which can be observed. He also figures it safe to assume a distance of 50 feet beyond the outer limits of the block exposed. On this basis he calculates a total known reserve of 271,750 square feet of projected area which he divides into three classes of ore, namely:

1700 tons	smelting grade ore
1870 tons	milling grade ore
3740 tons	low grade ore
<u>7310</u> tons	total ore.

He further figures it safe to assume twice this amount as "possible" ore. This would be an additional 14,620 tons.

On the basis of extensive sampling of the mine and comparison of this sampling with actual results obtained, show the following values:-

Shipping ore	\$66.00 per ton (old prices)
Milling Ore	14.85 per ton (" ")
Low grade ore	2.51 per ton (" ")

An analysis of the percentage of values represented by each of

WICKS MINE

the metals included in settlements shows that gold and silver are both higher in price while copper is lower. The computed increase equals 69.8% which has been figured as 70% for simplicity in figuring. The prices used, therefore, in calculating the value of ore reserves are:

For shipping ore	\$66.00 x 1.70 or \$112.00 per ton.
For Milling ore	\$14.85 x 1.70 or \$ 25.30 per ton.
For low grade ore	\$ 2.51 x 1.70 or \$ 4.27 per ton.

On this basis, the 271,750 square feet of projected stope area which is classified as assured ore, would yield:-

1700 tons x \$112.00 or	\$190,400.00
1870 tons x \$ 25.30 or	\$ 47,311.00
3740 tons x \$ 4.27 or	\$ 15,696.00
a total of \$253,680.00	

On the same basis, the 14,680 tons of "possible" ore would have a value of \$507,360.00. It should be noted that this does not in-

TOTAL ESTIMATED VALUE OF 14,620 TONS OF POSSIBLE ORE IS \$507,360;	clude probable ores in other veins than the one developed and that it is very likely that one or more of these veins will likewise prove productive and will add materially to this total,
NO ORE INCLUDED IN OTHER VEINS AND NO STOPE FILLS NOR LOW GRADE VEIN FILLING ESTIMATED.	

MINING COSTS:-

In calculating mining costs, these have been figured in several different ways. The results check within reasonable limits and also compare with similar costs at other mines and with previous costs at this property. Assuming a crew of 25 men and an operation covering 25 days per month or 300 days per annum, total monthly costs of mining would be about as follows:-

Payroll	\$2400.00
Supervision	250.00
Assaying	250.00
Explosives	300.00
Timber	150.00
Fuel for Power	400.00

WICKS MINE

Other supplies & reps.	\$ 500.00
Contingencies (15%)	<u>650.00</u>

TOTAL MONTHLY \$4900.00 or, say, \$5000.00

Of the crew employed, 5 will be on development work, 15 on ore, and 5 on surface and general underground. One man in a stope can break 5 tons of ground per day, average. With a stope width of 2', this represents 60 cubic feet per day or 30 square feet of projected stope area. The average yield of ore is 0.013 tons per square foot so that there should be produced 0.39 tons per man. Development work should produce one-third of this quantity per man or 0.13 tons. This indicates a monthly production of 187.5 tons of ore. Allowing for delays, extra labor required for timbering and other contingencies, this crew should produce not less than 150 tons of ore in any one month. This is a gross of \$9,900. average. Haulage, at \$5. per ton, will be \$750. and treatment

MINING COSTS ESTIMATED AT \$5000 PER MONTH WITH \$1740 PER MONTH FOR FREIGHT AND TREATMENT PRODUCTION OF 150 TONS PER MONTH GIVES \$9900 VALUE OR A NET OPERATING PROFIT OF \$3160. TWO YEAR ORE SUPPLY IN KNOWN ORE BODIES AT THIS RATE OF EXTRACTION. COSTS FIGURE \$45 PER TON SHIPPED. NO MILLING ORES INCLUDED.

plus metal deductions will be 10% of the gross value, or \$990. This, then, gives a total cost of \$6740. and an operating profit of \$3160.00 per month. At this rate of production, it will require two years to extract the assured ore and there would ensue a total operating profit of \$74,970.00.

This represents a cost of \$45. per ton. Cox, in his report, calculated a cost of \$76.27 per ton and only figured 0.0057 tons of ore per square foot of projected stope. The enhanced value of the ore will now permit the shipment of 0.013 tons per square foot of stope, so that, with corrections for freight and treatment on the additional tonnage, his calculations would equal \$42.70 per ton, which is in close agreement.

WICKS MINE

It is to be noted that these costs are predicated upon the production of shipping grades of ore only. Should developments prove the existence of sufficient tonnages of milling grades of ore, it is quite probable that this may add substantial amounts to the calculated reserves and to the estimated profits.

INVESTMENT REQUIRED:-

To reopen the Wicks Mine and place it in production is a comparatively simple and inexpensive matter. Repairs to timbering and reopening of the inclined shaft No. 4, will cost about \$1000.00. Unwatering will cost an estimated \$3000.00. Mine equipment (including headframe for the shaft) is estimated at

INVESTMENT REQUIRED	\$5000.00.	Surface improvements (road,
\$20,000 WITH \$10,000	b	
ADDITIONAL RECOMMENDED	buildings, etc.)	should not exceed \$2500.
TO BE PROVIDED TO		
COVER UNEXPECTED ITEMS	An operating and contingent fund should be	
MAKING TOTAL CASH RE-	provided of \$7500. making the total amount	
QUIRED \$30,000 WHICH	required \$19,000.00 or, say, \$20,000.00.	
THE MINE SHOULD RETURN		
IN TEN MONTHS.		

It is recommended that 50% more than this be made available to cover such additional items as may be found necessary, but a cash fund of \$30,000.00 should adequately cover all necessary expense.

METALLURGICAL TREATMENT:-

From existing data, it is not possible to state whether a milling plant for the treatment of lower grades of ore would be

RECOMMENDED THAT MILL-	warranted or not. It appears as though
ING BE DEFERRED UNTIL	
MINE IS REOPENED. LOW	the tonnage of such material is not sufficient
GRADE ORES MAY BE SOLD	to warrant the expenditure for plant.
TO CUSTOMS MILLIN THE	
DISTRICT. DUMPS SHOULD	After the property has been reopened so
BE INVESTIGATED.	

that some definite determination may be made concerning this feature, it should be investigated but it seems likely that mill-

WICKS MINE

ing grades of ore can best be treated in customs plants in the vicinity. The new mill of the El Oro Mining and Milling Company, about 7 miles from the property, may afford an outlet for some of this material. Likewise, the Morning Glory Mining and Milling Company contemplate the early construction of a mill and state that they will be in the market for custom ores.

It is not unlikely that certain of the dumps may be screened and washed profitably. Tests should be made of this prior to unwatering the mine, with a view to utilizing the water for this purpose. Grab samples from the south dump of the 100' adit gave values in gold of about \$4 per ton. There is considerable tonnage in this dump and it could be handled for not over \$1 per ton. If 50% of the values could be recovered by screening and washing, there should be a resultant profit of about \$1 per ton. It is also noted that there is ore scattered through several of the dumps and available in some of the shallow surface trenches and pits. Some of this is of high enough grade, under existing prices, to ship and a small amount of profit could be obtained by working out this ore. One four inch streak, for example, gave values of \$26.60 per ton and, while this might not pay as an underground operation, the soft surface dirt is so easily removed that this ore could be profitably extracted now, for a shallow depth.

RECOMMENDATIONS:-

The Wicks Mine should be reopened and placed in production without delay. A simple but adequate plant should be purchased and installed, a headframe built over shaft No. 4, and this shaft should be repaired. The mine should be unwatered and, if possible, the water should be utilized in washing surface dumps. Production could start immediately from the surface and from the underground

WICKS MINE

levels as rapidly as these became accessible.

The 100' level should be opened up on the north end of the property where, apparently, no stoping was done. It is possible that this is not badly caved and likewise possible that it contains commercial ore at this time even though such ore was not formerly commercial. All portions of the mine should be explored as rapidly as possible, to determine tonnages available and the possibility of milling or shipping stope fills and low grade ores which were not formerly profitable.

After production is well launched and profit is being derived, cross-cuts should be run to determine the existence and value of parallel veins. Where conditions warrant, any such veins should be explored by drifting. Development work was pushed too rapidly during former operations and this resulted in operating losses. With the tonnage of ore now opened up in the mine, development work should be carried forward at a rate to give one ton of mineable ore for each ton extracted. In other words, ore reserves should be maintained and no effort should be made to increase these reserves unless there is a marked increase in the size of ore bodies. The mine can be most economically operated with a small crew about as outlined in a previous portion of this report. Any increase over this will require an enlarged staff and result in higher costs per ton.

Satisfactory operating results will depend upon careful and continuous sampling and assaying. The assaying can probably best

COMBINED CHANGE HOUSE
AND SORTING SHED SHOULD
BE ERECTED.

be contracted so as to avoid the cost of equipping an assay office and the employment of an assayer. Provisions must be made to prevent theft of high grade. A combined change house and sorting house can be

WICKS MINE

constructed at nominal cost and this is recommended. Sorting in the slopes should be avoided as much as possible and should be confined to the elimination of waste rock only. All ore should be hoisted and sorted on the surface. This will increase the tonnage output per man and give an improved product from the mine as it is much simpler and productive of better results to confine the sorting to one or two men who become highly skilled in distinguishing ore grades and who work under best conditions of light and supervision rather than to leave this sorting to the general crew of miners working under poor lighting conditions, with the resultant losses of ore left on stope fills and the attendant time loss of the miners.

The selection of equipment will depend upon matters of first cost as well as upon operating efficiency. In general, diesel type engines can be operated more economically although engines utilizing distillate or low grade gasoline are very satisfactory. The matter of equipment selection can best be left to the management. It will be necessary to provide a small hoist of about 35 horsepower capable of sinking to a total depth of 500'. A small air compressor, of about 350 to 450 cubic feet capacity will serve the requirements. A small 2.5 KW generator to furnish surface and underground lights would be a convenience. Mounted jackhammer drills using 7/8" octagon steel will be most easily handled and of ample capacity. Good, roller bearing cars, of about 3/4 ton capacity will be satisfactory. Tracks should be of not less than 16 pound Tee rail, well laid and graded. Hoisting should be by self dumping skip. A small blacksmith shop, equipped with drill sharpener and with a small drill press should serve every purpose. An adequate stock of rails, pipe, fittings, spikes, bolts and other supplies should be provided and kept up. There are no stocks of

WICKS MINE

supplies in Hillsboro and this must be considered in providing stocks for the mine.

While it has been the custom to haul ores from this district to Lake Valley for rail transportation to the smelter, it is possible that some economy might be effected by hauling to

HAULAGE TO HATCH MAY Hatch, as the roads are much better.
PROVE MORE ECONOMICAL

Haulage to the smelter at El Paso, a distance of 126 miles, is limited to 7000 pounds because of a Texas law prohibiting greater loads than this. Should truck haulage prove more economical than rail transportation, it is possible that this might be effected by making a transfer at the State line, hauling adequate loads to that point and using a small truck on the short haul in Texas. These are matters, however, of management and can best be solved when operations are undertaken.

It is urgently recommended that the mine be reopened at an early date. Its successful operation is dependent upon careful management and the profits which can be derived at the present time are attractive. Very great increases in labor and commodity REOPENING URGENTLY RECOM- prices would reduce these profits un-
MENED TO TAKE FULL ADVAN-less accompanied by further and corres-
TAGE OF PRESENT ECONOMIC
SITUATION. ponding increases in gold and silver
prices. That such increases are certain to occur seems inevitable and it is probable that there will be a period of three to five years during which an excellent profit may be had from the operation of this mine.

CONCLUSIONS:-

Analysis shows that there is a minimum profit of \$74,000.00 to be obtained from known ore bodies in only a small portion of

WICKS MINE

of the mine. There is every probability that this profit will be MINIMUM PROFIT OF \$74,000 CAN BE HAD FROM KNOWN ORE RESERVES WITH PROBABILITY THAT THIS WILL BE GREATLY EXCEEDED. ADDITIONAL PROFIT OF \$150,000. PREDICTED. greatly exceeded as the most adverse report of tonnages and values has been used in calculating reserves. There is every probability that there will be an added profit of \$150,000.00 derived from extension of development work along the known vein and some possibility of this being further augmented by lateral developments in other veins on the property.

There is about two years of ore supply now available, and this reserve can be maintained readily. There is no evidence of TWO YEARS ORE SUPPLY AVAILABLE. diminution of values in the lowest reaches of the mine and it is probable that these values will continue for several hundred feet of additional depth.

All milling grades of ore have been disregarded in the compilation of the figures and results so that the profits calculated are based only upon the known MILLING ORE DISREGARDED IN CALCULATION OF PROFITS AND THIS MAY ADD CONSIDERABLE VALUES. bodies of high grade shipping ore. It is almost certain that old stope fills and low grade ores will provide adequate tonnage for a small milling operation. Tests have indicated better than 90% extraction by simple flotation with a high grade concentrate. The writer believes that this will prove to be a source of considerable additional profit when these ore bodies are opened up and proven. This is based partially upon one successful milling operation on stope fills in a portion of the mine which yielded some of the lowest grades and least amounts of shipping ores. In this operation a small Huntington Mill and a single concentrating table operated successfully on a 75% recovery on old prices for gold

WICKS MINE

and silver. It would seem from this that, with increased gold-silver prices and 90% extraction by simple flotation, the better portions of the mine should yield excellent profits from stope fills.

Economic conditions have brought the Wicks Mine from the position of a marginal producer to that of an excellent profit producing property. Unlike the great major-decided merit and should produce adequate profit. it

has considerable tonnages of unmined ores blocked out ready for extraction and it can be placed in operation at nominal expense.

The property is one of decided merit and its operation will be a source of profit and satisfaction to its owners for the next few years, at least.

WALTER K. MALLETT.

P A R T V
REPORT
on the
WICKS MINE
made by
W. ROWLAND COX & STAFF
November 19, 1912

PART V.
COX - 1912

W. ROLAND COX

Mr. Cox is a Consulting Engineer with offices at 165 Broadway, New York City. The report was made by Mr. C. Daves Clark, a member of his staff.

W. ROWLAND COX AND STAFF
Consulting Specialists in Mining and Milling
165 Broadway, New York

SUMMARY

The Wicks Mine, near Hillsboro, New Mexico, is about twenty-three and one-half miles by wagon road from Lake Valley, the nearest railroad station.

The property consists of three patented fractions and two placer claims.

The economic conditions are such that moderately high working costs may be expected.

The mine has been worked intermittently for many years, always, it is believed, unprofitably.

The present owners have extensively and thoroughly reopened the mine, developing it in a workmanlike manner to about 500 feet in depth.

The ores, which contain gold, silver and copper values, occur in rather small thin lenses separated by low grade or barren areas.

From the records of the present management, based on the production of the mine during the development period, it is estimated that there have been proved up and remain in the mine as "Probable" ore, about 1700 tons of smelting grade ore averaging about \$66.00 per ton in gold, silver and copper, and 1870 tons of mill ore averaging about \$10.00 in gold values alone. The assays of the samples taken during the examination indicate similar amounts and grades of ore. The highest grade block in the mine, Block F., has been estimated to contain as "Probable Ore" 397 tons of smelting grade ore averaging \$78.75 per ton, and 478 tons of mill ore averaging \$17.75 per ton. This block comprises probably 25% of the total ore exposed.

(a)

There is little evidence in the mine on which to base expectations of developing a different and more profitable class of ore.

The ore in Block F., if stoped at once will probably result in a slight profit. In general, to stope the developed ore under existing conditions will not result in an adequate operating profit, and the effect would be merely to dissipate the comparative large metal values contained.

There is not enough milling ore in sight to justify even a small mill.

The Wicks Mine has been sufficiently developed to exhibit its characteristics.

It is recommended that no further development or operation be undertaken at the present time.

The mine should be held with a view of awaiting the developments in the district. It may prove a valuable consideration in a consolidation of the district, or, with improved local facilities may become valuable as it stands.

NOTE

Tonnages where mentioned in this report are in U. S. tons of 2000 pounds.

Values where mentioned are in United States Currency. The value of an ounce of gold is taken at \$20.00, and of silver at \$.55; the value of one pound of copper is taken at \$0.12, unless otherwise stated.

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REPORT ON THE WICKS MINE, NEAR HILLSBORO, NEW MEXICO

LOCATION

THE MINE IS
NEAR HILLS-
BORO, N. M.

The property is situated in the Las Animas Mining District, about four miles northeast of Hillsboro, the county seat of Sierra County, a town of about 600 inhabitants.

ACCESSIBILITY

HILLSBORO IS
18 MILES BY
STATE FROM
LAKE VALLEY.
THE MINE IS
5½ MILES BY
WAGON ROAD
FROM THE
TOWN

Hillsboro is reached by stage, being about eighteen miles north of Lake Valley, the terminus of a branch of the Santa Fe Railroad. The town is connected by telephone with Lake Valley, the nearest telegraph station. The Wicks Mine is about five and one-half miles from Hillsboro by a fair wagon road suitable for heavy hauling, with the exception of a few thousand feet, which need improvement.

TOPOGRAPHY

GENTLE PEAKS
RISE OUT OF
ROLLING COUN-
TRY, DRAINED
BY THE RIO
PERCHA, A
FLOWING RIVER.

The district presents rather gently sloping peaks, rising out of rolling country. The hills are seamed by dry gulches which carry the infrequent floods to the Rio Percha, a flowing river, which passes through Hillsboro. The altitude of the town is given as 5200 feet, and the mine is probably 200 feet higher.

AREA AND TITLES

THREE PATENT-
ED LODGE CLAIMS
COVER ABOUT
#250 ft. OF

The property consists of three patented fractional lode claims, named the "Smuggler," "Ross" and "Compromise" respectively, covering about 3250 feet of

THE STRIKE the strike of a system of veins. No inquiry was
OF A SYSTEM made as to titles. The mine is being operated by
OF VEINS. TWO the Sigma Construction and Development Company. In
PLACER CLAIMS Addition to the lode claims, there are two placer
COVER THE CAMP claims adjoining the lode claims on the east which
SITE. cover the camp site and a considerable length of
Wicks Gulch. This examination does not include an appraisal of
the mineral value of the placer claims.

ECONOMIC CONDITIONS

TRANSPORTATION

FREIGHTING Wagon freighting from Lake Valley to the mine
COSTS FROM costs about \$6.00 per ton. The rate on ore from
\$5.00 to the mine to Lake Valley as a return load is about
\$6.00 per TON \$5.00 per ton.
FROM LAKE
VALLEY.

WATER

WATER SUIT- Water for domestic purposes is obtained from a well
ABLE FOR DOMESTIC or "spring" sunk in the north gulch. This well
NEEDS IS OB- is stated by the management to yield 750 gallons per
TAINED ON THE day. The mine is stated to be making about 3500 gal-
PROPERTY. THE lons per twenty-four hours at present. A shallow well
MINE MAKES has been sunk in the east gulch, which, by a rough
ABOUT 3500 test, is believed by the management to be capable of
GALS. PER 24 yielding 4000 gallons per twenty-four hours. Some
HOURS. A of this, however, is the mine water reappearing again
SUFFICIENT in the creek gravels.
AMOUNT FOR A
20-TON MILL
CAN PROBABLY
BE DEVELOPED
LOCALLY.

