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IN THE SUPERIOR COURT OF THE STATE OF ARIZONA

IN AND FOR THE COUNTY OF YAVAPAI

In the Matter of the Estate of RICHARD W. BULLARD, D e c e a s e d	No. 4369
	O R D E R

Upon reading and filing the verified petition of Mary Cannon, Executrix of the last will and testament of Richard W. Bullard, deceased, and having heard the evidence submitted by petitioner in support of said petition, it is

ORDERED, ADJUDGED AND DECREED that, as of the 3d day of July, 1942, the total purchase price under that certain lease and option dated August 4, 1938, between Richard W. Bullard (now deceased) and Bullard Gold Mines, Inc., a corporation, covering the following described mining claims situate in the Pierce Mining District, Yavapai County, Arizona, to-wit:

STATE, ARIZONA, DEMOCRAT, LAST BEAN, CONNECTION, STONEWALL, Lode mining claims, the U. S. Patent for which is No. 043160 Phoenix;

BUTTE, NEVADA, JAY BIRD, VENICE, NAPOLEON, NEWBORN, CHANCELLOR, SOUTH WING, AUGUSTUS, SULLA, NORTH EXTENSION, Lode mining claims, the U. S. Patent for which is No. Phoenix 043161;

STELLAR, EMILY, NORTH STAR, RATTLER, HOME STAKE, SWEEP STAKE, WASHINGTON, PRODUCER, INTERNATIONAL, AVALANCHE, Lode mining claims, the U. S. Patent for which is No. 47162, recorded in the office of the County Recorder of Yavapai County, Arizona, in Book 82 of Deeds, pages 223 and 232;

INTERVENER Lode mining claims, unpatented, and recorded in the office of the County Recorder of Yavapai County, Arizona in Book 44 of Mines, page 120;

Certain water rights and water reserved to John C. Bullard, now deceased, in that certain deed of record in the office of the County Recorder of Yavapai County, Arizona in Book 83 of Deeds at page 260.

be reduced to the sum of Two Hundred Thousand Dollars ($200,000), and the monthly payments required under said lease and option be

reduced, as of the 3d day of July, 1942, to Three Hundred Dollars ($300.00) until such time as 10% of the net returns as provided in said lease and option shall exceed Three Hundred Dollars ($300.00) monthly, whereupon the minimum monthly payments shall be Five Hundred Dollars ($500.00); and that all of the other terms and conditions of said lease and option shall remain unchanged.

DONE IN OPEN COURT this 28th day of July, 1942.

Richard Lamson
JUDGE

Filed: 2:50 O'clock P. M.
July 28, 1942
Kitty C. Aitken, Clark
By: Emma Shull, Deputy

IN THE SUPERIOR COURT OF YAVAPAI COUNTY

State of Arizona

State of Arizona

County of Yavapai -- ss.

I, KITTY C. AITKEN, Clerk of the Superior Court of Yavapai County, State of Arizona, do hereby certify and attest the foregoing to be a full, true and correct copy of the:

ORDER of July 28, 1942, In the Matter of the Estate of RICHARD W. BULLARD, Deceased

No. 4369

as the same appears of record in my office.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the Seal of said Superior Court at Prescott, this 28th day of July, A. D., 1942.

KITTY C. AITKEN
Clerk, Superior Court

By: Emma Shull, Deputy

SPECIAL EXHIBIT J

TO ACCOMPANY LOAN APPLICATION OF

BULLARD GOLD MINES ,

INCORPORATED

EQUIPMENT AT THE MINE.

2 Pneumatic Tired Wheel Barrows.

2 Iron Wheel Barrows

2 Jack Hammers, 1 square 2', 1 Cross Cut 5', Saw. 1 Hand Saw.

3 Single Jack Hammers, Three Double Jack Hammers, 1 B S Hammer

2 Lengths Air Hose, 2 Lengths Water Hose (And Fittings)

2 Picks, 1 Miners Gold pan, 3 small wrenches. 2 - 18" Stillson Wrenches

On North Side of Mine,

1 Iron Wheel Barrow, 1 Drum hole in side, Air line in shaft 1-1/2"

3 sets of ladders, 1 - 500# Sinking bucket, 1 hoist, 1 Fairbanks Morse

Engine 6 H. P. 33 coils 300' ⅜" Steel cable, 1 Length 20' Q. Iron.

1 sq. Pt. Shovel

At Long Shoot, 1 Mine ore car, 125' #12 track rail, 1 length 1½".

Pipe, 1 length Rd. iron 12', 1-300 # Skip, 100' #14 Track rail

1 Large Chev Wheel, 1 length 1½" pipe,50' 12 track rail

385' #14 track rail, 140' #12 track rail, 1 Jt. 1" pipe

In stope West end,

1 length 1"Exst. pipe, 300' cable and Pulley, 1 hoist

1 -5 or6 H. P. Engine, 300' air and water pipe. 10 pieces drill steel

6 Lengths #14 track rail, 1 miners ore car, 4 lengths #14 track rail

On West Side of Mine

300' #12 track rail, 2 Jts. 1" pipe, 1 hoist, 1-2 Cyl. Engine 500'

3/8" Steel Cable, 1-600 gal. galv. iron tank, 1 compressor steel tank.

1 Emery wheel stand and 2 Emery stones, 1 mine ore car, 300' of 1 and 1½" air pipe, 300' ⅜" water pipe, 1-100# Anvil, 1 steel cutter 1 Blower and Stand, 270' of #12 track rail, 4 joints #12 track rail loose, 5 joints #14 track rai l loose, 2 short pieces bent.

1 Ing. Rand Imperial Type #14 Air Compressor and Gas Engine.

PHELPS DODGE CORPORATION

UNITED VERDE BRANCH

CLARKDALE, ARIZONA

Bullard

File

August 14, 1943

Mr. G. M. Colvocoresses
1102 Luhrs Tower
Phoenix, Arizona

Dear Mr. Colvocoresses:

Thank you for your letter of August 11th regarding the Bullard Mine.

We are very glad to have this information, which I am passing along to our Smelter Department for their consideration.

Yours very truly,

C R Kunzel

Manager.

cc JWB

copied

L & F

B U L L A R D M I N E

Y A V A P A I C O U N T Y, A R I Z O N A

REPORT: By J.V.McConnell, for R.T.Mishler, Gen.Mgr. El Tigre, Co. Kansas City, office isnructions. duplicates to Douglas office.

The purpose of the report being to establish the advisability of a complete examination, to establish, definate tonnage and values, mining possibilities and conditions in general. This examination being in the nature of a preliminary report only. This work being confined to the principal working of what is known as the home group.

OWNERS: Mr. R.W.Bullard and Mr. John Bullard, of Congres Junctions are the titled owners and mine titles appear to be in first class order. Mr. R.W.Bullard is the business manager.

PRESENTED BY: Mr. George Hake, of Highland Hotel, Prescott, Arizona, to the Kansas City office. Mr. Hake i s a mine promoter and gave no assistance in any way on this examination. Some difficulities have arisen between Mr. Hake and Mr. Bullard. Mr. Hake had an agreement from Mr.Bullard to purchase or sell the mine for the sum of $500.000 and was to have received a comission for such services. Mr.Hake priced this property to The Tigre Co and Mr.Mishler for $650.000 with a substantial increase in the down payment demanded. Mr. Bullard requests that any further negotiations for the property be carried on direct with the Bullard Brothers.

LOCATION: The Bullard Mines are situated in the Pierce Mining District, Yavapai County, Arizona. and about I5 miles northeasterly by present road from Aguila, (a station on the Santa Fe R.Road.) The property is also about 30 miles westerly from Congress Junction and at this time is best reached by this road. This road is a fair or average desert road for present needs but would not stand much heavy trucking.

Since the securing of patents to a part of the Bullard property, the district is now locally known as the Bullard Mining District.

PROPERTY & AREA: The mines consist of 28 patented mining claims of approximately 20 acres each and some I2 mining claims held by right of location and annual labor. All assetment work required by law has been completed for this year and notice of work recorded.

All 40 claims which constitute the Bullard holdings, show some ore, and all of them have some development work done. The area covered by this report is known as the Home Group and at this time are the most important claims of the group and most development work has been done here. The names of these claims are; Stella, Emily, North Start, Rattler, Homestake, Sweepstake, Washington, Producer and Avalanche, (all patented) and the unpatented mining claims known as; Last Bean, Stonewall and Intervena. (see my map for locations)

J.V.Mc.

BULLARD MINE: No. 2. By J.V.Mc.

TOPOGRAPHY: Is bold in outline with sharp upstanding outcroppings of rocks that rise abruptly from the general base level of the surrounding desert plains,or valley floor. The evevation is reported to be about 4,000 feet above sea level (elevation not checked at this time)

GOUNTRY ROCKS; Gen. Geology: The main mountain range to the west which attains its greatest heighth at Bullard Peak, is geologically of great age, and consists of the eroded remains of a complex Archeanb Schists with later Cambrain intrustions--(according to the published geological data regarding this section of Arizona.)

The small group of hills at the easterly base of the main mountain range where the Bullard Mine occurs,appears to be made up mainly of an old series of sedimentary rocks. These ranging from well water worn conglomerates to fine grained red and light colored sandstones. Dark red,reddish brown to almost black being the predominating colors of the outcroppings. There were no fossils observed and Mr.Bullard states that none have been found to his knowledge by any geologist or engineer.

These rocks are most generally classified by engineers as porphyrys However two thins sections prove beyond doubt they are sedimentary. I had no means of correlating or identifying the age of these beds.

Besides the rocks I could indentify in the field as sandstones and conglomerates,there are many areas and zones difficult to classify. These may be fine volcanic breccias and tuffs or they could be produced from crushing and movement (clastics superinduced) There are also some very fine-grained,rather massive and well bedded rocks which in the field I have called quartzsite. At any rate they are a highly silicious rock altered through metamorphism and if not quzrtzsite they are nearly so.

There are large areas of lava,some of which is very fine-grained and other areas are of amygdaloidal structure. I would judge that the lava had come up as sheeting between the beds which in places are laccolithic in proportions lifting and faulting the beds of clastics and causing many cross-lines of effusions. In my judgment the volcanic rocks are both intrusive and extrusive.

The northerly hills show bedded sandstone of a later period,laying uncomformably on the earlier and heavily eroded sandstone beds. These later sandstones are not so compact as the earlier type,are much lighter in color. However there are some veins that have cut through both the earlier and later sandstone beds,thus showing at least one late phase of mineralization was later than the extrusive volcanic period refered to. Since the later mineralization period,there has been much erosion and an accumilation of considerable local wash gravel which has become cemented into a reddish colored agglomerate that obscures the continuity and relationship of the fractures or veins. At all these places the outcroppings have a lower horizon than the agglomerate bed levels. The veins are also further obscured by a local desert wash.

At two points however,present day erosion has cut these deposits by two gullies,exposing the underlaying lower

J.V.Mc.

BULLARD MINE; No. 3. By J.V.Mc.

COUNTRY ROCKS:
Gen. Geology: strata, showing the veins and proving the continuity of the vein system under the blanket of desert wash.

I would judge from the structure of the hills that many of the intrusive masses of volcanic rocks are later than than many of the veins as they have cut and faulted whole sections However some of the veins are later than the igneous extrusive period.

VEINS: The veins as a whole are quite flat and with a considerable variation to dip. The dip ranging from I5 to 46 degrees, generally southerly and the average degree of dip about 30 degrees. The general strike of all veins is consistent and averages about N. 55 degrees E. The principal veins so far opened up or explored on the Home Group, and the Rattler, Homestake, and Washington Calims. Here the vein is exposed practically on three sides, apparently extending entirely through the hill and is claimed to be continuous to the northeast. As the vein passes out of the more disturbed area it is claimed the dip is much steeper. (The vein is opened up by an incline shaft to the N.E. Owing to water I could not inspect this shaft and it was deemed not advisable to unwater this shaft at this time, Information on this shaft was confusing at the best) // There are also a number of other known veins, and evidence that still other not known veins exist that are now covered with desert wash.

As mentioned above it is quite notable the consistent general average in direction of strike and dip, the variation of degree of dip variation being caused by the disturbed area at the central mass.

About 6 or 8 miles to the east occurs a similar range of mountains which are of much greater extent, but are o f the same sandstone and conglomerate formation. These were not examined except from a distance. however they show well marked bedding planes with a generally southern dip, and a sharp escarpment to the north. I am told this range contains many good veins, and that the ore and occurance is about the same as at the Bullard mine.

The veins at the Bullard Mine appear to be very strong and continuous along the strike, but as noted above, in the lower horizons are covered with late agglomerates and wash.

In width the veins show a vast variation ranging from around I2 inches up to possibly 20 feet. The average mining widths would probably not exceed 3 feet. I do not know the exact number of veins exposed or more or less explored, but I examined six veins, besides the main Bullard vein. I also examined a dike some 30 ft. in width that is exposed to the southeast of the main vein workings. This dike has a strike nearly north and south with a dip of about 62 degrees E. This apparently an isolated block that stands out very bold and is some 30 to possibly 50 feet high by about I50 feet long (not fully investigated for continuity.) Samples No. 36 A and 36 B. represent the north end of the dike across the exposed width. Total about 30'

Most vein fillings are silicious and contain much quartz, showing consierable oxidation of the iron-copper. Sulphides.

J.V.Mc

Bullard Mine; No. 4. By J.V.Mc.

ORE: The ore is highly silicious mostly quartz,and the metals contained in the order named as to quanity is, copper, iron, gold and silver. Copper values are mostly Silicates and Carbonates, with some sulphides showing in the form of Chalcocite, Boronite and ocassionally some Chalcopyrite .These copper minerals occuring in quanity in about the order named. Gold and silver values appear to be associated with the copper minerals and also with the iron esepecially the iron oxides.

The gold values appear to be exceedingly well distributed with somewhat higher gold values being obtained to the west and southwest parts of this property. Samples of Iron sulphides with out a trace of copper were very low in gold content on all samples run. (Note; 6 - FeS. run from 0.0I to a high of 0.028 with one trace for 6 samples.) However all veins I examined carry some gold values. Silver values are quite low as a whole throughout the many veins sampled.

As shown by a well about one mile northerly from the main Bullard vein the water table should be at about 300 feet depth.Also the shaft indicates the sulphide zone will be somewhere around 300 to 350 feet deep.

VALUES: The average value of all ore exposed will vary considerable according to the tonnage considered and the mining widths taken. Allowing a possible tonnage of 25,000 tons and with an average mining width of 3' 5" The composite average of 67 samples shows the ore to average Au. 0.22 oz. Ag.I.08 and Cu. 2.68 % These same samples thrown into foot tons Average,Au.0.I97. Ag. I.0I and Cu. 2.66 %.

Allowing a smaller tonnage of 5,000 ton s and an average mining width of 29" The foot ton average value is Au. 39/I00 oz. Ag. I.47 and Cu. II.49 % (this would be a small selected area of the best ores available. (Note; The above values are at the Home group only.)

The composite average of assay value of all veins samples(a total of 7 veins) represented by a total of 287 moiled cuts,with an average width of 2 feet and 8 inches wide for all samples The value was 0.I72 oz. Au. and 0.56 oz. Ag. Cu. I.92 % These same sample in foot tons gave the following average over and average width of 2 feet 3 inches. of Au. 0.I79 Ag. 0.74 oz. and Cu. 2.08 % . (Note;a vein or claim known as the Quail appeared to have better than average gold values and better mining widths.This should be more thoroughly investigated.)

Regarding the average values of all samples taken and from all seven veins sampled and omitting at least two or three of the smaller veins I would estimate one could depend on the present ore exposures Average value being around 0.I9 oz.Au. Ag. 75/I00 oz and Cu. approximating 2 % This would be on an average over a three foot mining width. All samples were taken at given intervals most 5 feet apart and across the minable ore. All samples were moiled and about 3 lbs of material taken per foot of sample. (Note; Later cehecking varified these sample resulst very closly.) Checking was done By Mr. R.T.Michler and Mr. Thompson of El Tegre Co. and no changes made in estimates as to value or tonnages allowed.)

2½ to

J.V.Mc.

Bullard Mine; No. 5 By J.V.Mc.

TONNAGE: There is little or no positively blocked ore at the Bullard Mine.The Home Group is the only portion of the property on which one would hazzard a guess as to the possibilities. At the Home groupe I have allowed a tonnage of very possible ore of 25,000 tons, with an average value as follows. The ore tonnage and values being indicated from ore exposed and sampled . Average Value of Au. o.22 ozs. Ag. I.08 ozs. and Cu. 2.68 % The extremely greatest average width would not exceed 3' 5" and this is possibly a trifle wider widths than will be found economical to mine. Other ore at the Home group will possibly produce another 25,000 tons of somewhat narrower widths as the center of the present ore body is reached also narrower widths are indicated in the ore to the northeast. It would be my judgment that the total possible minable ore to the area of the incline shaft to the northeast would not exceed a total of 50,000 tons and that the total average mined widths will approximate somewhere around 2 feet to possibly 2'3"

Estimates of tonnage at other veins is impossible at this time owing to lack of development work,and the economic importance of other veins is yet to be proven. Some of these veins contain good fair values and would warrant development work.

DEVELOPMENT WORK:

The total of all development work is probably around some 5,000 L. feet on all the Bullard property.This work consists mostly of incline shafts, some short drifts, and some ore has been stoped out at the Home Group near the southern end. Nature,through escarpment and erosion has exposed the outer present,margins of the main Bullard vein to the north, west and south and this ore is well exposed.There are also several shallow incline shafts or driftc in on this ore body which further exposes the ore (see Map. for numer,depths,this work.)

Nearly every claim of the entire 40 has had some development work in the form of a shaft or incline drifts or tunnels. This work varies from a few feet to some 350 feet in depth.In all cases inspected the work has been done on the veins

There is also two or three diamond drill holes, which are reported to be in good commercial ore(Note: I could find no authentic record of this work,just hear say.)

WATER:

There is a well at the Home Group which supplies the present needs for domestic purposes. There are two sources reported available for mine and milling purposes,The best being from Date Creek a distance o f about 20 miles.(Note; It is reported by Mr. Bullard a line has been surveyed in from Date Creek giving a gravity flow to mine. Not investigated) The other source would be from Agila a distance of about IO Miles. Agila water would have to be pumped from wells and pumped to mine).

J.V.Mc.

Bullard Mine.No. 6. By J.V.Mc.

TRANSPORTATION: The transportation of supplies to the property would not present any great diffi-e culty from either Agila or Congress Junction to the base of the hill at Home group. Congress Jct. is about 30 miles and Agila is about IO miles with no heavy grades on either route. Both points are RailRoad shipping points Present roads to mine is in bad condition for trucking in supplies, but owing to nature of the country little expence would be required to place either or both roads in fairly good servicable condition. (nature of country is a sandy loam mostly)

PRODUCTION:

There has been little or no commercial production from the Bullard mines. The production has been mostly by leasers,who from time to time have produced some small amounts of the better grade gold ores available and of easy access. The Bullard Bros.production has consisted of some 25 to possibly I00 tons for mill tests to determine what they might expect in the way of gold recovered. They report some 40 tons from all sections of main Bullard vein to the south and west and mostly from the outcroppings, was treated by an arrastra,with a recovery of $I8.I2 per ton gold.The Tailing they report run better than $5.00 per ton. gold.(Statment by R.W.Bullard.)

Some years ago a small smelter was erecte d to the southwest of the main Bullard vein and ore from some of the side veins was smelted with reported good results.Evidently this did not run long as the slag dumps do not indicate much material was smelted. (I found nothing authentic Re; this smelter or why they shut down.)

PRICE & TERMS: This you have at the Douglas office and also in this report under;Presented By; It is evident the Bullard Brothers have a very high oponion of their property and are going to be rather stiff in their demands.However Mr. John Bullard,intimated (Not definately commited.) to me he would be agreable to a development program under an outlined program to be agreed on.My personal oponion is the price of even $500.000 is entirely out of line with possible ore we might develope. This will not develope and great tonnage at the best but it should produce a fairly good gold,copper value. Their present demands for a down cash payment of $I50.000 is entirely out of the question,now or even after a development program has been carried out unless a far higher grade of ore is opened up and a far greater tonnage than I think possible. Unless better price and terms can be had the deal is impossible. NOTE: later on the down cash payment was reduced to $50.000 and even this was not warranted in view of development work needed.

COMMENTS: The Bullard mine on first impression is very interesting,On closer inspection many bad features develope. Mine costs will be comparatively high as one gains depth ,Vein is so flat ore will not run in stopes.The ore will probably have to be mined in galaries leaving pillars of considerable extent (More like coal mining) The character of the ore is such that treatment will be somewhat complicated, The ore is what the Smelter would classify as being silicious copper ore. The gold extractions so far as I can learn is anywhere from 40 % to 60 % of the gold values and silver recovery will be practically nothing. The ore would make ideal silica flux for a copper stack, To mill

J.V.Mc.

Bullard Mine; No. 7. By J.V.Mc.

COMMENTS: requires first, the extraction of all gold possible, then leaching of the copper values if treated on the ground. There is not sufficient ore to consider a smelter on the ground and a balanced flux ore would be nearly impossible here owing to lack of iron and sulphur. The grade of the ore as an average under average market prices and owing to location of the mines makes it nearly impossible to consider the property as a direct shipper to a Smelter. Transportation would also have a decided bearing on these ores owing to high freight rates, and cost of trucking ore to Rail head at either shipping point.

In considering a mill at the property the cost of bringing in water or taking the ore to water will increase mill cost to a figure above average. Much of the copper content is in the form of copper silicates, what results these will give on leaching can only be determined by actual tests. Owing to the low average value of the ore they offer somewhat of a probelm as to best methods to handle them at this time.

Against the above mentioned bad features there is always the possibilities of a greater width of veins, better gold values in certain areas, (especially to the South west) and also that some of the other veins (esepecially in or around the Quail vein) may prove to be better than the present exposed ore bodies. The even distribution of gold with enriched zones occuring in present exposed ores might also lead one to think possibly other such zones might be encountered.

Some engineers and also Mr. Bullard claims anywhere from I50.000 tons up. This can not be varified at this time and only development work can prove or disprove these estimates. I can not at this time see any justification for any such claims.

As mentioned there are at least 3 or 4 other veins that may prove to be the equal or better than the main Bullard vein. These should be investigated fully if serious consideration of the property is taken. What the main Bullard vein may do in extending to the North and East from the point the incline shaft is sunk is also problematic. I can not however gather enough evidence to warrant unwatering this shaft at this time. If later information warrants I will unwater this incline shaft sample and map the same and if this proved the extensions of the ores at depth the picture would be changed entirely. The dike mentioned, also might be of some importance as a copper producer. While gold and silver values were quite low copper appeared of possibly being commercial with some development work. This however would be secondary to the development of the fracture systems with quartz vein filling material.

