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April 14, 1943

Mr. H. B. Lawrence
1052 West Sixth Street
Los Angeles, California

Dear Mr. Lawrence:

You have undoubtedly had many letters and inquiries regarding your Golconda property in the Kingman area regarding leases, options, etc. I have associated with me in this office as Projects Engineer, Earl F. Hastings, with whom I know you have had some correspondence and with whom you may be personally acquainted.

During the past few days I have contacted certain people whom I believe are responsible and who are planning on developing some of the more promising properties in the Kingman area with an object of getting government assistance to install a zinc plant when, and if, sufficient ore has been developed.

I believe the Golconda to be the largest potential zinc producer in the area and have so stated to the people mentioned. They have asked me to get additional information and I find that I have a rather complete file which has been compiled by Mr. Hastings, or at least is in his possession.

I expect to be in California the latter part of next week and hope to call on you to discuss this situation. I would like to know whether or not you are at present committed on any lease, option or other agreement for the operation of the Golconda Mine, and if not, I would like in a general way to know what your terms would be and will have chance to consider your terms and study carefully the present data available so as to discuss plans with you intelligently.

I would appreciate getting this information at your earliest convenience so that I may advise the parties interested and be prepared to go further into details when I call to see you.

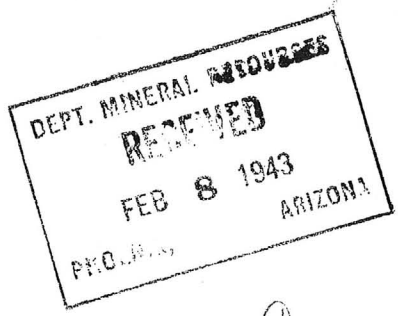
With best wishes and kindest regards, I am

Yours very truly,

J. S. Coupal, Director

JSC:LP

1045 South Bedford Street
Los Angeles, California.
February 6 1943.



Mr. J. S. Coupal,
413 Home Builders Building,
Phoenix,
Arizona

Dear Mr. Coupal;

I have had some conferences with Mr. Lawrence who is the man in authority with respect to the Golconda mine. It has been rumored about that he is impossible to deal with but I think that is not the case. He has outlined his ideas to me. I think a workable and equitable deal can be made if the necessary financing can be assured.

Mr. Lawrence advises that an application ~~was made~~ for a loan of $125,000 was made about five or six years ago and that Mr. Gohring examined the property at that time for the RFC. He is of the impression that Mr. Gohring thought well of the mine. The loan was not made as we know but that was before the need for and the premium prices for zinc. Mr. Lawrence also advises that Mr. Willis is acquainted with the property. I expect that you and Mr. Hastings know considerable about also. So it occurs to me that if you would be willing to go into a conference with Messers Gohring, Willis and Hastings regarding the matter you might be able to give me a clue as to what character of financing, if any, might be had for that project.

Mr. Gohring will no doubt remember more about the ore bodies and their condition than I can gather from the maps and data Mr. Lawrence has shown me. According to Mr. Lawrence's maps the old working shaft is down 14 working levels. He seems well informed regarding the workings down to the 10th level but says he knows little about the lower 4 levels except that the zink content was mush stronger on the 14th level than at and above the 10th. He advises that the vein ranges from 3' to much greater widths--that while the workings above the 10th level were pretty well worked out for the length of that ore chute--that a large amount of what was then low grade filling was returned to the stopes and that rather large blocks of ore which at the prices then prevailing, were not mined. He believes that at present prices the chute could be extended into what would now be profitable ore. But of course his idea is that there is a large body of high grade zinc ore between the 10th and 14th levels and that by sinking deeper still greater ore bodies would be available--as well as by drifting laterally.

Mr. Lawrence advises that the Tubb vein is 24 feet or more in width--that it is mill grade ore but lower value that the main Golconda vein. He thinks the two veins come together a short distance from the present Golconda workings.

Mr. Lawrence's idea of a program is to start a streight drift from the end of the Peach Crosscut Tunnel direct to the old

shaft wprkings. This would be on about the IOth level of the old workings. Such a drift would be on the vein part of the time and close to it at all times. His idea is to crosscut from this streight drift at frequent intervals to the main vein and perhaps to other veins. I think he said the distance from the end of the Peach tunnel to the North end of the IOth level drift would be about I600 feet. He thinks it would be on ore a good part of the distance.

My first thought was to unwater the old workings but Mr. lawrence does not think so well of that. He thinks it would cost more than $20,000 to unwater, including the cost of equipment. I think the cost would depend very much on the condition of the shaft and workings. If in good condition I still think it would be smart and not too costly--with rented equipment--to unwater and take a look at the ore body.

I realize that a $5,000 loan would not unwater nor enable one to sample or otherwise examine the workings. Without getting at the ore bodies how could one get a $20,000 loan or any other loan?

Mr. Lawrence has had some talks with the Ore Plata people in the hope of tieing in their mill and mining equipment in some way--but is not encouraged in that respect. The Ora Plata is pretty badly involved financially but I think something could be done with it if I could see a way of financing the rehibilitating of the Golconde Mine. In fact, if the mine could be re-opened it would be an important accomplishment in conjunction with our hope of establishing a Central Custom mill to serve the district. I think the Ora Plata mill could be bought and used where it is for Golconda development ore and for custom milling pending the working out of a permanent custom milling--Golconda and other personally owned mine project.

I wish you would discuss this matter with the others mentioned and let me have your ideas as to how the Golconda rehibilitation might be financed through the RFC. If that seems possible then I would like to do some work on the Golconda-Ora Plata setup.

I am having correspondence with the owners of the other groups of claims I expect to apply for loans on. They are all in the east and so progress is slow.

Yours very truly,

Ralph R. Langley

Ralph R. Langley

Copy to Mr. Gohring.

PONTIAC MINES, INCORPORATED
- H. B. LAWRENCE, PRESIDENT -
1052 WEST SIXTH ST.
ROOM 401
LOS ANGELES, CALIFORNIA

H
C

October 6th, 1942

Mr. Earl F. Hastings
Department of Mineral Resources
413 Home Insurance Bldg.
Phoenix, Arizona

Solicinda

Dear Mr. Hastings:

Thank you for your letter of the 2nd instant. It is gratifying to learn of the high regard you hold for Mr. Shanklin and his principals, and we hope to have the opportunity of meeting them.

Regarding the monthly payments: the reference was intended to convey the idea that such payments would come from production, as royalties, with a fixed minimum to be agreed upon; and be assured that in any dealings we may have with Mr. Shankiln he will receive due consideration and be accorded all fairness and cooperation in meeting the wishes of himself and his associates.

Referring to the projected tunnels for the Cerbats, you may be sure we would be interested in knowing all about the plans and will be glad to have all information you can give us. Kindly tell us all about it.

Assuring you of our appreciation for the interest taken in our behalf, and with kindest personal regards, we are

Very truly yours,

H. B. Lawrence

For PONTIAC MINES, INCORPORATED

October 2, 1942

H. B. Lawrence, President
Pontiac Mines, Incorporated
1042 West Sixth Street
Room 401
Los Angeles, California

Dear Mr. Lawrence:

We are glad to note that Mr. Shanklin has inquired relative to the Golconda Mine. We have a very high regard for Mr. Shanklin, his ability and the group which he represents. You may find, however that he would balk at any minimum monthly payments for a long period of time at least until such a time as the lower workings could be made accessible. His attitude would be of course that he should not have to pay for the privilege of reopening your property. Mr. Shanklin is a very fine geologist and you will no doubt derive some useful information from any visit he might make, whether or not a deal was consumated.

We will continue to refer any interested parties to you relative to the Golconda Mine.

We have received a petition from the Mohave County Council of the Arizona Small Mine Operators Association relative to three long tunnel projects in the Cerbat range. Each tunnel would develop, at depth, numerous individual properties making all accessible through one main haulage level. We do not know what reaction we will get in Washington relative to the Government financing of such a project, however, we are working on it and thought it might be of some interest to you.

Very truly yours

Earl F. Hastings
Assistant Director
and Projects Engineer

EFH:ba

PONTIAC MINES, INCORPORATED

- H. B. LAWRENCE, PRESIDENT -

1052 WEST SIXTH ST.
ROOM 401
LOS ANGELES, CALIFORNIA

September 28, 1942

Mr. E. F. Hastings
Department of Mineral Resources
413 Home Insurance Bldg.
Phoenix, Arizona

Dear sir:

Referring to your letter of August 29th last:

I have an inquiry from Mr. W. R. Shanklin Regarding the Golconda and have replied that the mine may be had on a lease and option basis calling for ten per cent royalty with minimum monthly payments or on outright purcahse plan if preferred.

In regard to examining the property, I have explained the water situation in the Golconda shaft and workings below the 600 and advised him to call on you again and go over the details, with which I believe you are somewhat familiar.

As you know, we would like to see the mine in operation and we are open for a deal, and if Mr. Shanklin is looking for "a mining property of considerable size" I believe you can assure him of the possibilities in the Golconda and Tub.

I shall be glad to go into matters directly with responsible parties and I trust Mr. Shanklin will find it convenient to investigate our proposition further.

With kindest personal regards

Very truly yours,

H. B. Lawrence

August 29, 1942

Mr. H. E. Lawrence
1052 West 6th Street
Los Angeles, California

Dear Mr. Lawrence:

We have shown your data on the Golconda to a Mr. W. R. Shanklin of San Antonio who represents oil interests in Texas. He expressed some interest in the property and will attempt to visit the Chloride area some time in the next two weeks. He has your name and address and will contact you prior to his proposed visit and possibly arrange to see you.

With your permission we will hold the maps and reports as we may be able to present the property to other interested parties. We are most anxious to stimulate metal production in this state and feel that the opening of the Golconda property would serve this end.

Very truly yours,

E. F. Hastings,
Assistant Director &
Projects Engineer

EFH:hal

August 26, 1942

Mr. H. B. Lawrence
1052 West Sixth Street
Los Angeles, California

My dear Mr. Lawrence:

I am enclosing herewith a copy of mine owner's report filed with this department covering the GOLCONDA MINE in Wallipai Mining District, Mohave County.

I shall be glad to submit this report to anyone making inquiry for a property such as yours.

Assuring you of my desire to be hlepful, and with best wishes, I am

Yours very truly,

J. S. Coupal

JSC:hal

Enclosure

PONTIAC MINES, INCORPORATED

- H. B. LAWRENCE, PRESIDENT -

1052 WEST SIXTH ST.
ROOM 401
LOS ANGELES, CALIFORNIA

August 10, 1942

Mr. J. S. Coupal, Director
Department of Mineral Resources
413 Home Builders Bldg.
Phoenix, Arizona

Dear Mr. Coupal:

Your appreciable letter of the 4th inst is received and I am pleased to note the interest shown in the Golconda property.

Complying with your request I am sending herewith the information on form supplied by you and I trust it will serve to conform with your good opinion of the Golconda mine.

I feel particularly fortunate in finding that Golconda is so favorably regarded in your department, and that personally I am in the hands of friends since I have an acquaintance with your Mr. Willis, besides a more recent acquaintance with Mr. Hastings, both of whom know that Golconda has produced a fine record.

Thanking you for your courtesy and trusting that it will lead to the opportunity for bringing the mine into production again in the near future, I am

Very truly yours,

H. B. Lawrence

Golconda

PONTIAC MINES, INCORPORATED

- H. B. LAWRENCE, PRESIDENT -

1052 WEST SIXTH ST.

ROOM 401

LOS ANGELES, CALIFORNIA

August 10, 1942

Mr. Charles F. Willis, Chairman
Board of Governors,
Department of Mineral Resources
Phoenix, Arizona

Dear Mr. Willis:

Thank you for your letter of July 30th.

I have read the article referred to in the Journal of July 30th in conjunction with your letter and the accompanying memorandum and, acting in accordance with the information gained, I shall proceed to avail myself of the present opportunity.

In addition to your valued letter and the always welcome Journal, I have letters from Mr. Earl Hastings, with whom I am acquainted, and your Mr. Coupal, who addressed a recent meeting of our association here. Both of these gentlemen are familiar with the Golconda mine and, I believe, hold favorable opinions of the property and its possibilities.

In 1935 an application was made by Pontiac Mines, Incorporated, for a Class A R. F. C. loan of $125,000.00 through Mess. Cameron & Perkins, attorneys of Long Beach, California, and submitted to the Department in Washington by Mr. Perkins in person. Encouraging reports were received regarding the progress being made and encouraging accounts appeared in the press, one such notice in the Journal of August 30th, 1935, p p 13 and 29. Nevertheless, the application was dis-allowed, but consideration was given to a Class B loan and Mr. W. B. Gohring, of Arizona, was assigned to make the examination.

The appointment of Mr. Gohring appeared fortunate since he was familiar with the property, its history and performance, and favorably impressed with the merits and possibilities of the mine, but the result seemed to be that a loan $20,000.00 would not accomplish all that was then required by the Department and in this view we were in accord.

However, that was early in the R F C program and changes and revisions that have been made since then make it possible to give more liberal consideration to such cases as ours, which I hope will prove to be the case in this instance.

In the case of the Golconda mine: To make a thorough examination of the workings of this mine will necessitate unwatering to the bottom of shaft and require equipment, power, labor, etc, and approximately three months time to remove the water, using equipment that would be necessary in the operation of the mine besides providing water for milling purposes.