The Snake and the Ready Pay mines have pipe-lines leading
from the Rio Percha, two and one-half to three and one-half miles
from the properties. Both companies have pumping plants and the
Snake owns water rights as well. The Ready Pay Company purchase the

water on terms not ascertained.

It is believed, however, should a mill be required at the Wicks Mine, that sufficient water to operate a 20-ton mill, i.e. 10,000 gallons per day could be developed on or near the property. This estimate contemplates the use of the most approved devices for recovering the water at the mill.

LABOR

MEXICAN MIN-
ING LABOR IS
AVAILABLE AT
RATHER HIGH
RATES OF PAY.

Mexican labor is available for mining work. The rates of pay are rather high, miners are paid from \$3.25 to \$4.00 per day of nine hours and laborers receive \$2.50 to \$2.75 per day. There is ample supply of labor for the small operations of the district.

POWER

ENGINES USING
NAPHTHA ARE
EMPLOYED AT
THE MINE, THE
COST IS REAS-
ONABLE FOR THE
SMALL AMOUNT OF
POWER NEEDED.

Wood fuel is costly, and is prohibitive as a source of power, due to its scarcity and the quality obtainable. Gallup coal costs from \$10.00 to \$12.00 per ton delivered at the mine.

Distillate costs about \$0.18 and naphtha about \$0.21 per gallon delivered. The latter is used in Fairbanks-Morse engines for hoisting, generating power for lighting and pumping and air compression at the mine. The management states that the monthly consumption of naphtha when operating is about 300 gallons per month. 50% of which is charged to compressing air, 30% to pumping and lighting and 20% hoisting.

The Snake Mine operated a 160 H.P. Diesel oil engine using fuel oil. Electric current is thus generated and transmitted to the pumping plant.

TIMBER

ROUND MINE
TIMBERS COST
\$0.10 PER LIN.
FT. AND SAWN
LUMBER FROM
\$20 TO \$30
PER THOUSAND
B.F.

Round mine timbers are hauled in from considerable distances, and cost about \$0.10 per lineal foot delivered. Sawn timber is stated to cost from \$20 to \$30 per thousand board feet delivered.

HISTORY

THE WICKS
MINE HAS
BEEN INTER-
MITTENTLY
OPERATED SINCE 1893
THE VEINS
HAVE BEEN
DEVELOPED
OVER 1200 ft.
IN LENGTH AND
TO A DEPTH OF
500 FT. SINCE
1906 THE
PRESENT MAN-
AGEMENT HAS
SHIPPED 250
TONS OF ORE,
GROSS VALUE
\$66 MINED
FROM 40,000
SQ. FT. OF
VEIN AREA IN
STOPING AND
DEVELOPMENT
WORK. THE
MINE IS SUIT-
ABLY EQUIPPED
MACHINERY HAS
BEEN SECURED
FOR A MILL.

Placer gold was discovered in Wicks Gulch in 1877, lodes being discovered shortly afterward. The Wicks Mine has passed through several hands and has been rather extensively developed and operated since 1893 always, it is believed, unprofitably. The present owners have, since about 1906, sunk a new inclined two compartment shaft about 375 feet deep from which three levels have been driven, opening the mine to a depth of about 500 feet below the highest point on the outcrop, and for a length of about 700 feet on the vein.

Old workings, at present inaccessible and largely saved, have opened the vein for about 600 feet further to the north.

Considerable stoping has been done in both the new and old workings above the 300 foot level.

The records show that the present owners have mined and shipped from about 40,000 sq. ft. of vein worked out in drifts, raises and stopes. 250 tons of smelting ore having a gross value of about \$66 per ton.

In addition to the above about 826 tons of mill grade ore have been segregated and dumped on one side of the waste dump during this period of operation.

The greater part of the machinery needed to operate a ten-stamp mill has been acquired from adjacent properties and is in fair condition and ready to be utilized in building a mill.

A rather effective miniature power plant involving hoisting, compressing, electric lighting and electric pumping, all driven by distillate engines is in operation.

GEOLOGY OF THE DISTRICT

AN INTRUSIVE
MASS OF ANDE-
SITE FORMS THE
MOUNTAINS IN
WHICH THE
MINES ARE
SITUATED.
THE GOLD DE-
POSITS OCCUR
IN SHEAR
ZONES IN THE
ANDESITE.

As shown by the accompanying geologic sketch map, the town of Hillsboro is situated on a belt of Palomas gravel of Pleistocene age. About a mile east of the town, a prominent fault of probably 2000 feet displacement brings to the surface the Mimbres limestone of Silurian-Cambrian age. Overlying the Mimbres limestone are exposed the Percha shale (Devonian) and the Lake Valley limestone (Lower Carboniferous).

Small intrusions of monzonite-porphry and rhyolite have penetrated the sedimentaries.

The mountains to the northeast of Hillsboro are composed of an extensive intrusion of andesite. The gold deposits occur in shear zones in the andesite. The veins have a northerly strike and have been observed generally to converge towards Las Animas Peak, the heart of the intrusion.

Effusive basalts, where not removed by erosion, cap the Palomas gravel.

Placer gold has been found in the stream beds and dry gulches.

ECONOMIC GEOLOGY AT THE WICKS MINE

THE ANDESITE
IS TRAVERSED
BY A SERIES

The country rock on this property, and the only rock intimately associated with the ore deposits, is the intrusive mass of andesite. The usual type contains

OF SHEAR
PLANES CON-
TAINING
NARROW, SMALL
BUT REGULARLY
RECURRING
LENSES OF
GOOD GRADE
ORE SEPAR-
ATED BY BARREN
OR LOW GRADE
AREAS. THE
VALUES ARE
CHIEFLY GOLD,
ASSOCIATED
WITH COPPER
ORES, WITH
SOME SILVER,
TWO PARALLEL
VEINS HAVE
BEEN EXTENSIVELY
DEVELOPED.

phenocrysts of feldspar of about one quarter inch length in a ground mass varying from crystalline to finely crystalline texture. The rock exhibits, however, marked localized variations; in places the phenocrysts have large dimensions, the feldspars being over an inch in length, while in smaller areas the rock has a felsitic texture. A marked change may be observed in a distance of a few feet.

A series of roughly parallel shear planes, having a strike of about N 25 E emanate from each other along a prominent shear zone.

The veins are small and tight and contain little quartzose filling. The ore either occurring in a very narrow seam in a tight fracture with only slightly altered wall rock, or replacing seams of country rock between two or more adjacent shear slips.

The mineralization by gold and copper values does not extend far into the wall rock. On the 500-foot level, however, unaltered and practically barren pyrite extends in places two feet into the walls in a disseminated form.

Above the 400-foot level, the ore is oxidized more or less completely and the wall rock shows signs of leaching.

The 500-foot level is well in the zone of secondary enrichment. Unaltered pyrite appears here and will probably increase in amount with depth while the copper may be expected to decrease in amount as greater depth is attained.

Two veins have been extensively developed. The East vein has been developed by workings prior to 1906 for a length of about 1000 feet and to a depth of about 400 feet.

The recent work from the incline shaft in the gulch has developed the West Vein for a distance of about 500 feet on the 300-foot level, overlapping the development on the East Vein for a

distance of about 200 feet.

The recent work on the 500-foot level has in all probability, been done on the East Vein which it develops for over 600 feet in length.

Several other veins and feeders parallel these two veins and undoubtedly form part of the same shear zone. Where exposed in crosscuts these last veins have the same characteristics as the main developed veins.

There are some indications that the West Vein joins the East Vein at some horizon above the 500-foot level, and that it also joins with the East Vein on its strike in the vicinity of the new shaft.

Both veins have a dip of about seventy-four degrees to the west. Where definitely developed opposite each other on the 300-foot level, they are found to be converging towards each other on the strike, and to be from thirty-five to sixty feet apart. The intervening block of ground contains subsidiary, unprofitable stringers of ore. Where the veins overlap, the oreshoots are somewhat leaner than elsewhere.

About 350' north of the inclined shaft on the 300' level a prominent fault is encountered, having a strike of about N 70 E and a dip of about 60° to the north which is observed on all the levels. This fault carries no ore of value where exposed. On the 300' level it appears to throw the main veins about five feet horizontally. On the 500' level, on the other hand, the vein appears to displace the fault about seven feet horizontally.

A raise from the 500' to the 300' levels along the fault is in an impoverished zone thus disproving any theory that the junction of these two slips would contain profitable ore bodies.

On the 300' level the ore values are generally better north of the fault; on the 500' level the reverse is true.

The values are chiefly gold, and to a much less degree, silver and copper. The gold seems to follow the copper contents, all the high grade ore carrying a fair amount of copper.

The veins contain small lenses of smelting grade ore, seldom over fifteen feet in length or over ten inches thick at their greatest development; which taper into seams about two inches wide within a few feet. The grade of the ore also exhibits great variation. The seam may contain what is practically barren material and in a few feet change to a smelting grade ore and as quickly again to ore of low values. In a comparatively few instances a low grade streak of ore accompanies the smelting grade seam.

Viewed broadly, a regularity of recurrence of the smelting grade bodies can be distinguished which permits a reasonably close appraisal of developed blocks of vein although little "Positive" ore can be estimated by the usually accepted methods of calculation. Probably the best indication of the contents of the vein is to be arrived at from the records of past production and from the ore dumps on the property.

In addition to the two veins extensively worked, some surface work has been done on what has been called No. 3 Vein, about forty feet west of the inclined shaft.

There are also exposed, in cross cuts underground, at least two other veins or feeders.

ORE RESERVES

PROBABLE ORE

THE ACCURATE
DETERMINATION
OF DEVELOPED
ORE IS MADE
DIFFICULT BY
THE SMALL SIZE
OF THE LENSES
EXPOSED

The Wicks Mine ore occurs in such small lenses that it is generally impossible to expose in development openings more than one face of the ore body. The ore reserves can in no instances be classes as "Positive Ore". There is, however, a persistence of values

over a large area, which indicates small, recurring lenses of ore separated by more or less barren areas.

As the assay projection indicates, it is impossible to distinguish the outline of the areas of pay ore.

The amount of ore developed in the mine may be arrived at by two methods of calculation. One very fair way of obtaining the "Probable Ore" contiguous to the recent development work is by a consideration of the output during the development period.

ORE RESERVES COMPUTED FROM PRODUCTION

FROM PAST PRODUCTION THE "PROBABLE" HIGH GRADE ORE PROVED IS ESTIMATED AT 1700 TONS, HAVING A TOTAL CONTENTS OF \$112,200.00 OR \$66.00 PER TON. THE "PROBABLE" MILL ORE IS ESTIMATED AT 1870 TONS AVERAGING \$10.00 PER TON.

During the past six years, while development work has been prosecuted intermittently, there have been shipped about 250 tons of high grade ore, having a net liquidation value at the smelter of \$14,682.59 or \$58.59 per ton. To this must be added about \$1750. or \$7.00 per ton which was deducted for treatment, making the average assay value of the ore about \$66 per ton.

This tonnage resulted from the working of 36,900 square feet of newly developed vein, and an amount of stoping in the older workings estimated by the management to cover 3100 sq. ft. taken from the East Vein above the 300' level; the total amounting to about 40,000 sq. ft. of vein area.

The total area of vein remaining, including fifty feet laterally and in depth beyond the outermost accessible and lowest workings is computed at 271,750 square feet.

The proportion of the proved area to that already worked out is, then $\frac{271750}{40000}$ or 6.8. That is, assuming that the development work has exposed blocks of the same average richness as that mined during the development period, It is computed that 6.8 times the amount of ore already extracted remains as "Probable ore in the proved

area.

This gives 250×6.8 or 1700 tons of smelting grade ore which is classed as "Probable" ore having an average assay value of \$66.00 per ton, or a total contents of \$112,200.00.

There have been placed on the dump a pile of milling ore estimated at 826 tons, averaging \$3.66 per ton, or \$3,023.16 in total contents of gold and silver. This low average assay value is to be ascribed to the large percentage of waste that has been mined and handled as low grade ore. It is probable that one-third of the above material is composed of ore of over \$10.00 grade, but the balance of the pile is almost barren rock.

The assay returns on seven samples carefully cut from pits^{dug} for the purpose in this low grade pile are given below.

ORE SAMPLES FROM LOW GRADE PILE

NO.	OZ. GOLD	OZ. SILVER	% COPPER
357	0.20	2.4	0.7
359	0.20	0.6	0.3
360	0.18	0.5	0.4
361	0.21	2.4	1.4
362	0.14	0.8	0.8
363	0.08	0.5	0.4
364	0.08	1.5	0.6
AVERAGE	0.15	1.2	0.6

Ore of the above grade will not pay to mill. It is believed, however, that one-third of this pile, or about 275 tons of ore averaging \$10. per ton, could be sorted out of the pile, a total of \$2750. in contents.

This gives a rough approximation of the ore that may be classes as "Probable" of milling grade, as 275×6.8 or 1870 tons, assaying about \$10.00 per ton, a total metal contents of \$18.700.

ORE RESERVES COMPUTED FROM ASSAY MAPS

FROM THE A
ASSAY MAP,
BLOCK F. IS
COMPUTED TO
CONTAIN IN
"PROBABLE"
ORE, \$2.

This method involves the assumption that the exterior of any block of ground, where sampled, has the same proportionate richness lineally as the area itself, superficially. (10)

ORE, 379 TONS
 AVERAGING
 \$78.75 AND
 498 TONS
 AVERAGING
 \$17.75 PER
 TON. THE
 SAMPLES INDICATE THIS TO
 BE THE BEST
 BLOCK IN THE MINE AND TO
 CONTAIN PROBABLY 25% OF
 THE TOTAL
 "PROBABLE"
 ORE.

Block F. has been computed in this way. Samples were taken every seven feet, where possible, around this block of ground amounting to eighty-seven in all: the perimeter tested by samples amounting to 661 feet. Of the eighty-seven samples fifty-six covering 472' of perimeter were in waste or low grade ore averaging \$2.99 in gold over 7.75 inches average width. The ratio, $\frac{472}{661}$ or 71.4% gives the proportion of the area of the block that must be considered to be of this grade.

In a similar manner, sixteen of the eighty-seven samples indicate milling grade (between \$10 and \$40) over 126 feet lineally indicating 19.0% of the area to carry \$17.75 per ton over 7.7 inches average width. The high grade ore, (over \$40 per ton) is represented by fifteen samples covering 105 lineal feet, or 15.9% of the whole, indicating \$78.75 ore over 5.6 inches average width.

The following computation gives the estimated tonnage of Block F., the superficial projected area of which is 61300 sq. ft. (no correction being made for the slight dip of the vein).

COMPUTATION OF TONNAGE, BLOCK F.

$$\text{Low Grade: } \frac{61300 \times 71.4 \times 7.75}{100 \times 12 \times 15} = 1887 \text{ tons assaying } \$2.99$$

$$\text{Mill Grade: } \frac{61300 \times 19.0 \times 7.7}{100 \times 12 \times 15} = 498 \text{ tons assaying } \$17.75$$

$$\text{High Grade: } \frac{61300 \times 15.9 \times 5.6}{100 \times 12 \times 12} = 379 \text{ tons assaying } \$78.75$$

Block F as sampled, gave higher average results than any other block in high grade contents. As will be shown later, this block will not pay to work under existing conditions, accordingly, the other poorer blocks were not worked up in detail for their ore contents.

Inspection indicates that Block F contains about 25% of the total "Probable" ore indicated by sampling. This approximation gives the total "Probable" ore as 1992 tons of milling grade, and 1516 tons of smelting grade, which agrees quite well with the former estimate based on output.

POSSIBLE ORE

THE "POSSIBLE" ORE OF THE SAME GRADE AS THAT ESTIMATED AS "PROBABLE" MAY AMOUNT TO TWICE THE TONNAGE OF "PROBABLE" ORE. THERE IS LITTLE EVIDENCE ON WHICH TO BASE HOPES OF DEVELOPING A DIFFERENT AND MORE PROFITABLE CLASS OF ORE.

The veins are very persistent and quite uniform in character. There can be classed as "Possible" ore at least twice as much tonnage as that estimated as "Probable".

As the ore of this grade and method of occurrence cannot be profitably handled under present conditions, it is not necessary to present the quantities and contents of this class of "Possible" ore.

The possibility that further development, particularly in depth, may expose ores of a different character and greater widths that might be worked at a profit, is the only consideration worth discussing at present under the head of possibilities.

There is little evidence in the mine at present on which to base hopes of greater widths or higher values.

The mine has been sufficiently developed over ample dimensions, laterally and in depth, to preclude the expectation of a marked favorable change in its characteristics.

The gold values seem to follow and be associated with the copper ores. The 500' level is well in the zone of secondary enrichment; lean primary pyrites are commencing to appear. The copper values may be expected to decrease with further depth, and probably the gold values also.

No marked geological features were observed pointing to

a favorable change in the ore occurrence.

The several veins may join each other laterally, or in depth; indeed, it is believed that they have in places in the developed zone already done so, but without giving much ground for hope of an extraordinary enrichment at the junctures.

The junction with the cross vein has been well prospected and found unprofitable.

The wall rock in the lower levels is firm, and only slightly altered affording little promise of replacement bodies of ore.

OPERATING COSTS AND PROFITS

A FEW PARTS OF THE MINE CAN BE LEASED, BUT NO PROFIT WILL RESULT TO THE MANAGEMENT BY THIS METHOD. THE ORE IN BLOCK F CAN PROBABLY BE EXTRACTED AT A SLIGHT PROFIT. IN GENERAL, TO STOPE THE DEVELOPED ORE WILL MERELY DISSIPATE THEIR VALUE AND RESULT IN A SLIGHT OPERATING LOSS UNDER PRESENT CONDITIONS.

There are only three or four places in the accessible part of the mine where ~~there~~ is ore that can be extracted profitably. These are undoubtedly small lenses that would be exhausted in a short time, leaving the working faces in unprofitable ground.

At these points, it is possible to lease certain areas to local Mexican miners on the basis of a 25% or 30% royalty. Operating thus, a few Mexicans can make good wages for a limited period of time, but the tonnage produced is so small that the royalties will not cover the balance of the operating expenses of the mine.

It has been suggested that the best way to work the areas for ore is to stope practically the entire vein as it stands, thus exposing and extracting all the

high grade lenses in the area worked. This really seems to be the only feasible way of obtaining a fair amount of ore, or, indeed, of exposing what the bulk of the vein contains.

The following costs and returns have been compiled showing

the probable result of mining Block F. by this method. A working force of five men above ground and twenty men underground is assumed.

In mining this ore by any method known to the writer there will be mining losses which may range as high as 15% of the total ore in place. A moderate loss of about 10% is then allowed for, and the tonnage of high grade ore in Block F. is taken at 350 tons in round numbers.

The stoping width is taken at the minimum of twenty inches, which must be broken to get the high grade streak which averages less than six inches in width.

In places, there are two high grade ore slips exposed with three feet or more of waste between, in which places, the stoping widths would be considerably wider.