I believe the ore as given by me as 25,000 tons very probable and another 25,000 tons as quite possible will about cover all ore produced from the main Bullard vein above the valley floor. Such a tonnage with values such as I have obtained does not warrant the expenditure for the necessary development funds needed. It will require at least $50.000 and possibly twice this amount to properly develop present known ore bodies even partially.

CONCLUSION: Careful consideration of all facts pertaining to the Bullard mine gathered from my personal observation and from what data I have been able to accurately check from outside sources most surly indicate that the mine as presented to our Comapny has been over estimated, both as to values

J.V.Mc

Bullard Mine; No. 8. By J.V.Mc.

CONCLUSION: and tonnage claimed for the mine. There is practically no blocked ore in the sence we term ore as blocked. The gold values will not be checked with the claims made for the property. Without an entirely different agreement with the owners or their agent and considering price, terms & conditions of the present contract we are not justified in further consideration of the property.

The Bullard Mine has a lot of possibilities of developing into a fine property, and with better contract which would allow a development campaign to be carried, a contract which would give us a chance to recover some of the money spent in or on a development program should we fail to develope enough ore to warrant carrying out our contract with the Bullard Brothers, In other words I feel Bullard Bros., should take some of the gamble with us at least 50 % of the gamble in the way of making us concessions aginst the money we spend for developing their mine.

While there is practically no blocked ore that can be measured and sampled, There is every indication a considerable tonnage, that nature has exposed on practically three sides. This ore I place as being possibly 25,000 and with another 25.000 tons very probably will be won from the property. Assuming we secure the entire estimated 50.000 tons of ore of the present grade indicated we are at the price now asked for the property paying $10.00 per ton for this ore in the ground as is. This of course is rediculous.

The above facts together with the nature of the fracture system being so flat in most cases where ore is exposed in any quanity, the character of the ore from a metallurgical stand point, lack of water at or near the mines, freight and truck charges all trend to make mine and mill costs quite high. These mentioned factors must be seriously considered regardless of any concessions that may be granted from the owners.

On the other hand a new and fair contract, whereby Bullard Brothers take their share of risk with us, The indications for ore of a fair mill grade, plus the ore which I am quite sure exists there at this time, would warrant our going ahead and giving this property serious consideration, and that we start a development campaign to be later on outlined, This development work to be carried on both at the Home Group and possibly one or two of the more promising other veins which are a part of their holdings. The extent of this development program to be decided on after a complete check of the preliminary data contained in this brief examination. The Bullard Mine presents far better than average conditions for the development of a mine. I do not however think the Bullard property will ever make a mine of large proportions, but does, from the data I have so far, indicate a good profitable producer can be had here, providing the ores can be treated at a reasonable cost by some other method than Smelting. Lowness of the average value, plus costs of transportation positively eliminates any possibilities of making a direct shipper from the Bullard mine. Before any further expenditure is made here some metallurgical tests on the ores should be made to determine their amenability to treatment.

J.V.Mc.

Bullard Mine; No. 9. By.J.V.Mc.

RECOMENDATIONS: First secure a new and workable contract if possible with Bullard Brothers. Then recheck this preliminary work, Useall regects from these samples for a preliminary mill test, If indicated ores can be successfully treated make larger and more thorough tests,This proving to be satisfactory then outline a campaign for development,first at the Home Group, if values and ore continues as at the present,then start a small but intensive development program on one of the other more promising veins. Proceedure after development to be governed by what this work has produced. The mine offers many very favorable and unfavorable aspects and proceedure must be cautious and every factor carefully studied out and program must be carefully planed, Such a proceedure and under a favorable contract will I feel give us a nice producer at the Bullard property.I consider the property well worth an extra effort on our part to secure under the conditions I have above given.

Respectfully submitted,

J.V.McConnell, Mine geologist and E.M.

Dated;
Congress Junction,Arizona,
April I8 th, I93I

CC/Kansas City & Douglas,Offices.

NOTE: Rejects of first samples were given Mr. Wasley at Douglas,Ariz. from Hawley and Hawley,Assayers. Under date of July I9 th, Mrr. Wasley writes. I do not believe this ore would be impossible to treat. However,I have not found the solution yet,only I am obtaining encouraging results.
On Aug, 2 nd I93I Mr. R.T.Mishler writes, Metallury on Bullard ores coming along fine,Leaching copper out and then extraction of gold values after has proven so far most successful Send Wasley another 250 to 500 lbs ore,representative of what we would work. Note; This last 500 lbs checked with Pulp rejects and recovery is reported as being 89.9 % Cu. and 9I.7 % Au.

NOTE: Several other letters on Metallurgy of Bullard ores was forwarded to Kansas City office at their request. It is my recolection that All final tests we ever had made recovered somewhere around 9I or 92 % of all copper and about 92 or 93 % of the gold values Silver recovery I do not recolect ever being over around 45 to 50 % of assay value.

J.V.McConnell.

SAMPLES and ASSAYS

BULLARD MINE HOME GROUP ONLY

Starting at the Blacksmith shop shaft as a datum point for elevations and start of sample work and working westward and around the hill. Each shaft, tunnel or opening is numbered in rotation and designating the Black Shaft as No. I shaft for the location of this work.

The samples on this sheet are mostly the preliminary samples cut, and many assays are the carefully quartered weighted samples of from one to five sections in each composite . In making up composite samples 2 ozs of pulp was used to each foot of sample cut.

Sample No. I. Composite of 5 sections at Cross cut at bottom of shaft No.I both sides working up at I0' intervals. Average widths all cuts,3' 8" Au. 0.08 Ag. 0.3 Cu. I.I2 %

.. No. 2. Comp. 3 sections,I0' intervals above No. I. Average width 3' 5". Au. 0.0I, Ag. 0.2, Cu. I.62 %

.. No. 3. Comp. 5 sections, foot wall cross cut above No. 2 sample 8' interval, average width 4' 8" Au.0.08 Ag.0.03 Cu.I.20%

.. BBNo. 4. Comp. 2 cuts opposite No. 3 sample Ave. 20" quartz, Au. 0.79, Ag.0.2 , Cu. 2.37

4 .. A-No. 4. Comp. 5 cuts @ 8' intervals above 4-BB to colar shaft average width 3'. Au.0.I9,Ag.0.2, Cu. 2.I0 %

.. No.200 Shaft No.I dump sample Gneral grab sample all over dump Au. 0.35, Ag.0.3 Cu. 2.I3 %

.. No.5I Shaft No. 3.(bad condition) Comp. 2 cuts each side just below collar of shaft Average width 28" Au. 0.23, Ag.0.2, Cu. I.93 %

.. No.50. Shaft No. 2. Shallow pit or shaft,small vein, 2 cuts average I4" wide.Au. 0.2I,Ag.0.2, Cu. 2.96 %

.. No.52. Shaft No. 4. small cut or pit,main bullard vein badly broken up.Comp. 2 cuts @ collar, Ave. I2" wide Au.0.02, Ag. 0.I, Cu. I.09 %

.. No. 9. Shaft No. 5.-93' deep.Starting at bottom working up I0' intervals,comp. 5 sections average 3' wide.

.. No.I0. Au.0.II, Ag. 0.4, Cu. 2.90%

NO.I0. Starting I0' above No. 9 last cut,4 sections,I0' interval to collar shaft. average 3' wide. Au.0.23, Ag.0.4, Cu. 2.38%

.. No.53. Outcrop both sides shaft No. 5. cut in 5 sections,Average width 3'5" Au.0.20, Ag. 0.4, Cu. 2.63

.. No. 5. Shaft No. 6. Comp. 2 cuts each side shaft,bottom average 3' wide & I0". Au. 0.32, Ag. 0.3, Cu. 2.06 % ShaftI5' d.

.. No. 6. No. 6 shaft,composite 2 each side collar,outcrop at cut 3'8" ave. width. Au.0.II,Ag. 0.4, Cu. 2.96 %.

.. No.77. Outcrop,first west No. 6, shaft,composit of 4 chip sample average 29" wide. Au.0.09,Ag. 0.2, Cu. 2.30%.

.. No. 7. Next outcrop west 2 cuts,I5' apart,Ave.3'9" wide. Au. 0.0I,Ag. trace, Cu.I.94 %

.. No. 8. No. 7 Shaft, 2 cuts each side shaft composite 4 cuts 3'6" wide,Au.0.I5, Ag. 0.4, Cu. I.34 %.

.. No.88. No. 7 shaft, composite 2 cuts 8' below collar,3' wide . Au.0.I7, Ag. 0.4, Cu. I.04 %

.. No.56. Outcrop,about 260' west No. 7 shaft 2'2" wide,comp. 3 cuts. Au.0.02,Ag. 0.2, Cu. 0.6I%.

BULLARD MINE SAMPLES NO. 2. Home group.

Sample No. II. Comp. 2 cuts average 2' thick, No. 8 tunnel. Au.0.02, Ag. I.I0, Cu. I.I4.

.. No. I2. Comp. 4 cuts, I' I0" thick, S.W. Side winze or stope, just below No. II. sample. Au.0.06, Ag. 0.9, Cu.I.23 %.

.. No. I3. Comp. 4 cuts, 2' thick, N.E. Side winze or stope just below No. Sample II. Au.0.04, Ag.0.3, Cu.I.20 %.

.. (Note;) All ore in work towards face of tunnel and crosscut was so bunchy and badly broken, no samples taken.

.. No. 55. Composite 4 cuts, main No. 8. tunnel into face. 4' thick. Ag. 0.03, Ag. 0.7, Cu. 0.30%. (Note) ore bunchy

.. No. from faulting and crushing.

No. I4. Outcrop, at portal main No. 8 tunnel, 3 cuts, average 2'6" wide. Au.0.02, Ag.0.3, Cu. 0.54 %.

.. No. I5. Outcrop West of portal, No. 8. main tunnel, comp. 2 cuts average 2'2" wide. Au.0.46, Ag.0.2, Cu.0.94 %.

.. No. I6. Outcrop, composite of 2 cuts, average 4' wide, about 35 feet S.Westerly No. I5 sample. Au. 0.56, Ag. 0.6, Cu. 2.00 %.

.. No. I7. Open cut east No. 9 shaft, Composite 3 sections, ave. 2'6" wide, I0' intervals. Au.0.I0, Ag.0.6, Cu.5.79 %

.. No. I8. Composite 4 sections, average 4' wide, Outcropping West side No. 9 shaft. Au.0.67, Ag.0.7, Cu.6.28 %.

.. No. 57. Composite 4 sections, average I' I0" wide first sample west No. I6, sample. Au.0.39, Ag. 0.7, Cu. I.22 %.

.. No. 58. No. 9 Shaft. Comp. 2 sections at bottom shaft 2'II" wide. (badly broken) Au.0.33, Ag. 0.5, Cu. 3.77 %.

.. No. I9. Comp. 4 sections, average #' I0" wide, West of sample No. I8 and No. 9 shaft. Au.0.I0, Ag.I.30, Cu.7.62 %.

.. No. 20. Outcropping, comp. 3 sections, ave. 2' 2" wide, about 90' west No. I9 sample. Au.I.07, Ag.0.5, Cu.3.88 %.

.. No. 2I. Outcropping, 3 sections, average I' 2" wide 60' west, No. 20. sample. Au.0.20, Ag. 0.6, Cu. 3.52 %.

.. No. 22. Outcropping, 4 sections. ave. 3' 8" wide, 45', S west No. 2I sample Au. I.65, Ag. 2.3, Cu.3.56 %.

.. No. 59. Outcropping. I cut, 4' wide, West of No. 22 sample. Au. 2.77, Ag. 5.67, Cu. 4.65 %.

.. No. 23. Outcropping, 5 sections, Average 4' wide, about 75' S.west No. 59 sample. Au. 0.70, Ag,0.9, Cu.2.I8 %.

.. No. 60. Outcropping I cut, 4'3" wide, I5' S.west No. 23 cut. Au.0.90, Ag. I.5, Cu. 3.70 %.

.. No. 24. Outcrop, Comp, 4 sections, average 3'I0" wide, about 50 feet south No. 23 sample. Au.0.0I, Ag.0.5, Cu.I.42 %

.. No. 25. Outcrop, comp. 4 sections Ave. 4'3" wide, 50' S.No. 24. Au.0.0I, Ag.0.5, Cu. 2.I8 %.

.. No. 26. Outcrop, along cliffs composite 5 sections, average 4' 7" wide, taken about 50 feet so. No. 25 sample. Au.0.26 Ag. 0.5, Cu. 2.I8 %.

.. No. 6I. Outcrop, I section 4' 4" wide at cliff, Not a good sample. This was outh of No. 26 cut. Au. o.27, Ag. 0.3, Cu. 2.I0 %.

.. No. 6IAA. Re-sample of No. 6I 2 weeks later sample place I cut, 5'3" thick. Ladder to sample with. Au. 0.38, Ag.0.7, Cu. 2.88 %

.. No. 62. Outcroppings, both sides portal No. I0 tunnel, Comp. 4 sections, average 3' II" wide. Au. 0.I4, Ag. 0.5, Cu. I.92 %.

BULLARD MINE SAMPLES, NO. 3. Home group.

Sample No. 67. Outcropping East No. II, tunnel, composite of 3 section average 3' 5" wide. Au. 0.02, Ag. 0.7, Cu. 2.00 %.

.. No. 28. Outcropping stripped, cut in 3 sections average width I6", Sample is east of No. 67.
.. Au. 0.02, Ag. 0.5, Cu. 3.02 %.

.. No. 27. Tunnel No. I0. Sampled in 6 sections, average width 3' 6" composite of all 6 cuts. (Ore badly broken.) Au. 0.02, Ag. 0.6, Cu. I.86 %.

.. No. 29. Stripped outcropping, continuation of No. 28 sample easterly, Composite of 5 sections, average 5' wide. Au. o.o7, Ag. 0.4, Cu. I.54 %.

.. No. 30. Outcropping cut in 3 sections average width 4'4" I5 feet easterly No. 29 sample. Au. 0.0I, Ag. 0.3, Cu. I.60 %.

.. No. 3I. Tunnel No. I2. (also cut.) East of No. 30, and west side fault, Composite of 4 sections average 5' 4" wide. Au. 0.0I, Ag. 0.2, Cu. I.56 %

.. No. 32. Tunnel No. I2. East side, cut in 3 sections, average 4' 8" wide. Au. 0.07, Ag. 0.5, Cu. 3.I5 %.

.. No. 33. Outcropping West of No. I3 tunnel, comp. 3 sections, ave. width 4'3". Au. 0.02, Ag. 0.7, Cu. 3.I4 %

.. No. 66. No. I3 Tunnel. Composite 3 cuts at face, average 4'6" wide. (Ore mixed and broken.)

.. No. 66. Au. 0.02, Ag. 0.5, Cu. 0.90 %

.. No. 65. No. I2 Tunnel, 3 sections starting about 3 feet from face, average 4' 3" wide. Au. 0.02, Ag. 0.4, Cu. 2.20%.

.. No. 34. Tunnel No. I4. Composite 4 sections cut both sides tunnel average 6' 3" thick. Au. 0.0I, Ag. 0.5, Cu. 2.60 %

.. No. 35. No. I4c Tunnel. Comp. 5 sections, average 4' thick. at open cut at portal. Au. 0.I5, Ag. 0.5, Cu. 2.60 %.

.. No. 70. Above No. I6 shaft. Composite 3 sections average 2' I0" wide. Taken at East drift to hill from open cut. Au. 0.03, Ag. 0.9, Cu. 4.30 %

.. NO. 63. No. I6 Shaft. Composite 3 sections of open cut incline just above No. I6 shaft. Average width 3'. Au. 0.06, Ag. 0.7, Cu. 2.97 %.

.. No. 64. No. I4. Tunnel, Composite, 3 sections at face average width 4'4". Au. 0.07, Ag. 0.7, Cu. I.76 %.

.. No. 72. Shaft No. I6. Comp. 2 sections near collar, average 2' wide. Au. 0.05, Ag. 0.7, Cu. 3.00 %.

.. No. 73. Shaft No. I6. Composite of 3 cuts, I5' below No. 72. sample. average width 3' 4". Au. 0.04, Ag. 0.4, Cu. I.50 %

.. No. 74. No. I6 incline shaft. composite, 3 sections just below No. 73 sample. average 3' 5" wide. Au. 0.08, Ag. 0.6, Cu. I.40 %. No. I6 shaft (incline

below No.

.. No. Connects with No. I5 shaft but in bad condition at collar for sampling.

.. No. 36. Chip sample, North face of dike across 30 feet, cut in 3 I0' sections Au. Tr. Ag. 0.3, Cu. I.40 %

.. No. 37AB Chip sample outcrop of dike along east side for about 75 feet. Au. 0.03, Ag. 0.7, Cu. I.77 %.

No, 36BA. Chip sample, along top and west side for 40 feet. Au. 0.05, Ag. 0.9, Cu. I.22 %.

NOTE: → Samples No's 36, 37AB. and 36BA are from the dyke mentioned in report. No further work was ever done on this by us.

W. E. HAWLEY
ASSAYERS
CHEMISTS

F. L. HAWLEY
SHIPPERS' REPRESENTATIVES
ORE BUYERS

HAWLEY & HAWLEY

W. E. HAWLEY, MANAGER

DOUGLAS, ARIZONA
537 12TH ST. BOX 151

DEMING, NEW MEXICO
BOX 321

EL PASO, TEXAS
BOX 4

We hereby certify that the following results were obtained from samples of The Tigre Mining Co-by J. V. McConnell

OFFICE NO.	MARKED	GOLD OZS.	SILVER OZS.	COPPER PER CENT	LEAD PER CENT		GOLD VALUE	SILVER VALUE	TOTAL VALUE
91588	1-B	.08	0.3	1.12					
91589	2-B	.01	0.2	1.62					
91590	3-B	.08	0.3	1.20					
91591	4 B 5-B	.32	0.3	2.06					
91592	6-B	.11	0.4	2.96					
91593	7-B	.01	trace	1.94					
91594	8-B	.15	0.4	1.34					
91595	9-B	.11	0.6	2.50					
91596	10-B	.23	0.4	2.38					
91597	11-B 12-B-4 13-B-	.02	1.1	1.14					
91598	14-B	.02	0.3	0.54					
91599	15-B	.46	0.2	0.94					
91600	16-B	.56	0.6	2.00					
91601	17-B	.10	0.6	5.79					
91602	18-B	.67	0.7	6.28					
91603	19-B	.10	1.3	7.62					
91604	20-B	1.07	0.5	3.88					
91605	21-B	.20	0.6	3.52					
91606	22-B	1.65	2.3	3.56					
91607	23-B	.70	0.9	2.18					
91608	24-B	.01	0.5	1.42					
91609	25-B	.01	0.5	1.70					
91610	26-B	.26	0.5	2.18					
91611	27-B	.02	0.6	1.86					

METAL QUOTATIONS:

(1)

Gold $20.00 per oz. *Copper.....c per lb.* *Charges: $.....*

Silver,.....per oz. *.....per lb.* *Date* 4/17/31

HAWLEY & HAWLEY

Per W. E. Hawley *Assayer*

W. E. HAWLEY
ASSAYERS
CHEMISTS

F. L. HAWLEY
SHIPPERS' REPRESENTATIVES
ORE BUYERS

HAWLEY & HAWLEY

W. E. HAWLEY, MANAGER

DOUGLAS, ARIZONA
537 12TH ST. BOX 151

DEMING, NEW MEXICO
BOX 321

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BOX 4

We hereby certify that the following results were obtained from samples of Tigre Mining Co-by J. V. McConnell

OFFICE NO.	MARKED	GOLD OZS.	SILVER OZS.	COPPER PER CENT	LEAD PER CENT		GOLD VALUE	SILVER VALUE	TOTAL VALUE
91612	✓ 28-B	.02	0.5	3.02					
91613	✓ 29-B	.07	0.4	1.54					
91614	✓ 30-B	.01	0.3	1.60					
91615	✓ 31-B	.02	0.2	1.56					
91616	✓ 32-B	.07	0.5	3.10					
91617	✓ 33-B	.02	0.7	3.14					
91618	✓ 34-B	.01	0.5	2.40					
91619	✓ 35-B	.15	0.5	2.60					
91620	36-B	trace	0.3	1.40					
91621	37-B	.23	0.2	1.46					
91622	38-B	.01	trace	1.76					
91623	39-B	.02	trace	1.68					
91624	44-B	.31	0.6	3.64					
91625	45-B	.67	10.0	22.14					
91626	46-B	.47	0.3	2.62					
91627	47-B	.02	4.1	24.38					
91628	1-BG	.12	0.7						
91629	200-BS	.35	0.3	2.12		DUMP= 150 TON BLK SMITH. SHAFT.			

METAL QUOTATIONS:

Gold $20.00 per oz. *Copper.....c per lb.* *Charges: $* 83.00

Silver,.....per oz. *.....per lb.* *Date* 4/17/31

HAWLEY & HAWLEY

Per W E Hawley *Assayer*

File

BULLARD MINE

FROM CONFERENCE WITH RICKARD -- 2/5/1944.

Bullard resumed shipments on November 17th, 1943 and since has shipped 24 lots of about 50 tons each say 1200 tons.

The highest gold assay in any lot was 0.415 oz. with 2.81% copper, but most of the lots did not assay as much as 0.10 oz. gold and some were as low as 0.06 while copper varied usually from 1.00 to 2.00% and in no case was the silver up to 0.5 oz. The last lot #24 was better than the average and assayed Au - 0.105 oz., Ag 0.27 oz. and Cu 2.11%. This ore would net the shipper about $6.48 per ton since they get 24.7¢ for their copper. On most of the shipments they have lost money and seems doubtful if they will keep on much longer. Seems as if they should mine and sort with more care.

H. L. PRATT, JR.
PRESIDENT

J. P. SMITH
VICE PRES. AND GEN. MANAGER

A. W. CRANE
SECRETARY & TREAS.

Bullard Gold Mines, Inc.

Heard Building
Phoenix, Arizona

February 3, 1943

Reconstruction Finance Corporation
611 Vermont Avenue, N. W.,
Washington, D. C.

Re: Bullard Mine

Gentlemen:

In submitting this application with exhibits, the applicant particularly desires to call attention to the fact that in the opinion of all of the engineers whose reports are attached, approximately 20,000 tons of ore containing one million pounds of copper and 4,400 ozs. of gold are already developed or partially developed in the western section of the Home Vein and that the driving of a main adit tunnel through the lower portion of this ore body, with supplemental raises,--etc., will fully develop this block of ground and make it available for mining during the next two years.