As you will readily realize, the $5,000.00 loan would not be sufficient to accomplish much in the way of unwatering the Golconda mine, but it might be used in preliminary development in other parts of the property and a partial examination that would justify further loans, even to an amount necessary to include complete milling equipment for an initial plant of at least 100 tons (minimum) daily capacity, and beyond the sum originally contemplated to place the property in operation.

I am taking the liberty of sending with this letter folios with a history, maps and photographs that will give a more complete picture of the property, and I trust you may be able to find the time to look through it. You will note that the operations carried on so far are largely within the Golconda and Tub ground which comprises only a small portion of the total area included in the P. M. I. holdings with their possibilities along the Golconda and Tub veins, besides the numerous other veins indicated and in some cases exposed. The Golconda is the initial operation and because it supplied ore of good grade from the very start, and proved consistent and constant both in tonnage and values, and for the major part of its history produced an average of more than 100 tons per day, keeping the mill in operation up to capacity, there was no immediate reason for expansion, though the Tub vein was all along considered as a potential producer of tonnages of low grade ore for future operations on an extensive scale.

My association with the operation of the Golconda mine convinced me of its possibilities and I believe the further development of the property will yield most gratifying results, and I hope there will be no further delay in bringing it into full operation; it should be producing right now.

Your suggestions will be most welcome and highly appreciated.

With kindest personal regards and every good wish, believe me

Yours very truly

H. B. Lawrence

Please return report and maps when through with them.

H. B. L.

PONTIAC MINES, INCORPORATED
- H. B. LAWRENCE, PRESIDENT -
1052 WEST SIXTH ST.
ROOM 401
LOS ANGELES, CALIFORNIA

August 10, 1942

Mr. E. F. Hastings,
Ass't Director and Projects Engineer,
Department of Mineral Resources,
Phoenix, Arizona

Dear Mr. Hastings:

I was pleased to receive your letter of the 4th inst and learn of your return to this side of the Pacific. I had wondered if you still remained in Hawaii, and I made inquiries of mutual acquaintances but without result.

Learning of your association with the Department of Mineral Resources is interesting and I appreciate your suggestion regarding a preliminary loan for which I will probably make application.

Further encouragement was received from Mr. Willis and Mr. Coupal, both of whom, like yourself, regard the Golconda favorably, which will undoubtedly prove very helpful in advancing an application for a loan.

Thanking you for your very kind offer of which I may avail myself later, and with kindest personal regards, believe me

Yours very truly,

H. B. Lawrence

August 4, 1942

Mr. H. B. Lawrence, President
Pontiac Mines, Incorporated
1052 West Sixth Street
Los Angeles, California

Dear Mr. Lawrence:

Your letter of July 28 to Mr. Charles F. Willis and his reply to you of July 30 have been called to the attention of the Department of Mineral Resources.

I have known of the Golconda property for many years and for information in our files I am submitting to you a blank mine owner's report form and would appreciate having in our files complete information regarding the Goldonda property. When government loans are requested, our files are ofttimes consulted, and I believe it would be to your advantage to have this information on file here.

Yours very truly,

J. S. Coupal, Director

JSC:LP
Enc.

August 4, 1942

Mr. H. B. Lawrence, President
Pontiac Mines, Incorporated
1052 West Sixth Street
Los Angeles, California

Dear Mr. Lawrence:

I notice some correspondence relative to the Golconda mine going through the office. About a year ago I recall having made some addition to your files on this property and know that they are quite complete. Such full information will help to secure your preliminary development loan and should be forwarded.

I am now associated with the Department of Mineral Resources and will be glad to give you any assistance I can.

With kindest personal regards, I am

Yours very truly,

Earl F. Hastings
Assistant Director and Projects Engineer

EFH:LP

July 30, 1942

Mr. H. B. Lawrence, President
Pontiac Mines, Incorporated
1052 West Sixth Street,
Los Angeles, California.

Dear Mr. Lawrence:

I have your letter of July 28 and I note your interest in unwatering and rehabilitating the Goldonda mine.

You probably will note the article in the current issue of The Mining Journal on the government mine loan program. Of particular interest is the new $5,000 mine loan for the purpose of making a property accessible for examination. This, of course, is only for the small properties and it may be that you have a job that would require more than $5,000. However, it is possible too that the $5,000 preliminary development loan would uncover enough of the property so that a partial examination could be made and further loans made based upon such examination. In other words, it is not necessary to completely expose the mine. The idea is that there should be sufficient available for examination so as to determine whether or not a further loan can be made. I am enclosing a circular on the preliminary development loan program but would suggest that you read The Mining Journal article in the issue mailed yesterday.

With kindest personal regards, I am

Yours very truly,

CHARLES F. WILLIS, Chairman
Board of Governors

CFW:MH
Enclosure

PONTIAC MINES, INCORPORATED
- H. B. LAWRENCE, PRESIDENT -
1052 WEST SIXTH ST.
ROOM 401
LOS ANGELES, CALIFORNIA

July 28, 1942

Mr. Charles F. Willis,
520 Title & Trust Bldg.
Phoenix, Arizona

Dear Mr. Willis:

I have a couple questions which I had hoped to submit to you at the recent meeting of the M.A.S.W. but was dissapointed to learn you could not be present. As you are aware, I am interested to a considerable degree in the Golconda group near Kingman and wish to secure financing to un-water and operate the Golconda mine, which you know has a very fine record for zinc production.

The mine has been idle for a number of years and water has accumulated filling the workings up to a point just below the 600 level which, preliminary to everything else, must be removed before a complete examination could be concluded. My thought is that your connection with the production program and the necessity for urging the output of the strategics and criticals, you are undoubtedly in a position to advise the course to be taken to secure the State and/or Federal assistance necessary to accomplish the unwatering and rehabilitating of the Golconda mine.

The Golconda once in operation would again become a valuable contributor to zinc requirements of the Nation and it is the wish of myself and my associates that this might be done without delay; therefore, will you kindly advise me of the possibilities in such a case and how to proceed. Any details you may wish to have will be gladly submitted, and your cooperation will be duly appreciated.

Very truly yours,

H. B. Lawrence

Los Angeles, California,
March 28th, 1919.

Mr. C. B. Bell,
Chloride, Arizona.

Dear Mr. Bell: Re: Sale of Golconda Mine

In accordance with our conversation of March 26th, I am handing you herewith data on the Golconda Mine, with statements of our operations and mine and property maps.

As shown on the first statement, the Golconda Mine produced thirty-one million pounds of zinc, with gold and silver values, during the three years we operated it, for which we were paid $2,117,433.00 and received $1,761,126. net from the smelter after deducting freight and smelting charges. You will note a great increase in the residue (gold and silver) values; during 1915 we received $34,765.78 for residue in 13,513 dry tons shipped, an average of $2.57 per ton; and in 1917 we received $111,003.02 for residue in 11,735 dry tons shipped, an average of $9.46 per ton. This high precious metal value is a factor of great moment in the operation of a zinc mine.

A statement of our 1917 operations giving the tonnage mined, milled and produced is also attached, so that you may have actual data of our last operations up to the time of the destructive fire, which destroyed the entire milling plant and mine bins on October 4th, 1917. We immediately engaged mill designers and proceeded to draw up plans and specifications for a new mill, but after nearly three months' time, in which those plans were practically complete it was finally decided not to rebuild the plant at that time, due to the very greatly increased cost of labor, machinery and materials brough about by the war, the uncertainty of equipment deliveries and consequent unusual length of time it would take to rebuild the plant under the extraordinary conditions at that time, the uncertainty of the smelter market and the high cost of producing spelter. It was not considered likely that mine operations would be resumed until after the war and before conditions were again normal, which it was then believed would require four or five years' time; and we, therefore, dismantled the entire mine plant and disposed of the equipment with the idea of rsuming mine operations with a plant at the 500 tunnel level, instead of at the collar of the shaft, and with new and more modern equipment suitable for our mine operations.

Regarding ore reserves, we did not make any detailed estimate, owing to the fact that development work had not been sufficiently advanced, and the mine is not in shape for any one to estimate actual ore reserves. Perhaps you will understand this better if I mention that during the high price of zinc, we made every effort to produce every point the mind could stand, sacrificing development work for the momentarily high prices of zinc, and at the time of the fire the development work was just reaching a stage where we would be able to block out larger areas than had ever been done in the history of the mine. Be referring to the stope map, you will note that the shaft is below the 1400 level, thus making available 300 feet of ground below the 1100 level and we were just ready to start drifting on the 1400 level when the fire terminated operations.

In line with former ore estimates, we based our conclusions of ore reserves on the continuance of the ore zone and past operations of the mine, which had been borne out by our results. The Golconda vein has produced about 20,000 tons of concentrating ore for each 100 feet of depth along the veing below the 700 level, using this basis for the ore zone opened up fore more than 300 feet below the 1100 level. There should be 60,000 tons of concentrating ore in the stoping zone along the Golconda vein above the 1400 level. The Tub vein also offers attractive possibilities, and while it is true we did not work along this vein during the last year of our operations, our final study of this vein (when we had more time for such investigations after the fire) lead us to believe that the Tub workings of the 700 level were unattractive due to being in a fault zone which closely follows in dip and strike the course of the Tub vein. Further development of this vein will undoubtedly show a continuance of the large ore-bodies opened above, also an extension of the Golconda vein southward beyond the intersection with the Tub fault shown on the 700, 800, 900, 1000 and 1100 levels.

As far as ore reserves are concerned, when we took over the property we estimated slightly over 5000 tons of concentrating ore as actually blocked out - not much more than one month's operations, but his did not discourage us as we were well aware of the previous history of the mine as far as the ore reserve was concerned, and it is fact that we mined at the rate of more than 4000 tons a month for nearly three years after taking over the property.

The results of development work so far on the 1200 level - the lowest level in the mine - were disappointing but not altogether discouraging as we had seem similar conditions on practically every one of the lower levels, such as the 900, 1000 and 1100 levels, and yet obtained our full quota of ore from the stoping areas above these levels. It is a singular fact that development headings all told at Golconda were rarely attractive or conducive of any great expectations of ore returns, and yet the mine has produced fully 70,000,000 pounds of zinc with gold and silver values. Against the unattractiveness of the 1200 level drifts is the fact that about 15 feet below the 1200 level a body of high grade was entered in the shaft which opened to a width of 6 feet of solid high grade ore and continued for about 60 feet in depth. This exemplifies a condition which is found throughout the mine, and the fact that these ore bodies are usually continuous in the ore zone and have only local pinches, is the reason that the entire ore zone is eventually stoped out in the operations above each level.

On the property map attached, the Virginia, Tub, Golconda, and Prosperity claims are already patented. We are awaiting patent papers on the Little Jimmie claim, and the other claims have all been surveyed for patent and are now in process of being patented.

Yours very truly,

John D. Wanvig, Jr.
Supt. Union Basin Mining Company
Golconda, Arizona
P. O. Chloride, Arizona

Corrected

COPY

Los Angeles, California,
March 28th, 1919.

Mr. C. B. Bell,
Chloride, Arizona.

Dear Mr. Bell; Re: Sale of Golconda Mine.

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Regarding ore reserves, we did not make any detailed estimate, owing to the fact that development work had not been sufficiently advanced, and the mine is not in shape for any one to estimate actual ore reserves. Perhaps you will understand this better if I mention that during the high price of zinc, we made every effort to produce every pound the mine could stand, sacrificing development work for the momentarily high prices of zinc, and at the time of the fire the development work was just reaching a stage where we would be able to block out larger areas than had ever been done in the history of the mine. By referring to the stope map, you will note that the shaft is below the 1400 level, thus making available 300 feet of ground below the 1100 level and we were just ready to start drifting on the 1400 level when the fire terminated operations.

COPY

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pened up for more than 300 feet
below the 1100 level

In line with former ore estimates, we based our conclusions of ore reserves on the continuance of the ore zone and past operations of the mine, which had been borne out by our results. The Golconda vein has produced about 20,000 tons of concentrating ore for each 100 feet of depth along the vein below the 1100 level, there should be 60,000 tons of concentrating ore in the stoping zone along the Golconda vein above the 1400 level. The Tub vein also offers attractive possibilities, and while it is true that we did not work along this vein during the last year of our operations, our final study of this vein (when we had more time for such investigations after the fire) lead us to believe that the Tub workings of the 700 level were unattractive due to being in a fault zone which closely follows in dip and strike the course of the Tub vein. Further development of this vein will undoubtedly show a continuance of the large ore-bodies opened above, also an extension of the Golconda vein southward beyond the intersection with the Tub fault shown on the 700, 800, 900, 1000 and 1100 levels.

As far as ore reserves are concerned, when we took over the property we estimated slightly over 5000 tons of concentrating ore as actually blocked out - not much more than one month's operations, but this did not discourage us as we were well aware of the previous history of the mine as far as ore reserve was concerned, and it is a fact that we mined at the rate of more than 4000 tons a month for nearly three years after taking over the property.