ESTIMATED COST OF EXTRACTING AND SHIPPING BLOCK F. ORE

OPERA- TION	UNIT	NO. OF U- NITS	COST PER UNIT	TOTAL COST	U- NITS PER DAY	TIME IN MOS	COST PER TON HND'LD	COST PER TON SHIP'D	REMARKS
Stoping	Sq.Yd.	6811	\$ 2.45	\$16700	40	6	\$2.57	\$47.72	6500 T
Tramming	Months	6	80.00	480		6	0.32	1.37	1500 T
Hoisting	"	6	90.00	540		6	0.36	1.54	1300 T
Power	"	6	200.00	1200		6	0.18	3.43	6500 T
Sorting	Tons	800	1.00	800	4.4	6	1.00	2.28	800 T
General	Months	6	200.00	1200		6	0.18	3.43	6500 T
Haulage	Tons	350	5.00	1750	2.0	6	5.00	5.00	
Freight	Tons	350	4.50	1575	2.0	6	4.50	4.50	
Smelter	Tons	350	7.00	2450	2.0	6	7.00	7.00	
Total Cost and Deductions				\$26695	Cost per ton		\$76.27		

Note: The output is taken at 350 tons.
No development is charged.

It is seen that a slight profit of \$2.48 per ton is indicated from the contents of the block, estimated to contain 350 tons assaying \$78.75 per ton.

It would be absurd to claim that the estimates of costs and tonnages could be so closely attained in practice that this actual outcome would result in mining that block of ground, but the figures indicate that there is not a sufficient margin of profit in sight to warrant the workings of this block under the present conditions.

This, too, seems to be the richest block exposed in the mine. The conclusion to be drawn is, that to stope and ship the ore blocked out will probably result in a material loss, and at the best will result in dissipating the metal contents of the developed ores, amounting to over \$130,000.00, without an adequate proportion or profit.

PROPOSED MILL

THERE IS NOT
ENOUGH ORE
IN SIGHT TO
JUSTIFY THE
ERECTION OF
A MILL.

There is no justification for a mill in the present ore reserves.

The low grade ore dump may yield 275 tons of milling ore, if sorted carefully.

The milling ore in the mine only slightly exceeds the smelting ore in quantity, and a sufficient output could not be maintained to operate a one-stamp mill.

The ore contains a considerable amount of soluble copper minerals and probably is not amenable to treatment by cyanidation.

CONCLUSIONS

THE WICKS
MINE HAS BEEN
SUFFICIENTLY
DEVELOPED TO
EXHIBIT ITS
CHARACTER.
IT WILL NOT
PAY TO WORK
UNDER PRES-
ENT CONDI-
TIONS.

The Wicks Mine presents a series of very persistent narrow veins of ore carrying in spots high values in gold, with some silver and copper.

The rich ore occurs, rather regularly distributed in small lenses averaging about six inches in width and from ten to fifteen feet in length. These lenses are separated by barren or low grade areas. The mine has

been extensively and well opened up for some 500 feet in depth and 1200 feet in length.

No areas of workable dimensions are exposed containing sufficient high grade ore to make it profitable to extract and ship the ore.

Ore of milling grade is not exposed in sufficient quantity to operate a very small mill profitably.

The outlook for proving up by further development a profitable grade of ore is unpromising at this stage of the development of the district.

It is recommended that no further development or extraction work be attempted at this time.

The mine should be held with a view of awaiting the developments of the district, with the possibility that it may prove a valuable consideration in a consolidation of the district, or, with improved local facilities, become valuable as it stands.

Respectfully submitted,

W. ROWLAND COX AND STAFF

By

P A R T VI

REPORT

by

W. W. WILLIAMS, SUPT.

December 22, 1902

PART VI
WILLIAMS - 1902

REPORT ON THE WICKS MINE
SUPERINTENDENT W. W. WILLIAMS' REPORT
LAS ANIMAS GOLD-COPPER MINING COMPANY

The vein, in the property of the Las Animas Gold-Copper Mining Company is what is known as a true fissure vein on the contact between cyanide on the east or foot wall side, and birds-eye porphyry on the west or hanging wall side. This contact cuts lengthwise through the thirty-three hundred and fifty feet of ground comprising the Company's ground and is accompanied the entire distance by a vein running from two feet wide to as much as eleven feet in place, but the average width being from three to four feet between the walls.

On the east or foot wall side there is a continuous vein of quartz ore, averaging from six inches to a foot in thickness. The balance of the matter in the vein is composed of what is known as a quartz porphyry and gouge. A great many stringers and seams of ore make into this from the main quartz vein, and in places these are sufficiently numerous as to enrich it to the extent of from two to as high as fourteen dollars per ton in gold.

In the developed portion of the mine there is something like thirty thousand tons of this character of ore that will run eight dollars per ton or better in gold. The vein being a large open one has been more or less altered and decomposed by surface elements to a depth of from two hundred and fifty to three hundred and seventy feet. Below the water level the character of the ore is considerably changed. The copper in that portion of the ore, not having been destroyed by surface elements, is found to a more or less extent. There are not so many of the small veins or seams making out from the main vein, but the ore there being more generally confined in the main vein, and is much more uniform in character, the main ore vein is much larger there.

REPORT ON THE WICKS MINE

In reference to the amount of ores, different characters, and values, I have prepared the following estimate. That is ores already mined and ore actually developed. In estimating the values of this ore I have deducted, in each case the sufficient amount from the gross values to cover the cost of mining, treating the ore, and the loss in milling. I will first deal with the ore contained in the main ore vein.

I estimate that there is eight hundred tons of this ore blocked out on the first level, on the 2nd level there is two thousand seven hundred and fifty tons, and on or above the 3rd level, about three thousand two hundred and fourteen tons of ore making a total of six thousand seven hundred and sixty-four tons of ore above the third level. This ore, I am sure, will average not less than thirty dollars per ton. If I were to figure at what seems to be reliable data I would figure the ore forty dollars per ton. (The data referred to would be the smelter and mill returns from the ores taken out of the various drifts and up-raises in developing the ground;) but to be perfectly safe in this matter I will figure it at thirty dollars per ton, allowing ten dollars per ton for mining and treating the same, we would have a net value of \$135,280.00. There is on the dump at the mine one pile of ore containing two hundred and fifty tons that will net twenty dollars per ton after deducting treatment charges; making five thousand dollars. There is another pile of one hundred tons, that is possible a little better, but I will estimate it at the same, which at twenty dollars per ton, would net two thousand dollars. There is in the bin at the mine about twenty tons that should net at least fifty dollars per ton, bringing our total net product to \$143,380.00.

Now I have recently gone over the gouge matter in the

REPORT ON THE WICKS MINE

mine, and sampled it thoroughly, and have only figured on that which I am satisfied will run over eight dollars per ton. There is considerable of this in the mine that has already been mined and left standing in the stopes. The high grade ore having been selected. Of this, already mined and ready to be hoisted out and treated, there is on the 1st level 1140 tons, on the 2nd level 7000 tons, on the 3rd level about 1285 tons, making the total number of tons 9425. Estimating the value at eight dollars and deducting two dollars and fifty cents per ton for hoisting it out and milled, the net product would be \$51,837.50

In addition to that I estimate that there is ore of the same character blocked out but unmined:- in the 1st level 3669 tons, 2nd level 11,000 tons, and on the 3rd level 4000 tons. Bringing the total tonnage of this low grade ore, which is blocked out and ready to be mined up to 18,669. Estimating the value of that to be eight dollars per ton, allowing two per ton for mining and hoisting (which is a very liberal allowance) and two fifty per ton for treatment charges, we would have the total net value for that ore of \$64,351.50. Bringing the total net product up to \$259,459.00.

This includes all the ore on the dump, and that that is mined and left standing in the stopes in the mine, and also all that is blocked out, so that it can be gotten at and thoroughly sampled. However, there is a shaft down one hundred feet below the 3rd level, which was sunk on the vein. There was a continuous vein of ore all the way down that shaft, and I consider the last thirty feet of it as showing the best of any part of the mine, and as there is about six hundred feet of tunnels along the 3rd level, and ore all along the top and bottom of the 3rd level, it seems perfectly safe to assume that you could figure on ore one hundred feet deeper than

the 3rd level for at least the entire length of the 3rd level. In assuming that that is so and that the ore would average as rich as samples taken along the bottom of the 3rd level, and also down the winze, would indicate we would have at least, 3,500 tons of ore running at least forty dollars per ton in value. Allowing twenty dollars per ton for opening up the 4th level and mining and milling this ore, we should receive from that a net product of seventy thousand dollars. In that case the net product of the ore to be obtained in the mine with present development and also the development of the 4th level to the extent of the assumed estimate herein contained, we would find that the net product would be \$329,459.00

While we cannot figure for a certainty on this last seventy thousand dollars, I firmly believe that what ground is developed now will net from two hundred and fifty to two hundred and sixty thousand dollars. Of course, I am only considering that portion of the ground which is practically developed, and as there is less than one-third of the ground which has been developed at all, the remaining two-thirds of the ground shows just as good surface outcroppings as that portion to which the development work has been confined.

I believe that whenever you have the proper means at hand for the erection of a suitable plant for the treatment of these ores that you will find that there will be no trouble in securing a process that will save a very large percentage of the values.

I have been experimenting more or less for the last five years, especially on the surface or oxidized ores, and the results have been so uniform and satisfactory that I know when tests are made on large amounts that you will find no trouble in reference to the process. I have made a number of experiments with cynide in connection with the ordinary process of amalgamation, and I find that

REPORT ON THE WICKS MINE

by crushing the ore dry by the use of rolls sufficiently fine to pass through a twelve mesh screen, and submitting it to a weak solution of cyanide for about twenty-four hours, that over sixty per cent of the gold can be abstracted. The remaining gold, which the cyanide does not readily dissolve, is the coarser portion of the gold, and by passing the tailings, after submitting to the cyanide treatment, through a stamp battery or Huntington mill, supplied with the necessary amalgamating apparatus, that a very large per cent of the gold, which was left after the cyanide treatment, would be secured by this process. In fact, I made one test on these lines by which I saved over ninety-seven per cent of the original value of the ore. Of course, in order to be able to realize anything on this low grade ore, that is ore that I have estimated at eight dollars, for instance, you have got to have some cheap process, and I know of no other process which would be as practical as the cyanide. Of course, it would have to be a combination process in order to treat and save the copper ores as well as the low grade gold ores, and for the treatment of the copper ores I believe you have to resort to concentration. A great many of the large mining companies of Butte, Montana and in fact all through the Rocky Mountain region, are treating ores very similar to the the copper ores contained in this mine, by first crushing dry and sizing by the use of revolving screen in order to get a uniform product, and then treating by the jig method, afterwards pulverizing the tailings fine by either stamp or Huntington mill, and running the same over some of the numerous slime tables. I believe by such a method as that is that from ninety to ninety-three per cent of the values contained in our copper ores could be saved. Of course, this would not seem a

REPORT ON THE WICKS MINE

separate mill for each class of ore; the same crushing rolls and sizing screen could be arranged so as to be used for either concentrating or cyaniding ore, and the same batteries or Huntington mill, which you would use for a fine pulverizer for the concentrating ore, could be used for amalgamating the tailing product from the cyanide tanks.

Of course, while I feel perfectly well satisfied that such a scheme as I have outlined would handle this ore successfully, I would not advise any one to adopt any kind of a process without first taking about a carload of each character of ore to Denver, or some other mining center where it could be thoroughly tested.

I would like to go more in details in this report, but have not time now to do it, and as I have already delayed it so long will send this one and if there is any particular points which you would like to have gone over more in detail, just write me to that effect, and I will furnish a thorough explanation.

Yours very truly,

(Signed) W. W. Williams.

December 22, 1902

Supt.

PART VII
REPORT
by
FRED L. BALLARD
June 1900

MR. FRED L. BALLARD

Mr. Ballard was a member of the firm of Tucker, Ballard and Company of Colorado Springs, Colorado. This concern was prominent in the mining and brokerage business during the greatest activity of the Cripple Creek District. They were heavily interested in the Golden Cycle Mine and in many other Cripple Creek properties.

The report made by Mr. Ballard was a report to his firm as prospective purchasers of the Wicks Mine.

He wrote an unsolicited letter to a Mr. Dennis, of Chicago, one of their clients, copy of which is inserted herein to explain why his firm failed to purchase the Wicks Mine at the time.

REPORT ON THE WICKS MINE

REPORT OF FRED L. BALLARD OF TUCKER, BALLARD & CO., COLORADO
SPRINGS, COLORADO, JUNE, 1900

Dear Sir:

In presenting you a description of the Wicks Mine, I have endeavored to make a most conservative statement and one which I believe will be verified by the examination of any expert who may be employed in the examination of the property. The property has been examined four times by reliable engineers and their results have, in every instance, been much better than the results obtained by me, which will only confirm my claim of extreme conservatism.

The property is located three miles from Hillsboro, Las Animas Mining District, Sierra County, New Mexico, and within twenty-two miles of the Lake Valley Railroad station, which is on a spur of the main extension of the Atchinson, Topeka & Santa Fe Railroad. The elevation is practically the same as Lake Valley and the haul a very easy one. I learned that considerable pressure is being brought to bear to induce the extension of the Lake Valley Railroad to Hillsboro, and believe that with the revival of mining in this section the outlook for this railroad extension is quite promising.

Percha Creek flows within two miles of this property and will furnish ample supply of water for milling and smelting at any time of the year. I saw this creek at the dryest season of the year and would estimate a flow of fully 4,000 gallons per minute.

The Wicks property consists of three patented lode claims and a placer claim. The most northerly claim being the compromise No. 3, 1500 feet in length and 600 feet in width. The next claim, immediately adjoining and covering the entire dyke is the Ross 850 feet in length and 600 feet in width, the Smuggler, adjoining the Ross, on the south, also covering the dyke throughout its entire

REPORT ON THE WICKS MINE

length is 1,000 feet by 600 feet.

The entire country shows an eruptive overflow the thickness of which has not been demonstrated. Extending through this overflow are Andesite dykes with fissures of ore bearing veins lying between dykes and the country rock. The dyke has been opened within the Wicks and extends within their lines for a distance of 3300 feet and is easily traceable throughout this entire extent. Numerous openings have been made along the vein, which, in every instance shows a uniform condition from one end of the property to the other and there can be no doubt but that the development will result in the same disclosures of ore bodies that have already been found where any extension work has been done. I can see no reason why two other shafts sunk at advantageous points along the vein and connected with the present workings of the mine will not result in a uniform product from this vein throughout the greater part of the 3300 feet and it is my opinion that these ore chutes are comparatively close together making a succession of perhaps ten or twelve profitable ore chutes within the Company's territory, these chutes varying in length from one to three hundred feet the intermediate space carrying more or less milling values upon which some profit will probably be realized,

The main workings have been opened by a shaft three hundred feet in depth from the bottom of which a crosscut has been made to the vein, a distance of ninety feet, and at this latter point a ginze has been sunk in the ore to a further depth of 95 feet making a total opening in the ore to a depth in the vein of something over 400 feet. The vein pitches thirty feet in 100 to the West. The shaft, is, unfortunately just over the outcropping of the vein, so that every hundred feet of sinking will necessitate

REPORT ON THE WICKS MINE

about thirty feet of additional crosscutting, in order to reach the vein. Levels have been run in the vein from 88 foot depth; 200 feet and 300 feet.

I hand you herewith a map of the underground workings which shows the values as I found them in the mine, but in considering this map it is necessary to take into account the fact that all of the stopes seem to be filled with milling ore, apparently screened through about a four inch screen and have an average width of between 3 to $3\frac{1}{2}$ feet. This milling ore is dyke matter which was mineralized from the main vein and which carries an average grade in my tests of \$13.30 a ton the total tonnage amounting to 6,000 tons. I took my samples of this milling ore by removing the laggin, letting down about half a ton from each mill hole, then screening through an inch mesh screen and have gotten average values from the fine dirt obtained. I carefully cut down about six tons of this fine milling dirt and arrived at a fifty pounds sample all of which was crushed and the assay made from the pulp. In estimating the values in the mine, I allowed 2970 tons of this milling dirt at \$13.30 per ton. Including this milling dirt I found a total tonnage in the mine of 6881 tons, of the average value of \$27.45 per ton, giving a total gross value of the ore in sight of \$164,809.00

I have discarded a number of quite extensive blocks of ground that are opened up and can be mined at a reasonable cost, but which do not show sufficiently high values to warrant mining, though the superintendent of the mine seems to feel that a large portion of this ground could be worked to a profit. A further value of the shipping ore, exclusive of the milling dirt, is \$29.22 per ton.

By building a suitable plant for the handling of the Wicks ores, I believe it will be possible to treat the product of the

REPORT ON THE WICKS MINE

mine at a cost of not to exceed \$8.00 per ton, and this cost may be somewhat decreased by the erection of a plant capable of handling 100 tons per day. The company handling forty tons per day from the Wicks Mine and 60 tons per day of custom ores, of which there seems to be plenty in the district to warrant the construction of such a plant and if those results can be obtained on treatment there are, according to my estimates, \$109,761.00 of net profits in sight. I believe that with an active management, development can be kept sufficiently ahead to warrant a uniform production of at least thirty and probably forty tons per day from the mine.

The Company have furnished me with smelter returns on 684 tons of ore, which give gross values of \$34,400. the gold values alone show \$36.20 on all ores treated and it is more than likely that my samples will show values considerably below the actual shipping results that can be obtained. I append herewith a copy of the smelter returns furnished me, showing values in gold and total results.

I wish to make reference to statement made to me by the Superintendent of the mine in regard to previous operations in the property and would state that the discrepancy in the number of tons actually worked out from the mine, over this 640 tons for which we have the smelter returns, includes a large amount of ore which was shipped to local mills and the results from which I have no statistics.

"Taken altogether we have worked out 45,278 surface feet of ore matter in the Wicks Mine, which ground has produced 2,000 tons of ore. In estimating the ore still remaining in the mine, I have accepted and considered this the best data in which to base my estimate. However, on one or two occasions I have varied my estimate a little, as the particular ground under consideration seemed to justify. Figuring on the above data you will find that (4'

REPORT ON THE WICKS MINE

the ore streak to have averaged $7 \frac{1}{3}$ inches in width."

On the first level there is yet remaining 25,015 sq. ft. on ground unworked, as shown by map. However, I do not believe on the first level the average would hardly come up to $7 \frac{1}{3}$ inches, and, to be safe on that, I figure the vein width to be six inches, which, would give us 893 tons of ore, but to be still further conservative I estimate the first level to contain 800 tons of ore."

"On the second level there is 64,210 sq. ft. of unworked ground. Figuring width of vein on that level to average $7 \frac{1}{3}$ inches and estimating a ton of ore to be composed of fourteen cubic feet, would have 2,513 tons of ore, but from personal knowledge of the ground worked and that remaining unworked, I am quite sure that the vein average there will be considerably over $7 \frac{1}{3}$ inches, and in my report I estimate the ore reserve on that level to be 2,760 tons.