This assumption is confirmed by the reports of Durfee, McConnell and the A. S. & R. Engineers and is particularly emphasized and explained in the report of G. M. Colvocoresses on Page 13-16.

The active operations which will be made possible by the requested loan and its expenditure as per Exhibit A of the Application Blank, should therefore serve to increase the production of copper and should also be sufficiently profitable to permit the repayment of the loan from the returns from shipments which will be made from this particular portion of the property while the further development of other sections is expected to result in opening up additional ore reserves and permitting the continued operation of the property after the loan has been repaid.

Yours very truly,

February 3, 1943

STATEMENT OF ACCOUNT

Bullard Gold Mines, Inc.

and

G. M. Colvocoresses

To fee for examination of mine and preparation of report, and data for Loan Application as per agreement of January 13, 1943.		$250.00
Payment:		
By check January 16	$100.00	
By check February 3	150.00	
	$250.00	$250.00

Received payment in full, with thanks.

GEORGE M. COLVOCORESSES
MINING AND METALLURGICAL ENGINEER
1102 LUHRS TOWER
PHOENIX, ARIZONA

January 13, 1943

Mr. J. P. Smith, President
Bullard Gold Mines
Heard Building
Phoenix, Arizona

Dear Mr. Smith:

Comfirming our verbal and telephone conversation you have given me to understand that the physical conditions at the Bullard Mine have not greatly changed during the past four years and that the greater part of the ore reserve which then existed is still in place.

Under these conditions it is my opinion that the Bullard Mine should be entitled to secure a Government loan to permit the re-opening and additional development of the property and I think that you could expect to secure a Class B loan amounting to approximately $20,000.00 and with the possibility that a similar amount might be obtained after the first $20,000 had been expended.

In order to make application for such a loan it will be necessary to revise and bring up to date the maps of accessible underground workings and also to prepare a report respecting the present conditions.

I shall be glad to undertake the technical procedure involved and for this purpose to reexamine the physical condition of the property, revise the maps, and prepare a new report, and also fill out all of the technical information required by the Government and furnish copies of old maps and reports which will be used to advantage in making such application. The legal and financial data relative to your company will have to be furnished by you or your attorneys, also record of shipments made during the past few years.

My fee for services indicated above will be the sum of $250.00 of which I shall request $100.00 in advance and the balance upon completing my undertaking and turning over to you the application for loan with maps and other exhibits for execution by the proper officials of your company.

I understand that the above arrangement is satisfactory and to confirm the same will ask you to sign one copy of this letter under the word "accepted" and if you desire I can arrange to visit the property and start ~~the~~ prepare the reports within the course of the next few days. Needless to day I will do my best to assist you in securing the loan from the Government and in carrying out any similar procedure that may be desired.

ACCEPTED: J. P. Smith

Yours very truly,

G. M. Colvocoresses

Bullard Gold Mines, Inc.
Heard Building
Phone 4-4024
Phoenix, Arizona

February 2, 1943

Reconstruction Finance Corporation
811 Vermont Avenue, N. W.
Washington, D. C.

Gentlemen:

Enclosed herewith are duplicate copies of the application of the undersigned for a Development Loan duly executed by the officers of this company.

To one of these applications there are also attached the following special exhibits:

A. Print of map of Mining Claims

B. Report and Map of E. W. Durfee

C. Extracts from letter quoting from reports of Engineers who examined mine for A. S. & R. Company, with print of their assay map.

D. Report by J. V. McConnell to El Tigre Mining Company

E. Certificate of Incorporation, Articles of Incorporation and By-Laws of Bullard Gold Mines, Inc.

F. Lease and Option with assignment and Court Order modifying same.

G. Report of G. M. Colvocoresses, January, 1943.

H. Record of ore shipments from Bullard Mine 1936 to date.

I. Letter from American Smelting & Refining Company re purchase of ore.

J. Inventory of Bullard Equipment.

Yours very truly,

R. F. C. Form L-254
(Revised 4-10-42)

APPLICATION FOR A DEVELOPMENT LOAN

NOTE.—Read carefully Reconstruction Finance Corporation Circular No. 14 (revised) and this application form before starting to prepare application.

Application of

(NAME) Bullard Gold Mines, Inc., Lessee of Bullard Mine

(ADDRESS) 404 Heard Building

(CITY AND STATE) Phoenix, Arizona

For a Development Loan under authority of section 14, Public No. 417, Seventy-third Congress, as amended.

The application should be prepared and executed in duplicate; one counterpart should be accompanied by a complete set of exhibits, including maps, reports, and all other documents called for; the other should be accompanied by a set of exhibits complete except for supporting maps, assay reports, and other documents of which it is difficult to obtain more than one copy; each counterpart with exhibits should be fastened in a separate binder and sent to Reconstruction Finance Corporation, 811 Vermont Avenue NW., Washington, D. C.

Name and address of applicant should be stamped or typed on each sheet of application, and on all accompanying papers, for identification. If any space in any exhibit is not large enough to permit giving full information, such information should be typewritten on attached sheets of paper labeled, lettered, and numbered to correspond with the respective exhibit, section, and subsection.

Date February 2, 1943

Name of correspondent J. P. Smith, Vice-President, Bullard Gold Mines, Inc.

Address of correspondent 404 Heard Building, Phoenix, Arizona

Location of mine: County Yavapai State Arizona Mineral or metal produced copper and gold.

Does this application pertain to the production of strategic and critical minerals? Yes
(Yes or no)

Bullard Gold Mines, Incorporated (hereinafter called "applicant"),

a corporation, hereby applies to RECONSTRUCTION FINANCE CORPORATION (hereinafter called
(Corporation, individual, partnership)

"R. F. C."), for a loan of not more than $ 20,000. to be evidenced by a note or notes satisfactory to R. F. C. and secured as required by R. F. C.

To induce R. F. C. to make such loan, applicant submits as part of this application the attached exhibits, A to D, inclusive, and such other exhibits and papers as are attached hereto, and warrants and represents the statements herein and therein to be true and complete.

Applicant represents that applicant is not, at the time of making this application, indebted to R. F. C. in any amount, and neither the applicant nor any other party on applicant's behalf has heretofore applied to R. F. C. for a loan, except as follows:

No exceptions

Applicant hereby authorizes all constituted Federal, State, municipal, and other authorities at all times and from time to time to permit representatives of R. F. C. to have full access to and to furnish R. F. C. with any and all information, records, reports, returns, and files pertaining to or filed by or on behalf of applicant.

Dated February 2, , 1943 (Sign below)

WITNESS:

_____ _____

WITNESS:

_____ _____

_____

_____

(Corporate application to be executed by the President and Secretary with corporate seal affixed; partnership application to be executed by a general partner)

16—4062-1

Application of Bullard Gold Mines, Inc. 404 Heard Bldg. Phoenix, Ariz.

R. F. C. Form L-255
(Revised 4-10-42)

EXHIBIT A

General Information

1. NATURE OF BUSINESS: Describe briefly the type of operation being conducted.

Mining of copper-gold ore

2. LOAN:

(*a*) Amount of loan applied for: $20,000.

(*b*) Full statement of necessity for loan: Applicant is without funds to carry out proposed program.

3. PURPOSES OF LOAN: Specific purposes for which applicant proposes to expend proceeds of loan applied for. (Detailed information should be given.)

Nature of Expenditure	Amount	Percent
Equipment, compressor, drills, cars, track, bins, etc.	$ 5,000	25
Main haulage drift and raises to ore and surface	10,000	50
Cleaning and repairing Blacksmith Shaft and Water Shaft	2,000	10
Camp repairs	500	2.5
Miscellaneous and working capital	2,500	12.5
See Report		
	$ 20,000	100.0

4. HISTORY, MANAGEMENT, ETC.: This subject should be fully covered and should include the following information: A brief statement of previous development and operation of the mining property; statement as to exact nature of applicant's interest in or ownership of the property, including date and circumstances under which acquired; if applicant or the mining property under consideration for the loan has been involved in receivership, reorganization proceedings, or bankruptcy, or if applicant has made an assignment for the benefit of, or effected a compromise with creditors, discuss fully; a full statement of the facts disclosing that applicant is engaged in the development of a mining property which comes within the purview of the Act, and all pertinent facts regarding the mining business of the applicant and the management thereof, including the manager's mining experience. See reports attached

5. CLAIM UNDER WAR MINERALS RELIEF ACT: If a claim has been filed under the War Minerals Relief Act involving the property or the applicant, explain in detail, stating amount of claim filed and amount recovered, if any. If no such claim has been filed, so state.

6. LOCATION: Give State, county, and mining district in which property is situated. If on surveyed ground, give section, township, and range. Give name of and distance to railroad station.

See reports.

7. MINING PROPERTY:

(*a*) Names and legal survey numbers of all patented claims or claims surveyed for patent. (Include claim map.) See report and lease. Map attached

(*b*) Names, dates of location, place and date of recording, book and page record of all unpatented locations.

(*c*) Description of acreage or placer ground, and recording data. See lease.

(*d*) Names of any adjoining or neighboring productive properties. None near by.

8. OPERATION:

(*a*) Are operations being carried on at present time? If so, describe operations including number of men employed. On very small scale, only one man employed at present.

(*b*) If operations are not now being carried on or have not been continuous, give dates of suspension and resumption of operations, reasons for such suspensions, and description of most recent operations. See reports.

9. If Applicant is a Corporation, Supply the Following:

(a) General information:

1. Principal office and place of business 404 Heard Building (Street and number), Phoenix (City), Arizona (State)

2. When organized. January, 1939

3. Under what laws organized. Arizona

4. Names of States in which qualified to do business. Arizona

(b) Names and addresses of officers, directors, and ten largest stockholders:

Name and address	Official title (if officer is also director indicate by "D")	Annual salary, commissions, bonuses, etc., received from applicant and/or affiliates during last fiscal year	Number of shares held	
			Common	Preferred
H. L. Pratt, Jr., Arcadia, Arizona	Pres. (D)	none	80,525	
J. P. Smith, Heard Building, Phoenix	Vice-Pres(D)	$1750.00	25,500	
A. W. Crane, Heard Building, Phoenix	Secy-Treas	300.00		3
Mark Gemmill, Prescott, Arizona	(D)		1,000	
H. H. Ross			20,000	
J. B. Ross			8,200	
Duke R. Gaskins			7,178	
Charles A. Hearn			5,000	
J. J. Bacon			3,000	
TOTAL				

(c) Capital stock issues:

	Authorized	Outstanding	Par value	Number of shares	Dividend rate	
					Last paid	Fixed by charter
Common stock	$ 500,000	$164,206	$ 500,000	500,000	None	x x x
Preferred stock	None					

(d) Articles, bylaws, etc.—Copies of Articles of Incorporation, bylaws, and certificates of authority to do business, with all amendments to date, certified and sworn to by applicant's Secretary, all to be attached hereto as Exhibit "E". Attached.

10. If Applicant is a Partnership, Supply the Following:

(a) Names and addresses of all partners:

Name (Indicate if any partners are limited or special partners)	Address

(b) Affidavits and agreements.—Copies of all partnership affidavits and agreements, certified and sworn to by the partner signing the application, all to be attached hereto as Exhibit "E".

11. Taxes:

Amounts of all Federal, State, municipal, and other taxes and assessments:

(a) Delinquent at the time of the filing of this application. None

(b) Levied or assessed each year for the past 3 years. 1942: $249.94

R. F. C. Form L-256
(Revised 4-10-42)

EXHIBIT B

Technical Data

The data required by Exhibit B should be supplied in detail on separate sheets of paper attached at end of this Exhibit. Data should be lettered and numbered to correspond with respective paragraphs below.

A. REPORTS: Furnish any reports available that apply to this application, including results from any metallurgical investigations. See reports attached as exhibits.

B. METAL OR MINERAL: State metal or mineral to be produced. Applicant must present evidence of definite markets for products other than gold and silver which will be produced during the life of the loan, with location and capacity of each market and sales prices. Copper and gold, see letter from American Smelting & Refining Company attached.

C. GEOLOGY AND TOPOGRAPHY: Submit all available information and maps. See report.

D. EXISTING DEVELOPMENT:

See report and maps attached as exhibits.

1. Furnish all possible information with regard to the ore body or mineral deposit. If maps and sections of the mine or placer are not available, pencil sketches are acceptable. However, such sketches should, if possible, be drawn to scale, or if not, dimensions must be shown. **Give the assays of all samples, stating clearly how samples were taken, giving width and location of each sample. Show the location, value, and width of each sample on maps submitted.** For placer deposits give the values obtained from each shaft or drill hole and state how the values were determined. If the data is available, show the estimated yardage and value. See reports and maps attached.

2. Submit certificates, when available, giving analysis of each sample and number each sample to correspond with sample numbers on the maps submitted.

3. State type of mine, whether tunnel or adit, shaft, open-cut, placer, drift, etc., and show in detail the amount of development work. State distance along vein between levels and to surface. Indicate condition of workings, noting necessary repairs, if any.

See reports.

4. List present equipment on property and describe condition.

See list attached as Exhibit, condition only fair.

E. PROPOSED DEVELOPMENT:

1. State clearly and in detail the proposed work. Estimate the cost of producing and marketing the product. Outlined in report.

2. State recent daily, monthly, and annual production (if any) and estimated production if loan is granted.

See shipment record.

3. State whether workings are dry or wet; if latter, amount of water that has to be pumped, gallons per minute, to keep water down. dry.

F. MARKETING OF PRODUCT: Explain fully whether the product produced is milled on the property, shipped to custom mill or smelter, or shipped direct to the mint, or otherwise marketed. In any case, supply all cost data with regard to marketing. Shipped to smelter, see letter from A. S. & R.

G. WATER SUPPLY: State whether water supply for all proposed operations is sufficient during all seasons of year. State amount in gallons per minute, miners' inches, or second-feet. If available, state the maximum, minimum, and average flow. Describe the source of the water supply, its dependability, water rights, etc.

See report.

H. POWER: State kind and source of power proposed to be used in operating the property.

Gas or oil engine

I. COST: State past (if mine has been in operation) and estimated future:

1. Detailed mining cost per ton, or per cubic yard of product and per foot of development work.

no record.

2. Detailed milling cost.

No milling carried on.

R. F. C. Form L-257
(Revised 4-10-42)

EXHIBIT C

Current Financial Statement

As of

January 30, 1943
(It is desired that this should be not more than 30 days prior to date of application)

	Assets	
CURRENT ASSETS:		
1. Cash		$ 85.82
2. Notes receivable		
3. Accounts receivable		
4. Inventories, materials on hand, etc.		
TOTAL CURRENT ASSETS		85.82
FIXED AND OTHER ASSETS:		
5. Plant used in business	Lands Mining claims	298,067.13
	Buildings Development work, roads, etc.	64.00
	Ores	
6. Machinery		2,326.82
7. Equipment, furniture, fixtures, etc.		140.87
Organization Expenses		48,407.18
TOTAL ASSETS		349,091.82
	Liabilities	
CURRENT LIABILITIES:		
8. Notes payable	Demand Notes	425.00
9. Accounts payable		1,648.69
10. Other current liabilities	S. S. taxes	27.76
	Victory taxes collected	10.15
11. Liabilities accrued but not yet payable (interest, rent, taxes, wages, payments due on account of leases, options, or other contracts, etc.)		
Lease and option ($300.00 per month)		102,986.35
TOTAL CURRENT LIABILITIES		105,097.95
FIXED AND OTHER LIABILITIES:		
12. Mortgage debt, etc.		
13. Contracts for lease, royalty, or purchase which constitute charges:		
14. Other liabilities (describe)		
Reserves for Depreciation		736.38
TOTAL LIABILITIES		105,773.33
15. Contingent liabilities (describe)		None

INSTRUCTIONS.—**In addition to the foregoing statement, attach a copy of latest balance sheet; also state terms of notes payable, mortgage debts, etc., giving maturity dates, rate of interest, etc.; and describe any other liens.**

EXHIBIT D

Fees, Commissions, Etc.

(No fees or commissions shall be paid by applicant for the purpose of procuring a loan, but reasonable compensation may be paid for proper services actually and necessarily rendered to applicant. If an application is granted it is to be expected that prior to disbursement the Corporation will require that it be furnished with certificates and agreements from applicant and from persons retained to render services to applicant, in form satisfactory to the Corporation, that all compensation shall be subject to the approval of the Corporation.)

All fees, commissions, salaries, charges, compensation, and things of value paid or delivered, or agreed to be paid or delivered, or contemplated to be hereafter paid or delivered by or on behalf of applicant in connection with the application and/or any loan granted are as follows:

Name	Description of services	Amount paid	Amount agreed or contemplated to be paid
		$	$

U. S. GOVERNMENT PRINTING OFFICE 16—4062-1

Application of Bullard Gold Mines, Inc., 404 [illegible] Bldg. Phoenix, Arizona

3 copies

BULLARD GOLD MINES, INC.
Phoenix Arizona.

BALANCE SHEET as at January 30 - 1943.

ASSETS:

Cash in Bank			$ 85.82
Mining Claims - Stock issued therefor		$100,000.00	
Cash Paid		15,140.88	
Balance due on lease-option		182,926.25	
Total Cost of Mining Claims			298,067.13
Improvements - Roads, etc.			64.00
Mine Equipment		2,326.82	
Office Equipment		140.87	
Total Equipment at Cost		2,467.69	
Less-Reserve for Depreciation		735.38	
Total Equipment - Residual Values			1,732.31
Organization Expenses - Stock issued therefor			48,407.18
TOTAL ASSETS			348,356.44

LIABILITIES:

Lease & Option - Estate of R. W. Bullard			182,926.25
Loans Payable			425.00
Accounts Payable - Trade Creditors			1,648.69
Pay Roll Taxes Payable - U. S. Government			27.76
Victory Taxes Collected			10.15
TOTAL LIABILITIES			185,037.85

Capital and Net Worth

Capital Stock issued		164,206.00	
Due Stockholders for Money advanced:			
H. L. Pratt, Jr.	10,834.20		
J. Ben Ross	3,194.76		
J. P. Smith	3,381.98		
Stock to be issued for above		17,410.94	
Donated Surplus		2,350.00	
Total		183,966.94	
Less - Deficit to date		20,648.35	
Total Capital and Net Worth			163,318.59
Total Liabilities & Net Worth			$ 348,356.44

R. F. C. Form L-257
(Revised 4-10-42)

EXHIBIT C

Current Financial Statement

As of

January 30 - 1943

(It is desired that this should be not more than 30 days prior to date of application)

Assets	
CURRENT ASSETS:	
1. Cash	$ 85.82
2. Notes receivable	
3. Accounts receivable	
4. Inventories, materials on hand, etc.	
TOTAL CURRENT ASSETS	85.82
FIXED AND OTHER ASSETS:	
5. Plant used in business ~~Lands~~ MINING CLAIMS -	798.067.13
~~Buildings~~ DEVELOPMENT WORK - ROADS ETC.	61.00
Ores	
6. Machinery	234.82
7. Equipment, furniture, fixtures, etc.	140.87
ORGANIZATION EXPENSES	48.407.18
TOTAL ASSETS	349091.82
Liabilities	
CURRENT LIABILITIES:	
8. Notes payable DEMAND NOTES	425.00
9. Accounts payable	1648.69
10. Other current liabilities S.S. TAXES	27.76
VICTORY TAXES COLLECTED	10.15
11. Liabilities accrued but not yet payable (interest, rent, taxes, wages, payments due on account of leases, options, or other contracts, etc.)	
LEASE & OPTION ($300.00 PER MONTH)	182.94.25
TOTAL CURRENT LIABILITIES	185037.96
FIXED AND OTHER LIABILITIES:	
12. Mortgage debt, etc.	
13. Contracts for lease, royalty, or purchase which constitute charges:	
14. Other liabilities (describe)	
RESERVES FOR DEPRECIATION	735.38
TOTAL LIABILITIES	185773.43
15. Contingent liabilities (describe)	NONE

INSTRUCTIONS.—**In addition to the foregoing statement, attach a copy of latest balance sheet; also state terms of notes payable, mortgage debts, etc., giving maturity dates, rate of interest, etc.; and describe any other liens.**

EXHIBIT D

Fees, Commissions, Etc.

(No fees or commissions shall be paid by applicant for the purpose of procuring a loan, but reasonable compensation may be paid for proper services actually and necessarily rendered to applicant. If an application is granted it is to be expected that prior to disbursement the Corporation will require that it be furnished with certificates and agreements from applicant and from persons retained to render services to applicant, in form satisfactory to the Corporation, that all compensation shall be subject to the approval of the Corporation.)

All fees, commissions, salaries, charges, compensation, and things of value paid or delivered, or agreed to be paid or delivered, or contemplated to be hereafter paid or delivered by or on behalf of applicant in connection with the application and/or any loan granted are as follows:

Name	Description of services	Amount paid	Amount agreed or contemplated to be paid
		$	$

U. S. GOVERNMENT PRINTING OFFICE 16—4062-1

Application of Bullock Gold Mines Inc

BULLARD GOLD MINES, INC.

Phoenix Arizona.

STOCKHOLDERS of Record - January 30 - 1943.

Herbert L. Pratt, Jr.	80,525	Shares
J. P. Smith	25,500	"
H. H. Ross	20,000	"
J. Ben Ross	8,200	"
Duke R. Gaskins	7,178	"
Chas. A. Hearn	5,000	"
J. J. Bacon	3,000	"
Gray Madison	2,400	"
W. R. K. Taylor	2,200	"
L. & A. Loveland	2,200	"
Mary E. Randall	2,000	"
Elizabeth C. Randall	1,250	"
Wait & Co.	1,250	"
F. P. Grosvenor	1,000	"
Anita Grosvenor	1,000	"
Mark Gammill	1,000	"
Jarvis Hunt, Jr.	500	"
A. W. Crane	3	"
TOTAL	164,206	Shares

Real Property Taxes Paid:

1940	371.11
1941	274.70
1942	124.97
TOTAL	770.78

Exhibit A.

Ballard

EXHIBIT F.

TO ACCOMPANY APPLICATION FOR MINING

LEASE OF

SWANSEA DEVELOPMENT COMPANY

SPECIAL EXHIBIT D

TO ACCOMPANY LOAN APPLICATION OF

BULLARD GOLD MINES, INC.

series of tests should be carried on by competent metallurgists and these should be started just as soon as your finances will permit.

FUTURE DEVELOPMENT OF MINE.