The results of development work so far on the 1200 level - the lowest level in the mine - were disappointing but not altogether discouraging as we had seen similar conditions on practically every one of the lower levels, such as the 900, 1000 and 1100 levels, and yet obtained our full quota of ore from the stoping areas above these levels. It is a singular fact that development headings all told at Golconda were rarely attractive or conductive of any great expectations of ore returns, and yet the mine has produced fully 70,000,000 pounds of zinc with gold and silver values. Against the unattractiveness of the 1200 level drifts is the fact that about 15 feet below the 1200 level a body of high grade was entered in the shaft which opened to a width of 6 feet of solid high grade ore and continued for about 60 feet in depth. This exemplifies a condition which is found throughout the mine, and the fact that these ore bodies are usually continuous in the ore zone and have only local pinches, is the reason that the entire ore zone is eventually stoped out in the operations above each level.

On the property map attached, the Virginia, Tub, Golconda and Prosperity claims are already patented. We are awaiting patent papers on the Little Jimmie claim, and the other claims have all been surveyed for patent and are now in process of being patented.

Yours very truly,

(Signed) John D. Wanvig, Jr.
Supt. Union Basin Mining Company, Golconda, Ariz.
P.O. - Chloride, Arizona.

DEPT. MINERAL RESOURCES
RECEIVED
AUG 12 1942
PHOENIX, ARIZONA

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
MINE OWNER'S REPORT

Date Los Angeles, California August 10, 1942

1. Mine Golconda
2. Location 17 miles N W of Kingman, Arizona, via Hiway 66 Sections 5 & 6, T22N, R17W
3. Mining District & County Wallipai Mining Dist Mohave County
4. Former name Original name same
5. Owner Pontiac Mines, Incorporated
6. Address (Owner) care H. B. Lawrence 1052 W 6th St. Los Angeles, Calif
7. Operator not operating at present
8. Address (Operator) -------
9. President, Owning Co. H. B. Lawrence
9A. President, Operating Co. -----
10. Gen. Mgr. ditto
11. Mine Supt. --------
12. Mill Supt. --------
13. Men Employed ------
14. Principal Minerals zinc, gold & silver
15. Production Rate 4,000 tons per mo.
16. Mill: Type & Cap. wet conc 135-150
17. Power: Amt. & Type electric from Power Company
18. Operations: Present idle
19. Operations: Planned flotation
seeking capital
20. Number Claims, Title, etc. 5 patented
15 unpatented all contiguous
21. Description: Topography & Geography Numerous surface workings shallow shafts and cuts Also, workings in the TUB with connections on the 500 and 700 levels in Golconda shaft.
collar main shaft 4750' elevation
sump on vein approx 1300' on incline, vertical distance approx 1150'
adit 2500' along vein from portal to 600 station in the shaft
22. Mine Workings: Amt. & Condition 12 levels drifted on ore shoots up to 1200' in length, with raises, winzes and connections.
Tunnel to connect with 500 station in shaft driven about 400' and requiring approx 400' to connect with shaft.

(over)

23. Geology & Mineralization — The country rock Gneiss intrud[illegible] by granite porphyry. The ore mineral is Sphalerite with small percentage galenite and pyrite, as described by Schrader in U S G S bulletin 397.

24. Ore: Positive & Probable, Ore Dumps, Tailings

			Zn	Au	Ag
Below the 1100 to the 1400level at least	60,000	tons	14%	.18	4.15
Above " " probably	40,000	"	Variable		
Dump low grade approx	40,000	"	4.5%	.06	2.3
Jig Middlings "	17,000	"	4.3%	.07	1.8
Tailings values less than $1.00 per ton					

24A. Dimensions and Value of Ore body

Impossible to estimate at this time

25. Mine, Mill Equipment & Flow-Sheet — No equipment on the property at this time.

26. Road Conditions, Route — Hiway 66 to within 3 miles of the mine, balance gravel to withing ¾ of a mile which is mostly mountain grade but not difficult.

27. Water Supply — Ample from the mine

28. Brief History — see copy of letter (John D. Wanvig, Jr.) attached. There have been no changes in the mine since this letter was written, except that the water has reached almost to the 600 level.

29. Special Problems, Reports Filed — None: Simple wet concentration, ratio 3.5:1 yielded a bulk concentrate averaging 42% zinc, .18 gold, and 4.15 osz silver and 85% recovery. Easily adapted to flotation treatment, selective process, in same ratio and producing higher recovery.

30. Remarks

31. If property for sale: Price, terms and address to negotiate. — Will sell or lease, long lease preferred. Address Pontiac Mines, Incorporated, care of H. B. Lawrence, President, 1052 W. 6th St. Los Angeles, California

32. Signature H. B. Lawrence, Pres.

PONTIAC MINES, INCORPORATED

33. Use additional sheets if necessary.

MG-75

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
MINE OWNER'S REPORT

Date Los Angeles, California
August 10, 1942

1. Mine: Golconda

2. Location: 17 miles NW of Kingman, Ariz., via Hiway 66, Sections 5 & 6, T22N, R17W

3. Mining District & County: Wallipai Mining Dist. Mohave County

4. Former name: Original name same

5. Owner: Pontiac Mines, Incorporated

6. Address: H.B. Lawrence 1052 W 6 St. Los Angeles, California

7. Operator: Not operating at present

8. Address (Operator) -------

9. President, Owning Co.: H.B. Lawrence

9A Pres. Operating Co. ------

10. Gen. Mgr. H. B. Lawrence

14. Principal minerals: zinc, gold and silver

11. Mine Supt. --------

15. Production Rate: 4,000 tons per month

12. Mill Supt. --------

16. Mill: Type & Cap. wet comc 135-150

13. Men Employed --------

17. Power: Amt & Type electric from Power Company

18. Operations: Present idle

19. Operations: Planned flotation seeking capital

20. Number Claims, Title, etc: 5 patented
15 unpatented all contiguous

21. Description: Topography & Geography: collar main shaft 4750' elevation, dump on vein approx 1300' on incline, vertical distance approx 1150', adit 2500' along vein from portal to 600 station in the shaft

22. Mine Workings: Amt & Condition: Numberous surface workings shallow shafts and cuts. Also, workings in the TUB with connections on the 500 and 700 ' levels in Golconda shaft.
12 levels drifted on ore shoots up to 1200' in length, with raises, winzes, and connections.
Tunnel to connect with 500 station in shaft driven about 400' and requiring approx 400' to connect with shaft.

(over)

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Below the 1100 to the 1400 level at least	60;000	tons	14%	.18	4.15
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Tailings values less than $1.00 per ton					

24A Dimensions and Value of Ore body: Impossible to estimate at this time

25. Mine, Mill Equipment & Flow-Sheet: No equipment on the property at this time.

26. Road Conditions, Route Hiway 66 to within 3 miles of the mine, balance gravel to within 3/4 of a mile which is mostly mountain grade but not difficult.

27. Water Supply: Ample from the mine

28. Brief History: See copy of letter (John D. Wanvig, Jr.) attached. There have been no changes in the mine since this letter was written, except that the water has reached almost to the 600 level.

29. Special problems, reports filed: None: Simple wet concentration, ratio 3.5:1 yielded a bulk concentrate averaging 42% zinc, .18 gold, and 4.15 ozs. silver and 85% recovery. Easily adapted to flotation treatment, selective process, in same ratio and producing higher recovery.

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32. Signature: H. B. Lawrence, President
PONTIAC MINE, INCORPORATED

SMELTER RETURNS AND PRODUCTION

of

UNION BASIN MINING COMPANY

	1915	1916	1917	TOTAL
Am't paid for Zinc Shipped	$684,486.83	$718,640.90	$488,958.66	$1,892,086.59
Am't paid for Residue Shipped	34,765.78	79,578.12	111,003.02	225,346.92
Total paid for Metals	719,252.61	798,219.02	599,961.68	2,117,433.31
RR Frt. to Smelters	140,486.82	126,708.76	99,111.34	356,306.92
Net Smelter Returns	$588,765.79	$671,510.26	$500,850.32	$1,761,126.39

TWO YEARS NINE MONTHS WORK

SMELTER RETURNS AND PRODUCTION

of

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TWO YEARS NINE MONTHS WORK

GOLCONDA MINE

Cerbat District — Mohave County, Arizona

The old Golconda mine is of interest now only for the approximate size of the ore-shoot and the grade. Two levels of ore from the 1100 to the 1300 are supposed to be partly blocked out and untouched but the expense of reopening the property would be excessive unless a nearby mine was developed.

The old Golconda ore shoots comprised a main sulfide shoot and enriched oxidized ores at numerous points along the vein. The main shoot was apparently about 1,000 feet long and extended down about 1300 or more feet. The shoot was not continuously stopable but consisted of a number of lenses of ore separated by pinches. Stoping widths varied from pinch to as much as 8 or 10 feet. The average stoping width appears to have been about 3.5 feet though the rounds may have broken wider. The tonnage on the main shoot aggregated about 225,000 tons and Wanvig who operated the property for several years states that the shoot produced an average of 20,000 tons per level.

The development levels were never promising of full tonnage according to Wanvig, but each level produced its full tonnage. Pinches laterally and vertically were responsible for the incomplete showing in drifts.

To the north, the Middle Golconda and Oro Plata produced ore mainly from shallow workings and above the main Peach tunnel. This ore was apparently enriched and but little sulfide development is reported.

The Production Bulletin credits the Golconda with a productia of 6,500,000 dollars. The recovered value was about: Au:.07; Ag:2 oz; Pb: 2%; Zn: 14%; Cu:.25%.

The Oro Plata new mill was operated a short time on ore ? form the vein cross-cut at 800' by the Peach tunnel.

This operation was under the direction of Mr. Frawley of Reno, Nevada. T he whole history of this operation is rather bad and the property was shut down in May, 1938.

Robert M. Hernon

June 18, 1938

The general vein filling is a hard, more or less silicious stuff, that is not easily identified on account of excessive weathering.

The "Ore" as it is locally called, is quite distinct from this gangue. The filling outside of the "Ore" is nearly or quite barren of values except a small gold and silver content. The composition and assay value of this filling would suggest the idea that the zinc content had been oxidized to the sulphate and subsequently leached out and carried to a lower depth by circulating waters. Where the so-called "pinch" occurs on the Main vein the vein maintains its normal width, but the values, except the gold and silver content, are absent. After a very careful consideration of this point I am strongly of the opinion that the zinc content has been removed as above indicated. If this is the case then the ore proper should become more abundant, if not richer, as depth is reached. Or, in other words, there should be a larger proportion of the vein occupied with workable ore in the lower levels. This condition has been partially verified in the lowest levels now open, and when the mine is opened below the permanent water level, the entire vein should be filled with workable ore.

The "Ore" mineral is sphalerite, and is about 75% pure; of the remaining 25%, about 4% is galenite; from 1% to 3% is pyrite, and the balance is either silica or silicate. Where the ore is in sufficient thickness to enable it to be done, it is mined and shipped direct; but where the ore body is small or mixed with gangue, it is milled and the concentrate mixed with the high grade ore and shipped. The above applies to the "Main" vein.

The "Golconda" vein, or what the miners call the "east" vein, is similar in physical aspects to the "Main" vein, only not quite so large. This means that there is less barren vein filling, less waste to be mined, and that the ore proper is correspondingly of higher grade.

The "Tub" vein, as before stated, is very much larger than any of the other veins mentioned. It has an average width, as opened up, of about 40 feet. It is easily traceable for about 400 feet on the surface. The surface is covered with modern lava to such an extent that the croppings are not easily traceable any further. It is a true fissure vein and but little doubt but it is very much longer than 400 feet.

From the ore visible in the "Tub" vein, I would estimate that about 60% of the entire vein will pay to mill in the present equipment. With an adequate milling capacity the whole of the Tub vein will yield entirely satisfactory results.

The range of mountains in which the mine is situated is entirely volcanic. Nothing but igneous rocks, of various ages, is to be found for miles. The general formation in the immediate vicinity of the mine is gneiss. In places this merges into granite; and in others, into schist. Cutting this gneiss is a series of parallel dikes which vary considerably in size as well as in the distance between them. On or near the hanging wall of the several dikes occur the veins. In other words, the foot wall of the various veins is a dike. The hanging wall is, generally, gneiss. These dikes are light-grayish

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intrusives; highly acid, and very closely related to the rhyolites. In texture they are fine-grained and massive. In places this dike formation is found on the hanging wall of the vein as well as on the foot, but when so found it is very thin; sometimes only a few inches in thickness and hardly noticeable. To the eastward, the gneiss changes to granite, while to the extreme western border of the property the formation is a coarse-grained porphyritic granite. As before stated the surface is covered with a modern lava.

The veins, so far as opened up, are true fissure veins with well defined talc gouge on the walls. This statement is only partly true of the "east" vein. Here, in places, the ore is frozen to the hanging wall, but so far as observed, not to the foot wall. The Tub vein is also a true fissure vein even more strongly marked than the "Main" vein. It is in this vein that, in my opinion, the largest and best part of the mine is to be found.

D E V E L O P M E N T

The mine is opened by a main working shaft, with drifts turned at various levels; and by tunnels and open cuts. The working shaft is sunk on the "Main" vein and has a total depth on the vein, of 397 feet below the collar, and a depth of 347 feet below the lowest adit level. The levels were turned at the 50 ft., the 100 ft., the 198 ft. and the 267 ft. and the 332 ft. stations below the collar of the shaft. The details of the development will be taken up under the different levels, as follows:

1st level. Practically all the available ore from this level to the surface has been stoped out. The total length of ore chute as shown on this level was only about 430 feet, with an average width of about 2 feet solid ore. From the nature of the surface very little ore was found south of the main shaft.