"In figuring the third level on the statement made to you, while here, I included the ground that has been opened up since my report has been made. Figuring on $7 \frac{1}{3}$ inches width there, we would have an ore reserve of 1,788 $\frac{1}{2}$ tons. However, I made no allowance for the stopes that have been recently started and from which the forty or fifty tons of ore, which you saw on the dump of the south of ore bin, was taken. That is I did not deduct anything for measurements for sypos just started, as that ore has simply been removed from the 3rd level to the surface, I included it in my estimate of the ore reserve on the 3rd level".

"As there are no drifts at the bottom of the 4th level it is pretty hard to estimate the ore there accurately, but as the ore streak through the entire winze from the 3rd level to the bottom, will average wider than elsewhere in the mine and the further fact that will contain more or less sulphide ores, and in consequence

REPORT ON THE WICKS MINE

required a less number of cubic feet to make a ton, it seems perfectly safe to estimate the ore reserve at about 2080 tons."

I feel that Mr. Williams has somewhat overestimated the amount of tonnage in sight as he has based his estimates on the same results being obtained in quantity throughout the workings of the mine where I have discarded large blocks of ground that did not show from my samples, an opportunity to mine at a profit, but which, with a little prospecting might enable the production of a large amount of good ore. I have a report from L. W. Getchell, on the Wicks Mine, and quote from it as follows:

"Refer to L. W. Getchell's report and letter from W. W. Williams."

Within a few days, I will be able to furnish you with a full analysis of all my samples which will give you a basis on which to figure out the proper plant for treatment. I have a design for a plant drawn by the Superintendent, Mr. Williams, which may be of service in case the ore can be concentrated and the trailings treated by cyanide. If it is deemed advisable to smelt the ore from the Wicks mine, I wish to state that it will be necessary to buy sufficient iron ore to make a neutral ore, and with this idea in mind, I made some investigations of ore deposits of other mines in the district and find that the iron ores would be readily furnished to a smelter having sufficient excess of iron to offset the excess of silica in the Wicks Mine. As these iron ore carry more or less gold it is probable that they could be obtained practically for the gold and would make a material difference in the cost of the Wicks ore.

I wish to call your attention to the exceptionally fine assays obtained from the open cuts of the vein at the extreme south

REPORT ON THE WICKS MINE

of the property, fully 1800 feet south from the main working shaft. I find that a block of ground has been lost some years ago and a tunnel run into the hill for a distance of about 250 feet. I sampled the vein, which was clearly defined throughout the entire workings and obtained as a result, 1.05 ounces of gold; 2.10 ounces of silver and 1% copper of the value of \$33.50.

In my opinion operations could be commenced at once in this tunnel and a probable profitable product could be realized upon within thirty days after active developments at the point started. From the extreme southernly points where a small prospect shaft has been sunk I took a careful sample which shows 1.07 ozs. in gold, 3.30 in silver, and \$35.50 gross values.

At a point 30 feet above the deepest workings, i.e. 65 feet below the third level, in a winze, a considerable flow of water encountered and below this apparent water level the ore seemed to become more distinctly Sulphide in character and seems more likely to carry higher values in copper with deeper development.

I can see no reason why the vein cannot be worked throughout the entire 3300 feet to as great a depth as mining can be maintained at a profit, and I anticipate that the total value of the ore are more than likely to increase, with the possibilities of a wider vein.

The ore deposit, as opened in the present workings is entirely in the foot-wall of the dyke and in two places crosscuts have been made by hanging wall of the dyke and disclosures an exactly similar ore body, though, where opened it was too small to be considered available for practical mining.

(Signed) Fred L. Ballard

REPORT ON THE WICKS MINE

POUNDS	OUNCES GOLD	VALUE OF SHIPMENT
41,271	3.1	\$1,197.71
42,835	4.	1,641.10
20,422	3.6	606.91
2,204	1.08	44.39
39,848	3.68	1,420.00
36,972	4.025	1,432.71
38,140	3.1	1,128.64
39,972	4.19	1,603.82
38,060	2.66	986.65
40,145	2.36	1,303.00
58,025	3.15	1,760.75
55,120	1.91	1,082.29
32,000	1.70	530.23
35,112	2.71	909.92
38,490	2.77	1,023.00
25,412	2.2	545.37
9,849	2.63	47.12
26,512	1.62	425.49
2,400	1.78	46.78
25,800	2.18	537.74
13,542	1.7	229.49
16,538	3.5	552.54
4,883	1.74	89.37
15,014	1.4	204.11
23,080	1.5	332.68
15,324	2.57	375.79
25,618	2.16	529.76
28,732	.97	268.58
7,015	3.6	195.61
10,441	3.28	282.21
31,197	1.45	223.39
13,880	4.97	555.95
21,783	1.90	251.59
5,904	1.61	95.34
28,814	2.58	438.22
36,054	2.66	664.22
50,052	2.95	1,108.90
31,322	2.25	472.80
41,804	3.60	1,188.07
33,214	1.95	392.59
39,622	2.80	821.36
35,078	3.70	1,029.36
38,950	1.90	857.00
15,280	2.	284.25
58,025	3.12	1,744.22
42,835	3.82	1,567.30
42,835	3.82	1,567.30
41,270	2.945	1,171.77
1,369,881	(124.080)	\$34,401.15

This shows an average value of shipping ore of \$50.29 per ton.

" 2.86 ozs Au.

Value \$100 per T of
352 gold.

REPORT ON THE WICKS MINE

J. L. Tucker

TUCKER, BALLARD & CO.
BROKERS
109 Pikes Peak Avenue

Colorado Springs, Colorado.

Sept. 15, 1900

Mr. L. W. Dennis,
Marquette Bldg.,
Chicago, Ill.

Dear Sir:-

Replying to your esteemed favor of the 12th inst. I beg to advise you that, in order you may know fully the conditions under which I examined the Wicks property and may understand my further statements I will give you the history of the matter from beginning to end.

We have been largely interested in Cripple Creek affairs since '91. We represent a very large clientage and handled for our clients last year over six million dollars worth of Cripple Creek stocks and property investments. The report which I made of the Wicks mine was made for the benefit of my partners. If you have followed the history of Cripple Creek you will know that a little over a year ago Mr. Stratton sold the Stratton Independence mine for ten million dollars plus 50% of the mine's earnings of the first year, which netted him over eleven millions for the property. Mr. Stratton immediately came into the field and began buying Cripple Creek properties with the result that prices advanced materially and while we were anxious to secure a good mining property in the Cripple Creek District it seemed for a long time almost impossible to find anything worthy of our attention at a price warranted by the conditions of the mine. To illustrate more clearly to you we would state that prospect property, without a

REPORT ON THE WICKS MINE

pound of ore in sight has been selling, since Mr. Stratton began his heavy purchases, at from five to fifteen thousand dollars per acre. Our clients have been fortunate in their investments in Cripple Creek property and consequently it is much easier for us to handle a Cripple Creek mine than any outside property. A number of our clients requested us to look them up a good mining property last spring and with this end in view we spent some five or six thousand dollars in the examination of properties outside of the Cripple Creek District, as well as on a large number of properties in Cripple Creek, which we refused. We found, however, a property in Cripple Creek, last June, that we began negotiations for, that suited our parties admirably and it was only three weeks ago that we succeeded in getting the property under contract. We made the purchase and promoted the entire capitalization of two million shares of stock at $12\frac{1}{2}\%$ per share in three days after our first payment was made. We recite this to show you how easy it is for us to place a Cripple Creek property. It would require a system of education to bring our people to the full understanding of the possibilities of profit outside of Cripple Creek, or at least to overcome their preference for Cripple Creek mines. Before we succeeded in getting the Gold Dollar mine tied up (this is the property which we last promoted), I was led, through the influence of a friend, to investigate the Wicks mine, and while I am not a professional man I have had considerable mining experience and make the examinations upon which I base my own investments and the investments of our firm. Were it not for the fact that we are now negotiating for a million dollar property in Cripple Creek, I should take the Wicks mine up with my partners and probably purchase it, but we are handling daily a large amount of Cripple Creek

REPORT ON THE WICKS MINE

securities for our customers, they know the field and have confidence in it and also in our acquaintance with the camp and it is so much easier for us to handle properties in Cripple Creek than elsewhere that we cannot afford to take up outside properties so long as we can obtain properties satisfactory to us in the District. The time is not far distant when it will be impossible to find anything in Cripple Creek for what it is worth and our fields here must necessarily broaden. A few promotions of outside properties have already been made on our local market and one or two are fairly successful, but as the opportunity to deal in Cripple Creek narrows down you can readily see that our local capital will seek investments in other fields. With all these things in mind you can appreciate, that while we are willing to make the purchase eventually of the Wicks property, we would rather wait until the tide turns to outside property as our market is entirely with our old clients who have been successful in our local securities.

Mr. Mallette was at Hillsboro when I examined the Wicks property and while I told him that later on I would like to take up the Wicks with a view to purchasing it, he stated that he did not feel he could hold the matter open for us and asked me as a favor to furnish him a copy of the report which I made to my partners on the property. I have nothing confidential to state in regard to the property and nothing whatever to secrete as it is a very easily examined proposition and my statements can be verified with very little trouble.

I have never in my mining experience seen a stronger or more clearly defined vein extending through so great a distance as can be found in the Wicks property. While the vein is opened up throughout fully half of the distance, it is easy to follow it

the entire 3300 feet within the company's lines and for nearly every foot of the distance. It is exposed on the surface. I do not believe that there can exist a doubt in the minds of any mining man of the vein holding in size and value to as great a depth as mining is feasible although it is more or less likely that water will be encountered in the next two or three hundred feet of sinking. The nature of the country precludes any idea of a flow existing that cannot be easily handled at a very small cost. If a permanent large flow of water should be encountered it would be of great value for milling purposes. While the pay streak is not large a considerable portion of the dyke along which the pay streak is found is strongly mineralized and I look for more money to be made from the milling ores taken from the dyke matter immediately continuous to the main fissure than will be realized from the operations on the high grade ores. It is quite remarkable that in getting assays from the main workings of the property, something over 1000 feet I found a tunnel extending 250 feet into the hill upon the vein with the ore bodies. The report which I made of the values in sight is based entirely upon the developments in the main workings which include less than one-third of the distance along the vein within the Wicks end lines and I see no reason why the property cannot be worked for the entire distance of 3300 feet. I do not believe that the values will be uniform, but I anticipate that there will be found a succession of ore chutes throughout the entire length of the vein within the Wicks lines ranging in length from 150 to 500 feet and holding their pitch to the depth above suggested, (as deep as mining is feasible) with greatly increased values as depth is attained. It is my candid opinion that with earnest and vigorous operations, within the next ten years at least a

REPORT ON THE WICKS MINE

million dollars can be taken out of this vein within the Wicks lines above the depth of 1,000 feet. In order to handle these values to the best advantage it will be absolutely necessary to erect some kind of reduction works and my investigations have led me to the opinion that the best method of treating Wicks ores is by means of a matte smelter. I believe that the mine can be handled for \$8. per ton, and possible less and a smelting plant can be built at a small cost as there are plenty of ores to be obtained in the immediate vicinity to enable its profitable operation.

I will be glad to give you any further information you may desire and I believe that my statement of the conditions is far too conservative. If you have had an examination of the property I think you will find that any competent expert will report considerable more ore in sight than I have stated in my report, which as I have said was made, not to sell the mine, but for my partners in business.

My reason for being willing to assist Mr. Mallette in the reasonable disposal of his property is that in my short acquaintance with him I found him to be a very worthy and estimable gentleman, and as he is not prepared to equip the property with the necessary smelting plant, I would like to see it drift into the hands of someone who can make the most of it.

In answer to your question, "In your estimation, what is this mine worth as an investment with a view to further development?" I will simply state, that my above statements should be sufficient answer. I think the property can easily be made to return from five to eight thousand dollars per month net profits and these results can be maintained for years to come.

Very truly yours,

B-0

(Signed) F. L. Ballard

P A R T VIII
SECOND REPORT

by

JOHN A. KRUSE

January 13, 1900

PART VIII.
KRUSE - 1900.

MR. JOHN A. KRUSE, E. M.

Mr. Kruse was employed in a consulting capacity, for many years, by Chas. T. Yerkes, of London. His office was in the offices occupied by Dewar and Yerkes in Chicago, Illinois.

Under his general jurisdiction came all mining interests in the North American continent in which Mr. Yerkes and his associates were interested.

Mr. Kruse was a close personal friend of the late John D. Ryan who, in 1902, told the writer that anything endorsed by Mr. Kruse could be completely depended upon.

REPORT ON THE WICKS MINE

SECOND REPORT BY MR. JOHN A. KRUSE

Chicago, January 13, 1900

Messrs. Eggleston & Mallette,

Chicago.

Gentlemen:

I recently returned from a trip to Hillsboro, New Mexico, during which I made a thorough and further examination of your Wicks mine. After such examination I am more than ever convinced of the accuracy of my former report on the same.

Since that report was made, a large amount of work has been done, both in drifting and sinking, and every foot of it verifies the predictions I made as to the property in such former report.

I found installed on the property a first-class gasoline hoist plant, which is being operated at a very low cost, and which has sufficient capacity to enable you to sink to a depth of 800 feet. The main shaft had been sunk to about sixteen feet, as near as I could judge, below the bottom of the third level the sixteen feet being used as a sump. At the end of the cross cut and directly across from the main shaft a winze has been sunk on the vein to a depth of ninety-six feet. This winze disclosed what I have always said to you--that the vein or rather pay streak would grow stronger and better as depth was obtained. It shows a larger body of ore at the bottom than at any point above there, and indicated to a certainty that your ore will extend to a great depth.

The ore is very high grade, but is best in that it is almost all sulphurets, but the percentage of copper has very materially increased. The gold values remaining about the same.

There is no doubt in my mind but what you will find the same quality of ore, with perhaps an increase in the copper

REPORT ON THE WICKS MINE

continuing, as well as an increase in the quantity of mineral in the vein, to a great depth. In fact, I was more than ever convinced that you safely figure on the ore continuing downward to as great a depth as would be practicable to work.

The south drift on the third level was being driven, and was in a body of ore that from panning tests I should say would run not less than \$100.00 per ton. The surface tunnel to the South on the Smuggler vein was also showing up a splendid body of first class high grade ore. The gold in both of these ore bodies being practically free.

I think this portion, that is, the south portion of the mine, indicates that the ore lies in continuous shoots, that is the richer ore, because in no place in the present openings is the vein barren. It all carries values. But in speaking of ore, I refer to that which will pay a profit through shipping, as per present methods.

No work was being done in the north drifts on any level, nor anything in the south drift on the second level. I would not advise much further work on these levels until the shaft has been straightened out in the following manner:

An up-rise should be started from the third level on the vein and continued until it would cut the shaft, which would be a short distance from the surface. This would enable you to take out your ore in a much more expeditious and economical manner than with the present shaft.

I find a large body of high grade, perfectly free ore remaining in the north drift on the second level, and I am firmly convinced that the ore bodies now disclosed contain a greater value than that fixed in my former report, notwithstanding the

REPORT ON THE WICKS MINE

conclusions of Mr. Getchell.

I am more than ever convinced that you have a good mine in the Wicks, and do not hesitate to state that with ordinary and careful management the ground above the third level should and will yield a profit on the ore to be extracted therefrom much greater in amount than the value you now place upon the property.

I should not for an instant hesitate to arrange for the continued working of this mine to a depth of at least 1,000 feet, nor would I feel my hesitation in opening up the vein in length to the extreme north and south lines of the property. I feel quite certain that you will disclose good bodies of ore (free gold) in both directions.

I would advise that you do not further sinking until the shaft has been straightened out, and put in the vein as per plan outlined above, then I would sink the shaft, which would be a continuation of the present winze (the winze being the full size of a good working shaft) to a depth of 460 feet, that is 65 feet deeper, and at 150 feet or 55 feet below the present bottom of winze, I would open up the fourth level.

I think you will find mining much more economical if you make your levels hereafter not less than 150 feet apart.

I went through and over the property very carefully this time, and am convinced, that the conclusions arrived at as given above, are absolutely correct. You ought to, if you begin to mine, be able to produce a net profit of upwards of \$5,000.00 per month from the shipping ore alone, and then you will have a very large quantity of second-class ore on hand and on the dumps, and in the mine, all of which ore will not doubt produce a good profit per

REPORT ON THE WICKS MINE

ton whenever a proper plant for its reduction is installed on the property.

Yours respectfully,

(Signed)--John A. Kruse.

The sulphide ores, termed by Mr. Kruse, "Shipping ores", contain from 5% to 15% of copper as shown by the assays in Mr. Getchell's report and confirmed by shipments made to the smelters. They also contain an excess of iron and are admirable adapted for treatment by matte smelting. The erection of a plant for this process in Hillsboro would control the output of the other mines of the district and add largely to the profit of the Wicks Company.

P A R T IX

REPORT

by

COL. L. W. GETCHELL

May 8, 1899

PART IX
GETCHELL. 1899

COL. L. W. GETCHELL

Col. Getchell served as mine superintendent and mining expert on the Comstock Lode at Virginia City during the days of its greatest activity. He subsequently became the mining expert for Senator Jones of Nevada, and later, for James R. Keene.

He was the father of the present Senator Noble Getchell of Nevada.

REPORT ON THE WICKS MINE

REPORT BY MR. L. W. GETCHELL:

New York City, May 8th, 1899.

Messrs. Eggleston & Mallette,

Dear Sirs:

In submitting my report on Wicks Mine at Hillsboro, N. M., it is not my intention to go into the formation and character of the ore, nor to make any extended remarks on width of the vein in upper workings, these points being fully covered by the reports of Mr. J. A. Kruse, M. E. It is sufficient for me to say that I fully examined the mine and concur with his statement.

My object in visiting the mine was to satisfy myself as to the correctness of the examination of the above named gentleman, and particularly to verify the statements of Supt. W. W. Williams, whose letter I quote below:

Hillsboro, N. M., Nov. 1, 1898.

Mr. James P. Mallette,

Chicago, Illinois

Dear Sir:

In answer to yours of October 26th, containing several questions about the mine in regard to ore bodies, values thereof, etc., cost of mining and milling, what the profits would be, and about how soon you could expect profits after the reection of suitable machinery, etc., I will answer by going over the entire matter in detail, beginning first with the 100 ft. level.

You no doubt remember that a portion of the 100 ft. level had been worked under our contract and bond, and that while there may be some ore yet remaining in that portion, we have never taken it into consideration, and I will not do so now.

In the remaining portion of the ground as developed by our 100 ft. level, there is approximately 800 tons of ore which will yield at least \$25.00 per ton, or a gross value of \$20,000.

On the second level, I estimate there is 2,750 tons of ore which will average about \$30.00 per ton, giving a gross value of ore actually opened up by the second level of \$82,500.00

On the third level there is 1550 tons of ore actually developed, which I will estimate at \$35.00 per ton, giving a gross

REPORT ON WICKS MINE

value of \$54,250.00 or a total gross value of ore actually opened up by the first, second, and third levels, of \$156,750.00 and I have estimated very conservatively. I believe that in each of these estimates, the actual yield of the ore by working, will be considerably above my estimate herein.