Since it is evident that a substantial capital expenditure will have to be made to provide an efficient mining and milling plant, regardless of the method of concentration which may be adopted, I feel that it is of the utmost importance to first positively develop or put in sight a sufficient tonnage of pay ore to properly justify such an outlay and to accomplish this I recommend that a program of scientific mining exploration and development should be laid out and started as quickly as possible.

Fortunately the natural conditions are such that much of this work on the Home Group suggests itself and can be accomplished at comparatively small expense and with an attendant production of some ore, but I feel that several of the old shafts should also be examined and a certain amount of drifting and other work done to permit an estimate of partially developed ore in those sections of the property.

I think that an appropriation of at least $20,000 should be made for this work through the expenditures of which I should hope that we would then be able to estimate ~~the~~ at least 100,000 tons of average grade ore as positive or reasonably probable.

CAPITAL EXPENSE.

Under present conditions and until the development work has proved up a substantial tonnage of positive ore and the method of treatment has been definitely determined it would

S P E C I A L E X H I B I T G

TO ACCOMPANY LOAN APPLICATION

OF

B U L L A R D G O L D M I N E S ,

I N C O R P O R A T E D

GEORGE M. COLVOCORESSES
MINING AND METALLURGICAL ENGINEER
1102 LUHRS TOWER
PHOENIX, ARIZONA

January 25, 1943

Bullard Gold Mines, Inc.
Heard Building
Phoenix, Arizona

REPORT ON BULLARD MINE

Gentlemen:

As requested by your officials I have recently reexamined this property with which I have been personally familiar for some years and have obtained maps and data from your office and other sources and I now beg to submit the following report with exhibits.

PROPERTY, LOCATION AND GENERAL CONDITIONS

The property now held by your company under lease from the owner, with option to purchase, consists of twenty-seven (27) patented and one (1) unpatented lode mining claims, about 560 acres, located in the Pierce Mining District, Yavapai County, Arizona. These claims are shown on the map attached as Exhibit A and they are listed in the Lease Agreement.

The main workings are reached by nine miles of good desert road from Aguila, a small town on the Parker Cutoff Branch of the Santa Fe Railroad. The elevation is from 2400 to 2800 feet above sea level and the surface is barren, rough and rocky with very scant vegetation and no timber.

The claims lie on and around Bullard Peak, which is a 300 foot hill south of the eastern end of the Harcuvar Range of Mountains.

Domestic water is obtainable from shallow wells sunk in the washes both north and south of Bullard Peak, but any supply adequate

for milling purposes would have to be secured from wells sunk in the valley south of the claims. It is reported that an ample supply could thus be obtained some four miles from the mine and pumped from a depth of 300 feet below the surface.

The climate, while hot in summer, is entirely suitable for both surface and underground operations at all seasons of the year, the mean annual rainfall is about nine inches, snow is rare but during the winter nights a temperature of five to ten degrees below freezing is fairly common.

In normal times the labor supply is plentiful by reason of the nearness of the property to various other mining districts and the Salt River Valley. All supplies must be hauled from the railroad at Aguila or trucked directly from Phoenix 85 miles distant. No electrical power is available locally, although this condition may change at some future date.

GEOLOGY AND ORE OCCURRENCE

The Harcuvar Range and vicinity are mostly composed of pre-Cambrian granite, gneiss, and schist, with some intrusions of porphyry. At and near to Bullard Peak these are overlain by conglomerate, andesite, tuff, limestone, quartzite and basalt. The various ore bearing veins appear to have been formed in thrust or shear zones in the flows of andesite.

The main or Home Vein lies between two phases of augite-andesite (probably of Tertiary age) some of which closely resembles a basalt. The other veins are mostly found in similar andesite, conglomerate or limestone. A detailed description of some of these is to be found in this report or in the attached exhibits

but many of the veins have been prospected only near to the surface or are developed by old shafts and workings which are not accessible at present.

All of the veins are found in fault or shear zones where the rock has been silicified and in which the ore is associated with a brecchiated gangue of wall rock, quartz, calcite, and hematite and occurs mainly in the form of copper silicate (crysocolla) and to a lesser extent as copper carbonate and oxide while copper and iron sulphide appear to come in as depth is gained. The gold is free but in very fine particles and is associated with the quartz while the character of the small amount of silver does not appear to have been determined.

The ore appears to me to have originally been deposited as a sulphide by circulating solutions during the Tertiary period and later oxidized near the surface and sometimes to a considerable depth.

There is no basis for estimating the character or value of the ore below the present accessible and comparatively shallow workings, but the ore zones appear to continue downward and at greater depth ~~and~~ it is my opinion that copper values will tend to increase and gold values to diminish. This is borne out by the observations of other engineers.

HISTORY

Ore on the claims now comprising this group is said to have been discovered by the late John Bullard in 1868 and many of these claims were staked by him during the next few years when he opened up showings on several different portions of the property. Later

they passed to the Yuma Copper Company which operated quite extensively until about 1890 during which period they carried out a large part of the development work which is shown on the A. S. & R. map of 1913 (Exhibit C) and in other parts of the property. They erected and for a short time operated a small smelting furnace and subsequently a small mill.

After this company relinquished the property it passed back into the hands of John Bullard who held it until the time of his death some seven or eight years ago placing so high a value on the mine that none of the several very responsible companies who sought to do business with him could ever make a satisfactory deal.

On the death of John Bullard his brother Dick became the principal owner and eventually the property was leased in August 1938 to parties who assigned this contract (attached as an Exhibit) to the Bullard Gold Mines, Inc., which has continued to hold possession of the property since that date and has operated and made shipments as noted elsewhere in this report. Unfortunately this company has never been in a financial position to carry out a comprehensive program of development which might have resulted in blocking out a substantial reserve of ore and also would have permitted a consistent and economical production from the ore bodies which are already opened up or partially indicated instead of wastefully gouging out ore from a dozen different showings with inadequate mining and transportation facilities.

I have no record of the old production made by the Yuma Copper Company and John Bullard but I believe that the tonnage probably did not exceed 2500.

In 1919 Abbott and Bryan, leasing on a portion of the property

shipped about 300 tons of ore averaging Au. 0.27 ozs.; Ag. 0.66 ozs.; and Cu. 4.21%.

In 1936, George Long, also leasing, shipped from the north side of the Home Vein 946.45 dry tons averaging Au. 0.996 ozs.; Ag. about 0.5 ozs. and Cu. 3.84%.

Since the Bullard Gold Mines took over their shipments have aggregated 5,762 tons with round figure average of Au. 0.3647 ozs.; Ag. 0.30 ozs. and Cu. 2.25%, and in addition a number of cars of ore of similar grade were shipped by sub-leasers.

The smelter settlement sheets for all of these shipments are on file in the Company's office in Phoenix.

The total production of the mine from 1915 to date may therefore be roughly figured at 7500 tons, which have averaged approximately Au. 0.4 oz.; Ag. 0.3 oz.; Cu. 2.50%.

All of the operators have naturally sought to mine and ship the highest grade of ore that was available and the estimated value of the remaining ore is somewhat lower as may be determined from the attached assay maps and engineer's reports.

PREVIOUS EXAMINATIONS

During the past 50 years this mine has been examined more or less thoroughly by a great many engineers and most of their reports are not now available but I will mention the following of which I have secured complete or partial copies.

E. C. Norris reported on January 10, 1901, described a number of workings and took many samples which appear to have been combined into six large composite samples that averaged about 10% copper and over 0.5 oz. gold per ton. Norris also quotes the

results of samples previously taken as follows: By Burlingame at some time prior to 1890 averaging 1.30 oz. gold and 8% copper.

Another sampling in 1890 averaging 5.5% copper.

By Hanks in 1894 averaging over 2 oz. gold.

By Kelly in 1896 averaging 0.7 oz. gold and by Kelly at a later date averaging about 2.0z. in gold.

Norris concludes his report by saying that he believes that there are "240,000 tons of ore in sight" having an average value of $10.00 per ton with gold valued at $20.67 per oz. and copper selling at about 12¢ per pound.

At some date prior to 1917 the property was examined and portions quite thoroughly sampled by E. W. Durfee who prepared a report with assay map of the Home Group deposits of which a copy is attached as ~~an~~ Exhibit B. Durfee recommended extensive development and concluded that there were 43,700 tons of "positive" ore averaging 0.376 oz. gold and 2.94% copper and 34,100 tons of probable ore of a similar grade.

In October 1912 and again in August 1913, the mine was thoroughly examined by the A. S. & R. Company under direction of Julius Krittschnitt who was assisted by M. Stockder. According to information kindly furnished me by officials of the A. S. & R. Stockder estimated 32,692 tons of probable ore in the Home Vein workings and the average value obtained from his very extensive sampling was gold 0.25 oz., silver 0.50 oz., copper 2.67%; a gross value (neglecting the silver for which no payment would be made) of $17.83 with gold at present price and copper at bonus price of 17¢ per pound. An average analysis of this ore was SiO_2 73.00;

Fe. 6.8%; Al_2O_3 4.6%; CaO 0.6% thus making it suitable for converter flux and highly desirable for any smelter requiring additional silica in their charge. The assay map prepared by the A. S. & R. is attached to this report as an Exhibit.

L. F. S. Holland and W. V. DeCamp, field engineers for the Consolidated Arizona Smelting Company, of which I was then General Manager, visited the property respectively in October 1917 and September, 1919.

Their examinations were largely limited to the Home Group from which a few samples were taken and De Camp estimated that 80,000 tons of ore were partially developed which should average 4% copper and 0.2 oz. gold.

In 1931 the El Tigre Mining Company conducted an examination of the mine under direction of R. T. Mishler, General Manager assisted by two of his engineers, Thompson and J. V. McConnell who took 287 samples and rechecked many of them. They estimated as "very probable ore" in the Home Vein 20,000 tons with average value Au. 0.182; Ag. 0.58 oz. and Cu. 2.23%, while an additional 25,000 tons of similar grade ore was considered as "possible". The gross value of gold and copper in this ore would have been $13.94 per ton at current prices for gold and copper.

At the Quail's Nest workings a less thorough examination disclosed that the vein had a width of 2' to 4' with gold values averaging close to 1. oz. and copper contents lower than in the Home Vein. Not enough development work had been done there to permit any estimate of tonnage.

McConnell's report to the El Tigre Company of which a copy

is attached as an Exhibit was made before his company had conducted the final check sampling which resulted in reducing his estimate of highly probable ore from 25000. to 20000 tons but left the estimated grade unchanged.

In 1942 the A. S. & R. Company conducted another investigation of the property which was made by engineers who paid particular attention to the geology and the chances for developing a very large body of ore at greater depth. These engineers examined ONLY the ~~only~~ workings on the two main veins (Home or Bullard Vein and Quail's Nest) and sampled the former where they estimated that 12,000 tons of shipping ore remained to be mined with an approximate average of 0.32 oz. gold, 0.40 oz. silver and 2.70% copper,--- gross value of gold and copper $20.38 per ton. This estimate is based on a narrower width of ore than those which others have made and hence shows a smaller tonnage with higher value. They did not consider that the workings at the Quail's Nest permitted any estimate of tonnage and made the same observation in respect to the C Tunnel workings which they judged to be located on a split or branch of the Quail's Nest Vein.

None of the engineers who have recently examined the mine have agreed with the theory of the owners and some others that all or several of the veins would form a junction to the south and east of most of the workings and at a considerable depth below the surface. I 9/50 have never been able to find any evidence to support it but further development might lead to a different conclusion.

The most recent work at the mine has consisted in the small

scale operations by the owners and sub-leasers who gouged out ore from sections of the vein along the north face of the Bullard Hill particularly near the west end and in one case put up a raise from an adit tunnel driven on the south side which cut the Home Vein only a short distance from an upper adit and did not serve to block out any additional ore.

My personal visits to the mine began in 1938 and were made at frequent intervals until 1940 and I have again inspected all of the accessible workings during the past week and noted particularly the work which had been done since 1940 by your company and various lessees as a result of which visit I have somewhat revised my previous estimates and conclusions to conform to those which are now embodied in this report.

On many different occasions in the past, offers to purchase or to develop and operate this mine were made to the owners by the companies which caused the examinations to be made but the terms which were asked for a sale or even a long time lease on the mine were so outrageous that no deal resulted until after the death of John Bullard and the execution of the present lease which is enclosed with this report as an Exhibit together with the modification of same effected through the attached Court Order dated July 28, 1942.

DETAILED DESCRIPTION OF PRINCIPAL WORKINGS

Home Vein

These workings are mostly on the Homestake Mining Claim and by far the best picture of them is given by attached exhibit.

Briefly the flat-lying vein as exposed on three sides of the Bullard Hill and in the various workings shown on the map has a varying width of 4 to 10' but the pay streak is much narrower and will not average more than 3'. This vein has been developed and mined by gouging into all the exposed faces particularly on the west and north side and since the dip is from 20-25 deg. to the southeast the great proportion of the mined ore has had to be dragged up along the inclines in a most expensive and inefficient manner. The workings which extend for a lengh of some 1700' along the north slope of the hill have however served to permit a pretty thorough sampling of the ore and taken in conjunction with the recorded value of the shipments, at least 80% of which came from this vein, I have no hesitation in approximately confirming values given by the El Tigre Company and the A. S. & R,--some of which have been checked by my own sampling,--and placing it's average content after sorting, at 0.22 oz. gold; 0.5 oz. silver and 2.50% copper, with gross value of gold and copper at present prices amounting to $16.20 per ton. The much higher assays obtained by Norris and Durfee and claimed by Bullard may be attributed to the fact that most of their samples were probably taken in high grade pockets which gave an exaggerated average and many of these showings were subsequently mined by Logan and Bryan and by George Long who gouged out the best ore that they could find.

The tonnage of remaining ore which can now be estimated as probable is obviously difficult to determine since only near to it's very top has the ore body been cut through from north to south but it is logical to assume from the existing exposures and

workings that this ore will extend downward to the line marked on the A. S. & R. map and also that a further extension will be found in the vicinity of the Blacksmith Shaft from which my sample, taken a few days ago, assayed 0.11 oz. gold and 6.00% copper. Such being the case I think it fair to estimate as probable a tonnage of 20,000 tons (which checks fairly close with previous estimates after deducting the ore which has since been mined) and to add as fairly probable or possible ore another 20,000 tons.

QUAIL'S NEST

The Quail's Nest workings (which have never been accurately mapped) are located mainly on the State Claim where a vein of similar character to the Home Vein strikes N. 55deg. E and dips about 30 deg. to the northwest. The work here consists of four shafts having depths of 50 to 100 feet with considerable trenching and gouging on the surface. From the shafts and along the outcrop small stopes served to permit the mining of irregular pockets of the better grade ore to the extent of probably 1500 tons. This ore is more erratic in width and character than that in the Home Group but where mined was generally of higher grade. Some of the car lots shipped had a value of over $30.00 per ton while from the vein on one of the surface pits (which seemed to have been overlooked by the miners) I recently cut a sample over a width of 2.5' which assayed 0.72 ozs. in gold and 6.29% copper. Further development here is very much in order since the remaining tonnage of ore is entirely problematical.

On the Avalanche Claim and about 1200' to the northeast an

extension of this vein or a branch of it was opened up by an adit known as the Bat or C Tunnel which cut the vein and then followed along it's strike for 150 feet some 50 feet down the incline below the outcrop. Above this tunnel the ore has been stoped out to the surface but the drift should be extended to the southwest and the ore, which appears to be good and strong in the floor of the drift, should be followed to greater depth. Here also there is no basis for estimating remaining tonnage.

On the Stonewall Claim near to the smelter site an old shaft was reopened in 1939 and a little very good ore was mined but this work was costly and was soon discontinued. This vein seemed to be roughly parallel to the Home and Quail's nest and is of similar character.

Farther to the west there are some very old workings now inaccessible but showing good looking ore on the dumps and I will particularly mention one shaft (known as the Water Shaft) which is reported to have had a depth of 300 feet and to have encountered sulphides at a depth of some 200 feet. Many specimens of sulphides ore were found on the dump (the only sulphides that I have seen on the property) and some of these which I collected assayed 0.08 oz. gold, 0.7 oz. silver and 6.62% copper in the form of chalcopyrite.

It seems to me very unfortunate that this shaft has not been dewatered since a thorough examination of the ore occurrence might give much valuable information as to the conditions which will probably prevail below the openings in other veins and confirm or disprove the general opinion that the copper values will sub-

stantially increase below the local water level which is about 100 feet below the collar of this shaft.

In none of these outlying workings can there be estimated anything more than possible ore but they very definitely justify further development.

RECOMMENDATIONS

I desire to repeat my recommendation that this property should be systematically developed and properly equipped before operations are resumed. Aside from the higher grade material, the tonnage and value of which has been described, there are areas in all of the veins which carry a lower grade that will not stand direct shipment to a smelter and must be left in place or concentrated on the ground.

I have no doubt that the tonnage of such material is far in excess of that of the shipping ore, and although the best method of metallurgical treatment has not yet been definitely determined, experiments have proved that a fairly high recovery of both gold and copper can be secured by a combination of amalgamation and leaching while the possibilities of other suggested methods have hardly been explored.

It is however first of all essential to further develop both the higher grade of ore which can be shipped direct to a smelter and of the lower grade, the tonnage and value of which can only be guessed at present. The policy of every one of the operators of this mine has been to gouge out and drag out the pockets and lenses of the best ore that was immediately available and to stop such operations as soon as the face of the ore would not pay to

work and since the values at theBullard,--as at most other mines, fluctuate considerably, many of the present exposures of ore represent sections of low grade material which might substantially improve if the drifts, shafts and stopes were advanced a little farther.

To properly develop and mine the main body of ore in the Home Vein it is my opinion that a substantial adit drift should be run in from the south side of the hill from a point near the location of the collar of the incline shaft at the south side of the A. S. & R. map (Exhibit C) and following in a northerly direction approximately parallel to the line which they have designated as the probable boundary of the ore for a distance of some 400 feet. This should serve as a main haulage way into which the ore could be dragged down (instead of up as in past practice) along the slope of the vein.

This adit with a main raise to the surface on the north side of the hill and other raises spaced at appropriate intervals should serve to positively develop all of the ore in this vein lying above and to the west of it and also provide an economical means for removing it from the mine.

The Blacksmith Shaft on the Home Vein should be retimbered and the very promising stope which was recently started on the 60 foot level should be extended downwards and to the west while other showings are very likely to be found when the old workings are cleaned out and made accessible. The deep shaft (Water Shaft) in which the sulphides are reported to have been found certainly should be cleaned and pumped out.

COST OF DEVELOPMENT

The equipment required to carry on this work will consist of a good gas engine driven compressor which should have a capacity in excess of 300 cu. ft. per minute, with air receiver, drills, steel, hose, etc. and the cars, track and piping. Also it will be necessary to do a small amount of road work and to build an ore bin all of which will involve an outlay of approximately $5000. The cost of the main drift with installation of track, timber, chutes, etc. may be liberally figured at $20 per foot, i.e. $8000. and the main raises to the surface and main ore passes will add another $2000.

To properly clean out and timber the Blacksmith Shaft where a serviceable hoist is already installed will cost about $1000 and a similar amount should be allowed to reopen the Water Shaft in which the sulphide ore was found.

All the work above outlined should be done at once and the cost of same is estimated at $17,000 to which $500 should be added for repairs to living accomodations (mainly the old stone house) and $2500 for miscellaneous items and working capital, brining the total to $20,000.

At a later date I hope that it may be possible to provide additional funds for development at the Quail's Nest, C Tunnel and other promising locations but for the present I particularly recommend the work on the Home Vein as above outlined since this should serve to permit the mining of the greater portion of the ore which is now indicated and partially developed amounting to probably 20,000 tons, against which a charge of $1.00 per ton would serve to pepay the initial expense.

WORKING COSTS

After the mine has been properly equipped and the main haulage tunnel and raises driven the cost of actually stoping or mining the developed ore with proper sorting should not exceed $3.50 per ton to which must be added $1.00 for trucking to Railway and $2.50 for Railroad freight to Hayden and $2.50 for smelter toll charges.

Assuming the average content of the sorted ore shipped to a smelter to be 0.22 oz. gold and 2.50% copper with gross value of $16.20 per ton the smelter payment for these metals plus the Government bonus for copper will be $12.70 per ton from which the following estimated costs will have to be paid:

Mining and Sorting	$3.50
Trucking and railway freight	3.50
Smelter toll charge	2.50
General expense (about)	0.50
Royalty to owner (about)	1.00
Total	$11.00

The shipper would thus have a margin of $1.70 per ton from which it should be possible to repay the initial investment of $20,000 at the rate of $1.00 per ton of ore shipped. Assuming that the preparatory work requires a six months period and thereafter that production should be at the rate of 1000 tons per month the repayment should be completed within a little more than two years from the date when this program is started considering only the mining of the very probable ore reserve of 20,000 tons in the Home Vein.

CONCLUSION

As long as the price of gold was fixed at $20.67 per oz.

and with copper selling at 12¢ or less per pound the operation of the Bullard Mine was definitely not attractive. That situation was materially improved when the gold price was lifted to $35.00 per oz. but none the less a reasonable margin of profit from mining and shipping the higher grade of ore has only been made possible through the payment of the 5¢ bonus for newly mined copper.

After the initial investment of $20,000 has been made the Bullard Mine should be in a position to operate steadily and to repay that investment from earnings ~~during~~ and at the same time to produce approximately one million pounds of copper which should be distinctly helpful to the war program. The profit which may eventually be obtained by the operators as well as the permanence of future activity must be largely dependent upon the success of the development program in adding to the present known ore reserve and upon the course of the copper market and other factors which cannot well be forecast at present; however, it appears to me that the partially developed ore reserves fully justify the program which I have outlined and which therefore is definitely recommended.

Yours very truly,

L. M. Colvocoresses

SPECIAL EXHIBIT B

To ACCOMPANY LOAN APPLICATION Of

BULLARD GOLD MINES, INC.

Milling costs for the simple amalgamating process could be done for 50¢ per ton, to which no doubt 50¢ more should be added if the copper were to be leached, besides 1.1¢ per lb. more for precipitating the copper.

LABOR:

Labor at this point should cost about the same as at Congress District where miners (machine man) are paid $3.50, muckers $2.50, timbermen $3.50 and timbermen helpers $2.50, all for eight hour shifts; and ordinary laborers on the surface $2.00 to $2.25 for nine hours.

POWER:

By the use of oil engines something like the De La Vergne, with California crude oil, power ought not to cost over $50.00 per H. P. year.

ORE TREATMENT:

The oxidized condition of the copper in the ore makes it unsuitable for concentration, and its highly silicious character (about 80% insoluble) makes a hard smelting proposition unless it could be sold to some smelter for converter linings.