There is practically no ore left in this level; except some stope filling, and of this there is probably not more than 600 tons. This stope filling will average about 18% zinc. The Golconda, or "east" vein, has not been opened on this level.

2nd level. This level is closed at the shaft, with no means of getting into it except from the stopes of the 3rd level. What ore there is here available will be considered under the 3rd level.

3rd level. On this level there is an ore chute about 600 feet in length south of the shaft, and about 350 feet north of the shaft. Just north of the main shaft occurs the so-called "pinch". This "pinch" is about 75 feet in length, and is no pinch at all, for the vein here has the normal width. The zinc values seem to have been leached out as previously suggested.

The width of the ore between the north and the south sides of the main shaft varies somewhat, but will average between five and six feet. The total length of chute, as opened on this level, is about 950 feet, exclusive of the so-called "pinch".

The stoping ore between this level and the first is rather irregular; but will yield about 800 tons of shipping ore and about 1,500 tons milling

ore. Besides this there is probably 3,000 tons, or more, of stope filling that will pay to mill. These stopes were filled with milling ore taken down while shipping ore was being taken out, and before the mill was built. This stope filling has a milling value of about 18% zinc with small values in gold and silver.

The "Main" vein on this level is more or less broken and faulted. The present face (June 1912) south is very thoroughly oxidized. The south drift, if continued, would reach daylight near the "Tub" shaft.

The "east" vein on this level, is also very irregular. The total tonnage available will probably not exceed 3,000 tons. Of this total tonnage about one-third is of the usual shipping grade, and the balance is milling ore. This vein forms a junction with the "Main" vein a few feet north of the main shaft.

4th level. Throughout this level the ore is badly broken and faulted. It must, however, be remarked that the faults found on this level, as well as those found on the 3rd, are trifling in their extent, and their displacement is, at most, but a few feet.

There is every evidence here that the old permanent water level was as close to this horizon, or only a few feet below the floor of this level. For some distance both above and below this level the ore is scanty and of low grade. The water level oscillated through a vertical distance of from 30 to 50 feet around this level. This alternate rising and falling of the ground water throughout this zone of oscillation resulted in very thoroughly oxidizing the sphalerite to the sulphate, and to its subsequent leaching out. In the workings below this level large quantities of zinc sulphate crystals are found.

The ore-chutes pitch to the north at about the same angle as the dip. The ore-chute found near the face of the Prosperity adit is identical in every respect with the ore exposed in the north end of this level; and there can be no doubt but that the chute found north of the shaft in this level is continuous down to the Prosperity tunnel. The only noticeable difference is the fact that the ore body as opened up in the Prosperity tunnel is larger and of higher grade than that found in the 4th level north of the shaft.

The amount of available ore between this level and the 3rd will probably not be in excess of 2,000 tons of all grades, including stope filling. About 500 tons of this will be of the shipping grade. The total length of ore opened up on this level is about 900 feet.

5th level. This level has a length of 250 feet north of the shaft, and of 180 feet south of it. About 75 feet of the 250 feet is in the so-called "pinch", leaving about 355 feet of workable ore developed. From the extent of ore exposed on the upper levels this chute should extend about 400 or 500 feet further north, and at least 200 feet further south. The average width of ore body south of the shaft is about 6 feet, and to the north, about 9 feet. However, the ore north of the shaft is of higher grade than that to the south. About one-third of the ore developed on this level is of the usual shipping grade, and the balance is milling.

About one-third of the ore originally available on this level has been stoped out. The ore-chute north of the shaft on this level is no doubt the same one that is showing in the Prosperity tunnel.

6th level. The shaft is down, at this date, about 75 feet below the 5th level, but no drifting had been done. The ore continues to the bottom of the shaft and is, in character, size and value, about the same as that found in the 5th level.

An adit level was started on the Prosperity claim to tap the main workings at some depth below the 5th level. The main object of this adit was drainage. This tunnel is now in to within a short distance of the main shaft. There was exposed in this level at the time of my visit a good chute of ore of normal width and value that, without doubt, is the same chute that is exposed in the north end of the 4th and the 5th levels. The most striking difference is that it is larger and of higher grade than that found in the 5th level, north.

It is manifestly impossible to form any estimate with any degree of accuracy of the tonnage of ore that this tunnel will yield but it certainly will prove quite satisfactory both in tonnage and in values.

R E C A P I T U L A T I O N

OF AVAILABLE ORE

1st level: No ore in place. About 600 tons stope filling that will average about 18% zinc, and about $1.00 in gold and silver.

2nd level: Not recognized as having any ore of any grade.

3rd level: "Main" vein- south. 600 feet long, and from 4 to 10 feet wide, somewhat irregular. Will yield about 800 tons shipping ore that will average about 42% zinc, or better, and about $1.00 in gold and silver. The milling ore will average between 12% and 15% zinc, and about $1.00 in gold and silver. North of the shaft, 350 feet long and from 4 to 10 feet in width. No ore in place, but about 3,000 tons of stope filling that will average about 18% zinc with the usual gold and silver values.

3rd level: "East" vein. The ore here is rather irregular, and there is probably not more than 3,000 tons of ore of all grades available. About one-third is of the shipping grade, and the rest good milling ore.

4th level: Total length of chute, about 900 feet in length, and somewhat irregular. Probably not more than 3,000 tons available ore of all grades, including stope filling.

5th level: South, 180 feet long, 75 feet high, and 6 feet in thickness, 7,500 tons. About one-third has been stoped, leaving about 5,000 tons available. About one-third is of the usual shipping grade. From the present face to the probable end of the chute, as shown by the development on the upper levels, there should be at least 7,000 tons more of all grades.

North: 175 feet in length, 75 feet high, with an average width of about 3 feet, 3,000 tons. This chute should extend at least 400 feet further north, and should yield at least 6,000 tons more ore of all grades. About one-third of the available ore is of the shipping grade.

6th level: When this level is opened up to the extent of the chute, it should yield at least 25,000 tons of all grades.

TONNAGE and VALUES

Positive ore	19,000 tons	Value	$256,500.00
Probable ore	32,000 tons	Value	432,000.00
Mill dump	40,000 tons	Value	80,000.00
			$768,500.00

To the above must be added the prospective ore that the mine can reasonably be expected to yield below the present development. No one can estimate the extent of the ore chute in depth, but there is every reason to believe that it will ultimately reach a depth of several hundred feet below the present lowest workings. The veins are true fissures and from the nature of such veins a great working depth is almost assured. Should the ore body maintain its size and values as depth is gained, each 100 feet will add at least 30,000 tons of ore of all grades. There is more reason to assume that the ore body will reach a great depth than to expect no ore below the present depth. From a close study of the vein and the formation there is a very strong presumption that the ore body is persistent, and that profitable mining can be carried on for many hundreds of feet below the present development.

Again, it must be remembered that there are at least three other veins on the property. Their croppings are as persistent and prominent and their values as satisfactory as those of the veins that have been developed. None of these veins have been opened beyond a few prospect holes and cuts sunk at various intervals on the croppings.

Also, the "Tub" vein is to be considered as having a very valuable asset in its probable yield of ore. It has been sufficiently opened up to permit of a reasonable conclusion as to its possibilities as an ore producer. Its shaft is down 50 feet with about 150 feet of drifting on the ledge, and a crosscut that proves the ledge to be about 40 feet between walls. This ledge is traceable on the surface for about 400 feet. Beyond this the surface is so covered with modern lava that the existence of the ledge cannot be distinguished further. However, as the vein is a true fissure vein there can be but little reason to assume that it is not much longer than 400 feet. Of the ore thus partially developed, it is safe to conclude that at least 60% of the entire contents of ledge will pay to mill in the present equipment. With increased milling capacity the entire Tub vein, with a width of at least 40 feet, will pay handsomely. One car of ore, roughly sorted by discarding the boulders of manifestly low grade stuff, gave smelter returns as follows: Zinc 32.6%; lead 6%; gold .60 oz.; silver 9.9 oz. There is now developed in this vein at least 10,000 tons of milling ore that will yield at least 15% zinc, and about $3.00 in gold and silver. The probable ore that the "Tub" vein can ultimately produce is enormous.

ORE SHIPMENTS

The first carload of ore was shipped from the mine on April 7, 1908. Up to January 1st, 1912, 23,142 tons had been shipped and the NET smelter returns amounted to $432,804.17. From January 1st to June 30th, 1912, 5,411 tons were shipped, that gave a NET smelter return of $113,283.00. Prior to January 1st, 1912, the yield was $18.66 per ton NET. By adding $6.00 to the above for RR freight from Mineral to the smelter, we get a gross value of ore shipped of $24.66 per ton. Since January 1st the yield has been almost $27.00 per ton, gross. This increase was due to a little better price on the zinc, and more to better milling practice. It is to be noted that all figures given in this report are SMELTER RETURNS, and not simply assay values.

The estimated tonnage of ore available above the 5th level is about 30% of the entire amount of ore that existed originally in the mine above that level. In other words, of the total ore at one time available above the 5th level, about 70% has been taken out. This 70% yielded a NET smelter return of $544,087.17. At the same rate the balance of ore yet to be taken out should yield about $230,000.00 NET, exclusive of stope filling. The present value of the ore is a little greater than the average rate obtained for the entire time covered by the above shipments. This will raise the above estimated NET value to about $256,000.00. As above stated, the average NET smelter returns up to January 1st, 1912, was only $18.66 per ton. Since January 1st the average NET smelter returns have been almost $21.00 per ton. This result is due to the fact that improved milling practice has raised the grade of the shipments and that the price of zinc has been a shade higher.

From a careful analysis of the shipments, and assuming that about one-third of the ore mined was shipped direct (without milling), we find the value, deduced from the smelter returns, is about $13.50 per ton of ore mined. This result is reached as follows: Approximately one-half of each shipment is crude ore, and one-half is concentrate. To produce one ton of concentrate about three tons of milling ore are required. Then to produce two tons of shipping stuff, four tons of ore are required. From the smelter returns these four tons are worth $54.00 or about $12.50 per ton.

EQUIPMENT

The mine is fully equipped and in full running condition. The mill consists of the usual complement of machinery necessary to the milling and concentrating of ores, rock-breaker, rolls, jigs, Wilfley tables, and a re-grinding system.

The other surface equipment includes the necessary buildings for officers and miners, including boarding house, etc. The mine is equipped with a gasoline hoist, and has all the accessory machinery and tools for complete operation in all details.

The mountain side on which the camp is located is very steep. Surface haulage is, therefore, somewhat difficult, and not very systematically arranged, so that the expense of getting the product of mine and mill to the R R station, and of getting the camp, mine and mill supplies in, is manifest-

ly too great. The mill was built piecemeal and is therefore not arranged for either economy or convenience. Portions of the mine are equipped with the necessary machinery for the use of power drills but for some reason unknown their use has been discontinued.

The present capacity of the mill is about 80 tons per day. However, at present only two 8-hour shifts are working, and the milling capacity is thereby cut down to about 60 tons per day. A third 8-hour shift is constantly occupied in making repairs and changes in the mill construction and arrangement with a view to greater economy and a corresponding reduction in the working costs.

T I M B E R and F U E L

There is no timber for mining purposes or for the generation of power available. Sufficient for domestic purposes is available that will last for many years. Power for all purposes is secured from gasoline engines using distillate. While this source of power is comparatively cheap and convenient, a much cheaper and equally satisfactory power can be installed using what is known as "No. 2 Tops" as a source of power. The estimated cost of this is conservatively placed at $4.65 per horse power per month.

Timber and lumber for mining and building purposes can be delivered on the property, at a cost varying from $25.00 to $35.00 per thousand, according to dimensions and grade.

W A T E R

Water is abundant for domestic and milling purposes, for the present needs of the camp. As deeper mining is followed the supply of water from the mine will increase so there will, in all probability, be ample for all purposes for any sized camp that may ever be built.

C O S T of M I N I N G and M I L L I N G

All work now being done in the mine is done under the contract system. The cost of mining and milling averages about $1.50 per ton; while the cost of mining the shipping ore averages about $4.50 per ton. Under the terms of the contracts with the miners the shipping ore must carry a minimum value in zinc, gold and silver; and the problem of getting this grade of ore is entirely up to the miner. Whether this is the most economical system under the conditions that obtain at the mine is one for further investigation. So far as the past is concerned, this system has proven quite satisfactory. The cost of driving the drifts, and of sinking, varies with the character of the ground, the size of the ledge, the ease of getting the product to the surface, and whether the ore taken out during such development work is of a shipping or milling grade, or whether it is ore at all. This variance is due entirely to the system of operation under the contract system.

The cost of milling is obviously too high because of the poor arrangement of the milling facilities, together with the method necessary to get the mill product to the shipping station.

To produce two tons of shipping product, four tons of ore must be mined, and three tons milled. The cost of mining the three tons of milling ore will average about $1.50 per ton, or $4.50 for the three tons. The one ton of shipping ore will cost about $4.50 per ton for mining and hoisting, or a total of $9.00 for mining the four tons required. To mill the three tons of milling ore costs about 75¢ per ton, or $2.25 for the three tons. To this must be added the cost of the wagon haul from the mine to Mineral, and the freight from Mineral to the smelter, which is about $7.00 per ton, or $14.00 for the two tons of shipping product. This makes a total cost of $25.25 for the cost of getting the four tons to the smelter, or $6.23 per ton. The average value of the ore mined is about $13.50 per ton as before estimated. This leaves a net profit of $7.18 per ton of ore mined.