Now, in addition to the ore developed on these levels, we also have a shaft which is now down 95 feet below the third level sunk on the vein, which showed a continuous body of ore all the way down, and also shows that the ore continues as depth is obtained and is found in much more desirable condition. As there are no drifts or tunnels at the bottom of this shaft, as yet, it is impossible to estimate the actual value of the ore developed by the last shaft, but, owing to the continuousness and permanency shown on the third level and also in this 95 foot shaft, I feel sure that it is absolutely safe to assume that the ore will extend each way from the shaft equally as far as it does in the tunnels on the third level, which are about 460 feet in length. That being true, it seems perfectly safe to figure on 2080 tons of ore on the fourth level, and owing to the increased richness of ore along the bottom of the third level and also of the ore taken from the 95 foot shaft, and which is now on the dump of the mine to be seen, it seems safe to assume that that ore will run at least \$40.00 per ton. We can therefore safely figure on the fourth level producing a gross value of \$83,200.00 bringing the total gross value up to \$289,950.00

Now the cost of mining and milling the ore from the first, second, and third levels, and the cost of developing, mining and milling the ore on the fourth level, should not exceed the following figures.

First level: Cost of mining and milling 800 tons should not exceed \$8.00 per ton, leaving a net profit of \$13,000. The cost of mining and milling ore on the second level should not exceed \$9.00, in which case the profit from ore now actually developed in the second level should be \$57,750.00. The cost of mining and milling the ore now actually developed in the third level should not exceed \$9.50 per ton, leaving a net profit from the ore already developed by the third level of \$39,325.00, or a total net profit from ore now actually developed, of \$110,875.00.

Now the cost of driving the drifts for developing the fourth level a distance of 460 feet, as included in this estimate, and mining and milling the ore therefrom, should not exceed at the outside \$15.50 per ton, which would leave a net profit of \$25.00 or a total net profit of \$162,875.00

In these estimates remember that I have only dealt with what actually seems to be in sight. Nor have I included the 250 or 300 tons of what we call the second class ore, which we now have on the dump, and from which the shipping ore was assorted. This ore should run from \$15.00 to \$20.00 per ton. Nor have I included the 20 to 25 tons of first class ore in the ore bins at the mine, mostly taken from the shaft between the third and fourth levels, which will yield in the neighborhood of \$60.00 per ton.

It will be plain to anyone who will go over the surface of the mine and note the outcrop, especially of the 1,500 feet of

REPORT ON THE WICKS MINE

ground north of the main working shaft, and then follow the vein down to the fourth level in the shaft, that the vein will be continuous for the entire distance of 1,500 feet north, and certainly much deeper than the present fourth level; and remember we have a distance of nearly 2000 feet south of the main working shaft, which, while on the drifts show continuous bodies of ore, is not so apparent on the surface, but might prove the more valuable on development; but a person cannot pass over the entire surface of the mine and then go down the shaft to the fourth level without feeling assured that the ore actually opened up and included in this estimate is only a very small fraction of the ore to be obtained in the Wicks Mine.

In addition to the ores that I have estimated in this letter remaining in the old stope, there is between 2,000 and 3,000 tons of gouge and refuse matter, which is practically mined already, to be hoisted out and treated. This ore will probably yield from \$3.00 to \$5.00. The ore struck now in the bottom of the fourth level seems to insure the permanency of the mine.

Yours truly,
(Signed) W. W. Williams.

I fully satisfied myself as to the quantity of ore estimated in 1, 2, and 3 levels, and consider Mr. Williams' statement very fair ones; my belief is that it will prove that these estimates are under rather than over, the amount of ore in sight. As to the value of the ore, I have figured an average from the ore shipped to the smelters and paid for by them, and find that this ore gave returns of an average value in gold of \$52.00. This was from sorted ore.

I also took a number of samples from the vein from various points in the estimated ground, which assays at:

#1 South on 2nd level,	\$10.39	Gold	.33¢	Silver
#2 North " " "	\$19.64	"	24¢	"
#4 3rd level,	\$40.10	"	36¢	"

In regard to the ore developed by the shaft sunk 95 feet below the third level, I found that the vein increases in width with depth, and also that the ore is in an unoxidized or sulphurated condition. It also shows a change in character, copper appearing in same. Of two samples, which I took, one from the bottom of the shaft, and one a chip sample of a lump, the full width of the vein, I got the following results:

#1 Sample from bottom,	\$43.61	Gold,	\$3.41	Silver
copper	4.35%	at 15¢	\$13.00	total \$60.02

REPORT ON THE WICKS MINE

#2 Chip sample,	\$41.13 Gold,	\$4.70 Silver
Copper	7.01% at 15¢	\$21.00 total \$66.83

Now as I accept the assays of these samples as more correct basis for estimating values than the estimates assumed by Mr. Williams, I find that his figures for the second level are too high. His estimate of the average value per ton was \$30.00 and my assay show an average value of \$15.00. My average I believe is too small. I was very severe in my sampling, and I looked to see my returns be at least a little under the average.

My opinion is that this ore will actually work at a value of from \$15.00 to \$25.00 per ton. But to be perfectly safe I propose to figure the ore at the figures shown by the assays.

The third level Mr. Williams estimates the ore will run at \$35.00 per ton; my sample shows \$40.66, which I believe will be nearer what the actual returns will show.

For the fourth level, which is represented by the ground opened by the shaft sunk 95 feet, on the vein, my assay taken at the bottom of this shaft, shows \$60.00 value which Mr. Williams estimates at \$40.00 per ton, not taking into account copper values.

It will, of course, be necessary to provide a way to save the copper in the ore, which runs from three to seven per cent, and which I look to see get stronger with depth. This metal (i.e. the copper) ought, and I have no doubt, will pay all expenses of mining and milling for ore on this and lower levels, leaving the gold and silver as profit.

Now figuring Mr. Williams estimates at my new figures, and accepting his estimates for tons, we find the following values for ore practically in sight:

REPORT ON THE WICKS MINE

1st level,	800 Tons at \$25.	-----	\$20,000.00
2nd level,	2750 tons at 15.	-----	41,250.00
3rd level,	1550 Tons at 40.	-----	62,000.00
4th level,	2080 Tons at 60.	-----	120,480.00
			<u>\$243,730.00</u>

Less cost of mining and milling
as per Mr. Williams' estimates,----- 78,115.00
\$165,615.00

Leaving a net profit which should be realized
on ore, of,-----\$165,615.00

It will be noticed that comparing my figures with Mr. Williams' that he and I disagree only in regard to the values on second and fourth levels. As I before stated, I consider that actual returns will show a value of about \$60,000.00 on second level. And as to the fourth level, Mr. Williams does not figure the values of copper in the ore, which will run from \$10.00 to \$20.00 per ton.

It will also be noticed that I do not figure the extra cost of treating the copper, my total figures were so far inside that I do not think my deduction is necessary.

I also do not figure any value on ore in bins, nor on vein matter, from which an assay I know, contains gold, which will show a working profit.

As to the future of the mine, I believe that properly worked, and with a mill to handle the ore, this mine will be a dividend payer for years to come, and I look to see it increase in value with further developments.

Yours truly,

(Signed) L. W. Getchell, M. E.

P A R T X
ORIGINAL REPORT
by
JOHN A. KRUSE
March 20, 1896

PART X
KRUSE - 1896

REPORT ON THE WICKS MINE

Chicago, March 20, 1896.

Messrs. Eggleston & Mallette,
Chicago.

Dear Sirs:-

I herewith submit my views and opinion on the WICKS MINING CO'S property at Hillsboro, N. M., the same being based in part on the several personal examinations made by me at your request last year; in part on the report of Mr. John B. Farrish, made to you August 3rd, last, and in part on the weekly reports of the Superintendent, Mr. Williams, covering the period since August 3rd up to date.

This property and its location, extent and title, as also the geological formation, character and value of the ore, are very well and fully described in the report of Mr. Farrish above referred to, and is also the development up to that date, and in the main I fully agree with him in that report.

It is true, as I told you, that when I was there the last of June, 1895, the average width of the pay streak was upwards of six inches, and the average value of little more than he found it.

Large quantities of gold have been taken from the Placer diggings along Wicks Gulch (which have been worked for years.)

Owing to the topography of the country, and the fact that in the district drained into that Gulch the Wicks vein is the only one outcropping, it is safe to assume that almost the entire amount of such gold must have come from your vein. This fact leads me to believe that my average was not too high.

I made the average of all ore, smelting and milling, on the second level, about SIXTY-SEVEN DOLLARS (\$67.00) per ton, but after you received this report, I accepted the figures therein

REPORT ON THE WICKS MINE

contained as to average width and value, and all of my estimates since that time have been based on those figures.

I did not, however, at the time, concur in his estimate of the ore reserves. As I told you, the development work on the first level, together with the surface pits, would warrant figuring on a greater length of vein than 275 feet (the amount allowed).

The actual length of the drifts on that level at this date was 235 feet, so that he figured only 20 feet beyond the face of the drifts.

I figured on 500 feet, and told you then that a greater distance should be figured. Mr. Farrish also figured but 70 feet above the second level, and 50 feet below. Basing his estimate on these figures, he found that the ore reserves amounted to 800 tons of the average value of \$56.50 per ton, or a total gross value of ore reserves, of \$44,200.00. My estimate of the ore reserves at that date were considerably higher than this. The subsequent development work on the property has clearly shown that the estimates of both were much too conservative. In accordance with the suggestion made in said report, all stoping or mining of ore was discontinued, and the development work was vigorously prosecuted, extending the drifts on the 200 ft. level to points 535 feet North and 420 South, respectively, and sinking the shaft another lift or level of 100 feet vertical, which would be upwards of 110 feet on the dip of the vein.

This now gives you a length of vein on the second or 200 foot level of 955 feet actually opened up, and in ore all the way.

For about 200 feet of this distance, the ore is narrow and of low grade. The uprise from the second to the first level

REPORT ON THE WICKS MINE

shows a height of ore of 85 feet above the level, instead of 70 feet as estimated, and as the vein is now opened up on the third level by drifts North and South for a distance of over 100 feet and all in ore, and as the vein has been proven to be stronger, wider and richer at this point than on the second level, you can safely figure that you have in sight the following blocks of ore: First between 1st and 2nd level, south of shaft, 85' x 400' by 5 $\frac{1}{2}$ ". Second, between 1st and 2nd level, south of shaft, 85' x 300' by 5 $\frac{1}{2}$ ". Third, between 2nd and 3rd levels, North, 400' x 110'. Fourth, between 2nd and 3rd levels South, 300' x 110' or a total of 136,500 sq. ft. of vein, which less the ground stoped (about 6500 sq. ft.) leaves 130,000 square feet of ore actually in sight. This would be 4080 tons, which, at \$56.50 per ton, amounts to \$230,520. But, in figuring the ore reserves, we should allow for a certain distance on the vein beyond the face or breast of the drifts, say 100 feet each way, making a total length of 1155 feet, and inasmuch as the vein is so much stronger and richer on the third level than on the second, and as the character of the ore has not changed, that is, it is as free there as on the level above, it is safe to assume that it will extend 100 feet more in depth. (I feel satisfied that it will continue free for several hundred feet.) Therefore, in order to get at the ore reserve, we should add to the amount of ore in sight, another block of 200' x 295' or 59,000 sq. ft., 1870 tons, making a total of 5950 tons of ore reserves.

The work done on the third level so far shows that both the average value and thickness of the pay streak will be considerably greater than the average shown on the level above.

Mr. Farrish found from actual and careful measurements,

REPORT ON THE WICKS MINE

that the 5253 sq. ft. of vein actually stoped (and from which was shipped or milled 164-855/1000 tons of ore, \$8350.18, and he bases his estimates of the value of the reserve ore on these figures.)

Therefore, if we figure on the same basis without allowing anything for the increase innaverage value of thickness of ore body, as shown by the developments on the third level, we would have the total ore reserve or 5950 tons, which, at \$56.50 per ton, would give us a gross value of \$336,175.00.

The drifts on the ore on the second level nine feet high were run for \$2.50 per foot, and every two feet and 9 inches of drift yielded a ton of ore when the vein or ore streak was only 5½" wide--if it is a foot wide, a ton would be taken out of every 1 3/5 foot of drifting. Stoping, or regular mining, would be but a fraction of such cost; and so far as the question of cost relates to the ore in sight, there would be no development charge against it, as the development work is done, except the number of feet mentioned as estimated reserves.

I do not agree with Mr. Farrish as to the mine only being able to produce such a limited quantity as 100 tons of ore per month, or forty tons of milling ore. He shows in the report that 165 tons were mined from one stope during the thirty days preceding his examination. With three levels opened, six stopes could be worked at the same time, which, at that rate of production, would give you about 1000 tons per month, one quarter of which, or 250 tons, would be milling ore, according to his figures. This quantity could be increased as levels were opened up, and the work of the past six months, that is, since the report was made, shows that the development work has been sufficient for such a continuous

product.

My figures also show a much greater net profit per ton.

In the first place, according to Mr. Farrish's report, 3/4 of the ore is shipping or smelting ore, which average \$60.11 per ton, and the cost of shipping and smelting (according to Mr. Farrish's figures) would be \$18.07, to which should be added the cost of mining, which would not exceed \$10.00 per ton, including all charges, such as development work, Superintendence, etc., or a total of \$26.07 per ton, which, taken from \$60.11, leaves you a net profit of \$32.04 per ton. 3/4 of the ore reserve in the mine as per the foregoing estimates, would be 4463 tons, which, at \$32.04 per ton, would leave a net profit from the smelting ore alone of \$142,994.52.

In addition to this, there would be left at the mine, 1487 tons of milling ore, worth \$22.64 per ton, the latter ore should be mined and treated for not to exceed \$10.00 per ton, which would leave a net profit of \$12.65 per ton on the low grade ore, or \$18,795.68, making the total net value of the ore reserve, \$161,790.20.

And this total does not include a cent for the ore above the 100 foot level, which I think will average at least \$20.00 per ton.

With a proper and suitable mill for treating this low grade ore, the cost should be approximately as follows:

Fuel, Light, Oil, Repairs, Quicksilver, etc.,	
	per month, ----- \$60.00
Day Foreman, -----	120.00
Night Foreman, -----	120.00
2 Laborers, -----	150.00
Hauling 200 tons of ore per month at \$1.50, -----	300.00
	<u>\$750.00</u>

or \$3.75 per ton, and it should and can be done for that figure.

It is more than possible that someone of the Cyanide or

REPORT ON THE WICKS MINE.

Bromide, or Bromide, or combination processes, which are not being used so extensively and successfully and at such low cost in Cripple Creek, Colorado, and other points of the Western country, may be well adapted for the treatment of your ore.

This can only be determined by working test, but if such is the case, it would reduce the cost on the smelting as well as the milling ore to such a point that the total cost of mining and treating would be less than \$10.00 per ton, as it would effect a saving of all of the freight and a large share of the treatment charge, as well as all incidentals.

If there was a smelter at Hillsboro, it would save you not less than \$7.00 per ton over present cost.

You will note that in figuring amount of ore in sight, I did not allow anything for the 255 feet of vein matter which I deducted as low grade. As a matter of fact, this ore carries considerable gold, but is not rich enough to ship at present cost; but if one of the above named processes is adopted, all of this ore would be mined and worked at profit as well as that above the first level.

In conclusion, I beg leave to state that you have passed the prospective stage, and now have a well developed and good mine, the permanency of which is fully assured. As depth is attained, I look for it to grow larger and richer, and while the vein is fairly well prospected on the surface, over most of its 3500 feet of length within your lines, you have only systematically opened up less than $1/3$ of that distance.

There is no reason to believe that the remaining $2/3$ will not average as rich as that portion now open. In fact the strength and bold character of the outcrop for this entire distance, taken

REPORT ON THE WICKS MINE

in connection with the work done, almost assures us that the present average of both width and value of vein will be fully maintained throughout the entire length of 3500 feet, and I would, therefore, advise you to equip the property with a suitable and economical hoisting plant immediately, and to determine by shipment to some of the testing plants, the best and most practical process for reducing the ore, and when that is determined, to install such a plant at the mine.

You will then have an equipped property in shape to, and capable of, producing from twelve to fifteen thousand dollars net profit per month.

(Signed) John A. Kruse.

P A R T XI

REPORT

by

JOHN B. FARRISH

August 3, 1895

PART XI.
FARRISH-1895.

JOHN B. FARRISH, E. M.

Mr. Farrish was an eminent Consulting Engineer with offices in Denver, Colorado. For many years he was the American Representative and examining engineer for the House of Rothschild of London and Europe.

REPORT ON THE WICKS MINE

Denver, Col., Aug. 3, 1895.

MESSRS. EGGLESTON & MALLETT,
CHICAGO, ILL.

Dear Sirs:

The property known as the Wicks Mine is located about three (3) miles Northwest of Hillsboro, in Las Animas Mining District, Sierra County, New Mexico.

The nearest railroad station is Lake Valley, the terminus of a short spur from the main line of the Atchison, Topeka and Santa Fe Railroad. A good wagon road twenty-two (22) miles in length, over a rolling country, connects the mine with this point.

Hillsboro, the County seat, is located on Percha Creek, which furnishes a water supply sufficient for milling and smelting purposes at all seasons of the year. This is the only available water supply in the district and all ores not shipped away on the railroad must be transported to the Creek for local treatment.

EXTEND AND TITLES.

The property consists of three (3) mining locations. The most northerly, the COMPROMISE No. 3, is a full mining claim fifteen hundred (1,500) feet in length by 600 feet in width. United States Patent has been applied for and Receiver's receipt has been issued and recorded. The patent, if not delivered, must be ready by this time.

The nest claim adjoining the Compromise No. 3 is the ROSS. It is about eight hundred and sixty (860) feet in length by six hundred (600) feet in width, and is held by right of location only.

REPORT ON THE WICKS MINE

The SMUGGLER Claim adjoins the Ross on the South. It is over one thousand (1,000) feet in length and six hundred (600) feet in width. Like the Ross it is held by location.

Both the Ross and Smuggler should be patented and application should be made without delay.

In addition to the Lode Claim, Mr. Williams has taken an option on a placer claim, located at the foot of the hill about three hundred (300) yards East of the Compromise Shaft. It covers a good site for boarding and bunk houses and has a living spring of good water sufficient for domestic purposes. It should be asquired by the owners of the Wicks Mins.

FORMATION

The geology of the district is very simple. The entire country is covered by an eruptic rock, probably diorite, the thickness of which is not known, though it has been penetrated to a depth of over six hundred (600) feet. Through this, dikes, probably of andesite, have cut their way and accompanying them, sometimes on one side and sometimes on the other, are ore-bearing veins of greater or less size and value.

In the Wicks property, such a dike cuts through the length of the claims with a strike approximately North and South and a slight dip to the West. It varies in width from two (2) feet to as much as fourteen (14) and is easily traced beyond the limits of the claims. It is much decomposed and altered by the agencies that formed the vein and often stringers and seams of quartz make into it from the main pay-streak. In places they are sufficiently numerous to enrich the body of the dike, making ore of it. The pay ore, is however, generally confined to the narrow vein of quartz on the East or foot wall side of the dike. This

REPORT ON THE WICKS MINE

varies in width from a mere thread to as much, in places, as two (2) feet. It will average between five (5) and six (6) inches in the new workings.