From my amalgamation tests on the gold and leaching test on the copper, it would seem that it might be profitably treated by first crushing with stamps and amalgamating the gold followed by leaching the copper. Mr. Austin's article "Leaching Applied to Copper Costs" in the December number of Mines and Methods, where he described the "Lascczynski" process, would indicate that this ore would be particularly adaptable for treatment in that way.

IMPROVEMENTS:

The surface improvements consist of a cooking cabin, a 2-room bunk house, stable and wagon sheds, located near the

north end of the apex of the vein; and at the smelter site a good sized stone cabin and the frame of the old smelter in which the smelting stack and blower still stand.

ORE ESTIMATES:

The assay map, which accompanies this report, is a longitudinal section on the vein and shows the locations, widths, percentage of copper and values in dollars in gold per ton for each of the 70-odd samples taken. These samples were taken across the full width of the vein and measurements made at right angles to the dip and noted in each case.

I have divided the ore developed into two blocks (Block "L" and Block "M") called "Positive" and Block "N", "Probable" ore.

The average values for each block of ground, as indicated on the map, have been computed, as is customary among engineers, as follows:

By multiplying the assay values in dollars or percentages by the width of ore sampled and dividing the sum of these products by the sum of the widths to get the average value, and the sum of the widths by the number of samples taken to get the average width of samples. In estimating the tonnage I have assumed that it would require 12 cubic feet of ore to yield one ton.

In Block "L" forty-nine samples give an average width of 3.04 feet, assaying 2.95% copper and $7.34 per ton gold. This ton gives 42,100 tons.

In Block "M" nine samples give an average width of 1.92 feet assaying 2.83% copper and $12.47 gold per ton, figuring 1600 tons.

For Block "N" I assume the average width to be 2.5 ft. which would give 34,100 tons that should average as good as the "Positive" ore.

This gives a total of 43,700 tons averaging 2.94% copper and $7.52 gold per ton for "Positive" ore and 34,100 tons of the same grade for "Probable" ore.

Figuring on saving 90% of the gold values on ore averaging $7.53 per ton gives a net recovery of $3.78 per ton, or for 43,700 tons of $296,288.00. At a cost of $2.50 per ton for mining and milling, the expense would be $109,250.00, leaving a net value of $187,036.00 for the gold alone in the "Positive" ore. The net value of the "Probable" ore on the same basis would be 34,100 tons, $145,948.00 or a total net value of $332,984.00 for the gold in the "Positive" and "Probable" ore.

Net value of gold "Positive" ore, 43,700, ($7.35 x 90% - $2.50, ...	$187,036.00
Net value of gold "Probable" ore, 34,100, ($7.53 x 90% - $2.50, ...	145,948.00
Net value of gold in "Positive" and "Probable" - 332,984.00	

If 90% of the copper values can be saved, figuring copper at 14¢, less 1¢ for precipitating, 2.94% - 58.8 lbs. per ton @ 13¢ - $7.64. $7.64 x 90% - $6.88 per ton recovered. If this can be done at an additional cost of 50¢ per ton for milling, the returns would be as follows:

Copper in Positive ore 43,700 ($7.64 x 90% - 50¢ -		$278,806.00
Copper in Probable ore 34,100 ($7.64 x 90% - 50¢ -		217,558.00
Total net value copper in Positive & Probable ore		496,364.00
Cu and Au in "Positive ore, . . .	$187.036.00	
	$278,806.00	465,842.00
Cu and Au in "Probable ore, . . .	145,948.00	
	217,558.00	363,306.00
Total net value of ore, ...		$829,348.00

Besides the ore figured in these blocks there are several hundred tons piled up in different places around the property. This ore has been sorted over to some extent so there is no doubt it would average better grade than the blocks.

My samples were taken at 15' intervals, along the vein wherever it was possible. Many of the samples were taken where no work had been done to expose fresh surface, in which case the copper is pretty much leached out so that I have no doubt shows lower results than mining would give.

There seems to be no relation whatever between the gold and copper values, and I am unable to account for the much higher gold values along the northwesterly portion of the vein, as the ore all looks very much alike.

Ten samples taken along the drift at "C" gave an average width of 2.37 ft. assaying 2.31% copper and $3.77 gold per ton.

CONCLUSION:

With the amount and grade of ore developed in this property the probabilities and possibilities of much larger amounts there to be developed, the question of treatment of the copper contents at a reasonable figure, is about the only uncertain factor in the proposition. Judging from the successful operations of the plants described in the article referred to above, it would seem that there is little doubt that the "Laszoynski" process would be applicable to this ore and that a considerably better saving than the 90% estimated might be made. There is no question about being able to save the gold values by the simple amalgamation process.

Respectfully submitted,

(Signed) E. W. Durfee, E. M.

DURFEE'S SAMPLING OF THE BULLARD MINE

No.	Width in ft.	Assay Gold Oz.	Assay Cu.%	Gross Value Gold @ $35 Cu. @ 10¢
1	2.0	0.02	2.88	$ 6.16
2	5.0	0.02	1.20	3.10
3	1.5	0.12	1.49	7.20
4	1.3	0.92	3.55	39.40
5	1.2	0.68	3.22	30.20
6	2.7	0.08	0.91	4.60
7	2.1	0.08	1.44	5.70
8	2.1	0.06	2.16	6.40
9	2.0	1.53	7.15	67.85
10	1.9	1.24	1.58	46.80
11	2.8	0.68	3.94	30.70
12	1.2	0.38	18.77	50.64
13	3.7	0.58	2.93	26.10
14	4.9	0.46	5.86	26.80
15	5.0	0.20	1.15	9.30
16	2.5	0.44	2.11	19.60
17	1.5	----	2.54	?
18	1.5	5.09	6.62	191.35
19	1.0	1.10	5.09	48.70
20	2.0	0.12	6.24	16.70
21	5.2	0.12	3.6	11.40
22	3.7	0.20	2.26	11.50
23	3.5	0.20	5.95	18.90
24	1.5	0.40	10.5	35.0
25	1.0	2.66	3.41	100.90
26	1.0	1.56	3.17	62.40
27	2.0	0.36	6.78	26.20
28	2.0	1.04	2.16	40.70
29	2.0	0.94	1.49	35.90
30	3.0	0.10	2.35	8.20

No.	Width	Assay Gold Oz.	Assay Cu.%	Gross Value
31	1.8	0.24	1.22	10.80
32	1.0	0.24	1.0	8.60
33				
34	1.5	0.44	1.34	18.10
35	2.5	3.90	1.54	139.60
36	1.0	2.20	2.54	82.10
37	1.4	0.92	0.29	31.80
38	2.0	0.56	2.21	24.00
39	5.5	0.54	1.78	22.50
40	2.5	1.36	1.73	51.00
41	3.5	0.16	1.49	8.60
42	2.0	0.22	2.35	12.40
43	5.0	0.14	2.80	10.50
44	4.5	0.18	3.5	13.30
45	3.0	0.10	6.22	15.90
46	3.9	0.10	2.02	7.50
47	3.1	0.10	1.39	6.30
48	5.5	0.10	4.56	12.60
49	4.75	0.18	2.25	10.90
50	4.0	0.04	3.67	8.75
51	5.0	0.06	2.97	8.60
52	3.5	0.08	1.0	4.80
53	4.5	0.10	1.34	6.20
54	2.0	0.04	2.35	6.10
55	6.25	0.04	0.79	3.00
56	5.5	0.12	6.35	16.90
57	5.4	0.04	0.48	3.40
58	3.8	0.04	2.64	6.70
59	3.75	0.04	3.98	9.40
60	2.75	0.08	4.32	13.40
61	2.5	0.01	1.39	3.20
62	1.4	Tr.	1.97	4.00

No.	Width	Assay Gold Oz.	Assay Cu.%	Gross Value
63	0.9	0.04	1.54	4.40
64	3.0	0.06	1.3	4.70
65	4.1	0.12	4.32	12.80
66	2.4	0.12	1.63	7.40
67	3.3	0.20	2.4	11.80
68	3.0	0.62	1.63	23.30
69	0.8	0.10	0.82	5.10
70	2.o	0.12	3.6	11.40
71	1.5	0.14	2.16	9.10

Durfee estimates of tonnage and grade, based on Au. @ $35.00 and Cu. @ 10¢.

Block L,	42,100	@ Au. = 0.367,	Cu. = 2.95 %	)
N,	34,100	Similar		)
M,	1,600	" = 0.6235	Cu. = 2.83 %	
Total	77,800	Average close to		$19.00

Based on average width of vein of close to 3'.

Notes by G. M. Colvocoresses:-

In mining this ore it would pretty surely be broken with average width of over 3½' which would result in a production of say 100,000 tons @ say $15.00 per ton or allowing for about 0.5 oz. silver. A recovery of 90% represents over $13.00 per ton and costs may be roughly figured as follows:

Mining & sorting	$3.00
Milling	2.00
Freight, Transportation & selling.	1.00
Royalty	1.20
General, etc.	.80
	8.00

Leaving a net profit of say $5.00 per ton.

Cost of purchase & incidentals, say	$10,000.00
" " " equipment & mill etc.	110,000.00
	120,000.00
Less salvage value	20,000.00
Total net capital expense	$100,000.00

REPORT ON THE BULLARD MINES
in the Pierce Mining Dist.
Yavapai County, Ariz.

by

E. W. Durfee

LOCATION

The Bullard Mines are situated in the Pierce Mining District in the Southwestern part of Yavapai County, Arizona, about 29 miles from Congress Junction, a station on the Santa Fe, Prescott and Phoenix Railway and about 9 miles from Aguila Station on the Arizona & California Railway. Aguila is about 80 miles from Phoenix, Arizona and about 400 miles from Los Angeles, California. There is a very good road from Congress Junction over nearly level country to the mines. No road has been made from the property to Aguila, but the conditions for one are ideal, there being an easy grade down hill all of the way to the station, with no gulches or sandy places to cross and but little brush to clear; the ground could be very easily driven over in its present condition. The altitude at the mines is about 5000' above sea level.

PROPERTY

The property comprises ten patented claims, located as shown by the blue print accompanying this report and named as follows:

Homestake, Sweepstake, Washington, Avalanche, International, Producer, Stellar, Emily, North Star, covering 196 acres. Besides these patented claims there are ten locations ad joining them and water rights located on Date Creek 18 miles distant from the mines. I am unable to show any of these locations by map but was told, however, that they cover all of the ground to and including the old smelter as well as some on the other side of the patented claims. The land, where the water rights are held was located by the owners of this

property and sold, reserving the water rights for use in connection with this mining property. It is claimed that there is ample water for all purposes, and it can be conveyed to the mines by gravitation under a head of 270'. Some of the ground was located by the Bullards something like 30 years ago, and the patents secured in September 1907. Some of these claims were jumped, others were located and a smelter built about '87 or '88 which ran but a very short time. At this time the nearest railway station from which to haul coke and supplies was Maricopa, about 100 miles distant. There has been some litigation over the claims that were jumped but the present owners won in the suits.

GEOLOGY:

The mines are situated in the foothills of the Harcuvar Mountains. The rocks are sedimentary, composed principally from highly metamorphosed limestone; some beds in the gulch near the north end of the property are conglomerate. The formation all has a fairly uniform dip of about 20 degrees from the horizontal, South 43 degrees 10' E. and strike of about N. 46 degrees 50' E. The source of mineralization is apparently from a series of parallel fissures, cutting across the formation north 5 degrees 30' E. and dipping easterly about 65 degrees from the horizontal. I have indicated some of these fissures on the map, but have not attempted to locate all of them. There has been some movement along the plane of bedding which has opened channels through which the mineral bearing solutions could spread, and it is along this "plane faulting" of bedded vein where most of the ore is found. Besides the metaliferous minerals, the fissures seem to have been the source of a large amount of silica, and owing to the silification of these limestone beds, they have withstood the erosion to a much greater extent than the surrounding country, leaving a prominent butte in which the ore outcrops. As may be seen from the jagged peaks on either side of the mountain, the fissuring extends some distance both easterly

and westerly from the ore developments. In most places the limestone has been changed until very little semblance of the original remains, some of it appearing much like quartzite. Where sufficient development has been done to show it, the mineralization has extended along this bedded vein the entire distance between the fissures. Ore also occurs along some of the fissures where shafts have been sunk on them through strata lying underneath the bedded vein. This vein dips into the mountain from the north side, near the top, and has been exposed by erosion along the apex about 1875 feet; about 400' across the west end and between 400 and 500' along the south side. At the westerly end of the mountain on both sides, for a distance of between 400 and 500' and across the west end about 400' the work and erosion show the ore to be continuous along this vein. Easterly from this, on the south side, the vein is not exposed and over 450' from the west end on the north side the copper stain is not much in evidence, except at points where work has been done, and it is still to be determined whether it is continuous; although were fresh surface to be exposed it would very likely show the copper to have been leached near the surface and that ore exists below. This "plane faulting" seems to be more pronounced as you follow it westerly.

Other systems of fissuring exist on the property which should be studied closely in connection with the mining as they may have an important bearing on the rich ore shoots.

DEVELOPMENT

Ore The development consists of tunnels, shafts, inclines and open cuts, amounting to 2000' or more, nearly all of which has been done in ore, but the natural erosion has done most to develop the ore bodies. The letters in quotation marks in the following paragraphs refer to maps accompanying this report.

At "F" is an incline about 12' deep, sun, on ore of these mineralizing fissures showing about 2' of ore and at "G" an incline 150' deep was started at the crossing of the bedded vein with one of these fissures but is too steep to follow the bedding, being at an angle of about 45 deg. Some drifts and crosscuts have been driven from this shaft, but the cross cut in the bottom, about 40' into the hanging wall, has not been driven far enough to reach the vein.

About 300' westerly from "G" a 12' incline on the vein shows no ore of consequence. This is the only work done between "G" and "H" so that this ground is not proven.

There are no workings between "L" and "I", but I have very little doubt that ore could be developed along that section.

At "C" there is an incline of about 100' deep to water with a drift at the 50' level something over 230' long, reaching the surface in a small gulch at the southerly end. The vein is faulted at the shaft on the level, throwing it into the hanging wall, but farther down above the water, it can be seen coming in again in the back, but could not be reached for sampling. Most of the ore has been stoped out above the level, and was probably taken to the smelter as there was very little left on the dump.

At "D" is an incline, said to be 107 feet deep which was sunk on the edge of a large wash, but has been completely filled with sand, washed in at times by heavy rains. A sample taken from a pile of several tons of ore on a dump gave 8.26% copper and $14.40 gold per ton. It is claimed that ore extends all of the way to the bottom of the shaft.

The workings at "E" are on an entirely different vein that dips much steeper, about 50 degrees. The collar of the shaft was badly caved, and most of the workings were filled with water so that it was impossible to get into them, but from the size of the dump many

feet of openings must have been at this point. Some ore left in the old bin showed some sulphides (chalcopyrite) the only place where I saw any, and a sample taken from this bin gave 7.9% copper and 80¢ gold per ton.

A few hundred feet southwesterly from the old smelter, some very nice looking ore has been taken from a shallow incline and both easterly and northeasterly from the main workings several shallow shafts have been sunk, mostly on cross fissures for title work and all show more or less copper ore. This shows the mineralization to be very extensive in the district. From the most easterly cropping of the bedded vein on the north side of the mountain to "D" shaft is something like 5000' and from all appearances it is on the same "plane faulting".

In all probability other shoots of good ore could be developed along the strike of the vein, between the main workings and "D" or beyond this; and that the main shoot will continue to considerable depth in the direction of the dip and fissuring, beyond where erosion has taken through the vein. It is claimed that in sinking a well which was wored to a depth of 900' at the smelter site, a stratum of ore 7' thick was penetrated. I could get no reliable data regarding the depth at which it was encountered nor the character of the ore. The possibilities for ore in this direction are most promising, and I have no doubt future developments will show that the amount at present in sight is but a very small part of what the property contains.

The ore is highly silicious and generally very much iron stained, the values being principally in gold and copper with an average of one-half ounce silver per ton. The copper is entirely oxidized and is mostly in the form of malachite with some oxides and silicates.

An amalgamation test on a sample made up from portions taken from each of my samples and crushed to pass a 40 mesh screen, gave an extraction of 91.3% of the gold, which shows it to be very free milling. To make this test I amalgamated the bottom of a copper bottomed gold

pan and agitated the pulp in this for a short time, assaying samples of the pulp taken before and after amalgamation with the above results.

An average sample leached for 24 hours in 7% sulphuric acid solution gave an extration of 97% of the copper contents.

MINING - MILLING

The conditions for cheap mining of the ore developed in this property for delivering ore to the surface where in most places expensive hoisting plants and tower are necessary. Inthis case it is something like delivery of ore to the lowest level of the mine without having to hoist it.

The ore is quite hard to drill but is friable and should break well. With a compressor plant and small machine drills, the total cost of the mining and delivering the ore to the surface ought not to exceed $2.00 per ton, and considering that there is something like 8000 tons on the south side stripped and on the surface it ought to be done for less. In future developments, where the ore would have to be hoisted, it would cost more.

Milling costs for the simple amalgamating process should be done for 50¢ per ton, to which no doubt 50¢ more should be added if the copper were to be leached, besides 1.1¢ per lb. more for precipitating the copper.

LABOR

Labor at this point should cost about the same as at Congress District where miners (machine men) are paid $3.50, muckers $2.50, timbermen $3.50 and timbermen helpers $2.50, all for eight hour shifts; and ordinary laborers on the surface $2.00 to 2.25 for nine hours.

POWER

By the use of oil engines something like the De La Vergne, with California crude oil, power ought not to cost over $50. per H. P. year.

ORE TREATMENT

The oxidized condition of the copper in the ore makes it unsuitable for concentration, and its highly silicious character (about 80% insoluble) makes a hard smelting proposition unless it could be sold to some smelter for converter linings.

From my amalgamation tests on the gold and leaching test on the copper, it would seem that it might be profitably treated by first crushing with stamps and amalgamating the gold followed by leaching the copper. Mr. Austin's article "Leaching applied to Copper Costs" in the December number of Mines and Methods, where he described the "Lascczynski" process, would indicate that this ore would be particularly adaptable for treatment in that way.

IMPROVEMENTS

The surface improvements consist of a cooking cabin, a 2-room bunk house, stable and wagon sheds, located near the north end of the apex of the vein; and at the smelter site a good sized stone cabin and the frame of the old smelter in which the smelting stack and blower still stand.

ORE ESTIMATES

The assay map, which accompanies this report, is a longitudinal section on the vein and shows the locations, widths, percentage of copper and values in dollars in gold per ton for each of the 70 odd samples taken. These samples were taken across the full width of the vein and measurements made at right angles to the dip endnoted in each case.

I have divided the ore developed into two blocks (Block "L" and Block "M") called "Positive" and Block "M", "Probable" ore.

The average values for each block of ground, as indicated on the map, have been computed, as is customary among engineers, as follows:

By multiplying the assay values in dollars and percentages by the width of ore sampled and dividing the sum of these products by the sum of the widths to get the average value, and the sum of the widths by the number of samples taken to get the average width of samples. In estimating the tonnage I have assumed that it would require 12 cubic feet of ore to yeild one ton.

In Block "L" forty-nine samples give an average width of 3.04', assaying 2.95% copper and $7.34 per ton gold. This ton gives 42,100 tons.

In Block "M" nine samples give an average width of 1.92 feet assaying 2.83% copper and $12.47 gold per ton, figuring 1600 tons.

For Block "N" I assume the average width to be 2.5' which would give 34,100 tons that should average as good as the "Positive" ore.

This gives a total of 43,700 tons averaging 2.94% copper and $7.52 gold per ton for "Positive" ore and 34,100 tons of the same grade for "Probable" ore.

Figuring on saving 90% of the gold values on ore averaging $7.53 per ton gives a net recovery of $3.78 per ton, or for 43,700 tons of $296,288.00. At the cost of $2.50 per ton for mining and milling, the expense would be $109,250.00, leaving a net value of $187,036.00 for the gold alone in the "Positive" ore. The net value of the "Probable" ore on the same basis would be 34,100 tons, $145,948. or a total net value of $332,984. for the gold in the "Positive" and "Probable" ore.

Net value of gold "Positive" ore 43,700
($7.35 x 90% - $2.50, ...$187,036.00
Net value of gold "Probable" ore, 34,100,
($7.53 x 90% - $2.50, ...$145,948.00

Net value of gold in "Positive" and "Probable" -.....$332,984.00

If 90% of the copper values can be saved, figuring copper at 14¢ less 1¢ for precipitatinf, 2.94% - 58.8 lbs. per ton @ 13¢ - $7.64 x 90% - $6.88 per ton recovered. If this can be done at an additional cost of 50¢ per ton for milling, the returns would be as follows:

Copper in Positive ore 43.700 ($7.64 x 90% - 50¢ -			$ 278,806.00
Copper in Probable ore 54,100 ($7.64 x 90% - 50¢ -			217,558.00
Total net value copper in Positive and probable ore			$ 496,364.00
Cu and Au in "Positive" ore . . .	$187,036.00		
~~Cu and Au in "Probable" ore~~ . .	$278,806.00		465,842.00
Cu and Au in "Probable" ore . .	145,948.00		
	217,558.00		363,306.00
Total net value of ore, ...			$829,348.00

Besides the ore figured in these blocks there are several hundred tons piled up in different places around the property. This ore has been sorted over to some extent so there is no doubt it would average better grade than the blocks.

My samples were taken at 15' intervals, along the vein wherever it was possible. Many of the samples were taken where no work had been done to expose fresh surface, in which case the copper is pretty much leached out so that I have no doubt shows lower results than mining would give.

There seems to be no relation whatever between the gold and copper values, and I amunable to account for the much higher gold values along the northwesterly portion of the vein, as the ore all looks very much alike.

Ten samples taken along the drift at "C" gave an average width of 2.37' assaying 2.31% copper and $3.77 gold per ton.

CONCLUSION

With the amount and grade of ore developed in this property the probabilities and possibilities of much larger amounts there to be developed, the question of treatment of the copper contents at a reasonable figure, is about the only uncertain factor in the proposition. Judging from the successful operations of the plants described in the article referred to above, it would seem that there is little doubt that the "Laszoynski" process would be applicable to this ore and that

a considerably better saving than the 90% might be estimated. There is no question about being able to save the gold values by the simple amalgamation process.

Respectfully submitted,

(Signed) E. W. Durfee, E. M.