It is obvious that any reduction in the costs of mining or of milling will correspondingly increase the net return on the product of the mine. This reduction can be secured by rearranging the milling machinery, by using cheaper power, by the use of motor trucks for hauling to and from the RR station, and possibly, by a different system of mining than the present one of contract.

SMELTER RETURNS

The following tabulated statement of the smelter returns on 5,411 tons of shipping material, shipped between January 1st, 1912, and June 30th, 1912, will give an idea of what the mine is doing. The results are given in shipment lots, each lot consisting of from 2 to 5 carloads each. It may be well to state that the mine assays run approximately 10% higher than the smelter returns:

Zinc-%	Gold-oz.	Silver-oz.	Lead-%
41.4	.29	6.40	---
41.4	.26	5.30	---
16.3	.68	19.20	50.8
41.1	.26	8.22	---
41.2	.28	9.00	---
42.8	.28	8.52	2.0
42.9	.28	8.52	---
41.8	.28	11.44	---
41.5	.24	8.96	2.1
42.7	.28	9.22	2.1
42.3	.38	9.16	2.0
41.7	.24	8.34	2.2
41.3	.30	8.35	2.4
41.6	.30	8.30	3.1

Zinc-%	Gold-oz.	Silver-oz.	Lead-%
41.1	.36	9.83	3.0
38.7	.28	7.80	2.0
40.4	.28	8.52	2.9
41.4	.36	8.53	2.3
41.0	.32	9.23	2.1
39.7	.28	9.06	3.0
41.2	.24	8.40	3.3
40.5	.32	7.92	4.4
41.2	.24	8.40	3.3
40.3	.28	8.52	2.2
39.7	.26	9.10	2.8
39.2	.24	8.80	7.6
39.5	.32	8.16	2.4
42.6	.26	9.74	3.3
43.8	.34	8.86	3.7
41.9	.24	6.32	1.9
41.6	.26	8.52	3.0
17.6	.39	16.10	51.5
39.3	.32	9.20	2.4
39.7	.26	8.26	2.9
40.3	.28	7.16	2.5
40.4	.32	7.68	2.9
40.3	.32	7.44	2.4
40.2	.32	7.36	2.8

This mine is one of great promise, and with judicious and systematic management should yield entirely satisfactory returns for many years. Proper and economic management will mean many changes and improvements in mine, mill and in surface transportation, the nature of which must be left for future consideration.

Respectfully submitted

ALLEN C. REDDING.

San Francisco, Calif.
June 30, 1912.

A D D E N D U M

Since the above report was made there has been some changes going on at the mine that it is well to take note of.

The main workings shaft has been enlarged, retimbered and sunk to the 6th level. The Prosperity tunnel has been extended about 300 feet and connected with the main workings. This tunnel now has a total length of about 2,200 feet. While the entire length of the Prosperity tunnel is in ore, it is only the last 350 feet that the ore-body is comparable to the ore found in the main workings. Here we find the same chute that is exposed in

the 5th and in the 6th levels. The amount of ore thus added is approximately 30,000 tons of the same general grade as that found in the main workings of the mine. The 5th level has been extended a distance of 380 feet to the north. The size and grade of the ore encountered is about the same as that found in other parts of this level. A winze was sunk from the 6th level to a depth of 60 feet at a point 250 feet south of the main shaft. The vein in the bottom of this winze is from 6 to 7 feet in thickness, and all of a shipping grade. This verified the prediction that at depth below the water level, the entire vein would be filled with shipping ore.

A crosscut from the 5th level was run to tap the "Tub" vein, which it did at a distance of 230 feet. Where this cuts the Tub vein it has a thickness of from 40 to 50 feet, and is of higher grade than that found in the 50-foot shaft previously mentioned. The ore thus blocked out in the "Tub" vein is at least 25,000 tons that will carry from 15% to 18% zinc, and from $8.00 to $10.00 in gold and silver. During the month of April, 1913, 780 tons of ore and concentrate were shipped that netted $16.08 per ton, after deducting all charges. About one-third of the above shipment was from the Tub vein.

The statement as to the tonnage of ore in sight, as given in my former report, must be changed. What was there called probable ore can now be called positive, and to this must be added at least 50,000 tons. A deduction of about 15,000 tons must be made for the amount of ore mined during the year from June 30th, 1912, to June 30th, 1913. This will place the total ore actually in sight at considerably over $1,000,000.00 worth gross, while the prospective value of the mine has been more than doubled.

The actual profits from the mine for the year 1912 were a little over $100,000.00. The statement to the Government on which the production tax was paid, was over $80,000.00. This represented the residue after making very liberal allowance for all exemptions allowed by the law for contingent fund, etc.

The improvements either installed since June, 1912, or under way, are several. The shaft has been put in first class shape, and the methods of getting the product of the mine to the surface have been greatly improved. A new hoist has been installed and a tramway built that will greatly reduce the cost and increase the convenience of getting supplies for mine and mill up the mountain. A $7,000.00 motor truck to be used in hauling supplies from Mineral to the mine and in taking the ore out has been bought. With all these improvements it is estimated that the savings on the ore mined and milled will be about $3.00 per ton. More changes are in progress which will further reduce the cost of getting the mine product into the bank.

Respectfully submitted

ALLEN C. REDDING.

San Francisco, Calif.
June 30, 1913.

UNION BASIN MINING COMPANY

The quarter ending December 31, 1913, was utilized in development work and in making preparations to lower the cost of handling as explained in the letter dated October 14, 1913. At the stockholders' meeting on October 29th a loan was authorized to the extent of $40,000.00 for this purpose, and the same was negotiated on November 15, running until January 15, 1915.

A new 25 H. P. hoist has been installed, an air hoist purchased for underground work, and the compressor plant removed to the shaft, so that one engineer will do for both compressor and hoist, thus making a large saving. The roughing jig and auxiliary machinery is being installed in the mill, by which it is believed the milling cost will be reduced to 60 per cent of the former expense.

The 6th level is now well opened, and it is proposed to carry the shaft as rapidly as possible to the 7th and 8th levels. The 6th level has as good if not a better showing of ore than any of the upper levels, and it is very gratifying to know that the vein continues so strong and unabated at the lowest point reached. The Tub vein is also being opened with good results. Within a few weeks most of the important improvements will be finished, and we believe that we can put out ore in quantity at a cost that will yield us a good profit even at the comparatively low prices prevailing, and that we will be justified in pushing the output.

During the quarter we have made no effort to ship largely on account of low prices, preferring to spend the efforts in preparation, believing it would increase the profits in the long run. During the quarter only 12 cars were shipped, bringing in $6066.97.

Golconda, Arizona, February 2, 1914.

UNION BASIN MINING CO.
Colconda, Arizona.

Average of Concentrates shipped for 1st ten months in 1914
(Shipped to Bartlesville, Okla.)

Zinc	43.3%
Gold	.387 oz.
Silver	8.62 oz.
Silica	12%
Iron	9%
Manganese	.8%
Copper	1.2%
Lead	.9%
Lime	.8%

Pay 60% of Au @ $19.00
Ag @ 95% market

Less $2.72½ Wkg. charge, plus 10¢ per unit for excess of SiO2 over Iron & Manganese

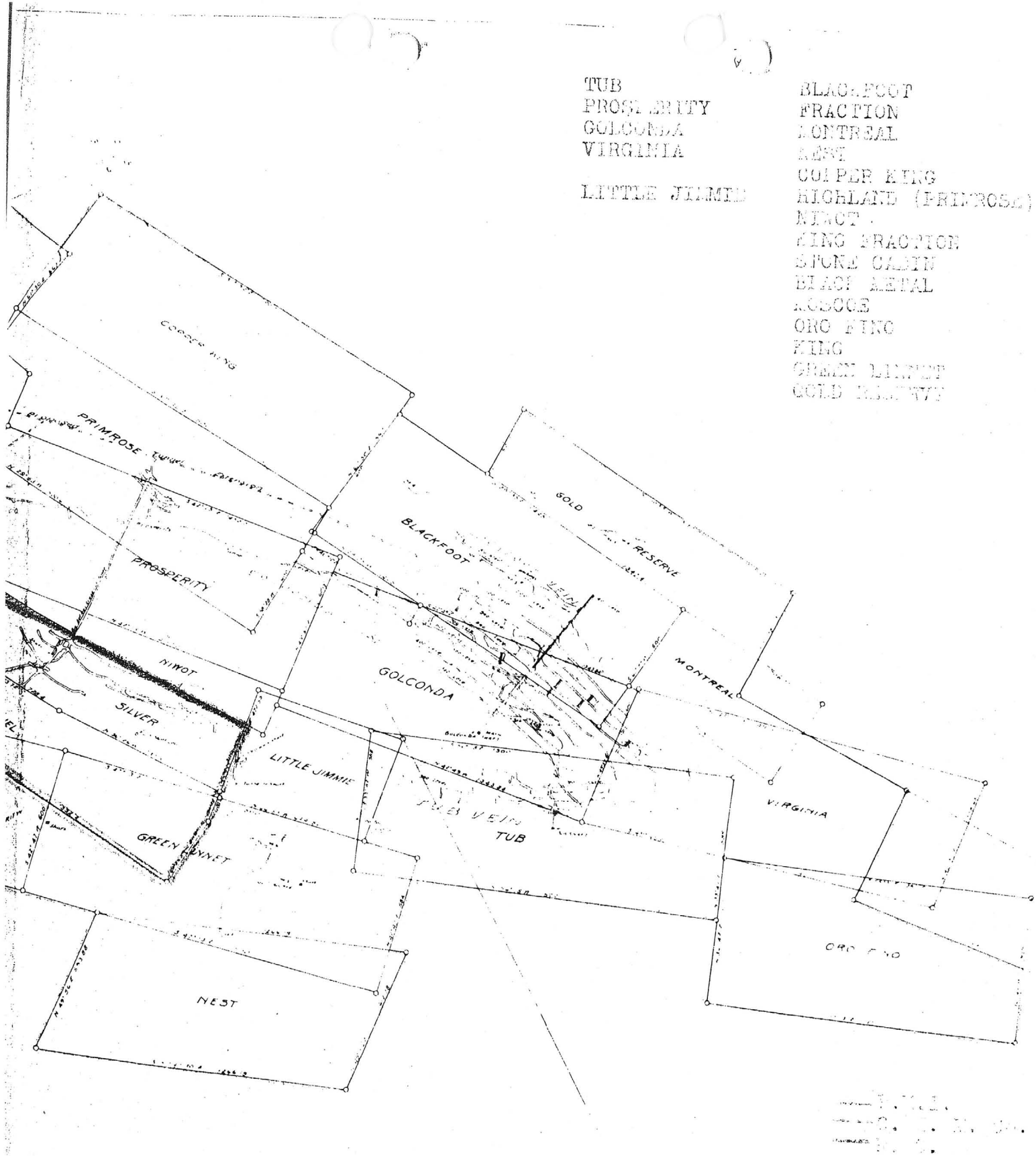
Freight $6.00 per ton to Bartlesville, Okla.

Average net returns over $13.00 per ton.

November 25th, 1914.

	Crude	Concentrates	Total	Total Net Receipts
1908	1197.80		1197.80	$ 15,962.26
1909	7024.51		7024.51	131,064.91
1910	7892.09	300	8192.09	156,007.47
1911	3720.32	3000	6720.32	125,824.43
1912	4300	7692	11992.	272,369.00
1913	1330	2684	4014	67,227.66
1914	714.9	4760.3	5475.2	96,877.14
				$865,332.87

The year 1914 as complete to November 25th with 21 cars in transit, estimated.