ORE.

So far the developments in the mines have been in the oxidized zone near the surface, the deepest working having reached a depth of a little over two hundred (200) feet.

The ore so far developed is a porous quartz carrying iron oxides in varying quantities the result of the decomposition of pyrites, and gold. Much of the latter is "free", that is it can be saved by simple amalgamation, though a considerable percentage is "rusty" and cannot be recovered by this process.

Occasionally, in prosecuting the work, bunches of ore, showing iron pyrites, are encountered, indicating that in depth the ore in its original undecomposed state will be found carrying considerable of that mineral and probably losing its free character.

Owing, however, to the loose character of the vein, I do not look for any marked changes in the next one hundred (100) feet of sinking, while it is possible it may retain the present milling qualities for the next two hundred (200) or three hundred (300) feet in depth.

DEVELOPMENT.

A careful examination of the vein, throughout the length of the claims was made and all the openings upon it carefully mapped. These are shown on Exhibit "A" accompanying this report.

The openings made since the present management began operations are colored blue, those made previously are shown in yellow.

The old workings are now in such shape that it would take

REPORT ON THE WICKS MINE

some labor and expense to re-open them, even if the showing of ore were sufficient to justify it.

The new works are better planned, more systematic and will open the vein to a greater depth.

The Compromise Shaft is a perpendicular one, sunk in the footwall, East of the Vein, to a depth of two hundred and two (202) feet. It is an ideal mining shaft, four by eight (4x8) feet in clear, well timbered and in good shape.

Unfortunately, it is sunk in the foot-wall and as it goes deeper a longer crosscut through the country rock will be necessary in order to reach the vein.

At a depth of ninety-two (92) feet, a crosscut, West, sixteen (16) feet in length, intersects the vein level No. 1. This has been driven to the North to a connection with the Stopes near the bottom of the old main shaft, while to the South it reaches the surface. Ore from the lower level is hoisted to this one and run out in cars to the ore bins at its entrance.

At the bottom of the shaft, a depth of two hundred and two (202) feet, a crosscut to the West forty-eight (48) feet in length opens Level No. 2, which has been extended North on the vein one hundred and twenty-eight (128) feet, and South one hundred and five (105) feet. A stope with a maximum length of about one hundred and sixty (160) feet has been raised to a height of thirty-five (35) feet.

This brief description covers all the openings made under the present management.

Neither the old workings to the North on the Compromise No. 3 Claim, nor those to the South on the Smuggler Claim, have been further prosecuted, as the indications are such as to lead

REPORT ON THE WICKS MINE

one to conclude that the immediate value of the property rests upon that part of the vein near the old main shaft and the new Compromise Shaft.

VALUE OF ORE.

In the old workings there is nothing to show that the vein ever made any larger bodies of ore than the maximum width, two (2) feet given above. While there is every indication that the average extracted as pay ore did not exceed six (6) inches. There are not now remaining in these openings any ore that will pay to extract, nor is it reasonable to suppose there should be, for had the former owners left such standing, tributaries would doubtless have taken it out long since.

Some streaks of ore remaining in the opening near the bottom of the old Main Shaft were sampled, those South of the Shaft showing the greatest value. One streak averaging about five (5) inches in width, extending along the roof from the old Main Shaft to the connection with Level No. 1, showed a value of one and five hundredths (1.05) ounces gold equal to twenty-one dollars and seventy cents (\$21.70) per ton, while another bunch in the bottom of the small pillar below the last sample, yielded one and sixty hundredths (1.60) gold, or thirty-three dollars and seven cents (\$33.07) gold per ton.

The breast of Level No. 1 at its connection with the old workings shows several streaks of quartz running irregularly through the dike. Of these, those on the hanging wall and near the center yield richer ore than that on the foot wall. A sample from the former gave results of one and thirty-five hundredths (1.35) ounces of twenty-seven dollars and ninety cents (27.90) per ton.

From the Superintendent I received a statement of the

REPORT ON THE WICKS MINE

product of the last thirty (30) feet of drifting done in this level, which shows the following:

Ore milled 32,223 lbs. gross, product \$376.51 or 23.37 tons.

Ore shipped 21,788 lbs. " " \$399.83 or 41.73 "

This seems to indicate a greater width of ore than the present breast shows.

No other value is shown on this level, the vein being narrow, irregular and low grade. Some ore was taken out in driving it, about nineteen (19) tons of which was milled that yielded eight dollars and forty-six (8.46) cents per ton net. About five (5) tons of this same character still remains on the dump at the mine.

In the lower or No. 2 level, much better ore was encountered and it is from here that the shipments since June 20th, have been made. The crosscut reached the vein about the last of May and drifting both North and South was begun at once.

Stoping was begun on July 3rd, just one month previous to my examination. The extent of these openings at the date of my examination are shown in detail on exhibit "B".

The vein in level No. 2 is more regular than elsewhere and the pay quite continuous.

From the Superintendent I received the following statement of ores shipped to and paid for by the Smelters from this level, and stope:

June 20th, Lot No. 4,	13,515 lbs.	\$95.94 ton,	\$648.26 gross value.
July 1st, Lot No. 5,	36,054 lbs.	50.54 ton,	911.08 " "
July 11th, Lot No. 6,	24,814 lbs.	49.02 ton,	608.19 " "
July 18th, Lot No. 7,	39,622 lbs.	53.96 ton,	1,068.93 " "
July 22nd, Lot No. 8,	41,804 lbs.	69.34 ton,	1,447.34 " "

TOTAL 155,809 lbs. \$4,683.80 gross value.

The following lots had also been shipped the smelters

REPORT ON WICKS MINE

but had not yet been sampled and paid for. I have assumed that they are as rich as the average of the shipments above reported, though Mr. Williams assures me that they will prove as good as the last. It has also been necessary to estimate the weights of these lots from the number of full sacks of ore.

Aug. 1, Lot 9,	39.672 lbs.	\$60.11 ton	\$1,192.34 gross value.
Aug. 1, " 10,	<u>34,487 lbs.</u>	60.11 "	<u>1,048.47</u> " "

TOTAL	74,559 lbs.		\$2,240.81 gross value.
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There was also in the bins at the mine a quantity of ore awaiting shipment to the smelters and mill. The weight of this I carefully estimated, and assumed the value of the shipping ore to be the same as the above lots, and for the milling ore, as careful an estimate as could be obtained. The following is the estimate on the shipping ore:

16,063 lbs., \$60.11 per ton, \$482.77 gross value

And of the milling ore:

44,000 lbs.	\$25.00 per ton,	\$450.00 gross value.
39,280 lbs.	20.00 per ton	392.80 " "
<u>83,280 lbs.</u>		<u>\$942.80 gross value.</u>

From the above it will be seen that the total weight and value of the ore extracted from Level No. 2 and the stope connected with it was

164 855/100 tons, worth \$8,350.18,

of which 123 215/1000 tons, or about three quarters (3/4) was shipping ore worth \$60.11 per ton, and 41.64 tons, or about one quarter (1/4) was milling ore worth \$22.64 per ton. The average value per ton of both shipping and milling ore was \$56.50.

As stated above, the ore far exposed in the workings is in the oxidized zone, and consists of a porous quartz, at times carrying a considerable percentage of oxides of iron, the result

REPORT ON THE WICKS MINE

of the decomposition of pyrites. In a lower zone, below water level, the ore will be found in an unoxidized, or sulphurated condition, and will then probably have to be treated by smelting or combined concentration and smelting.

At present the ore is what is known as free gold and a certain percentage can be saved by amalgamation in the ordinary gold stamp mill in the shape of gold bullion, while an additional percentage can be saved by treating the tailings from the mill on any good slime concentrator.

The resulting concentrates will find a ready sale at any of the smelters.

As this report must be in your hands in time for you to decide on your course of action concerning the property by the 16th of the present month, there is no time to make tests to determine the exact percentage of the values that can be saved in this way. My impression from a large number of pannings is that sixty (60) to sixty-five (65) per cent could be saved as bullion, and about fifteen (15) percent as concentrates.

Should you decide to acquire and work the property, it should be determined accurately by tests on carload lots whether it will be cheaper to mill this ore and ship the concentration than to ship the crude ore to the smelters as is done at present.

ORE RESERVES.

There are no bodies of ore blocked out in the mine in such shape as to be accurately measured and sampled.

Level No. 1 shows no ore of a sufficient grade to pay, if we except the short distance near the breast, from which one shipment was made. It is therefore evident that the good ore now being stoped in Level No. 2 does not extend up to Level No. 1.

REPORT ON THE WICKS MINE

How far it will continue is uncertain, but it seems safe, owing to its strength and value in the roof of the stope, to assume that it will reach a height of seventy(70) feet above the second level. How far down it will go is equally uncertain.

Another level one hundred (100) feet below may and probably will open the ore as wide and rich as did Level No. 2, and probably it does not seem safe to figure on more than half this distance. Neither is there any evidence of how far this ore will extend North and South along Level No. 2. It seems certain, however, that the total length of two hundred and seventy-five (275) feet will not be found too great.

In order to mine the ore below Level No. 2, it will be necessary to sink one hundred (100) feet deeper and open another level. I think this can be best done by sinking the Compromise Shaft as the old Main Shaft is not near the present known ore body, besides, which it will be necessary to re-timber it throughout, equip with hoisting apparatus, and sink it two hundred (200) feet to the level, which can be reached in one hundred (100) feet through the Compromise Shaft.

In order to carry on any operations on the level, that will then be opened aside from drifting, it will be necessary to erect a steam hoisting engine and boiler, the operation of which will add considerable to the expense of conducting the enterprise.

(Signed) John B. Farrish.

P A R T XII

ADDENDA

Summary of Operations 1934-1936

Tabulated Data

Maps

PART XII.
ADDENDA.

WICKS MINE

Hillsboro, New Mexico

RESUME' OF SEMI-MONTHLY REPORTS

1934

On October 6, 1934, the Lessee, A. A. Luck, commenced operations on the Wicks property. During the first week equipment was brought in, the road was put in shape and 100 tons of material from the dump of the No. 4 shaft were hauled to the Sutter mill west of Hillsboro. On the 19th construction was started on the office and hoist buildings and the headframe at the shaft.

By December 6, the date of first inspection by the owner's representative, W. R. Callaway, the hoist house, office, tool house and head frame had been erected and the shaft re-timbered to a depth of 65 feet.

Work was concentrated on unwatering and re-timbering the shaft, and by the end of the year, December 31, this had proceeded to a depth of 105 feet. The shaft is an inclined one, dipping at an angle of 70° with the horizontal, and all measurements given showing progress in the shaft are inclined distances.

No ore was mined during 1934, but 100 tons of dump ore were milled, this being Lot. No. 1.

Respectfully submitted,

William R. Callaway

WICKS MINE

Hillsboro, New Mexico

SUMMARY

1934

STRUCTURES

- | | | |
|----------------|-----------|------------------------------------|
| 1. Hoist house | 18' x 24' | Frame and corrugated iron. |
| 2. Office | 12' x 14' | Frame and roofing paper. |
| 3. Tool House | 16' x 16' | Frame with tent top. |
| 4. Headframe | 25' high | 8" x 8" and 6" x 8" framed timber. |

EQUIPMENT

- 1- Sampson Hoist, style MT, No. 3441, Drum 14" diam. 16" width. powered by 20 H. P. Continental motor No. H9 3160. Hirsch Bros. assembly No. 3695
- 1- 3/4 ton cap. hoisting bucket.
- 1- length 350 ft. 5/8" wire hoisting rope.
- 1- Gardiner-Denver portable compressor, cap. 263 c.f. Buda motor. Motor No. 145550A, Mod. JV4 Compressor No. 5XJ20.

UNDERGROUND PROGRESS

No. 4 shaft retimbered 105 ft.

PRODUCTION

Ore Extraction

Tons mined none

Tons milled 100
(dump ore)

Value

Average NET VALUE* per ton \$5.62 \$562.00

Projected Stope Areas Mined none

SHIPMENTS

Lot No. 1, milled.

*By NET VALUE as used herein is meant ASSAY VALUE Less METAL DEDUCTIONS.
It is the same as TOTAL PAYMENT FOR METALS as made by the smelter.

Respectfully submitted

William R. Callaway

WICKS MINE

Hillsboro, New Mexico

RESUME OF SEMI-MONTHLY REPORTS

1935

From the 105 foot mark, the shaft work was advanced to the 120 foot point during the first part of January; but was discontinued at that point on January 11, because of the slow progress being made. The old No. 3 surface adit was reopened starting Jan. 14. This adit opened up the No. 3 vein, which lies some 40 feet west of the No. 4 shaft, and had been run to the north about 30 feet by earlier operators. Drifting was carried on here during the remainder of January and thru the month of February, and a narrow vein of ore was exposed for a length of 120 feet in the drift and an intersecting vein exposed in the first 8' of an 18' crosscut to the east, near the face of the drift. This No. 3 vein was from 1 to 2 inches in width for the greater length of the drift, but in one or two places widened to from 4 to 6 inches. From this drifting was recovered 2,860 wet tons of ore which were sorted into two grades of ore and designated as Lot No. 4, consisting of 1,450 tons wet with a NET VALUE of \$21.37, and Lot No. 5, of 1,410 wet tons of a NET VALUE of \$96.14. These were shipped to the ore buying plant of Hawley and Hawley, in Douglas, Arizona on February 21.

Lot No. 3 was one of No. 4 dump ore, shipped to Hawley and Hawley January 31, containing 2,742 wet tons, with a NET VALUE of \$5.77.

During February an old Mexican who had worked at the Wicks in the early days was put to work prospecting on the hill north of the No. 2 shaft, to find a vein that had not been opened up by the earlier work in that section. He located a lead some 500 feet north of the Ross-Compromise No. 3 end line and about 40 feet west of the old workings. 28 feet of open cut and 28 feet of underground drifting was done on this vein, which averaged about 10 inches in width, but as the ore assayed only .01 to .04 ounces in gold, work was discontinued after about two months time.

On March 1st, the No. 3 drift work was stopped, and the crew put to work in the No. 4 shaft again. A small boiler-feed pump was rented and put to work in the shaft, and the bailing method previously in use was abandoned.

During April another mill run was made at the Sutter on 15 tons of material from the No. 4 dump, as a test of the possibilities for quantity milling of this character of ore. The NET VALUE of the mill heads, \$3.95 per ton, was too low, and the milling performance too unsatisfactory to warrant further attempts in this direction. This lot of ore was designated as No. 2. Some work was done, during this month, in the old workings on the north end of the property, in an attempt to gain entrance into the old 100 foot level there. The junction of the level with the No. 1 shaft was reached, but here the workings were blocked by caving of the shaft from the surface. A hold was burrowed into this cave for 12 or 13 feet without getting thru it, and because of the danger of additional caving and the necessity for timbering and providing means of getting rid of the muck, the project was abandoned.

By May 15th the 300 level in the No. 4 shaft had been reached and station timbers set. The shaft work was then stopped while the old drifts were being cleaned out. By the end of the month the south drift had been cleaned out to the old face, 125 feet south of the shaft, and new timber and track had been put in a distance of 90 feet.

Stoping was started above this newly timbered section on June 9, and on the 19th the first ore from the reopened workings of the Wicks was shipped to the El Paso plant of the American Smelting and Refining Company. This was Lot No. 6, of 6,300 tons wet having a NET VALUE OF \$68.55 per ton.

WICKS MINE

Hillsboro, New Mexico

RESUME' 1935

During June and up to July 13, timbering proceeded on the 300 level, north of the shaft, until the first old chute was reached, a distance of 44 feet. A considerable quantity of the old stope fill was drawn in an attempt to gain access to the old stope back, but examination or sampling of it was not possible. The old north drift was open about 180 feet in length, but the timbering was not very good and none of the raises into the old stopes were open, so work in this section of the level was abandoned.

Shaft work was resumed July 14 and stopped again on July 22 because of lack of competent shaftmen. On July 24 drifting was started on the 300 level south to open up more stoping ground.

During July an arrangement was made with I. D. Spangler whereby title to the west half of the Nellie M. placer location, comprising the east half of the northeast 40 acres of the southwest quarter of Sect. 2, T. 16 S., Range 7 W., was transferred by deed to William R. Callaway. This ground adjoins the Ross and Smuggler Lodes east of the No. 4 dump, and will probably be needed as dumping ground in the future. On July 29 the W-1, and W-2 Lodes, contiguous to the Ross and Smuggler Lodes, were located covering the above placer ground and other fractional ground east of the Wicks Group. The necessary location work and recording was done and later title to the Lodes was transferred to Walter K. Mallette.

Shaft work was again started August 3, and during the month a loading pocket having a capacity of 11 tons, was installed. Drifting and stoping continued on the 300 level.

Between September 15 and December 10 there was no inspection of the Wicks operation, due to the absence of Mr. Callaway.

During the latter part of September, the 400 level was reached, and during October the south drift was reopened to the old face, a distance of 91 feet from the shaft. The drift was timbered, 402 stope started and drifting to the south began. Reopening of the shaft continued, a loading pocket of 8 tons capacity put in at the 400, and new timbering was completed to 27 feet below that level. Below this point the walls were firm, so new timbering was not put in, the old footwall plates being used as guide and ladder supports. In blasting out the hangingwall for the loading pocket, a vein of ore was opened up averaging about 10" in width. ----- An assay of some of this ore showed a value of \$193 per ton. This is probably the West vein and it will no doubt be found by a hangingwall crosscut from the 500 level.

On December 15 the shaft had been reopened a total distance of 345 feet; the face of the 300 level had been advanced to 264.3 feet south of the shaft, a total of new drifting of 139.3 feet; and the 400 drift had been advanced about 44.5 feet to 135.4 feet south of the shaft. 301 stope had been abandoned at about 80 feet above the sill and 305 stope started; and 402 stope had been raised to a height of about 30 feet. The 2" air line between the 300 and 400 levels was replaced with 2½" pipe and an air receiver 9' long by 32" diameter was placed on the 300 level just north of the shaft. The old hoisting rope was replaced by 550 feet of new 5/8" Red Strand rope.

By December 31 the shaft had been reopened a total distance of 358 feet and the 400 drift had been advanced to 160 feet, a total of new drifting of 69 feet.