E & B

REPORT ON THE BULLARD MINES, in the Pierce Mining District Yavapai County Arizona

by

E. W. Durfee.

LOCATION:

The Bullard Mines are situated in the Pierce Mining District in the Southwestern part of Yavapai County, Arizona, about 29 miles from Congress Junction, a station on the Santa Fe, Prescott and Phoenix Railway and about 9 miles from Aguila Station on the Arizona & California Railway. Aguila is about 80 miles from Phoenix, Arizona and about 400 miles from Los Angeles, California. There is a very good road from Congress Junction over nearly level country to the mines. No road has been made from the property to Aguila, but the conditions for one are ideal, there being an easy grade down hill all of the way to the station, with no gulches or sandy places to cross and but little brush to clear; the ground could be very easily driven over in its present condition.

The altitude at the mines is about 3000 ft. above sea level.

PROPERTY:

The property comprises ten patented claims, located as shown by the blue print accompanying this report and named as follows:

Homestake, Sweepstake, Washington, Avalanche, International, Producer, Stellar, Emily, North Star, covering 196 acres. Besides these patented claims there are ten locations adjoining them and water rights located on Date Creek, 18 miles distant from the mines. I am unable to show any of these locations by map but was told, however, that they cover all of the ground to and including the old smelter

as well as some on the other side of the patented claims. The land, where the water rights are held was located by the owners of this property and sold, reserving the water rights for use in connection with this mining property. It is claimed that there is ample water for all purposes, and it can be conveyed to the mines by gravitation under a head of 270 ft. Some of the ground was located by the Bullards something like 30 years ago, and the patents secured in September 1907. Some of these claims were jumped, others were located and a smelter built about '87 or '88 which ran but a very short time. At this time the nearest railway station from which to haul coke and supplies was Maricopa, about 100 miles distant. There has been some litigation over the claims that were jumped but the present owners won in the suits.

GEOLOGY:

The mines are situated in the foothills of the Harcuvar Mountains. The rocks are sedimentary, composed principally from highly metamorphosed limestone; some beds in the gulch near the north end of the property are conglomerate. The formation all has a fairly uniform dip of about 20 degrees from the horizontal, South 43 degrees 10' E. and strike of about N 46 degrees 50' E. The source of mineralization is apparantly from a series of parallel fissures, cutting across the formation north 5 degrees 30' E. and dipping easterly about 65 degrees from the horizontal. I have indicated some of these fissures on the map, but have not attempted to locate all of them. There has been some movement along the plane of bedding which has opened channels through which the mineral bearing solutions could spread, and it is along this "plane faulting" or bedded vein where most of the ore is found. Besides the metaliferous minerals, the fissures

seem to have been the source of a large amount of silica, and owing to the silification of these limestone beds, they have withstood the erosion to a much greater extent than the surrounding country, leaving a prominent butte in which the ore outcrops. As may be seen from the jagged peaks on either side of the mountain, the fissuring extends some distance both easterly and westerly from the ore developments. In most places the limestone has been changed until very little semblance of the original remains, some of it appearing much like quartzite. Where sufficient development has been done to show it, the mineralization has extended along this bedded vein the entire distance between the fissures. Ore also occurs along some of the fissures where shafts have been sunk on them through strata lying underneath the bedded vein. This vein dips into the mountain from the north side, near the top, and has been exposed by erosion along the apex about 1875 feet; about 400 ft. across the west end and between 400 and 500 feet along the south side. At the westerly end of the mountain on both sides, for a distance of between 400 and 500 ft. and across the west end about 400 ft. the work and erosion show the ore to be continuous along this vein. Easterly from this, on the south side, the vein is not exposed and over 450 feet from the west end on the north side the copper stain is not much in evidence, exceptaat points where work has been done, and it is still to be determined whether it is continuous; although were fresh surface to be exposed it would very likely show the copper to have been leached near the surface and that ore exists below. This "plane faulting" seems to be more pronounced as you follow it westerly.

Other systems of fissuring exist on the property which should be studied closely in connection with the mining as they may have an important bearing on the rich ore shoots.

DEVELOPMENT:

O R E The development consists of tunnels, shafts, inclines and open cuts, amounting to 2000 feet or more, nearly all of which has been done in ore, but the natural erosion has done most to develop the ore bodies.

The letters in quotation marks in the following paragraphs refer to maps accompanying this report.

At "F" is an incline about 12' deep, sunk on ore of these mineralizing fissures showing about 2' of ore and at "G" an incline 150' deep was started at the crossing of the bedded vein with one of these fissures but is too steep to follow the bedding, being at an angle of about 45°. Some drifts and cross cuts have been driven from this shaft, but the cross cut in the bottom, about 40' into the hanging wall, has not been driven far enough to reach the vein.

About 300' westerly from "G" a 12' incline on the vein shows no ore of consequence. This is the only work done between "G" and "H" so that this ground is not proven.

There are no workings between "L" and "I", but I have very little doubt that ore could be developed along that section.

At "C" there is an incline about 100' deep to water with a drift at the 50' level something over 230' long, reaching the surface in a small gulch at the southerly end. The vein is faulted at the shaft on the level, throwing it into the hanging wall, but farther down above the water, it can be seen coming in again in the back, but could not be reached for sampling. Most of the ore has been stoped out above the level, and was probably taken to the smelter as there was very little left on the dump.

At "D" is an incline, said to be 107 feet deep which was sunk on the edge of a large wash, but has been completely filled with sand, washed in at times by heavy rains. A sample

taken from a pile of several tons of ore on the dump gave 8.26% copper and $14.40 gold per ton. It is claimed that ore extends all of the way to the bottom of the shaft.

The workings at "E" are on an entirely different vein that dips much steeper, about 50 degrees. The collar of the shaft was badly caved and most of the workings were filled with water so that it was impossible to get into them, but from the size of the dump many feet of openings must have been at this point. Some ore left in the old bin showed some sulphides (chalcopyrite), the only place where I saw any, and a sample taken from this bin gave 7.87% copper and 80¢ gold per ton.

A few hundred feet southwesterly from the old smelter, some very nice looking ore has been taken from a shallow incline and both easterly and northeasterly from the main workings several shallow shafts have been sunk, mostly on cross fissures for title work and all show more or less copper ore. This shows the mineralization to be very extensive in the district. From the most easterly cropping of the bedded vein on the north side of the mountain to "D" shaft is something like 5000 ft. and from all appearances it is on the same "plane faulting".

In all probability other shoots of good ore could be developed along the strike of the vein, between the main workings and "D" or beyond this; and that the main shoot will continue to considerable depth in the direction of the dip and fissuring, beyond where erosion has cut through the vein. It is claimed that in sinking a well which was bored to a depth of 900 ft. at the smelter site, a stratum of ore 7' thick was penetrated. I could get no reliable data regarding the depth at which it was encountered nor the character of the ore. The possibilities for ore in this direction are most promising, and I have no doubt future

developments will show that the amount at present in sight is but a very small part of what the property contains.

The ore is highly silicious and generally very much iron stained, the values being principally in gold and copper with an average of one-half ounce silver per ton. The copper is entirely oxidized and is mostly in the form of malachite with some oxides and silicates.

An amalgamation test on a sample made up from portions taken from each of my samples and crushed to pass a 40-mesh screen, gave an extraction of 91.3% of the gold, which shows it to be very free milling. To make this test I amalgamated the bottom of a copper-bottomed gold pan and agitated the pulp in this for a short time, assaying samples of the pulp taken before and after amalgamation, with the above results.

An average sample leached for 24 hours in a 7% sulphuric acid solution gave an extraction of 97% of the copper contents.

MINING - MILLING:

The conditions for cheap mining of the ore developed in this property for delivering ore to the surface where in most places expensive hoisting plants and tower are necessary. In this case it is something like delivering ore to the lowest level of the mine without having to hoist it.

The ore is quite hard to drill but is friable and should break well. With a compressor plant and small machine drills, the total cost of the mining and delivering the ore to the surface ought not to exceed $2.00 per ton, and considering that there is something like 8000 tons on the south side stripped and on the surface it ought to be done for less. In future developments, where the ore would have to be hoisted, it would cost more.

E X H I B I T E

TO ACCOMPANY LOAN APPLICATION

OF

B U L L A R D G O L D M I N E S ,

I N C O R P O R A T E D

Certified to be a true and Correct Copy.

_____

Secretary

STATE OF ARIZONA

Corporation Commission

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

I, B. Stephenson, Secretary of the Arizona Corporation Commission, do hereby certify that the annexed is a true and complete transcript of the. . . . . .

ARTICLES OF INCORPORATION

OF

HULLARD GOLD MINES, INC.

which were filed in the office of the said Arizona Corporation Commission on the 5th day of January, A. D. 1939 at 3:30 o'clock P. M., as provided by law.

IN WITNESS WHEREOF,

I have hereunto set my hand and affixed the official seal of the Arizona Corporation Commission, at the Capitol, in the City of Phoenix, this 5th day of January, A. D., 1939.

S E A L

B. Stephenson
Secretary

C. W. Smith
Asst. Secretary

ARTICLES OF INCORPORATION

BE IT KNOWN, that we, the undersigned, residents of the City of Phoenix, State of Arizona, do hereby associate ourselves together and form a corporation under the Laws of the State of Arizona, and adopt the following Articles of Incorporation.

ARTICLE I.

The name of this Corporation is BULLARD GOLD MINES, INC., and its principal place of transacting business in Arizona is Phoenix. Offices may be established, business transacted and meetings of Stockholders and Directors held at such places within or outside of Arizona as the By-Laws of the Company shall provide.

ARTICLE II.

The general nature of the business proposed to be transacted is to make contracts; to purchase, lease, option, locate or otherwise acquire, own, exchange, operate, sell or otherwise dispose of, pledge, mortgage and deal in mines, mining claims, placer claims, mineral lands, coal lands, oil lands, timber lands, milling, smelting and other ore reduction works, oil refineries, power plants, water and water rights, and other property, both real and personal, and to work, explore, operate and develop the same, and to deal in the products and by-products thereof; to do a general manufacturing and mercantile business; to own, handle and control letters, patents and inventions; to purchase, own, cancel and re-issue shares of its own Capital Stock, and to purchase, own, vote and sell shares and other securities of other corporations; to issue bonds, notes and other evidences of indebtedness, and to secure the payment of the same by mortgage, deed of trust, orn otherwise; to act as agent, trustee or broker, and to borrow and loan money; and in general to do and perform such acts and things and transact any business, not inconsistent with Law, in any part of the World, as the Board of Directors may deem to the advantage of the Corporation.

This Corporation may at any time dispose of all of its properties and other assets by the affirmative vote of two-thirds of the issued and outstanding shares of Capital Stock taken at a Special Meeting of Stockholders, called upon thirty days written notice of the time, place and purpose of such meeting.

ARTICLE III.

The amount of the authorized Capital Stock of the Corporation is FIVE HUNDRED THOUSAND DOLLARS, divided into FIVE HUNDRED THOUSAND SHARES of a par value of ONE DOLLAR each, which shall be paid in, at such time as the Board of Directors may designate, in cash, real or personal property, services, lease, option to purchase, or any other valuable right or thing, for the uses and purposes of the Corporation, and all shares of Capital Stock, when issued in exchange therefor, shall thereupon and thereby become and be full-paid the same as though paid for in cash at par, and shall be non-assessable forever, and the judgment of the Directors as to the value of any property, right or thing acquired in exchange for Capital Stock shall be conclusive.

ARTICLE IV.

The time of the commencement of this Corporation shall be the day these Articles are filed in accordance with Law, and the termination thereof shall be twenty-five years thereafter, with the privilege of renewal and right of perpetual succession as now provided by Law.

ARTICLE V.

The affairs of this Corporation shall be conducted by a Board of

not less than three or more than seven Directors, by whom a President and Vice-President shall be elected and a Secretary and Treasurer appointed. The Directors shall be elected by the Stockholders on the Second Monday in February of each year, commencing with the year 1940. Until their successors are elected and qualified, the following named persons shall be the Directors:

C. MARTIN STODDARD,
LILLYAN R. KRAKOVITZ and
H. M. VANDENBURGH.

ARTICLE VI.

The Directors shall adopt By-Laws for the government of the Corporation and may amend the same. They shall have power to fill vacancies occurring in the Board from any cause, and to appoint from among their number an Executive Committee which, to the extent provided by resolution or by the said By-Laws, shall have and exercise the powers granted the Directors by these Articles.

ARTICLE VII.

The highest amount of indebtedness or liability to which this Corporation is at any time to subject itself is TWO HUNDRED FIFTY THOUSAND DOLLARS.

ARTICLE VIII.

The private property of the Stockholders of this Corporation shall be forever exempt from corporate debts of any kind whatsoever.

ARTICLE IX.

This Corporation hereby constitutes and appoints the STODDARD INCORPORATING COMPANY OF Phoenix, Arizona, its Resident Agent for the acceptance, by any of its Officers, of service of all necessary process in any action, suit or proceeding that may be had or brought against this Company in any of the Courts of the State of Arizona.

IN WITNESS WHEREOF, We hereto affix our signatures this 5th day of January, 1939.

C. MARTIN STODDARD (SEAL)
H. M. VANDENBURGH (SEAL)

STATE OF ARIZONA)
SS.
COUNTY OF MARICOPA)

Before me, VERA G. BATES, a Notary Public in and for the County and State aforesaid, on this day personally appeared C. Martin Stoddard and H. M. VanDenburgh, known to me to be the same persons who signed the foregoing instrument, and acknowledged to me that they executed the same for uses and purposes therein mentioned.

Given under my hand and seal this 5th day of January, 1939.

My commission will expire on the 18th day of May, 1942.

VERA G. BATES
Notary Public

(NOTARIAL SEAL)

E N D O R S E M E N T

ARIZONA CORPORATION COMMISSION Incorporating Division FILED JAN.5, 1939, at 3:30 P. M. at request of Stoddard Incor. Co. whose address is Title & Trust Bldg. Phoenix, Arizona.....B. Stephenson

BY-LAWS OF

BULLARD GOLD MINES, INC.,

ARTICLE I.

Stockholders

1. ANNUAL MEETINGS. A meeting of the stockholders shall be held annually at the office of the company in Phoenix, Arizona, at 11:00 o'clock A. M., on the second Monday in commencing in the year 1940, February of each year for the purpose of electing directors and for the transaction of any other business that may properly come before it.

2. NOTICE. Notice of the annual meeting shall be mailed to the last known address of each stockholder as the same appears by the records of the company, at least Thirty (30) days prior to such meeting.

3. ORGANIZATION. The President, in his absence the Vice-President, and in the absence of both, a chairman appointed by the stockholders present, shall call meetings of stockholders to order and shall act as chairman thereof.

The secretary of the company shall act as secretary at all meetings of the stockholders. In his absence, the presiding officer may appoint any person to act as secretary.

4. QUORUM. A majority of the stock issued and outstanding represented by the holders thereof, either in person or by proxy appointed by an instrument in writing, subscribed by such stockholder, shall be a quorum at all meetings of stockholders.

5. ADJOURNMENT. If at any annual or special meeting a quorum should fail to attend in person or by proxy, a majority in interest of the stockholders attending in person or by proxy at the time of such meeting may, at the end of an hour, adjourn the meeting from time to time without further notice until a quorum shall attend, and thereupon any business may be transacted which might have been transacted at the meeting as originally called had the same been then held.

6. SPECIAL ANNUAL MEETINGS. Whenever from any cause, an annual meeting of stockholders be not held on theday provided, a special annual meeting may be called by the directors in the manner and at such place as is prescribed for the holding of annual meetings of stockholders, at which special annual meeting directors shall be elected in accordance with such provisions, and shall hold office until the Second Monday in February next commencing in the year 1940 succeeding and until others are elected and have qualified in their stead.

7. VOTING. At all annual and special meetings of stockholders every holder of stock issued to a bona fide purchaser of same, represented by the holder thereof, either in person or by proxy in writing, shall have one vote for each share of stock so held and represented at such meetings. Voting for directors and, upon demand of any stockholder, upon any question at any meeting shall be by ballot.

In all elections for directors or managers of any corporation, each stockholder shall have the right to cast as many votes in the aggregate as he should be entitled to vote under its charter, multiplied by the number of directors or managers to be elected at such

election; each shareholder may cast the whole number of votes, either in person or by proxy, for one candidate or distribute such votes among two or more such candidates.

8. SPECIAL MEETINGS. Special meetings of the stockholders for any purpose or purposes shall be held whenever called by the board of directors, either by written instrument or by the vote of a majority, and shall be called whenever stockholders owning one-fourth of the capital stock issued and outstanding shall in writing make application therefor to the president, stating the object of such meeting.

9. NOTICE OF SPECIAL MEETINGS. Notice of each special meeting of stockholders, stating the time and in general terms the purpose or purposes thereof, shall be mailed to stockholders fifteen (15) days prior to such meeting and in the same manner prescribed for giving notice of annual meetings.

10. ORDER OF BUSINESS. The order of business at all meetings of stockholders shall be as follows:

(1) Roll Call
A quorum being present:
(2) Reading of minutes of preceding meeting and action thereon.
(3) Reports of Officers
(4) Reports of Committees.
(5) Election of Directors
(6) Unfinished Business
(7) New Business

11. LIST OF STOCKHOLDERS. At each meeting of stockholders a full, true and correct list, in alphabetical order, of all the stockholders entitled to vote at such meeting, with the number of shares held by each, certified to by the secretary, shall be furnished.

12. INSPECTORS. At all elections of directors the polls shall be closed and opened, the proxies shall be received and be taken in charge, all questions touching the qualification of voters and the validity of proxies, and the acceptance or rejection of votes, shall be decided, and all ballots shall be received and counted by two (2) inspectors, who shall be appointed by the presiding officer of the meeting and who shall, in writing, certify to the returns.

ARTICLE II.

Board of Directors.

1. NUMBER. The business and affairs of the company shall be managed and controlled by a board of not less than three and not more than nine directors, who shall be stockholders of the company.

2. TERM. Each director shall serve for the term for which he shall have been elected and until his successor shall have been duly elected and have qualified, provided he remain a stockholder of the company during such time.

3. FIRST MEETING. Immediately after such annual election of directors, the newly elected directors shall meet for the purpose of organization, the election of officers and the transaction of other business.

4. REGULAR MEETINGS. Regular meetings of the board of directors shall be held at 1:30 o'clock P. M. on the second Thursday of each month of each year, if not a legal holiday, and, if a legal holiday, then on the next succeeding business day. No notice shall be required to be given of any regular meeting.

5. SPECIAL MEETINGS. Special meetings of the board shall be held whenever regularly called. Unless otherwise specified in the notice thereof, any and all business may be transacted at a special meeting.

6. NOTICE. The secretary shall give notice to each director of each special meeting by mailing the same at least five (5) days before the time of meeting, or by telegraphing or telephoning not less than three (3) days before the time of meeting.

7. PLACE OF MEETING. The directors shall hold their meetings and may have an office and keep the books of the company at such place or places in Phoenix, Arizona, as the board from time to time may determine.

8. QUORUM. A majority of the board of directors at the time in office shall constitute a quorum for the transaction of business, but a majority of those present at the time and place of any regular or special meeting, although less than a quorum, may adjourn from time to time, without notice, until a quorum be had. The vote of a majority of the directors present at any meeting in favor of or against any proposition shall prevail, except as herein otherwise provided.

9. ORDER OF BUSINESS. The board of directors may from time to time determine the order of business at their meetings. The usual order of business at such meetings is as follows:

(1) Roll Call
A quorum being present:
(2) Reading of minutes of preceding meeting and action thereon.
(3) Reports of Officers.
(4) Reports of Committees.
(5) Unfinished Business
(6) Miscellaneous Business
(7) New Business

10. CHAIRMAN. At all meetings of the board of directors the president, or, in his absence, the vice-president, or, in his absence, a chairman chosen by the directors present, shall preside.

11. VACANCIES. In case of any vacancy among the directors through death, resignation, disqualification or other cause, the remaining directors, by affirmative vote of a majority thereof, whether or not constituting a quorum, may elect a successor to hold office for the unexpired portion of the term of the director whose place shall be vacant and until the election of and acceptance by his successor.

12. COMMITTEES. From time to time the board may appoint committees for any purpose or purposes, who shall have such powers as shall be specified in the resolution of appointment.

13. COMPENSATION. The directors and officers of the company and all members of committees shall serve without salary, except as may be determined by the vote of a majority of all the directors.

14. ACTION BY RESOLUTION. The board of directors shall, except as otherwise provided by law, have power to act in the following manner: A resolution in writing, signed by all the members of the board of directors, shall be deemed to be action by such board to the effect therein expressed, with the same force and effect as if the same had been duly passed by the same vote at a duly convened meeting, and it shall be the duty of the secretary of the company to record such resolution in the minute book of the company under its proper date.

ARTICLE III.

Officers.

1. EXECUTIVE. The executive officers of the company shall be a president, a vice-president, a treasurer and a secretary. The president and vice-president shall be elected annually by the board. The secretary and treasurer shall be appointed by resolution of the board, and shall hold office until successors are appointed.

2. POWERS. The powers and duties of the treasurer may be exercised and performed by any one of the other officers.

3. SUBORDINATES. The board may appoint such other officers as it shall deem necessary, who shall have such authority and shall perform such duties as, from time to time, may be prescribed by the board.

4. TENURE OF OFFICERS. All officers and agents shall be subject to removal at any time, with or without cause, by the affirmative vote of a majority of the whole board.

5. PRESIDENT. The president shall be the chief executive officer of the company. He shall preside at all meetings of the stockholders and of the board of directors. He shall sign and execute all authorized bonds, contracts or other obligations in the name of the company, and, with the secretary, shall sign all certificates of stock of the company, and shall do and perform such other duties as, from time to time, may be assigned to him by the board.

6. VICE-PRESIDENT. In case of the absence or disability of the president, the duties of the office shall be performed by the vice-president.

7. TREASURER. The treasurer shall have the custody of all the funds and securities of the company which may come into his hands; he shall endorse, on behalf of the company for collection, checks, notes and other obligations, and shall deposit the same to the credit of the company in such bank or banks, or depositories, as the board of directors may designate; he may sign receipts and vouchers for payment made to the company; and he shall sign checks made by the company and pay out and dispose of the same under the direction of the board; he shall sign, with the president or such other person or persons as may be designated by the board, all authorized promissory notes and bills of exchange of the company; whenever required by the board he shall render a statement of his cash accounts; he shall enter regularly, in the books of the company to be kept by him for that purpose, full and accurate accounts of all moneys received and paid by him on account of the company; and he shall perform all duties incident to the position of treasurer subject to the control of the board.