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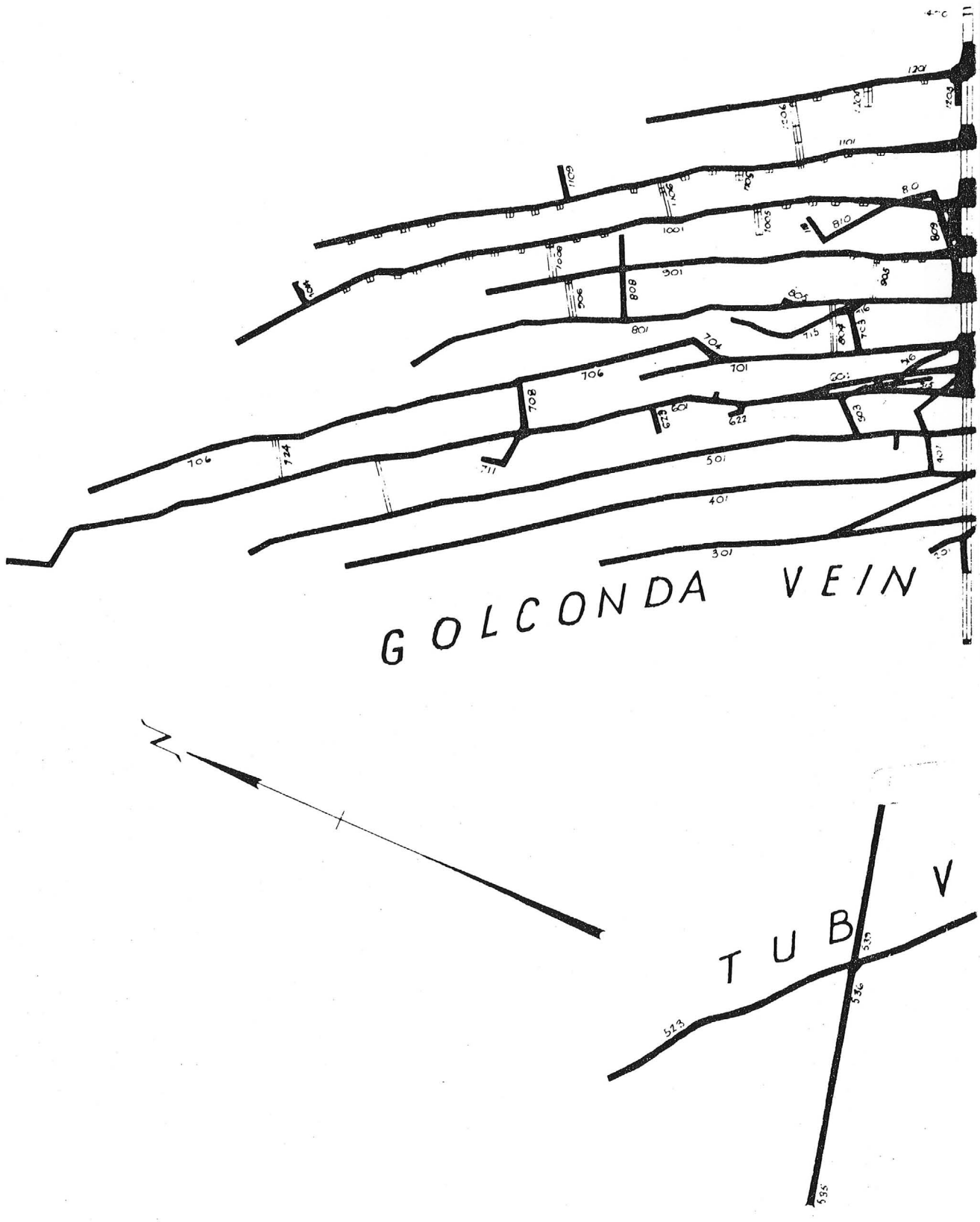
ARIZONA


GOLCONDA VEIN
TUB V
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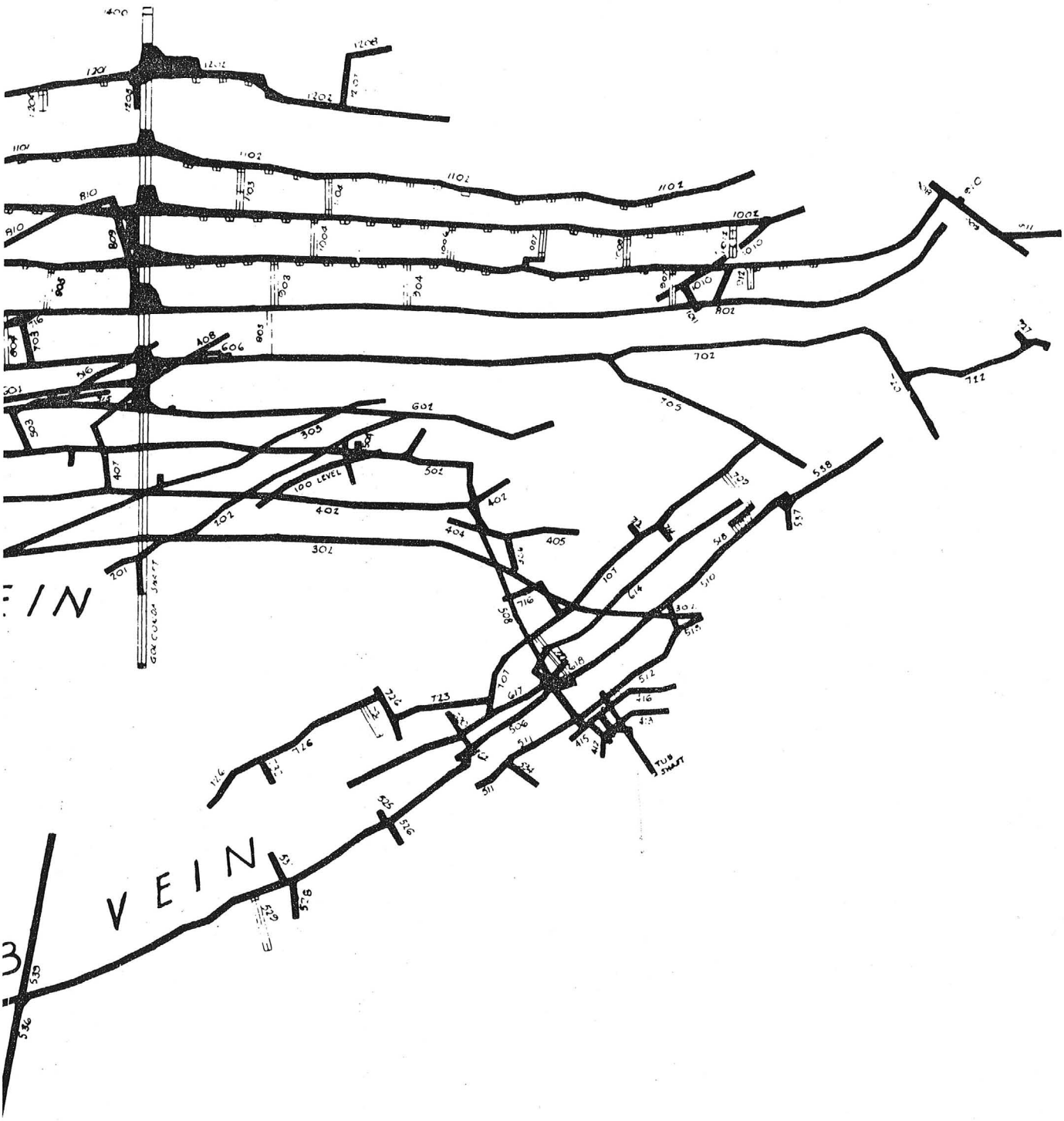
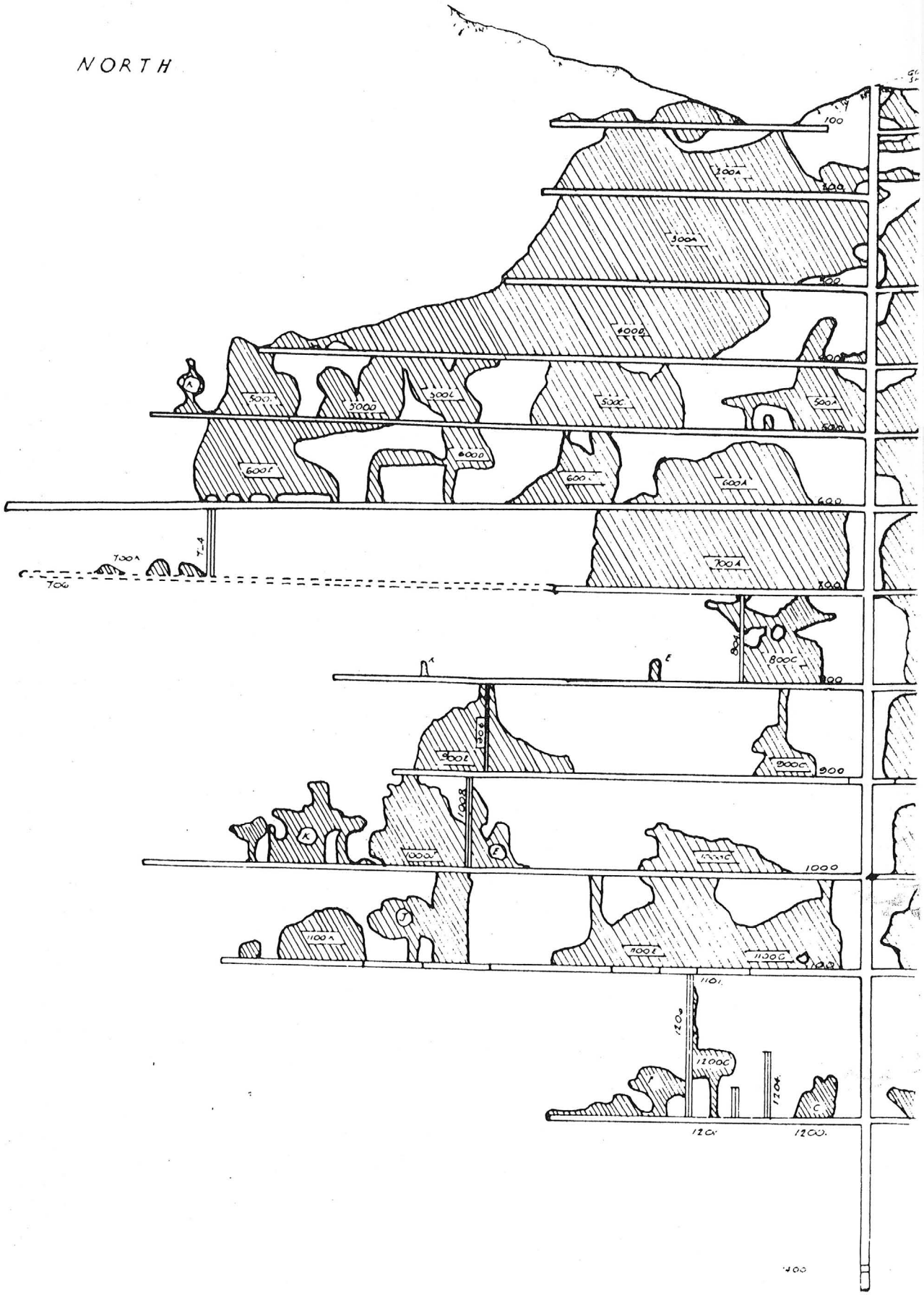


MAP
of
GOLCONDA MINE
UNION BASIN MINING CO.
GOLCONDA, ARIZONA. 1917


NORTH
100
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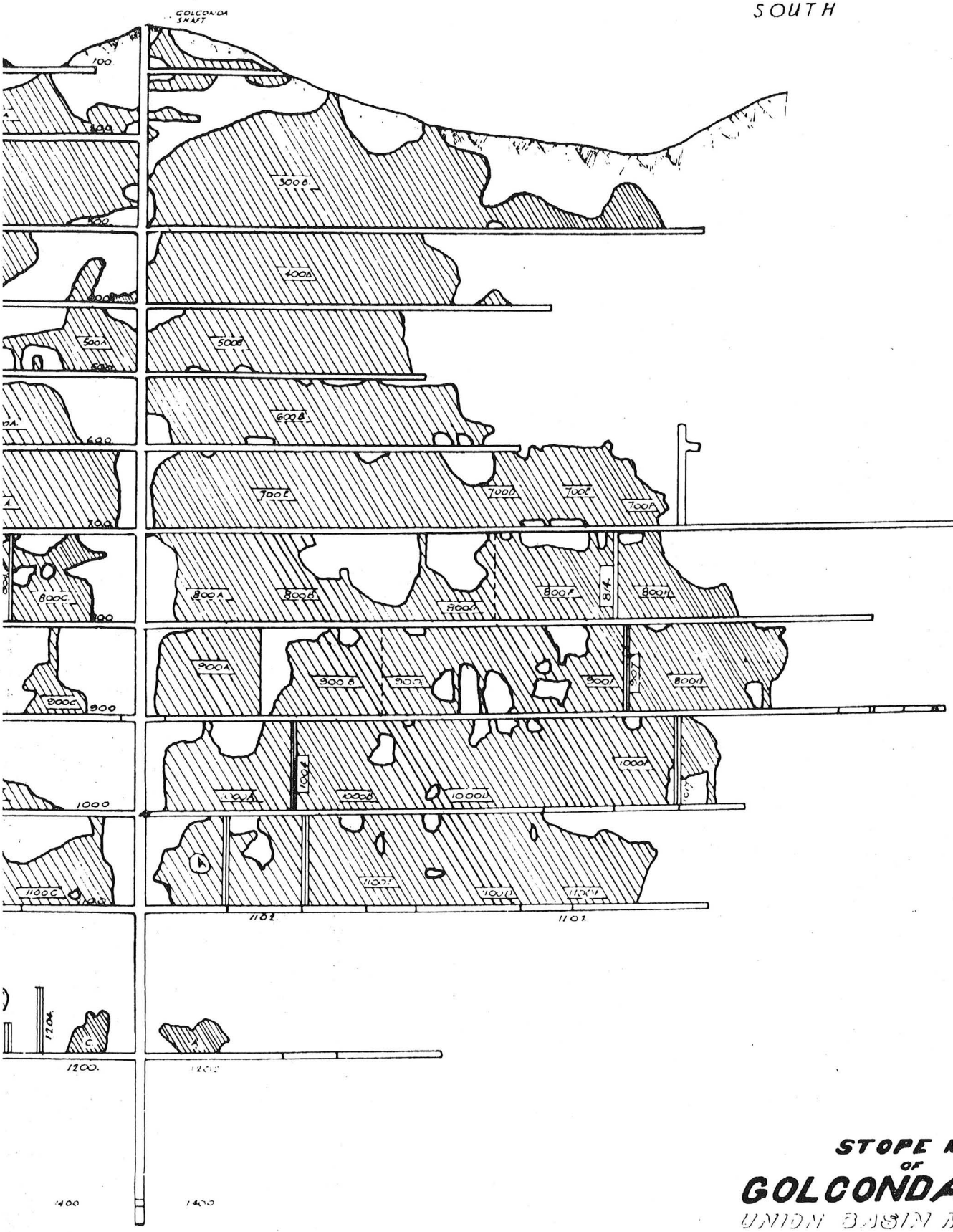

STOPE MAP
OF
GOLCONDA MINE

UNION BASIN MINING CO.