Respectfully submitted,

William R. Callaway

WICKS MINE

Hillsboro, New Mexico

SUMMARY

1935

STRUCTURES

- | | | |
|-------------------------|-----------|---------------------------------|
| 5. Ore Loading Platform | 12' x 30' | Frame. |
| 6. Blacksmith shop | 15' x 15' | Frame-Corrugated Iron covered. |
| 7. Light Plant | 6' x 6' | Frame. Corrugated Iron covered. |
| 8. Office addition | 12' x 15' | Frame. Roofing paper covered. |

EQUIPMENT

- 1- Kohler Electric Generating Plant. 800 watts capacity.
- 1- Portable Air Compressor, 120 c.f. capacity.
Gardner-Denver Compressor No. 7XG20
Buda Motor
- 1- Advance, Boiler Feed Pump.
Air Cyl. 5 $\frac{1}{4}$ " water cyl. 3 $\frac{1}{2}$ ", stroke 5"
- 1- Boiler Feed Pump.
Air Cyl. 4 $\frac{1}{2}$ ", Water Cyl. 2 3/4 ", Stroke 4".
- 1- Timber framing saw, powered by 4 cyl. International Motor.
- 1- Air Receiver. 32" diam. by 9' long.
- 1- Thor Jackhammer, No. 70, Ser. 13744, with shell.
- 1- Thor Stoper No. 10157, Model 4.
- 1- I-R Drifter No. 26B, with column bar.
- 1- I-R Stoper.
- 2- Mine cars, 16 c.f. capacity
- 1- Mine car, 14 c.f. capacity.
- 1- Blacksmith's forge, 2' x 3', with hand blower.
- 1- Hand drill press.
- 3- Anvils
- Miscellaneous blacksmith's tools and hand-sharpening dollies
- 550 feet 5/8" Red Strang hoisting rope.
- About 800 feet 2" pipe.
- 75 feet 2 $\frac{1}{2}$ " pipe
- About 700 feet 1" pipe.
- About 700 feet of track surface and underground.

UNDERGROUND PROGRESS

Development

No. 4 Shaft.			
Reopened	253 feet		
Retimbered	169 feet		
Drifting			
300 level south.	139.3 feet		
400 level south.	69.0 feet	208.3 feet	
No. 3 drift.	120.0 feet		
Compromise No. 3 prospect.	28.0 feet	148.0 feet	
	Total	356.3 feet	356.3

Crosscutting
No. 3 Adit

15.0 feet

15.0
Total 371.3 feet

WICKS MINE
Hillsboro, New Mexico

SUMMARY 1935

UNDERGROUND PROGRESS (con't)

Development

Projected stope areas developed

300 level south	27,860 square feet	
400 level south	4,760 square feet	
	<u>32,620 square feet</u>	32,620
No. 3 drift	3,600 square feet	
Compromise No. 3 Prospect	168 square feet	
	<u>3,768 square feet</u>	3,768
		<u>36,288 total</u>

PRODUCTION

Ore Extraction

Wet tons mined, No 3 drift	2,860	
Wet tons mined, 300 & 400 levels	252.060	
	<u>254.920</u>	254.920
Wet tons shipped, Dump Ore	2.742	
		<u>2.742</u>
		257.662 Total
Wet tons Milled, Dump Ore	15.300	
		<u>15.300</u>
		272.962 Total

Value

Total NET VALUE- No. 3 drift ore	\$163.51	
" " " - Dump ore shipped	14.98	
	<u>\$178.49</u>	\$ 178.49
" " " -Dump ore milled	60.44	
		<u>\$ 60.44</u>
Total NET VALUE- 300 & 400 level	\$15027.42	15027.42
		<u>\$15205.91</u>
		\$15205.91
		<u>\$15266.35</u>

Projected Stope Areas Mined

No. 3 drift	840		840
300 Stopes	9033 square feet		
300 drift	980 " "		
	<u>10013 " "</u>	10013	
400 Stopes	2179 square feet		
400 drift	480 " "		
	<u>2659 " "</u>	2659	
		Total	<u>12672 s.f. 12672</u>
		Total areas mined	13512

SHIPMENTS

Lot Number 2 milled.
Lots 3 to 29 shipped

Respectfully submitted

William R. Callaway

WICKS MINE

Hillsboro, New Mexico

RESUME' OF SEMI-MONTHLY REPORTS

1936

Unwatering of the No. 4 shaft continued, and on January 13 the level was within a foot of the old 500 drift, making possible the first examination of it in some 22 or 23 years. The drift was open to the middle raise, about 400 feet, but was blocked at that point by a cave. In the first 355 feet of the drift the back had been blasted down to a height varying from 9 to 12 feet, evidently in anticipation of timbering for stoping. At 355 feet was the first chute, opening into an old stope running 50 feet to the north; to the center raise which was put thru to the east vein on the 300 level. This stope averaged about 20 feet in height above the sill.

During the month of January the shaft was unwatered to the bottom of the old dump, 13 feet below the 500 sill and 380 feet below the collar. By the end of February the 500 had been cleaned out to the center raise; the cave had been opened sufficiently to permit access to the north face; and, beginning 38 feet north of the shaft, 74.5 feet of drift timbering, with alternate ore and waste passes, had been put in place.

From the center raise to the north face the drift back was of average height, 6 to 8 feet. A raise at the face was open to its connection with an old winze from the 300 level, but at that point, about 100 feet above the 500 sill, the winze was blocked with muck and timbers.

Stoping was started in 503 stope in February and was continued to March 14, when all work on the stope and drift was stopped while a loading pocket was being put in.

In March, a used Fairbanks-Morse Y-Type, 100 h.p. Diesel engine was purchased and brought to the property with the intention of using it as the motive power for compressor units to be acquired later.

Mining on the 300 and 400 levels was continued while the 500 was being opened up and in April a new stope on the 300, 310 stope, was started. 405 stope, on the 400 level, covering the ground between 405 and 406 chutes had been holed thru to the 300 level on May 31, and 402 stope, which had been abandoned in February was reopened.

In April, a used 4 cylinder, 40 h. p. International engine was adapted to the hoist, replacing the smaller engine that came with the unit. In May a Chicago-Pneumatic Co. "Hot-head" type, engine and compressor unit was purchased, and was set up on a concrete foundation, 12' x 3' x 2'8" deep in the space north of the hoist house and west of the office building. Its rated capacity is 309 cubic feet. For use in the cooling system of the compressor, and as a reservoir for fire protection, a cylindrical steel tank, 14' diameter by 4'6" deep, with a capacity of 5000 gallons, was set on the hill 50 feet north of the office on a concrete base, elevation of which is 15 feet above the collar of the shaft.

To put in a loading pocket on the 500, the shaft was sunk 27.5 feet, to 40.5 feet below the sill of the level or 408 feet below the collar of the shaft. The ground to the south at the bottom of the shaft was opened up 7 feet in length to provide additional sump room. The opening for the pocket is 14' x 10' in area, and about 22' deep; from there to the bottom the shaft is about 6' x 10' in area. The loading pocket was completed June 30, and has a capacity of about 50 tons.

In June a new power house, of rock and earth-filled slab walls, was built 150 feet southeast of the shaft collar.

Stoping on the 500 was started again on July 1, and during the month 110 feet of new timbering was put in. By September 15, the drift had been timbered to the first old chute making a total of 310 feet of new timbering.

WICKS MINE

Hillsboro, New Mexico

RESUME' 1936

In August the first shipments of ore by rail were made from Hatch, N. M. to El Paso, Texas. Stopping in 310 stope was stopped during this month and 4 machines were concentrated on the 500 level.

The grade of the shipments during August and September lots 59 to 63 dropped to from \$37 to \$51 per ton, and on September 15 all stopping was stopped on the 500 level.

402 stope had been carried up to within 5 feet of the 300 level and abandoned on August 15th, so that the only stopping areas remaining were in 305 and 310 stopes. The result was an immediate drop in tonnage, and, correspondingly in revenues.

To provide new stopping areas on the upper levels, the 400 drift which had not been worked since September 15, was started again November 15. Meanwhile all production came from 305 and 310 stopes, augmented by a small tonnage from limited stopping operations in 510 stope, started October 1. 510 stope was operated during the month of October, then stopped and work shifted to 513 stope, from which section sampling had indicated mineable values in the ore streak.

In November, 305 stope, north of 306 chute, was holed into an old drift. This drift apparently was run from the bottom of the old shaft some 150 feet to the south of the number 4 shaft, and is about 40 feet below the collar of the old shaft and has a length of about 40 feet.

By December the 400 drift had been advanced and timbered far enough to permit stopping south of 406 chute, and this stope, 410, was lengthened gradually as the drift was advanced.

305 stope was stopped December 15 to allow 310 to catch up with it, and then they will be carried up together.

Surface improvements during this period were: the installation of a 500 gallon fuel oil storage tank, buried in the hill some 25 feet north of the compressor and feeding it by gravity flow; and construction of an 8' x 8' slab fuse and cap house, 15 feet northwest of the powder house.

During December a fault was cut in the 400 drift, 300 feet south of the shaft, dipping 67° to the north and striking N. 85° E. The drift was stopped at 304 feet south of the shaft, and the crew put on the 300 level to advance that drift. The fault was cut there at 334 feet from the shaft, and the drift was swung to the west following the fault, and had been advanced 6 feet by the end of the year.

WICKS MINE

Hillsboro, New Mexico

SUMMARY

1936

STRUCTURES

9. Water tank, steel, cylindrical. 14' diam. by 4'6" deep, 5000 gallons.
 10. Powder House. 9' x 12' Rock and earth filled slab walls.
 11. Cap and Fuse House 8' x 8' Slab construction.
 12. Fuel Tank Cylindrical 500 gallons capacity.

EQUIPMENT

1. Mine car, 12 cubic feet capacity
 2. Stopers.
 1- 100 H. P., Fairbanks-Morse Co., Y-Type, Diesel engine. Stored on property but not installed.
 1- 4 cylinder, 40 H. P. International engine, adapted to replace 20 H. P. hoist engine.
 1- Chicago-Pneumatic Co. "Hot-head" type, semi-diesel engine and compressor unit. Specifications: 14" x 9 $\frac{1}{2}$ " x 14". Type N-SO, No. 7007. 309 Cubic feet capacity
 About 100' 2" pipe. About 1000'-1" & 1 $\frac{1}{4}$ " pipe. About 500 feet track.

UNDERGROUND PROGRESSDevelopment

No. 4 shaft.	
Reopened	22 ft.
New Sinking	28 ft.
New timbering	47 ft.

Drifting

300 level south	72.4 ft.	
400 level south	144.0 ft.	
Total	216.4 ft.	216.4 ft.

Crosscutting

300 level, on fault	6.0 ft.	6.0 ft.
		222.4 ft.

Projected stope areas developed.

300 level south	16,675 sq. ft.
400 level south	9,935 sq. ft.
Total	26,610 sq. ft.

PRODUCTIONOre Extraction

Wet tons mined, 300, 400, 500, levels. 690.580

Value

Total NET VALUE 300, 400, 500 ore \$44949.60

Projected Stope Areas Mined

300 Stopes	16,737 sq. ft.	
300 drift	505 sq. ft.	
	17,242 sq. ft.	17,242
400 stopes	7,881 sq. ft.	
400 drift	1,010 sq. ft.	
	8,891 sq. ft.	8,891

WICKS MINE

Hillsboro, New Mexico
SUMMARY

1936

PRODUCTION (Cont.)

Projected Stope Areas Mined

300 level		17,242
400 level		8,891
500 Stopes	8,085 sq. ft.	8,085
	Total	<u>34,218</u> square feet

SHIPMENTS

Lots 30 to 72 shipped

Respectfully submitted

William R. Callaway

WICKS MINE

Hillsboro, New Mexico

1936

SUMMARY AND ANALYSIS OF PRODUCTION BY MONTHS

	300 LEVEL			400 LEVEL			500 LEVEL			TOTAL AVERAGE		
	A	B	C	A	B	C	A	B	C	A	B	C
JAN	22.4	.021	46.0	40.2	.028	36.1				62.6	.025	39.7
FEB	36.6	.024	42.1	24.7	.019	51.7	10.2	.015	68.6	71.5	.020	49.2
MAR	40.2	.028	36.2	24.3	.021	46.5	11.3	.017	57.3	75.8	.023	42.7
APR	30.9	.019	53.1	26.6	.034	29.4				57.5	.024	42.1
MAY	44.9	.021	48.0	25.5	.033	30.6				70.4	.024	41.7
JUN	40.6	.025	40.2	22.5	.019	53.7				63.1	.022	45.1
JUL	16.4	.015	68.8	17.8	.017	59.0	10.3	.008	122.0	44.5	.013	77.2
AUG	21.6	.029	34.5	4.55	.028	35.5	49.5	.016	62.7	75.6	.019	53.0
SEP	22.3	.018	55.9	.3	.002	666.7	10.7	.008	121.5	33.3	.012	81.9
OCT	51.2	.033	29.6				7.6	.030	33.5	58.8	.033	30.1
NOV	35.7	.022	46.2	2.4	.009	104.1	6.2	.019	51.6	44.3	.020	50.1
DEC	21.54	.018	55.9	6.43	.011	90.2	5.21	.012	82.5	33.18	.015	66.7
	<u>384.34</u>	<u>.022</u>	<u>44.86</u>	<u>195.23</u>	<u>.022</u>	<u>45.5</u>	<u>111.01</u>	<u>.014</u>	<u>72.8</u>	<u>690.58</u>	<u>.020</u>	<u>49.6</u>

--A-- Wet tons mined.

--B-- Tons per square foot of projected stope area

--C-- Number of square feet to one ton of ore.

WICKS MINE

Hillsboro, New Mexico

SUMMARY AND ANALYSIS OF PRODUCTION

*** 500 LEVEL ***

1936

The production figures for this level, as previously shown, are:

Projected stope areas mined	8,085 sq. ft.
Tonnage mined	111.01 wet tons
Tons per square foot of projected stope area	.0137
Number of square feet to one ton of ore.....	72.83

It is not possible to arrive at an accurate figure for the NET VALUE of the ore from this level, because in the shipments, it was mixed with ore from both the 300 and 400 levels.

Four shipments were made, however, consisting of ore from the 500 level alone. These are as follows:

OUR LOT	SMELT. LOT.	NET VALUE PER TON	WET TONS	TOTAL NET VALUE
37	353	\$74.42	4.40	\$312.90
67	2437	56.22	6.73	372.32
70	2905	47.06	8.46	389.51
73	43	44.53	6.68	287.64
			26.27	\$1362.18 Total

Average NET VALUE per ton for these four lots: $\$1362.18/26.27 = \51.85

The balance of the 500 ore was divided about as follows:

OUR LOT	SMELT. LOT	NET VALUE PER TON	WET TONS	TOTAL NET VALUE	DISTRIBUTION IN APPROX. WET TONS		
					300	400	500
38	403	\$79.50	21.12	\$1589.60	8	8	5
39	470	77.77	25.49	1889.62	8	6	11
40	525	77.99	21.15	1573.80	13	5	3
54	1460	75.62	17.37	1256.46	9	6	2
55	1541	89.79	14.10	1246.96	3	8	3
57	1662	71.09	13.610	955.20	3	7	4
59	1759	51.55	18.560	935.71	5	3	11
60	1853	37.52	24.630	887.16	9		16
61	1946	36.89	20.59	732.99	8		13
62	2024	40.57	21.39	841.76	7		14
			198.01	\$11909.26	73	43	82 Totals

Average NET VALUE per ton for these ten lots: $\$11909.26/198.01 = \60.14

The shipments of ore from the 300 and 400 levels, for 1935 and 1936, (all shipments containing no 500 ore,) totalled 718.36 wet tons and \$46,705.58 NET VALUE

Average NET VALUE per ton for these lots: ... $\$46705.58/718.36 = \65.02

Assuming an average value per ton of \$51.85 for the 500 ore (Lots 37, 67, 70, 73) the 82 tons of mixed 500 ore will have a total NET VALUE of \$4251; subtracting this from the \$11909, total of the mixed ore, leaves..... \$7658, which, divided among the 116 tons of 300 and 400 ore, gives an average Net Value of \$66.00

Assuming an average value per ton of \$65.02, for the 300 and 400 ore, the 116 tons of it mixed with the 500 ore will have a total NET VALUE of \$7542; this from the \$11909 leaves \$4367, which divided among the 82 tons of 500 ore gives it an average NET VALUE of \$53.25 per ton.

WICKS MINE

Hillsboro, New Mexico

SUMMARY OF PROJECTED STOPE AREAS MINEDFigures in Square Feet

PERIOD	300 STOPE	TOT	300 DRIFT	TOT	400 STOPE	TOT	400 DRIFT	TOT	500 STOPE	TOT	GRAND TOTAL
1935											
6/9-15	629										629
		629									
6/15-30	743										1372
		1372									
7/1-15	826										2198
		2198									
7/15-31	588		105								2891
		2786		105							
8/1-15	335		225								3451
		3121		330							
8/15 to 9/3	620		105								4176
		3741		435							
9/3-15	330		180								4686
		4071		615							
9/15 to 12/15	4298		365		1288		310				10947
		8369		980		1288		310			
12/15-31	614				871		170				12602
		8983		980		2159		480			
					20*						
	50*	9033		980		2179		480			12672

* Correction figure to compensate for foreshortening of stope lengths on vertical projection map.

WICKS MINE

Hillsboro, New Mexico

SUMMARY OF PROJECTED STOPE AREAS MINED
Figures in Square Feet

<u>PERIOD</u>	<u>300</u> <u>STOPES</u>	<u>TOT</u>	<u>300</u> <u>DRIFT</u>	<u>TOT</u>	<u>400</u> <u>STOPES</u>	<u>TOT</u>	<u>400</u> <u>DRIFT</u>	<u>TOT</u>	<u>500</u> <u>STOPES</u>	<u>TOT</u>	<u>GRAND</u> <u>TOTAL</u>
1935		9033		980		2179		480			12672

1936											
1/1-15	327				404		100				
		9360		980		2583		580			13503
1/15-31	704				694		255				
		10064		980		3277		835			15156
2/1-15	786		45		751		135		70		
		10850		1025		4028		970		70	16943
2/15-29	710				390				630		
		11560		1025		4418		970		700	18673
3/1-15	813				621				648		
		12373		1025		5039		970		1348	20755
3/15-31	445		200		510						
		12818		1225		5549		970		1348	21910
4/1-15	720		80		465						
		13538		1305		6014		970		1348	23175
4/15-30	761		80		316						
		14299		1385		6330		970		1348	24332
5/1-15	867				462						
		15166		1385		6792		970		1348	25661
5/15-31	1290				320						
		16456		1385		7112		970		1348	27271
6/1-15	735				490						
		17191		1385		7602		970		1348	28496
6/15-30	900				720						
		18091		1385		8322		970		1348	30116
7/1-15	730								707		
		18821		1385	490	8812		970		2055	32043
7/15-31	400				560						
		19221		1385		9372		970		550	
										2605	33553
8/1-15	275				160				1290		
		19496		1385		9532		970		3895	35278
8/15-31	471								1815		
		19967		1385		9532		970		5710	37564
9/1-15	800						70		1300		
		20767		1385		9532		1040		7010	39734
9/15-30	430						130				
		21197		1385		9532		1170		7010	40294
10/1-15	543								115		
		21740		1385		9532		1170		7125	40952
10/15-31	975								140		
		22715		1385		9532		1170		7265	42067
11/1-15	850						70		140		
		23565		1385		9532		1240		7405	43127
11/15-30	800						180		180		
		24365		1385		9532		1420		7585	44287
12/1-15	695		20		280		70		160		
		25060		1405		9812		1490		7745	45512
12/15-31	410		80		230				270		
		25470		1485		10042		1490		8015	46502
	300*				18*				70*		
		25770		1485		10060		1490		8085	46890
1936 TOTALS...	16737		505		7881		1010		8085		34218

*Correction figure to compensate for foreshortening of stope lengths on vertical projection

WICKS MINE

Hillsboro, New Mexico

SUMMARY OF UNDERGROUND PROGRESS AND PRODUCTION
1934-1935-1936

UNDERGROUND PROGRESS	<u>1934</u>	<u>1935</u>	<u>1936</u>	<u>Total</u>	<u>Totals</u>
----------------------	-------------	-------------	-------------	--------------	---------------

Development

No. 4 shaft. (Figures in feet.)