8. SECRETARY. The secretary shall keep the minutes of all proceedings of the board and the minutes of all meetings of the stockholders; he shall attend to the giving and serving of all notices for the company when directed by either the president or the vice-president; he shall sign with the president or vice-president in the name of the company all contracts authorized by the board, and shall affix the seal of the company thereto; he shall have charge of the certificate books and such other books and papers as the board may direct; he shall sign with the president or vice-president, certificates of stock; and he shall in general perform all the duties incident to the office of secretary, subject to the control of the board.

ARTICLE IV.

Capital Stock

1. CERTIFICATES. The certificates of shares of stock of the

of the company shall be in such form as shall be approved by the board. The certificates shall be signed by the president or vice-president and by the secretary.

2. TO BE ENTERED. All certificates shall be consecutively numbered, and the names of the owners, the number of shares and the date of issue shall be entered in the company's books.

3. CERTIFICIATES CANCELLED. Except in case of lost or destroyed certificates, and in that case after the receipt of a satisfactory bond, unless the giving of a bond be waived, no new certificate shall be issued until the former certificate for the shares represented thereby shall have been surrendered and cancelled.

4. TRANSFER. Shares shall be transferred only on the books of the company by the holder thereof in person, or by his attorney, upon the surrender and cancellation of certificates for a like number of shares.

5. REGULATIONS. The board may make such rules and regulations as it may deem expedient concerning the issue, transfer and registration of certificates of stock of the company.

ARTICLE V.

Dividends.

1. DIVIDENDS. The board, in its discretion, from time to time, may declare dividends upon the capital stock from the surplus or net profits of the company, and, subject to the provisions of the Articles of Incorporation, may fix and change the dates for the declaration and payment of dividends.

ARTICLE VI.

Seal

1. DESIGN. The board shall provide a suitable seal, containing the name of the company and the words "Arizona" , which seal shall be in charge of the secretary, to be used as directed by the board.

ARTICLE VII.

Waiver of Notice

1. WAIVER. Any stockholder, director or officer may waive any notice required to be given by these by-laws.

Approved by
Original Directors:

August 14th, 1943

Mr. Brent Rickard, Manager
American Smelting & Refining Company
810 Valley Bank Building
P. O. Box 2229
Tucson, Arizona

Re Bullard Mine - file

Dear Rickard:

Just a line to tell you that I understand an R.F.C. loan has finally been granted to the Bullard Mines so that they can probably go ahead under their own steam and get out some more ore.

I have no doubt that your assistance in this matter was very helpful and I hope that they will be able to make a substantial production and earn a little money for the stockholders who so far have gotten nothing at all.

I think you were mistaken in regard to the owners objecting to the granting of this loan since Smith told me that the owners were cooperating with them in a very cordial manner.

Best regards.

Sincerely,

GMC:MF

August 11th, 1943

Mr. C. R. Kuzell, Manager
United Verde Branch
Phelps Dodge Corporation
Clarkdale, Arizona

file

Re: Bullard Mine

Dear Kuzell:

When I was in Jerome a few days ago I was given to understand that your smelter was or was likely to be short of suitable ore for converter flux.

This leads me to call your attention to the Bullard Mine, west of Congress Junction, with which I am sure that you are already somewhat familiar. During the past four years this mine has shipped 5840 tons to the Hayden smelter with average contant .361 oz gold; .34 oz. silver; 2.12% copper; 72% SiO_2 and 6.7% Al_2O_3. Hayden found this a most desirable converter flux but the Bullard Company got into financial difficulties and has not been actively operating for over a year.

Recently the Quota Committee have agreed to pay a bonus of 12.7¢ per lb. of copper produced from the Bullard which would give them a total price of 24.7¢ and based on the freight and treatment at Hayden, the net return to the miner should be $12.84 after deducting all charges except mining which certainly should not cost more than $7.00 per ton under any reasonable conditions.

Engineers of the A.S. & R. who recently examined this property estimated that in the immediate vicinity of the workings there were 12,000 tons of similar ore available for prompt mining but neither the A. S. & R. nor the R.F.C. are willing to advance the money required for equipment and resumption of operations so that the Bullard Gold Mining Company, which has a lease on this property, is actually marking time.

I think that the ore could be produced at the rate of about 1000 tons a month after work were resumed and the tonnage available may prove substantially greater than the estimate given above but in any event, that tonnage should be quite sufficient to permit the operator to repay the capital expenditure which should bot be more than $12,000 or at the most $15,000.

Under the circumstances, you may perhaps wish to consider this opportunity or at least to have it further investigated by your engineers and I might mention that I have no personal interest whatever either in the mine or the leasing company but I have done some technical work for them in the past and want to help them if possible to resume operations. The maps and records are fairly complete and can be seen either at my office or at the office of the company in the Heard Building.

Incidentally, I hope that there has been nothing wrong with our last shipments of silica sand from Meteor Crater since I notice that a long time has elapsed since we received any order for this sand from Clarkdale.

Sorry that I did not have an opportunity for a personal visit when I was up your way last week.

Very best regards,

G. M. C.

August 13th, 1943

GMC:MF

P.S. Just before this letter was mailed I received a telephone call from Mr. J. P. Smither, Manager of the Bullard Mine, telling me that at long last the R.F.C. have decided to grant the Company a loan which should permit them to go right ahead and put the mine in operation. However, I think that you may be interested in some of the information contained in the letter in case you should wish to compete for this ore as converter flux for Clarkdale. You have some advantage in freight rates over Hayden but I think that the smelting terms which they have offered are somewhat lower than any that your company has so far been willing to pay.

Very sincerely,

SPECIAL EXHIBIT H

TO ACCOMPANY LOAN APPLICATION

OF

BULLARD GOLD MINES,

INCORPORATED

BULLARD MINE

Shipped to Clarkdale Smelter of Phelps-Dodge, 1936-7 by George Long

Cars No.	Tons Wet	Tons Dry	Au.	Oz.	Ag.Oz.	Cu.%	@.10	Au.	Cu.
1	24.15	33.87	.56	$19.60	.575	5.10	$10.20	660.00	342.00
2	54.05	53.44	.46	16.10	.275	1.37	2.74	845.00	146.00
3	54.46	43.35	.4175	14.61	.20	1.49	2.98	777.00	158.00
4	57.43	56.60	.52	18.20	.25	2.83	5.66	1030.00	320.00
5	49.27	47.70	.60	21.00	.325	2.54	5.08	1000.00	242.00
6	51.15	48.84	.437	15.29	.275	2.16	4.32	730.00	210.00
7	47.16	45.27	.455	15.92	.35	2.13	4.26	720.00	192.00
8	47.80	46.22	.50	17.50	.60	.146	2.92	810.00	135.00
9	50.02	39.42	.625	21.87	.40	2.40	4.80	865.00	188.00
10	34.10	33.42	.44	15.40	.375	1.98	3.96	515.00	134.00
11	46.92	45.90	.746	26.07	.50	2.66	5.32	1200.00	244.00
12	43.91	43.24	.86	30.10	.775	3.28	6.56	1300.00	284.00
13	43.32	42.45	.63	22.05	.62	3.37	6.74	935.00	285.00
14	46.84	45.50	.754	26.39	.575	3.05	6.10	1190.00	275.00
15	46.64	45.48	.65	22.75	.60	2.785	5.57	1050.00	252.00
16	54.48	51.46	.4875	17.06	.675	3.04	6.08	875.00	312.00
17	39.98	37.55	.5125	17.93	.80	3.53	7.06	675.00	265.00
18	46.90	44.93	.61	21.35	.75	3.17	6.34	1050.00	280.00
19	44.35	43.14	.37	12.95	.80	2.04	4.08	555.00	175.00
20	56.70	54.76	.793	27.75	.70	2.91	5.82	1520.00	518.00
21	36.27	34.20	.84	29.40	1.50	9.00	18.00	1005.00	615.00
	975.90	946.45						$19,287.00	$3,373.00

****

Au. @ 92% $18.40 Smelter per ton Au. $19.96 Cu. $5.68

Cu. 90%-2½¢ 3.75 " " " .5702 ozs. 3.84%

Ex. J.

BULLARD SHIPMENTS RECORD 1939

February through August 1939
Records received up to September 22nd, 1939

No.	Dry.Wt.	Au. oz.	Ag. oz.	Cu. %	Net payments per ton.
1	38.533	.29	.35	2.54	9.94
2	41.519	0.16	0.54	3.29	7.29
3	39.273	.155	.20	2.22	5.39
4	46.191	.11	.36	3.29	5.39
AX5	41.590	.12	.20	2.28	4.35
(6 (7	96.390	.20	.42	2.20	6.81
8	56.618	.115	.37	2.44	4.45
9	42.768	.385	.27	10.75	11.01
10	49.140	.23	.86	1.44	6.81
11	40.868	.325	.25	1.22	9.30
(12 (13	88.573	.365	.29	1.25	10.64
14	47.551	.345	.24	1.38	10.20
15B	22.589	.293	.30	2.11	9.66
15A	15.993	.195	.55	2.74	7.35
BX16	44.36	.28	.30	2.18	8.55
17	48.526	.295	.37	1.99	9.55
18	48.018	.286	.36	2.10	9.43
19	48.283	.348	.38	1.73	10.71
20	52.108	.382	.27	1.42	11.37
21	47.176	.110	.53	2.95	4.88

The smelter has deducted the toll charge of $2.50 per ton before this figure is established but the haulage $1.00 and freight $2.40 (except when value is less than $10.) must still be deducted and will amount to $3.50 per ton on dry ore.

There is also the 10% royalty to Bullard.

No.	Dry. Wt.	Au. Oz.	Ag. Oz.	Cu. %	Net Payments Per ton.
22	53.373	.425	.22	1.62	13.02
23	48.624	.315	.34	2.47	10.69
24	43.920	.325	.22	1.53	10.08
25	47.353	.08	.76	4.78	6.77
26	43.115	.462	.49	1.85	14.26
27	46.512	.109	.60	3.88	5.96
28	46.269	.29	.55	2.34	9.58
29	41.709	.192	.59	4.34	9.26
30	37.074	.22	.38	2.49	7.52
31	42.665	.129	.47	1.58	3.26
32	48.560	.132	.51	1.77	3.60
33	47.421	.125	.46	1.46	2.97
34	42.724	.146	.46	1.66	3.91
35	43.433	.110	.39	1.58	2.65
36	43.438	.229	.37	2.29	6.92
37	41.528	.262	.30	2.18	8.37
38	37.175	.127	.40	1.37	2.90
39	32.590	1.010	.52	2.33	30.72
40	37.897	.282	.50	2.33	9.62
41	28.508	.470	.50	3.04	15.98
42	38.321	.505	.38	2.43	16.23
43	43.047	.476	.39	2.62	15.69
Pro (44	45.678	.275	.32	2.18	8.95
(45	37.035	.475	.30	1.95	14.82
C- (46	40.879	.44	.58	2.47	14.56
(47	48.422	.317	.52	2.86	11.93

Ex. J.

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BULLARD SHIPMENTS RECORD 1939

February through August 1939
Records received up to September 22nd, 1939

No.	Dry.Wt. tons	Au. oz.	Ag. oz.	Cu. %	Net payments per ton.
1	38.553	.29	.35	2.54	9.94
2	41.519	0.16	0.54	3.29	7.29
3	39.273	.155	.20	2.22	5.39
4	46.191	.11	.36	3.29	5.39
AX5	41.590	.12	.20	2.28	4.35
(6 (7	96.390	.20	.42	2.20	6.81
8	56.618	.115	.37	2.44	4.45
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15B	22.589	.293	.30	2.11	9.66
15A	15.993	.195	.55	2.74	7.35
BX16	44.36	.28	.30	2.18	8.55
17	48.526	.295	.37	1.99	9.55
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20	52.108	.382	.27	1.42	11.37
21	" 9 " 8 47.176	.110	.53	2.95	4.88

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There is also the 10% royalty to Bullard.

956.067

No.	Dry. Wt.	Au. Oz.	Ag. Oz.	Cu. %	Net Payments per ton.
22	53.373	.425	.22	1.62	13.02
23	48.624	.315	.34	2.47	10.69
24	43.920	.325	.22	1.53	10.08
25	47.353	.08	.76	4.78	6.77
26	43.115	.462	.49	1.85	14.26
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37	41.528	.262	.30	2.18	8.37
38	37.175	.127	.40	1.37	2.90
39	32.590	1.010	.52	2.33	30.72
40	37.897	.282	.50	2.33	9.62
41	28.508	.470	.50	3.04	15.98
42	38.321	.505	.38	2.43	16.23
43	43.047	.476	.39	2.62	15.69
Pro (44	45.678	.275	.32	2.18	8.95
(45	37.035	.475	.30	1.95	14.82
6+ (46	40.879	.44	.58	2.47	14.56
(47	48.422	.317	.52	2.86	11.93
	1007269				

Ex. J.

BULLARD SHIPMENTS RECORD 1939

February through August 1939.
Records received up to September 22nd, 1939

No.	Dry.Wt.	Au. oz.	Ag. oz.	Cu. %	Net payments per ton.
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14	47.551	.345	.24	1.38	10.20
15B	22.589	.293	.30	2.11	9.66
15A	15.993	.195	.55	2.74	7.35
BK16	44.36	.28	.30	2.18	8.55
17	48.526	.295	.37	1.99	9.55
18	48.018	.286	.36	2.10	9.43
19	48.283	.348	.38	1.73	10.71
20	52.108	.382	.27	1.42	11.37
21	47.176	.110	.53	2.95	4.88
20)		.24945	20/	2.576	

The smelter has deducted the toll charge of $2.50 per ton before this figure is established but the haulage $1.00 and freight $2.40 (except when value is less than $10.) must still be deducted and will amount to $3.50 per ton on dry ore.

There is also the 10% royalty to Bullard.

No.	Dry. Wt.	Au. Oz.	Ag. Oz.	Cu. %	Net Payments Per ton.
22	53.373	.425	.22	1.62	13.02
23	48.624	.315	.34	2.47	10.69
24	43.920	.325	.22	1.53	10.08
25	47.353	.08	.76	4.78	6.77
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27	46.512	.109	.60	3.88	5.96
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29	41.709	.192	.59	4.34	9.26
30	37.074	.22	.38	2.49	7.52
31	42.665	.129	.47	(1.58 →	3.26
32	48.560	.132	.51	1.77	3.60
33	47.421	.125	.46	1.46	2.97
34	42.724	.146	.46	1.66	3.91
35	43.433	(.110 →	.39	1.58	2.65
36	43.438	.229	.37	2.29	6.22
37	41.528	.262	.30	2.18	8.37
38	37.175	.127	.40	1.37	2.90
39	32.590	1.010	.52	2.33	30.72
40	37.897	.282	.50	2.33	9.62
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43	43.047	.476	.39	2.62	15.69
Pro (44	45.678	.275	.32	2.18	8.95
(45	37.035	.475	.30	1.95	14.82
C- (46	40.879	.44	.58	2.47	14.56
(47	48.422	.317	.52	2.86	11.93
		26/ .30146		26/ 2.36	

No.	Dry Wt.	Au. oz.	Ag. oz.	Cu. %	Net payments per ton
73	118.028	.262	.325	1.42	8.62
74	103.252	.186	.10	1.62	6.45
75	115.376	.351	.385	2.20	12.67
76	118.217	.316	.25	2.31	11.71
77	85.565	.547	.35	2.60	19.03
78	99.810	.40	.40	2.57	14.80
79	114.015	.304	.35	2.04	10.93
80	115.704	.427	.30	1.90	14.62
81	100.718	.498	.415	2.345	17.32
82	100.587	.30	.32	2.24	10.97
83	113.617	.3515	.33	1.94	12.25
84	113.296	.32	.32	1.92	10.06
85	97.868	.5725	.525	2.495	18.44
86	101.501	.775	.455	1.71	23.04
87	109.148	.26	.325	1.61	7.85
88	64.471	.205	.305	2.11	6.90
89	98.731	.2675	.18	1.825	8.59
90	100.408	.1705	.35	1.66	5.18
91	109.842	.240	.13	1.80	7.67
92	90.470	.2225	.14	1.705	6.94
93	94.614	.2235	.185	1.845	7.24
94	86.152	.1755	.22	1.865	5.71
95	75.172	.321	.365	1.57	9.89
96	88.521	.61	.73	1.655	18.84
97	107.959	.65	.30	1.69	19.92
		25) .32826		25) 1.9458	

No.	Dry Wt.	Au. oz.	Ag. oz.	Cu. %	Net payments per ton
48	89,983	.39	.45	2.98	14.34
49	66,050	.35	.37	3.08	13.34
50	84.826	.292	.32	3.08	11.56
51	82.195	.12	.52	2.98	5.84
52	75.116	.34	.28	2.45	12.03
53	67.500	.089	.33	1.635	3.36
54	63.319	.384	.36	2.54	13.42
55	59.716	.1215	.305	1.065	3.64
56	88.095	.4285	.35	2.71	16.24
57	109.930	.1265	.24	1.34	4.09
58	102.511	.1785	.375	2.235	7.61
59	103.507	.184	.44	2.845	8.90
60	86.425	.146	.36	2.555	7.14
61	73.542	.113	.43	2.07	5.19
62	82.468	.56	.51	3.31	21.07
63	61.254	.45	.71	5.645	21.81
64	96.465	.43	.50	3.03	16.82
65	69.984	.22	.38	2.47	9.38
66	58.805	.479	.425	2.835	17.41
67	93.612	.495	.30	2.02	16.75
68	42.5755	.28	.50	1.62	9.54
69	102.324	.327	.685	1.48	10.91
70	101.723	.521	.55	1.52	16.77
71	102.815	.637	.50	1.40	19.93
72	120.127	.422	.395	1.435	13.78
		25 / .32536		25 / 2.3252	

No.	Dry Wt.	Au. oz.	Ag. oz.	Cu. %	Net payments per ton
123	98.649	.597	-	2.27	19.27
124	113.397	.3525	.24	2.275	12.12
125	99.340	.395	.25	2.895	14.36
126	90.174	.41	.255	2.205	13.72
127	80.219	.358	.175	1.715	11.34
128	71.150	.397	.315	2.855	14.35
129	75.579	.3725	.30	2.38	12.90
		7/ .41157		7/ 2.3709	

Total Shipment as above 5762 tons

Assays .3647 oz au Gross value $12.76

2.25 % Cu. " 7.65 @ 17¢

20.41 per ton

No.	Dry Wt.	Au. oz.	Ag. oz.	Cu. %	Net payments per ton
98	113.469	.75	-	2.14	23.52
99	65.854	.7375	.275	2.31	23.42
100	96.827	.68	.14	1.92	21.15
101	96.876	.53	.28	1.745	16.52
102	113.600	.518	.405	1.845	16.31
103	109.563	.3925	.25	1.90	12.74
104	86.992	.2475	.29	2.00	8.27
105	83.749	.853	.405	2.03	26.34
106	76.402	.4145	.315	1.85	13.32
107	85.511	.432	.30	1.92	13.94
108	97.119	.4265	.275	1.92	13.78
109	64.633	.317	.29	1.745	10.07
110	103.821	.327	.24	1.67	10.27
111	95.752	.197	.40	1.66	6.05
112	82.616	.285	.47	1.805	9.15
113	89.031	.52	.21	2.555	17.49
114	92.025	.513	.23	2.235	19.76
115	99.216	.475	.20	1.685	14.81
116	90.723	.5765	.20	1.88	18.08
117	101.423	.544	.28	3.155	19.11
118	94.931	.355	.25	2.76	12.99
119	109.801	.565	.25	2.065	18.03
120	103.991	1.150	.175	1.625	34.35
121	104.840	.6515	.275	.240	21.06
122	103.622	.346	.20	1.925	11.31
	25/	.57214		25/ 1.9434	

page 1 —	956.067 tons	956.067
" 2 -	1007.269 "	1007.269
" 3 -	2084.867 #	1042.4335
" 4 -	2523.042 #	1261.521
" 5 -	2361.387 #	1180.6935
" 6 -	628.508 #	314.254
		5,762.2380

1/2

7 ms

14
130 / 5762
52

Special Exhibit

3 MC Pike

LEASE AND OPTION

This agreement made and entered into this 4th day of August, 1938, by and between R. W. BULLARD of Congress Junction, Arizona, party of the first part and hereinafter called the "Lessor", and Robt. M. Merrill and Florence A. Merrill of the Town of Wickenburg, Arizona, party of the second part and hereinafter called the "Lessees",

WITNESSETH:

First. The Lessor owns 27 patented mining claims in the Pierce Mining District of Yavapai County, Arizona, names as follows:

STATE, ARIZONA, DEMOCRAT, LOST BEAN, CONNECTION, STONEWALL, Lode mining claims, the U. S. patent for which is No. 043160, (Phoenix),

also,

BUTTE, NEVADA, JAY BIRD, VENICE, NAPOLEON, NEWBORN, CHANCELLOR, SOUTH WING, AUGUSTUS, SHULLA, NORTH EXTENSION, Lode mining claims, the U. S. Patent for which is No. Phoenix 043161.

also,

STELLAR, EMILY, NORTH STAR, RATTLER, HOME STAKE, SWEEP STAKE, WASHINGTON, PRODUCER, INTERNATIONAL, AVALANCHE, Lode mining claims,

the U. S. patent for which is No. 47162 and recorded in the office of the County Recorder of Yavapai County, Arizona, in Book 82 of Deeds, Pages 223, and 232,

also,

INTERVENER, Lode mining claims, unpatented, and recorded in the office of the County Recorder of Yavapai County, Arizona in Book 44 of Mines, Page 120,

also,

Certain water rights, and water, reserved to John C. Bullard, now deceased, in that certain deed of record in the office of the County Recorder of Yavapai County, Arizona, in Book 83 of Deeds at Page 260.

Second. In consideration of the sum of Ten Dollars ($10.00) paid to the Lessor by the Lessees, together with other good and valuable consideration, the receipt of which is hereby acknowledged, the Lessor grants to the Lessees and the Lessees accept from the Lessor, the sole and exclusive right and option to mine and explore and to purchase the said mining claims as listed in first paragraph, together with water rights also mentioned, for the time and for the price and upon the terms and conditions herein stated.

Third. The Lessor grants to the Lessees the sole and exclusive and immediate possession of said mining claims, for the purpose of exploration and mining, and water rights, and the sole and exclusive option for six months (6) from the date hereof within which to explore the said mining claims and water-rights and within which to determine whether or not the Lessees will purchase the same for the price and upon the terms and conditions herein stated.

Fourth. This Lease and Option and all rights hereunder shall continue in full force and effect for a period of twenty (20) years, and thereafter, so long as gold or other metals are produced from the premises in sufficient quantity to pay to the Lessor the minimum royalty hereinafter specified, or such minimum royalty is paid by Lessees irrespective of the production, unless sooner terminated in some manner specified by the terms of this lease.