GOLCONDA, ARIZONA. JAN 1ST 1918

R E P O R T

o n

G O L C O N D A M I N E

The Golconda Mine is owned by the Union Basin Mining Co. It is situated about 17 miles to the northward of Kingman, Arizona, and about 4½ miles from the station of Mineral, on the railroad running from Kingman to Chloride.

The property consists of 20 full sized claims (1500 x 600 feet). A wagon road leads from the mine to Mineral. It is in first class condition and practically without grade, and over which the great bulk of the mine freighting is done. The property can also be reached from Kingman over a fairly good wagon road. As Mineral is the shipping point, the Kingman road could be converted into a first class automobile road by the expenditure of a few hundred dollars.

Of the 20 claims, only four, the Golconda, the Blackfoot, the Prosperity and the Tub claims, are of value for their mineral content. The other claims, so far as present developments show, are of value only for their surface, or as protection from encroachment by others.

The mine is fully equipped and in full running order, and is being operated successfully. Of the equipment and operation I will speak later.

ORE-BODIES and FORMATION

There are several veins within the boundaries of the Golconda and the Blackfoot claims. The vein on which nearly all the development work has been done is known as the "Main" vein. This vein traverses the Golconda claim just west of the center, or lode line. The "Golconda" or "East" vein, on which the discovery was made, passes on or near the lode line of the Golconda claim. Still further to the east on the Golconda and the Blackfoot claims are found three other veins, not developed beyond a few open cuts. This series of veins is mainly parallel and have approximately the same dip. They appear to belong to the same geological period and were undoubtedly formed at the same time.

The strike of the general vein system is N. 23° W. nearly parallel with the side line of the claims, and with a dip of about 50° to the east. What is known as the Tub vein on the Tub claim has apparently a different (?) strike, but about the same dip. This vein shows a slightly different character of ore, with a different proportion of its mineral contents from the other veins investigated, and is very much larger in size.

The veins vary in size from a few inches to fully 40 feet, in thickness and of unknown length. Their croppings can be traced for several thousand feet. In many places the surface is covered with modern lava which successfully covers the outcrops, which thus renders them not continuous.

The general vein filling is a hard, more or less silicious stuff, that is not easily identified on account of excessive weathering.

The "Ore" as it is locally called, is quite distinct from this gangue. The filling outside of the "Ore" is nearly or quite barren of values except a small gold and silver content. The composition and assay value of this filling would suggest the idea that the zinc content had been oxidized to the sulphate and subsequently leached out and carried to a lower depth by circulating waters. Where the so-called "pinch" occurs on the Main vein the vein maintains its normal width, but the values, except the gold and silver content, are absent. After a very careful consideration of this point I am strongly of the opinion that the zinc content has been removed as above indicated. If this is the case then the ore proper should become more abundant, if not richer, as depth is reached. Or, in other words, there should be a larger proportion of the vein occupied with workable ore in the lower levels. This condition has been partially verified in the lowest levels now open, and when the mine is opened below the permanent water level, the entire vein should be filled with workable ore.

The "Ore" mineral is sphalerite, and is about 75% pure; of the remaining 25%, about 4% is galenite; from 1% to 3% is pyrite, and the balance is either silica or silicate. Where the ore is in sufficient thickness to enable it to be done, it is mined and shipped direct; but where the ore body is small or mixed with gangue, it is milled and the concentrate mixed with the high grade ore and shipped. The above applies to the "Main" vein.

The "Golconda" vein, or what the miners call the "east" vein, is similar in physical aspects to the "Main" vein, only not quite so large. This means that there is less barren vein filling, less waste to be mined, and that the ore proper is correspondingly of higher grade.

The "Tub" vein, as before stated, is very much larger than any of the other veins mentioned. It has an average width, as opened up, of about 40 feet. It is easily traceable for about 400 feet on the surface. The surface is covered with modern lava to such an extent that the croppings are not easily traceable any further. It is a true fissure vein and but little doubt but it is very much longer than 400 feet.

From the ore visible in the "Tub" vein, I would estimate that about 60% of the entire vein will pay to mill in the present equipment. With an adequate milling capacity the whole of the Tub vein will yield entirely satisfactory results.

The range of mountains in which the mine is situated is entirely volcanic. Nothing but igneous rocks, of various ages, is to be found for miles. The general formation in the immediate vicinity of the mine is gneiss. In places this merges into granite; and in others, into schist. Cutting this gneiss is a series of parallel dikes which vary considerably in size as well as in the distance between them. On or near the hanging wall of the several dikes occur the veins. In other words, the foot wall of the various veins is a dike. The hanging wall is, generally, gneiss. These dikes are light-grayish

intrusives; highly acid, and very closely related to the rhyolites. In texture they are fine-grained and massive. In places this dike formation is found on the hanging wall of the vein as well as on the foot, but when so found it is very thin; sometimes only a few inches in thickness and hardly noticeable. To the eastward, the gneiss changes to granite, while to the extreme western border of the property the formation is a coarse-grained porphyritic granite. As before stated the surface is covered with a modern lava.

The veins, so far as opened up, are true fissure veins with well defined talc gouge on the walls. This statement is only partly true of the "east" vein. Here, in places, the ore is frozen to the hanging wall, but so far as observed, not to the foot wall. The Tub vein is also a true fissure vein even more strongly marked than the "Main" vein. It is in this vein that, in my opinion, the largest and best part of the mine is to be found.

D E V E L O P M E N T

The mine is opened by a main working shaft, with drifts turned at various levels; and by tunnels and open cuts. The working shaft is sunk on the "Main" vein and has a total depth on the vein, of 397 feet below the collar, and a depth of 347 feet below the lowest adit level. The levels were turned at the 50 ft., the 100 ft., the 198 ft. and the 267 ft. and the 332 ft. stations below the collar of the shaft. The details of the development will be taken up under the different levels, as follows:

1st level. Practically all the available ore from this level to the surface has been stoped out. The total length of ore chute as shown on this level was only about 430 feet, with an average width of about 2 feet solid ore. From the nature of the surface very little ore was found south of the main shaft.

There is practically no ore left in this level; except some stope filling, and of this there is probably not more than 600 tons. This stope filling will average about 18% zinc. The Golconda, or "east" vein, has not been opened on this level.

2nd level. This level is closed at the shaft, with no means of getting into it except from the stopes of the 3rd level. What ore there is here available will be considered under the 3rd level.

3rd level. On this level there is an ore chute about 600 feet in length south of the shaft, and about 350 feet north of the shaft. Just north of the main shaft occurs the so-called "pinch". This "pinch" is about 75 feet in length, and is no pinch at all, for the vein here has the normal width. The zinc values seem to have been leached out as previously suggested.

The width of the ore between the north and the south sides of the main shaft varies somewhat, but will average between five and six feet. The total length of chute, as opened on this level, is about 950 feet, exclusive of the so-called "pinch".

The stoping ore between this level and the first is rather irregular; but will yield about 300 tons of shipping ore and about 1,500 tons milling

ore. Besides this there is probably 3,000 tons, or more, of stope filling that will pay to mill. These stopes were filled with milling ore taken down while shipping ore was being taken out, and before the mill was built. This stope filling has a milling value of about 18% zinc with small values in gold and silver.

The "Main" vein on this level is more or less broken and faulted. The present face (June 1912) south is very thoroughly oxidized. The south drift, if continued, would reach daylight near the "Tub" shaft.

The "east" vein on this level, is also very irregular. The total tonnage available will probably not exceed 3,000 tons. Of this total tonnage about one-third is of the usual shipping grade, and the balance is milling ore. This vein forms a junction with the "Main" vein a few feet north of the main shaft.

4th level. Throughout this level the ore is badly broken and faulted. It must, however, be remarked that the faults found on this level, as well as those found on the 3rd, are trifling in their extent, and their displacement is, at most, but a few feet.

There is every evidence here that the old permanent water level was as close to this horizon, or only a few feet below the floor of this level. For some distance both above and below this level the ore is scanty and of low grade. The water level oscillated through a vertical distance of from 30 to 50 feet around this level. This alternate rising and falling of the ground water throughout this zone of oscillation resulted in very thoroughly oxidizing the sphalerite to the sulphate, and to its subsequent leaching out. In the workings below this level large quantities of zinc sulphate crystals are found.

The ore-shutes pitch to the north at about the same angle as the dip. The ore-chute found near the face of the Prosperity adit is identical in every respect with the ore exposed in the north end of this level; and there can be no doubt but that the chute found north of the shaft in this level is continuous down to the Prosperity tunnel. The only noticeable difference is the fact that the ore body as opened up in the Prosperity tunnel is larger and of higher grade than that found in the 4th level north of the shaft.

The amount of available ore between this level and the 3rd will probably not be in excess of 2,000 tons of all grades, including stope filling. About 500 tons of this will be of the shipping grade. The total length of ore opened up on this level is about 900 feet.

5th level. This level has a length of 250 feet north of the shaft, and of 180 feet south of it. About 75 feet of the 250 feet is in the so-called "pinch", leaving about 355 feet of workable ore developed. From the extent of ore exposed on the upper levels this chute should extend about 400 or 500 feet further north, and at least 200 feet further south. The average width of ore body south of the shaft is about 6 feet, and to the north, about 9 feet. However, the ore north of the shaft is of higher grade than that to the south. About one-third of the ore developed on this level is of the usual shipping grade, and the balance is milling.

About one-third of the ore originally available on this level has been stoped out. The ore-chute north of the shaft on this level is no doubt the same one that is showing in the Prosperity tunnel.

6th level. The shaft is down, at this date, about 75 feet below the 5th level, but no drifting had been done. The ore continues to the bottom of the shaft and is, in character, size and value, about the same as that found in the 5th level.

An adit level was started on the Prosperity claim to tap the main workings at some depth below the 5th level. The main object of this adit was drainage. This tunnel is now in to within a short distance of the main shaft. There was exposed in this level at the time of my visit a good chute of ore of normal width and value that, without doubt, is the same chute that is exposed in the north end of the 4th and the 5th levels. The most striking difference is that it is larger and of higher grade than that found in the 5th level, north.

It is manifestly impossible to form any estimate with any degree of accuracy of the tonnage of ore that this tunnel will yield but it certainly will prove quite satisfactory both in tonnage and in values.

R E C A P I T U L A T I O N

OF AVAILABLE ORE

1st level: No ore in place. About 600 tons stope filling that will average about 18% zinc, and about $1.00 in gold and silver.

2nd level: Not recognized as having any ore of any grade.

3rd level: "Main" vein- south. 600 feet long, and from 4 to 10 feet wide, somewhat irregular. Will yield about 800 tons shipping ore that will average about 42% zinc, or better, and about $1.00 in gold and silver. The milling ore will average between 12% and 15% zinc, and about $1.00 in gold and silver. North of the shaft, 350 feet long and from 4 to 10 feet in width. No ore in place, but about 3,000 tons of stope filling that will average about 18% zinc with the usual gold and silver values.

3rd level: "East" vein. The ore here is rather irregular, and there is probably not more than 3,000 tons of ore of all grades available. About one-third is of the shipping grade, and the rest good milling ore.

4th level: Total length of chute, about 900 feet in length, and somewhat irregular. Probably not more than 3,000 tons available ore of all grades, including stope filling.

5th level: South, 180 feet long, 75 feet high, and 6 feet in thickness, 7,500 tons. About one-third has been stoped, leaving about 5,000 tons available. About one-third is of the usual shipping grade. From the present face to the probable end of the chute, as shown by the development on the upper levels, there should be at least 7,000 tons more of all grades.

North: 175 feet in length, 75 feet high, with an average width of about 3 feet, 3,000 tons. This chute should extend at least 400 feet further north, and should yield at least 6,000 tons more ore of all grades. About one-third of the available ore is of the shipping grade.

6th level: When this level is opened up to the extent of the chute, it should yield at least 25,000 tons of all grades.

TONNAGE and VALUES

Positive ore	19,000 tons	Value	$256,500.00
Probable ore	32,000 tons	Value	432,000.00
Mill dump	40,000 tons	Value	80,000.00
			$768,500.00

To the above must be added the prospective ore that the mine can reasonably be expected to yield below the present development. No one can estimate the extent of the ore chute in depth, but there is every reason to believe that it will ultimately reach a depth of several hundred feet below the present lowest workings. The veins are true fissures and from the nature of such veins a great working depth is almost assured. Should the ore body maintain its size and values as depth is gained, each 100 feet will add at least 30,000 tons of ore of all grades. There is more reason to assume that the ore body will reach a great depth than to expect no ore below the present depth. From a close study of the vein and the formation there is a very strong presumption that the ore body is persistent, and that profitable mining can be carried on for many hundreds of feet below the present development.