Reopened	105	253	22	380	380
Retimbered	105	169	47	321	
New sinking			28		28
				Total depth...	408

Drifting. (Figures in feet.)

No. 3 Drift	120.0			120.0
Compromise No. 3 Prospect	28.0			28.0
300 Level South	139.3	72.4	211.7	
400 Level South	69.0	144.0	213.0	
	<u>208.3</u>	<u>216.4</u>	<u>424.7</u>	424.7
				Total length
				572.7

Crosscutting. (Figures in feet.)

No. 3 Drift	15.0		15.0	
300 Level South		6.0	6.0	
			<u>21.0</u>	21.0
				Total length, advance on levels...
				593.7

Projected Stope Areas developed. (Figures in feet)

No. 3 Drift	3,600			
Compromise No. 3 Prospect	168			
	<u>3,768</u>			3,768
300 Level South	27,860	16,675	44,535	
400 Level South	4,760	9,935	14,695	
	<u>32,620</u>	<u>26,610</u>	<u>59,230</u>	59,230
				Total new areas developed.....
				62,998

ADJUSTMENT OF SHIPMENTS TO PRODUCTION

<u>OUR LOTS</u>	<u>SMELTER LOTS</u>	<u>1935</u>	<u>WET TONS</u>	<u>NET VALUE</u>	<u>DRY TONS</u>
6 to 29	1188 to 2588		243.530	\$14,374.62	230.1185
30	21 Mined 1935, shipped 1936		8.530	652.80	8.2082
			<u>252.060</u>	<u>\$15,027.42</u>	<u>238.3267</u>
		<u>1936</u>			
30	21 (21.470 - 8.530 tons)		12.940	\$ 928.31	12.4518
31 to 72	96 to 3057		656.930	42,789.97	627.3190
73	43 Mined 1936, shipped 1937		5.980	256.47	5.7729
74	44 Mined 1936, shipped 1937.		14.730	974.85	13.9034
			<u>690.580</u>	<u>\$44,949.60</u>	<u>659.4471</u>

WICKS MINE

Hillsboro, New Mexico

SUMMARY OF UNDERGROUND PROGRESS AND PRODUCTION
1934-1935-1936

PRODUCTION	<u>1934</u>	<u>1935</u>	<u>1936</u>	<u>Total</u>	<u>Totals</u>
<u>Ore Extraction</u>					
Wet Tons Milled.					
No. 4 dump ore.....	100.0	15.300		115.300	
Wet Tons Shipped.					
No. 4 dump ore.....		2.742		<u>2.742</u>	
				118.042	118.042
Wet Tons Mined.					
No. 3 drift.....		2.860			
300 & 400 Levels.....		252.060		252.060	
300, 400, & 500 Levels.			690.580	<u>690.580</u>	
				942.640	942.640
Total wet tons moved from property.....					<u>1063.542</u>

Value

Total NET VALUE

No. 4 dump ore milled	\$562.00	60.44		622.44	
No. 4 dump ore shipped...		14.98		<u>14.98</u>	
				\$637.42	637.42
No. 3 drift ore..		163.51			163.51
300 & 400 ore....	\$15,027.42		15,027.42		
300, 400, & 500 ore			\$44,949.60	<u>44,949.60</u>	
				\$59,977.02	59,977.02
Total NET VALUE of above ore.....					<u>\$60,777.95</u>

Projected stope areas mined.
(Figures in sq. ft.)

No. 3 drift.....	840			840
300 stopes.....	<u>9,033</u>	16,737	25,770	
300 drift.....	980	505	<u>1,485</u>	
	<u>10,013</u>	<u>17,242</u>	<u>27,255</u>	
400 stopes.....	<u>2,179</u>	7,881	<u>10,060</u>	
400 drift.....	480	<u>1,010</u>	<u>1,490</u>	
	<u>2,659</u>	<u>8,891</u>	<u>11,550</u>	
500 stopes.....		8,085	<u>8,085</u>	
			<u>46,890</u>	46,890
Total projected stope area mined..				<u>47,730</u>

WICKS MINE

Hillsboro, New Mexico

CHART SHOWING COMPARATIVE ANALYSIS OF PRODUCTION
FROM 300, 400, and 500 LEVELS

1935 AND 1936

In comparing tonnages, stope areas, and values for periods ending December 31, it is necessary to adjust shipment figures to allow for tonnage mined in one year and included in shipments made the next year. Thus the total NET VALUES, as given in the Summaries and in this Chart, do not correspond with totals as taken from the smelter Settlement Sheets.

In this Analysis, the No. 4 dump ore, milled or shipped, and the No 3 drift ore are not included. As 300, 400 and 500 level ores were mixed together in the shipments, no segregation of Total NET VALUES or NET VALUES PER ton, for the different levels was possible. The Chart gives these figures for the 300 and 400 levels for 1935 and the 300, 400, and 500 levels for 1936 as totals.

	300 LEVEL		400 LEVEL		500 LEVEL	AVERAGE, OR TOTAL	AVERAGE, OR TOTAL	AVERAGE, OR TOTAL
	1935	1936	1935	1936	1936	1935	1936	1935-1936
Projected stope areas. (In sq. ft.)	10,013	17,242	2,659	8,891	8,085	T 12,672	T 34,218	T 46,890
Wet tons mined DRY TONS	218.76	384.34	33.30	195.23	111.01	T 252.060 238.3267	T 690.580 659.4471	942.640 897.7738
Tons per Square foot of stope area	.0218	.0223	.0125	.0219	.0137	A .0199	A .0202	A .0201
Number of square feet to one ton of ore	45.76	44.86	.79.85	45.54	72.83	A 50.27	A 49.55	A 49.74
Total NET VALUE						T \$15,027.42	T \$44,949.60	T \$59,977.02
Net VALUE per ton of ore NET VALUE per dry ton.						A \$59.62 \$63.05	A \$65.09 \$68.16	A \$63.63 \$66.86

Estimates for the entire mine, based on the Cox report, gave the following results:

Average- Tons per square foot of projected stope area.....	.013
Average- Number of square feet to one ton of ore.....	76.9
Average- NET VALUE per ton of ore.....	\$66.00

COMPOSITE OF PRODUCTION

WICKS MINE

SECTION ANALYSED	SQ. FT. MINED	TONS PRODUCED	TONS PER SQ. FT.	VALUE AT PRESENT PRICE	VALUE PER TON	VALUE PER SQ. FT.
OLD WORKS (EAST VEIN)	68,850	1356.8	0.02125	\$129,547.00	\$95.48	\$2.03
NEW WORKS UP TO 1912	40,000	1076.0	0.0269	\$ 40,800.00	\$37.90	\$1.02
NEW WORKS IN 1935	12,672	252.0	0.0199	\$ 15,027.00	\$59.62	\$1.09
NEW WORKS IN 1936	34,218	690.6	0.0202	\$ 44,950.00	\$65.09	\$1.32
TOTAL AND AVERAGE	150,740	3375.4	0.02239	\$210,324.00	\$65.27	\$1.46

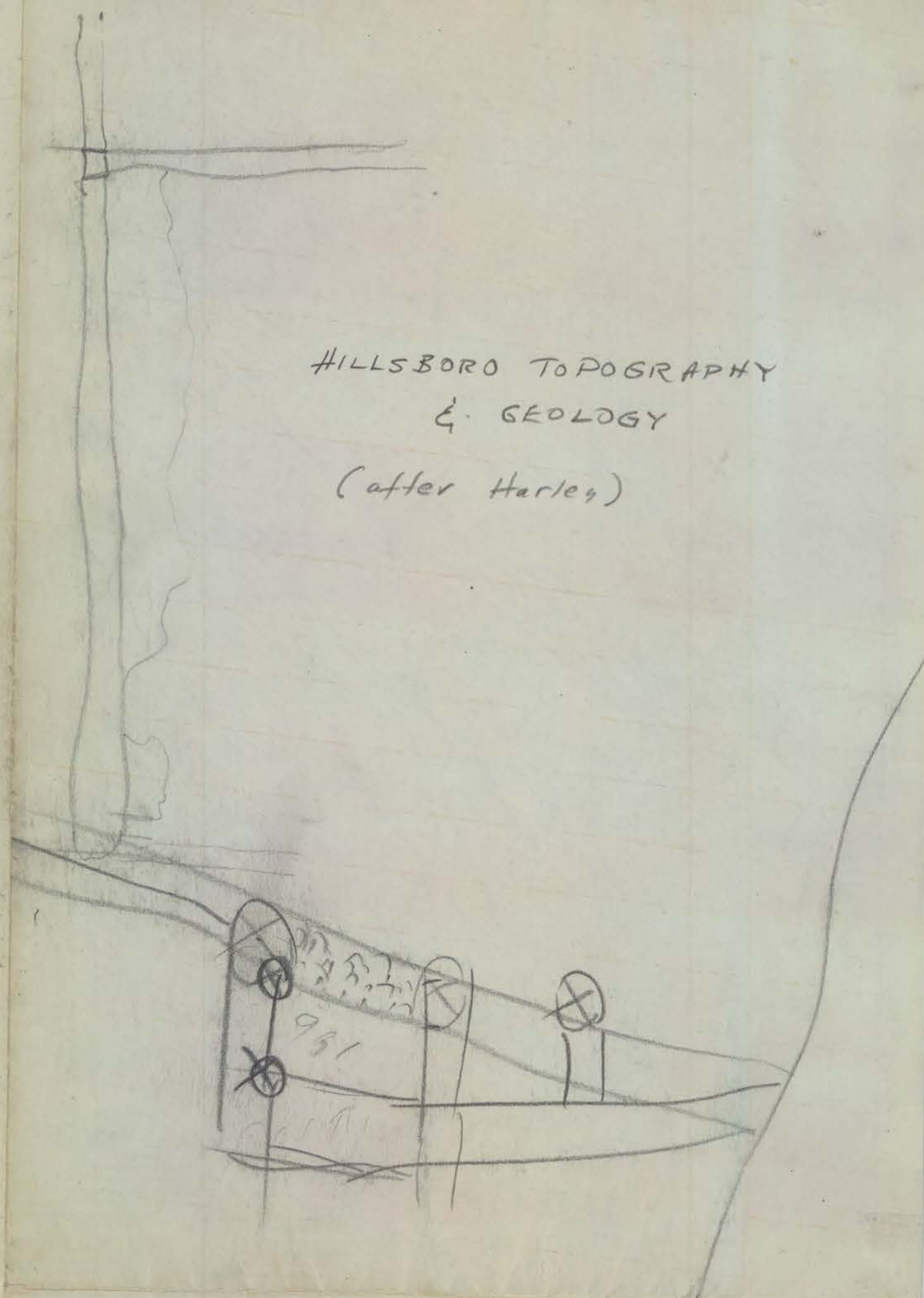
NOTE -- The above data was derived from operating reports from various periods,
all
covering practically of the ores produced since 1895.

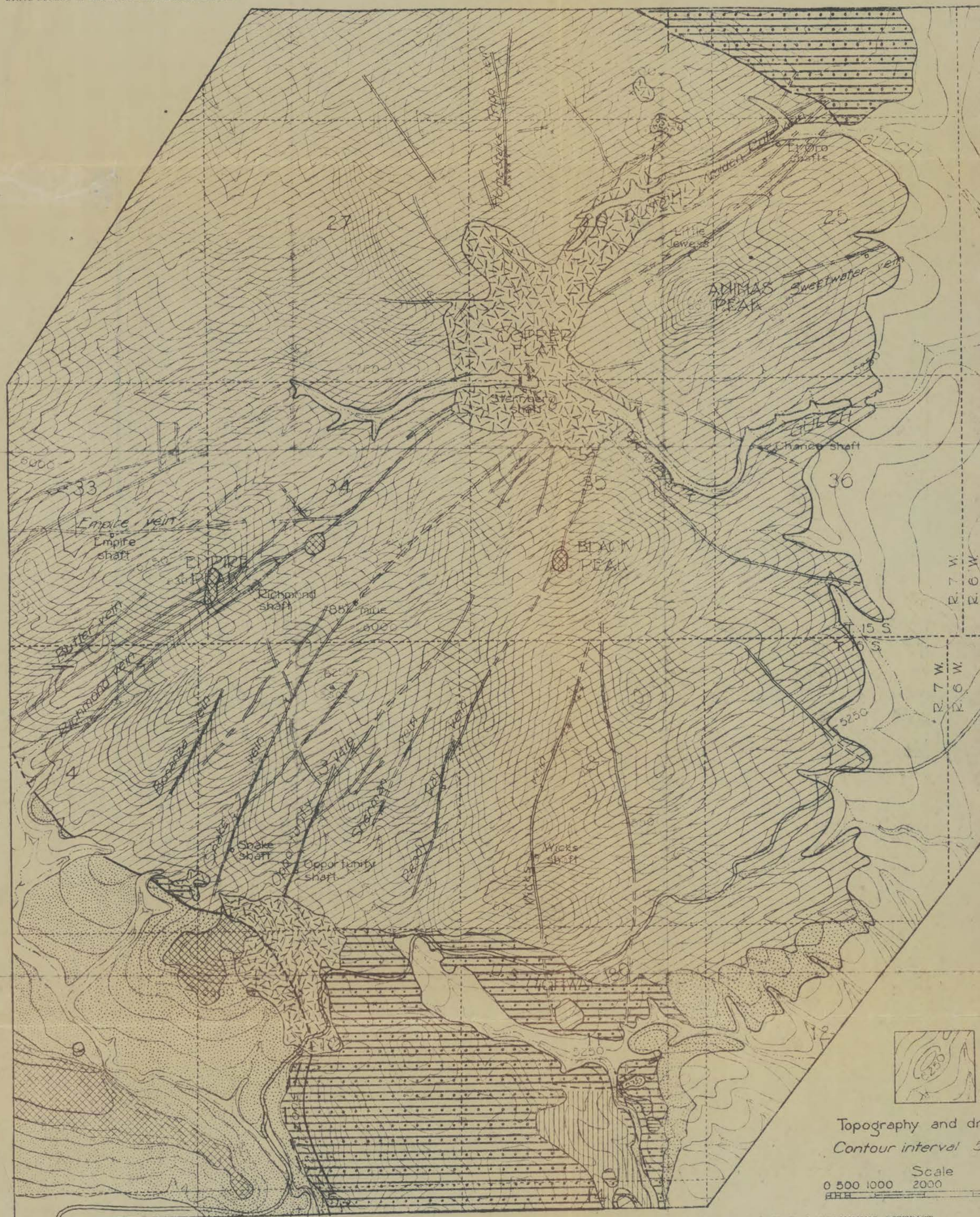
WICKS MINE--ORE RESERVES

CLASSIFICATION	AREA IN SQUARE FEET	TONS OF ORE AT 0.02T/39. FT.	VALUE AT NET SMELTER WORTH	INDICATED NET PROFIT	PRESENT WORTH
DEVELOPED ORE	322,000	6440	\$ 418,600.00	\$ 125,580.00	\$113,022.00
ASSURED ORE	114,650	2293	149,000.00	43,700.00	34,610.00
PROBABLE ORE	238,900	4778	310,500.00	93,150.00	65,670.00
TOTAL ORE REASONABLY ASSURED	675,550	13,511	\$ 878,100.00	\$ 270,430.00	\$213,302.00
STOPE FILLS (EST.)	87,300	(at 20 Ct/T) 13,000	65,000.00	12,000.00	NO VALUE
EXTENSIONS TO END LINES	805,000	16,100	1,046,500.00	314,000.00	31,400.00
50 FT. ADDED DEPTH	160,000	3,200	223,000.00	77,400.00	7,500.00
WEST VEIN	360,000	7,200	468,000.00	140,400.00	70,200.00
NO. 3 VEIN	300,000	6,000	390,000.00	117,000.00	NO VALUE
OTHER VEINS	150,000	3,000	195,000.00	58,500.00	NO VALUE
TOTAL POSSIBLE ORE	1,862,300	48,500	\$2,387,500.00	\$719,300.00	\$109,100.00
TOTAL--ALL CLASSES	2,537,850	62,011	\$3,265,600.00	\$989,730.00	\$322,402.00

GEOLOGICAL MAP

HILLSBORO TOPOGRAPHY
& GEOLOGY
(after Harley)





EXPLANATION

SEDIMENTARY ROCKS

QUATERNARY

Alluvial deposits

TERTIARY

Gravels and agglomerates

LOWER PALEOZOIC

Devonian
Percha shale

Silurian
Fusselman limestone

Ordovician
Montoya limestone

IGNEOUS ROCKS

QUATERNARY

Basalt
flows

Rhyolite
flows and tuffs

Monzonite
intrusives

Andesite and latite
flows and sills

Latite dikes

Veins

within and along dikes
(known mineralized areas)

Faults

Shafts

Tunnels

Prospects

Topography and drainage
Contour interval 50 feet

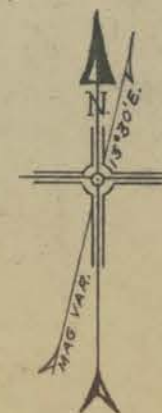
Scale
0 500 1000 2000 4000 ft.

TOPOGRAPHIC AND GEOLOGIC MAP OF THE HILLSBORO (LAS ANIMAS) LOPE MINING DISTRICT

SEC. 35 T-15-S. R-7-W.
SEC. 2 T-16-S. R-7-W.

MAP OF
WICKS GROUP
AND
ADJOINING CLAIMS
NEAR HILLSBORO
NEW MEXICO

SCALE: 1"=400



- | | |
|---|-------------------|
|  | PATENTED CLAIMS |
|  | UNPATENTED CLAIMS |
|  | WICKS PATENTS |
|  | WICKS LOCATIONS |
|  | I.D.SPANGLER |
|  | MORNING GLORY |

COURSES & DISTANCES OF LINES OF SEC. 2,
 AND OF SURS. NR 1025 & 1563 TAKEN FROM
 SUPPLEMENTAL PLAT OF SEC. 2, ACCEPTED
 BY GENERAL LAND OFFICE MAR. 8, 1923
 POSITION OF S.E. COR. ASSUMED CORRECT
 5.70° 45' E. 1473.78. TIE TO 1/4 COR.
 ON G.L.O. PLAT OF SEC. 2

AS SHOWN

546° 06' W. 3155.5' TIE AS SHOWN ON PATENT PLAT OF SUR N^o 628

LOCATION OF COR. ACCORDING
TO PLAT OF G. L. O.

③ S.W. COR. SEC. 2 AS FOUND
STONE NOT BURIED IN GROUND.

$\frac{1}{4}$ COR. NOT FOUND

AUG. 1935 W. R. CALLAWAY

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WICKS

WICKS MINE
CLAIM MAP