Again, it must be remembered that there are at least three other veins on the property. Their croppings are as persistent and prominent and their values as satisfactory as those of the veins that have been developed. None of these veins have been opened beyond a few prospect holes and cuts sunk at various intervals on the croppings.

Also, the "Tub" vein is to be considered as having a very valuable asset in its probable yield of ore. It has been sufficiently opened up to permit of a reasonable conclusion as to its possibilities as an ore producer. Its shaft is down 50 feet with about 150 feet of drifting on the ledge, and a crosscut that proves the ledge to be about 40 feet between walls. This ledge is traceable on the surface for about 400 feet. Beyond this the surface is so covered with modern lava that the existence of the ledge cannot be distinguished further. However, as the vein is a true fissure vein there can be but little reason to assume that it is not much longer than 400 feet. Of the ore thus partially developed, it is safe to conclude that at least 60% of the entire contents of ledge will pay to mill in the present equipment. With increased milling capacity the entire Tub vein, with a width of at least 40 feet, will pay handsomely. One car of ore, roughly sorted by discarding the boulders of manifestly low grade stuff, gave smelter returns as follows: Zinc 32.6%; lead 6%; gold .60 oz.; silver 9.9 oz. There is now developed in this vein at least 10,000 tons of milling ore that will yield at least 15% zinc, and about $3.00 in gold and silver. The probable ore that the "Tub" vein can ultimately produce is enormous.

ORE SHIPMENTS

The first carload of ore was shipped from the mine on April 7, 1908. Up to January 1st, 1912, 23,142 tons had been shipped and the NET smelter returns amounted to $432,804.17. From January 1st to June 30th, 1912, 5,411 tons were shipped, that gave a NET smelter return of $113,283.00. Prior to January 1st, 1912, the yield was $18.66 per ton NET. By adding $6.00 to the above for RR freight from Mineral to the smelter, we get a gross value of ore shipped of $24.66 per ton. Since January 1st the yield has been almost $27.00 per ton, gross. This increase was due to a little better price on the zinc, and more to better milling practice. It is to be noted that all figures given in this report are SMELTER RETURNS, and not simply assay values.

The estimated tonnage of ore available above the 5th level is about 30% of the entire amount of ore that existed originally in the mine above that level. In other words, of the total ore at one time available above the 5th level, about 70% has been taken out. This 70% yielded a NET smelter return of $544,087.17. At the same rate the balance of ore yet to be taken out should yield about $230,000.00 NET, exclusive of stope filling. The present value of the ore is a little greater than the average rate obtained for the entire time covered by the above shipments. This will raise the above estimated NET value to about $256,000.00. As above stated, the average NET smelter returns up to January 1st, 1912, was only $18.66 per ton. Since January 1st the average NET smelter returns have been almost $21.00 per ton. This result is due to the fact that improved milling practice has raised the grade of the shipments and that the price of zinc has been a shade higher.

From a careful analysis of the shipments, and assuming that about one-third of the ore mined was shipped direct (without milling), we find the value, deduced from the smelter returns, is about $13.50 per ton of ore mined. This result is reached as follows: Approximately one-half of each shipment is crude ore, and one-half is concentrate. To produce one ton of concentrate about three tons of milling ore are required. Then to produce two tons of shipping stuff, four tons of ore are required. From the smelter returns these four tons are worth $54.00 or about $12.50 per ton.

EQUIPMENT

The mine is fully equipped and in full running condition. The mill consists of the usual complement of machinery necessary to the milling and concentrating of ores, rock-breaker, rolls, jigs, Wilfley tables, and a regrinding system.

The other surface equipment includes the necessary buildings for officers and miners, including boarding house, etc. The mine is equipped with a gasoline hoist, and has all the accessory machinery and tools for complete operation in all details.

The mountain side on which the camp is located is very steep. Surface haulage is, therefore, somewhat difficult, and not very systematically arranged, so that the expense of getting the product of mine and mill to the R R station, and of getting the camp, mine and mill supplies in, is manifest-

ly too great. The mill was built piecemeal and is therefore not arranged for either economy or convenience. Portions of the mine are equipped with the necessary machinery for the use of power drills but for some reason unknown their use has been discontinued.

The present capacity of the mill is about 80 tons per day. However, at present only two 8-hour shifts are working, and the milling capacity is thereby cut down to about 60 tons per day. A third 8-hour shift is constantly occupied in making repairs and changes in the mill construction and arrangement with a view to greater economy and a corresponding reduction in the working costs.

T I M B E R and F U E L

There is no timber for mining purposes or for the generation of power available. Sufficient for domestic purposes is available that will last for many years. Power for all purposes is secured from gasoline engines using distillate. While this source of power is comparatively cheap and convenient, a much cheaper and equally satisfactory power can be installed using what is known as "No. 2 Tops" as a source of power. The estimated cost of this is conservatively placed at $4.65 per horse power per month.

Timber and lumber for mining and building purposes can be delivered on the property, at a cost varying from $25.00 to $35.00 per thousand, according to dimensions and grade.

W A T E R

Water is abundant for domestic and milling purposes, for the present needs of the camp. As deeper mining is followed the supply of water from the mine will increase so there will, in all probability, be ample for all purposes for any sized camp that may ever be built.

C O S T of M I N I N G and M I L L I N G

All work now being done in the mine is done under the contract system. The cost of mining and milling averages about $1.50 per ton; while the cost of mining the shipping ore averages about $4.50 per ton. Under the terms of the contracts with the miners the shipping ore must carry a minimum value in zinc, gold and silver; and the problem of getting this grade of ore is entirely up to the miner. Whether this is the most economical system under the conditions that obtain at the mine is one for further investigation. So far as the past is concerned, this system has proven quite satisfactory. The cost of driving the drifts, and of sinking, varies with the character of the ground, the size of the ledge, the ease of getting the product to the surface, and whether the ore taken out during such development work is of a shipping or milling grade, or whether it is ore at all. This variance is due entirely to the system of operation under the contract system.

The cost of milling is obviously too high because of the poor arrangement of the milling facilities, together with the method necessary to get the mill product to the shipping station.

To produce two tons of shipping product, four tons of ore must be mined, and three tons milled. The cost of mining the three tons of milling ore will average about $1.50 per ton, or $4.50 for the three tons. The one ton of shipping ore will cost about $4.50 per ton for mining and hoisting, or a total of $9.00 for mining the four tons required. To mill the three tons of milling ore costs about 75¢ per ton, or $2.25 for the three tons. To this must be added the cost of the wagon haul from the mine to Mineral, and the freight from Mineral to the smelter, which is about $7.00 per ton, or $14.00 for the two tons of shipping product. This makes a total cost of $25.25 for the cost of getting the four tons to the smelter, or $6.23 per ton. The average value of the ore mined is about $13.50 per ton as before estimated. This leaves a net profit of $7.18 per ton of ore mined.

It is obvious that any reduction in the costs of mining or of milling will correspondingly increase the net return on the product of the mine. This reduction can be secured by rearranging the milling machinery, by using cheaper power, by the use of motor trucks for hauling to and from the RR station, and possibly, by a different system of mining than the present one of contract.

SMELTER RETURNS

The following tabulated statement of the smelter returns on 5,411 tons of shipping material, shipped between January 1st, 1912, and June 30th, 1912, will give an idea of what the mine is doing. The results are given in shipment lots, each lot consisting of from 2 to 5 carloads each. It may be well to state that the mine assays run approximately 10% higher than the smelter returns:

Zinc-%	Gold-oz.	Silver-oz.	Lead-%
41.4	.29	6.40	---
41.4	.26	5.30	---
16.3	.68	19.20	50.8
41.1	.26	8.22	---
41.2	.28	9.00	---
42.8	.28	8.52	2.0
42.9	.28	8.52	---
41.8	.28	11.44	---
41.5	.24	8.96	2.1
42.7	.28	9.22	2.1
42.3	.38	9.16	2.0
41.7	.24	8.34	2.2
41.3	.30	8.35	2.4
41.6	.30	8.30	3.1

Zinc-%	Gold-oz.	Silver-oz.	Lead-%
41.1	.36	9.83	3.0
38.7	.28	7.80	2.0
40.4	.26	8.52	2.9
41.4	.36	8.53	2.3
41.0	.32	9.23	2.1
39.7	.28	9.06	3.0
41.2	.24	8.40	3.3
40.5	.32	7.92	4.4
41.2	.24	8.40	3.3
40.3	.28	8.52	2.2
39.7	.26	9.10	2.8
39.2	.24	8.80	7.6
39.5	.32	8.16	2.4
42.6	.26	9.74	3.3
43.8	.34	8.86	3.7
41.9	.24	6.32	1.9
41.6	.26	8.52	3.0
17.6	.39	16.10	51.5
39.3	.32	9.20	2.4
39.7	.26	8.26	2.9
40.3	.28	7.16	2.5
40.4	.32	7.68	2.9
40.3	.32	7.44	2.4
40.2	.32	7.36	2.8

This mine is one of great promise, and with judicious and systematic management should yield entirely satisfactory returns for many years. Proper and economic management will mean many changes and improvements in mine, mill and in surface transportation, the nature of which must be left for future consideration.

Respectfully submitted

ALLEN C. REDDING.

San Francisco, Calif.
June 30, 1912.

A D D E N D U M

Since the above report was made there has been some changes going on at the mine that it is well to take note of.

The main workings shaft has been enlarged, retimbered and sunk to the 6th level. The Prosperity tunnel has been extended about 300 feet and connected with the main workings. This tunnel now has a total length of about 2,200 feet. While the entire length of the Prosperity tunnel is in ore, it is only the last 350 feet that the ore-body is comparable to the ore found in the main workings. Here we find the same chute that is exposed in

the 5th and in the 6th levels. The amount of ore thus added is approximately 30,000 tons of the same general grade as that found in the main workings of the mine. The 5th level has been extended a distance of 380 feet to the north. The size and grade of the ore encountered is about the same as that found in other parts of this level. A winze was sunk from the 6th level to a depth of 60 feet at a point 250 feet south of the main shaft. The vein in the bottom of this winze is from 6 to 7 feet in thickness, and all of a shipping grade. This verified the prediction that at depth below the water level, the entire vein would be filled with shipping ore.

A crosscut from the 5th level was run to tap the "Tub" vein, which it did at a distance of 230 feet. Where this cuts the Tub vein it has a thickness of from 40 to 50 feet, and is of higher grade than that found in the 50-foot shaft previously mentioned. The ore thus blocked out in the "Tub" vein is at least 25,000 tons that will carry from 15% to 18% zinc, and from $8.00 to $10.00 in gold and silver. During the month of April, 1913, 780 tons of ore and concentrate were shipped that netted $16.08 per ton, after deducting all charges. About one-third of the above shipment was from the Tub vein.

The statement as to the tonnage of ore in sight, as given in my former report, must be changed. What was there called probable ore can now be called positive, and to this must be added at least 50,000 tons. A deduction of about 15,000 tons must be made for the amount of ore mined during the year from June 30th, 1912, to June 30th, 1913. This will place the total ore actually in sight at considerably over $1,000,000.00 worth gross, while the prospective value of the mine has been more than doubled.

The actual profits from the mine for the year 1912 were a little over $100,000.00. The statement to the Government on which the production tax was paid, was over $80,000.00. This represented the residue after making very liberal allowance for all exemptions allowed by the law for contingent fund, etc.

The improvements either installed since June, 1912, or under way, are several. The shaft has been put in first class shape, and the methods of getting the product of the mine to the surface have been greatly improved. A new hoist has been installed and a tramway built that will greatly reduce the cost and increase the convenience of getting supplies for mine and mill up the mountain. A $7,000.00 motor truck to be used in hauling supplies from Mineral to the mine and in taking the ore out has been bought. With all these improvements it is estimated that the savings on the ore mined and milled will be about $3.00 per ton. More changes are in progress which will further reduce the cost of getting the mine product into the bank.

Respectfully submitted

ALLEN C. REDDING.

San Francisco, Calif.
June 30, 1913.

UNION BASIN MINING COMPANY

The quarter ending December 31, 1913, was utilized in development work and in making preparations to lower the cost of handling as explained in the letter dated October 14, 1913. At the stockholders' meeting on October 29th a loan was authorized to the extent of $40,000.00 for this purpose, and the same was negotiated on November 15, running until January 15, 1915.

A new 25 H. P. hoist has been installed, an air hoist purchased for underground work, and the compressor plant removed to the shaft, so that one engineer will do for both compressor and hoist, thus making a large saving. The roughing jig and auxiliary machinery is being installed in the mill, by which it is believed the milling cost will be reduced to 60 per cent of the former expense.

The 6th level is now well opened, and it is proposed to carry the shaft as rapidly as possible to the 7th and 8th levels. The 6th level has as good if not a better showing of ore than any of the upper levels, and it is very gratifying to know that the vein continues so strong and unabated at the lowest point reached. The Tub vein is also being opened with good results. Within a few weeks most of the important improvements will be finished, and we believe that we can put out ore in quantity at a cost that will yield us a good profit even at the comparatively low prices prevailing, and that we will be justified in pushing the output.

During the quarter we have made no effort to ship largely on account of low prices, preferring to spend the efforts in preparation, believing it would increase the profits in the long run. During the quarter only 12 cars were shipped, bringing in $6066.97.

Golconda, Arizona, February 2, 1914.