Fifth. The Lessees will pay for all labor done or material furnished in the exploration, operation and mining of said mining claims and will save the said mining claims free and harmless from any claim for any material furnished or labor done or performed on said mining claims.

Sixth. The Lessees agree that they will record, post and keep posted throughout the term of the Lease and Option the notice of non-liability provided for by Section 2029, Revised Code of

Arizona 1928, Civil Code, and all acts amending or supplementing the same.

Seventh. Should the Lessees at any time at or before the expiration of six months from the date hereof decide that they will exercise the option to purchase said mining claims, then they will give written notice of their decision to the Lessor, and will, except as hereinafter provided, purchase said mining claims for the price and upon the terms and conditions hereinafter stated.

Eighth. The purchase price of said mining claims is the sum of Seven Hundred, Fifty Thousand Dollars ($750,000.00), and the Lessees shall pay to the Lessor as rent and royalty under the terms of this agreement, or Lease and Option, ten percent (10%) of the proceeds from the sale of all gold, copper or other precious metals recovered from the property, which said rents or royalties shall be based on the net smelter, mint or other returns, less only the cost of transportation and insurance, which said rent or royalty shall apply on the purchase price.

a. On January 1, 1939, the Lessees agree to pay to the Lessor as an advance on royalty payments, the sum of Two Hundred Dollars ($200) and the sum of Two Hundred Dollars ($200) to be paid to the Lessor on the first day of each and every month thereafter. The $200.00 monthly payments of advance royalties are to be deducted from the Ten percent (10%) of

smelter returns to be made to the Lessor, when said royalties shall arrive at a point when 2½ times the amount of the advance royalties shall be the monthly royalties paid to the Lessor and then such royalty advances shall be deducted on a basis of $200.00 per month until the full amount of the advance royalties have been paid.

Ninth. Said royalty payments shall continue until the full sum of Seven Hundred, Fifty Thousand Dollars ($750,000.00), without interest, has been paid. And it is agreed by the Lessees that by June 30, 1940 there will be a minimum royalty paid to the Lessor of not less than $500.00 per month and the same amount for each and every month thereafter.

Tenth. All payments to be made for the Lessor shall be made at the First National Bank of Arizona at Phoenix, Arizona, Head Office, and the duplicate deposit receipt of said bank shall be due and sufficient evidence and receipt of any and all payments made by the Lessees to the Lessor.

Eleventh. The term "net recovery" as herein used means the net mint or smelter returns less cost of transportation and insurance.

Twelfth. Until the full purchase price has been paid pursuant to the terms hereof, the Lessor shall have the right to maintain on the premises a representative who shall be given full access to all productive mining operations of the Lessees at

all times, and the representative of the Lessees will give written notice of all shipments to the representative of the Lessor at Congress Junction, Arizona. Also, the Lessor will be furnished with a duplicate copy of each smelter or mint return during this period of time.

Thirteenth. In the event the representative of the Lessees should desire to cease operations and surrender possession of said mining claims to the Lessor, all machinery and equipment installed on the property on or before February 1, 1939, and belonging to those other than the Lessor, may be removed within a period of three months from the date of the decision to cease operations and shall relieve both parties of all obligations.

Fourteenth. Within sixty days (60) from the date hereof the Lessor will deposit with the First National Bank of Arizona at Phoenix, Arizona, Head Office, or some escrow agent mutually agreed upon, a good and sufficient warranty deed for the 27 patented mining claims and a quit-claim deed for the one unpatented mining claim; also title to any water rights which the Lessor may have which can be used for the working of this property, transferring and conveying to the Lessees the said mining claims and water rights, said deed or deeds shall be delivered by the escrow agent to the Lessees upon receipt for the account of the Lessor of the full purchase price of said mining claims as herein provided.

Fifteenth. Should the Lessees or their authorized representative decide to cease operations, they will deliver to the Lessor all maps and mining data showing the location of all prospect holes, shafts and tunnels together with whatever assay information there may be in regard to said prospect holes, shafts and tunnels.

Sixteenth. This Lease and Option and all rights acquired by the Lessees hereunder may be assigned, transferred or conveyed at any time and from time to time, without the consent of the Lessor, but upon the consent of the Lessor being obtained, the Lessees shall be relieved from all obligations arising after such assignment.

Seventeenth. The Lessees or their authorized representatives agree to pay the taxes, as they become due, as required by law, on the 27 patented claims and to do the annual assessment work on the one unpatented mining claim and water rights, on and after January 1, 1939, and while in possession of the property.

Eighteenth. It is further understood and agreed that no interest shall be paid on the deferred balance of the purchase price provided for herein, and that Lessees shall have the privilege of paying the entire purchase price of balance thereof at any time during the term of this agreement and shall thereupon be entitled to the deed and bill of sale covering the mining claims.

Nineteenth. In the event the Lessees give notice of their exercise of said option, as heretofore provided, then, unless

and until this agreement shall be terminated as heretofore provided, they shall retain the sole and exclusive possession of the said mining claims and shall mine the same in such manner as in their sole discretion they may deem proper and for the best interests of the parties hereto.

Twentieth. The sole remedy of the Lessor in the event of default of Lessees shall be to terminate this agreement and retake the property herein described, save and except personal property placed thereon by Lessees, and Lessor shall retain all monies paid under the terms of this agreement as liquidated damages.

Twenty-one. This agreement shall be binding on the heirs, administrators, successors and assigns of the respective parties hereto.

Twenty-two. Time is of the essence of this agreement and of every part thereof..

IN WITNESS WHEREOF, the Lessor and the Lessees have hereunto set their hands and seals on the day and year first above written and in the presence of each other..

(Signed) R. W. Bullard
Lessor

(Signed) R. M. Merrill

(Signed) Florence A. Merrill
Lessees

State of Arizona)
) SS
County of Maricopa)

The foregoing instrument was acknowledged before me, a Notary Public, by R. W. Bullard, on the 5th day of August A.D. 1938.

(Signed) Genevieve M. Hutchinson
Notary Public

My commission expires Oct. 21- 1941.

March 11, 1943

Bullard file

MEMO: for Mr. J. P. Smith

RE: Bullard Gold Mines, Inc.

Dear Smith:

I have heard from the Clarkdale Smelter and they are anxious to secure siliceous ore and apparently pay a bonus of 1¢ per unit for excess silica over base but as they start with a treatment charge of $3.50 I doubt if you would get as much for your ore at Clarkdale as at Hayden.

I suggest that you might write to the War Production Board in Washington addressing Mr. F. H. Hayes, Assistant Chief, Copper Branch, somewhat as follows:

Dear Sir:

I am given to understand that the Clarkdale Smelter are extremely anxious to secure silicious copper ore and that addition of such material to their present furnace charge will enable them to substantially increase the output of copper from their smelter.

The Bullard Gold Mines, Incorporated, of which I am President, has submitted application to the R. F. C. for a loan and full reports and data together with favorable recommendations are going forward from the R. F. C. local office in Phoenix, Arizona.

In view of the fact that the margin of profit which may be obtained from mining this ore is comparatively small we would like to make application for an increase in the premium price to the extent of an additional 5¢ per pound of copper. The average content of copper in our ore is only about 50 pounds and it could not be mined and shipped at all except for the fact that it contains a certain value in gold.

We are extremely anxious to put this mine in operation as quickly as possible and believe that we can ship ore during the next 18 months which will contain approximately one million (1,000,000) pounds of copper provided the price ~~is~~ paid for this ore ~~to~~ permits such operations.

Since we believe that this copper would be important to the present war industries may I earnestly request that you give our application for additional bonus prompt and favorable consideration.

Yours very truly,

Sgnd / Smith

S P E C I A L E X H I B I T F

TO ACCOMPANY LOAN APPLICATION

OF

B U L L A R D G O L D M I N E S ,

I N C O R P O R A T E D

Certified to be a true and correct copy.

_____

Secretary

June 19, 1943

Mr. J. P. Smith, Manager
Bullard Gold Mines
Heard Building
Phoenix, Arizona

Re: Bullard Mine - file -

Dear Smith:

Referring to our recent conversations I was much disappointed to learn that your application for a loan had been turned down by the R.F.C.

Regardless of that fact or of any of your other plans, I want to repeat my suggestion that you should make an application for an extra bonus price for copper and, if you so desire, I will be glad to prepare this application without expense to your Company so that it can be forwarded to the Copper Price Quota Committee in Washington.

To my personal knowledge there have been several cases where a special bonus was granted even when a loan was refused, and Strobel, the Engineer in charge of the price quotas is a personal friend of mine and familiar with the Bullard to which he specifically referred in a recent letter so that I am lead to believe that you have an excellent chance of securing an extra price of say 5¢ per pound which would result in your receiving 22¢ for all the copper that you might produce.

This might afford a basis for making a new application for a loan, but in view of the peculiar attitude of the Washington officials of the R.F.C., I do not personally believe that even after such a bonus had been guaranteed they would be likely to give you a loan to permit equipping and operating the mine. However if your copper could be marketed at the higher price the project would obviously become much more attractive to private capital, particularly if the smelter would give you a special treatment rate of say $1.50 per ton, which I believe it would be possible to secure.

The most disadvantageous phase of your present set-up is the high carrying charges including the monthly minimum rental payment of $300.00 which might perhaps be suspended until you actually start operations under a law which has either been passed or is now pending in Congress.

Your ore makes an ideal converter flux for the copper smelter, as such it is now in great demand and therefore if your Company can arrange to cut out the minimum royalty, and reduce other overhead

expenses, obtain a price of say 22¢ for your copper and a treatment charge of about $1.50 per ton at Hayden or Clarkdale, I believe - although I cannot guarantee, that private capital might be willing to take over and operate the mine on terms which would be quite as favorable as those which you had hoped to secure from the R.F.C., and which would involve far less red tape and fewer headaches and I think that it would be a great pity to miss an opportunity to operate the mine which may not continue to be open ~~until~~ after the War is over or the end pretty well in sight.

I am enclosing an extra copy of this letter which I will ask you to send to Mr. Pratt so that he will understand my position and my desire to assist you along any lines which may seem reasonable and constructive.

Yours very truly,

GMC:b
Enclosure 1

Bullard Note 6/7/43

Working costs as figured on p. 16 of

report are 11.00 net of smelter would

reduce charge for 2.50 to 1.50 cost would

be reduced to 10.00. 144

Net value of ore 12.70 with copper @ 17¢

If increased to 22. value would be increased by 5¢

× ~~5#~~ 42# = 2.10 = 14.80 which

should leave profit of 4.80 per ton on a total

[illegible] of ~~20 tons cost~~ 14 400 should be

Report from field 3000 tons of ore [illegible]

shipped in pretty much during the next 6 months

[illegible] shipping 5000 tons of ore [illegible] time [illegible]

BULLARD MINE NOTES March 9, 1943

Conference with Maitland, Engineer for Reconstruction Finance Corporation, Smith and Larsen.

All agreed with Maitland's suggestion that work should start at Tunnel #10 and from the raise leading up 90' to Tunnel #11 with which it should be connected. A drift would then be run out on the vein on both sides of this raise and the ore stoped up to the outcrop from which area one might expect to mine from 6,000 to 8,000 tons of ore and it is proposed to use a slusher for mucking in the stope.

The estimate of cost of equipment is as follows:

Compressor about 300 cu. ft. (2nd hand)	$2,500
2 new stoper drills (semi-portable if possible) (self-rotating)	730
2 jackhammers with mounting	550
Hose, Timken bits, and steel	250
Slusher with hoist and cable	1,000
Pick-up truck	1,000
Repairs to road and ore bin	200
Repairs to living accomodations	5000
Camp utensils and miscellaneous	270
TOTAL	$7,000

It is assumed that these figures will include the small cost of installing the equipment and the Bullard Company has on hand ore cars, track, pipe, etc.

Operating expenses are figured as follows:

Working two shifts	Labor	Wages per day
2 surface men (mechanic)	@ $7.20	$14.40
2 hammers	6.50	13.00
4 miners	7.20	28.80
2 slusher men	7.20	14.40
1 roustabout	6.00	6.00
1 foreman	8.00	8.00
		$84.60

	$84.60	
Add for 8 hours per week overtime about	8.40	
	$93.00	
Add 15% for workmen's compensation income and taxes	14.00	
Total	$107.00	

Wages per month 25 working days	$2675.
Superintendent and office work	200.
Supplies,--timber, explosives, fuel, etc.	1125.
	$4000

Allow $4000 as a very liberal estimate for working costs per month during first two months making $8000 to add to the cost of equipment and bringing that total amount for loan funds requested at the outset to $15,000.

If this work proves that the operation of the mine can be conducted with profit Maitland says that additional money can easily be obtained.

All funds will be placed in trust account and money released for specific purposes only as the requisitions are approved by the R. F. C. Engineers. All returns from shipments will be placed in the same fund and entire loan must be repaid before Company will be entitled to divide any profits or pay any other charges.

The minimum rental or royalty to the owner will have to be paid by the Company until the actual royalty from shipments will take care of same, also any other corporate expense.

Cost of hauling ore from mine to Aguila (10 miles) was formerly $1.00 per ton but latest figure was $1.50. The question of purchasing a truck to do this hauling will be considered later.

BULLARD MINE NOTES March 9, 1943

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Cost of hauling ore from mine to Aguila (10 miles) was formerly $1.00 per ton but latest figure was $1.50. The question of purchasing a truck to do this hauling will be considered later.

Payments:	Gold .361 @		32.31825 =	$11.67
	Silver		no pay	
	Copper (Smelter)	32.68 @	.0905	2.96
	Total			14.63
Deductions:	Base on 7.50		1.75	
	Surcharge		.72	
	Bullion tax		.01	2.48
	F.O.B. Hayden			12.15
less:	Freight, tax & H_2O			2.54
	Net at Aguila			9.61
less:	Royalty		.96	
	Hauling		1.03	1.99
	Net at mine before premium			7.62
Premium:	42.4 x .97 = 41.128 # @ .127			5.22
Value per ton at mine, premium included				$12.84

ORE RESERVES: Due to lack of proper financing, there is no developed ore and very little ore immediately in sight. However, I believe that competent engineers who have examined this property from time to time have estimated 12,000 tons of geologically possible shipping ore, similar in grade to past shipments and that it is quite possible that this tonnage may be considerably exceeded.

In any event, it seems to me that the amount of ore that can be reasonably expected, together with the grade and rate on the basis of present premiums, would warrant a loan of sufficient money to get this property back into production.

I hope you may see your way clear to make one more recommendation for loan.

Yours truly,

BRENT N. RICKARD

BNR:FAcc
cc: J. P. Smith, Bullard Mines, Inc., 404 Heard Building, Phoenix

August 10th, 1943

Mr. Brent N. Rickard, Manager
American Smelting & Refining Company
810 Valley Bank Building
P. O. Box 2229
Tucson, Arizona

file

Re: BULLARD MINES, INC.

Dear Rickard:

Please pardon long delay in replying to your letter of July 23rd on the above subject.

I am sure that the officials of the Bullard Mines appreciate your effort to get their operations started but I fear that there is no chance that the government will loan them any money although I do not understand why the administrator of the Bullard estate could object to their receiving a development loan since this would not be a lien on any of the real property.

I have noted that your Company would not be interested in advancing any money to put the mine in operation and I recently talked to Philip Wiseman in Los Angeles who took a similar attitude. I think there is a bare chance that Phelps Dodge might help them as they need converter flux ore very badly at Clarkdale and I have been trying to get ahold of Mr. Smith to suggest that he approach them unless he has some other plans in mind. He always talks in a very vague manner and indicates that he will work things out alright but there has been no activity at the mine for a long time past and I doubt if Pratt will continue to put up the carrying charges indefinitely. Perhaps they may already be in default on their lease in which case the Bullard estate may plan to resume possession of the mine.

Don't fail to drop in to see me next time you are in Phoenix. I am still trying to clean up the mess at Twin Buttes but so far with no success.

Sincerely,

GMC:MF

Memo from the desk of

B. N. RICKARD

To

Dear Colo ——

I understand that the Administrator of the Bullard Estate will not approve the loan — If so, that explains why it is not granted — BNR

Date Hour

CAIRNS PRINTING CO.—EL PASO

AMERICAN SMELTING AND REFINING COMPANY
SOUTHWESTERN ORE PURCHASING DEPARTMENT
810 VALLEY BANK BUILDING
P. O. BOX 2229
TUCSON, ARIZONA

BRENT N. RICKARD
MANAGER

July 23, 1943

Mr. G. M. Colvocoresses
Luhrs Tower Building
Phoenix, Arizona

BULLARD MINES, INC.

Dear Mr. Colvocoresses:

Following our conversation of July 18, I discussed again with our Mining Department the possibility of taking over the operation of the Bullard Mine.

Early in 1942, our engineers made a careful, geological study of this area and reached the conclusion that we would not be interested in undertaking the operation of this mine. While the additional premium of 7.7¢ increases the revenue that may be realized on the ore, yet that is not, in itself, sufficient to change our opinion.

There is no question as to the desirability of this ore as a converter flux and I have written to Mr. Gohring, as per copy enclosed, urging further consideration of a government loan.

Yours truly,

Brent N. Rickard

BRENT N. RICKARD

BNR:FA
cc: J. P. Smith, Bullard Mines, Inc.

BULLARD MINE

Shipped to Clarkdale Smelter of Phelps-Dodge, 1936-7 by George Long

Cars No.	Tons Wet	Tons Dry	Au.	Oz.	Ag.Oz.	Cu.%@.10		Au.	Cu.
1	24.15	33.87	.56	$19.60	.575	5.10	$10.20	660.00	342.00
2	54.05	53.44	.46	16.10	.275	1.37	2.74	845.00	146.00
3	54.46	43.35	.4175	14.61	.20	1.49	2.98	777.00	158.00
4	57.43	56.60	.52	18.20	.25	2.83	5.66	1030.00	320.00
5	49.27	47.70	.60	21.00	.325	2.54	5.08	1000.00	242.00
6	51.15	48.84	.437	15.29	.275	2.16	4.32	730.00	210.00
7	47.16	45.27	.455	15.92	.35	2.13	4.26	720.00	192.00
8	47.80	46.22	.50	17.50	.60	.146	2.92	810.00	135.00
9	50.02	39.42	.625	21.87	.40	2.40	4.80	865.00	188.00
10	34.10	33.42	.44	15.40	.375	1.98	3.96	515.00	134.00
11	46.92	45.90	.746	26.07	.50	2.66	5.32	1200.00	244.00
12	43.91	43.24	.86	30.10	.775	3.28	6.56	1300.00	284.00
13	43.32	42.45	.63	22.05	.62	3.37	6.74	935.00	285.00
14	46.84	45.30	.754	26.39	.575	3.05	6.10	1190.00	275.00
15	46.64	45.48	.65	22.75	.60	2.785	5.57	1030.00	252.00
16	54.48	51.46	.4875	17.06	.675	3.04	6.08	875.00	312.00
17	39.98	37.55	.5125	17.93	.80	3.53	7.06	675.00	265.00
18	46.90	44.93	.61	21.35	.75	3.17	6.34	1050.00	280.00
19	44.35	43.14	.37	12.95	.80	2.04	4.08	555.00	175.00
20	56.70	54.76	.793	27.75	.70	2.91	5.82	1520.00	318.00
21	36.27	34.20	.84	29.40	1.50	9.00	18.00	1005.00	615.00
	975.90	946.45						$19,287.00	$3,373.00

****

Au. @ 92% $18.40 Smelter per ton Au. $19.96 Cu. $5.68

Cu. 90%-2½¢ 3.75 " " " .5702 ozs. 3.84%

bc: G. M. Colvocoresses

AMERICAN SMELTING AND REFINING COMPANY
SOUTHWESTERN ORE PURCHASING DEPARTMENT
810 VALLEY BANK BUILDING
P. O. BOX 2229
TUCSON, ARIZONA

BRENT N. RICKARD
MANAGER

July 23, 1943

Mr. W. B. Gohring, Supervising Engineer
Reconstruction Finance Corporation
325 Heard Building
Phoenix, Arizona

Dear Mr. Gohring:

BULLARD MINES, INC.
Docket No. ND-5391

I thank you for your letter of July 15 advising that the R.F.C. has again rejected Mr. Smith's application for a loan on the Bullard Mine.

In view of the desirability of this ore as a copper bearing siliceous flux, eminently desirable in our converter operation in the production of copper and in view of the special premium of 7.7¢ recently granted by the Quota Committee, may I suggest that you make one more effort in the matter of this loan.

I submit below a tabulation of shipments from this mine, received at our Hayden Plant during the 37 months period, February 1939 thru February 1942:

Hayden Receipts: (Weighted assays)

Year	Months	Dry Tons	Au	Ag	Cu	SiO2	Al2O3
1939	11	2715	0.277	0.44	2.25	73.0	7.0
1940	12	1720	.393	.36	1.93	71.0	7.4
1941	12	1331	.484	.24	2.06	73.0	5.6
1942	2	74	.394	.31	2.61	63.0	6.8
TOTAL	37	5840	.361	.34	2.12	72.0	6.7

In the tabulation on the following page, I show the outcome, including the present premium of 12.7¢, under the special purchase terms that I have offered the Bullard Mine under date of June 17, 1943. The net outcome, after paying freight, hauling, tax, royalty and smelting charge, is $12.84 per ton:

Extract of letter quoting from reports made to the A. S. & R. Company

March 28, 1940

Mr. J. P. Smith, Vice-President
Bullard Gold Mines, Incorporated
404 Heard Building
Phoenix, Arizona

Dear Mr. Smith:

In looking through our files on the Bullard Mine I find that the Mining Deparement has had this property up for consideration on several occasions, and at one time in 1912 or 1913 offered Mr. Bullard a very fair deal but he was not willing to do business. In 1919 the matter was referred to us again and another examination was made.

The following summaries are taken from various reports in our files.

November 12, 1912

The Home Group has a large amount of low grade 3% copper ore with about 0.40 oz. gold exposed and left as a remnant of a flat vein in recent andesite rocks which cap a small knoll. There are probably about 80,000 tons of this ore available. The property possesses a good deal of merit but unfortunately is held and owned by a man who has an exaggerated opinion of his property and insists on a price of $500,000.

"On account of these obdurate views on the part of the owner I have refrained from taking more than a preliminary glance at the deposit, as a thorough sampling of the exposures was out of the question, and I was satisfied to obtain a few averages here and there of the general character of the ore which I have submitted for assay.

"A rough calculation would indicate that there are from 80 to 100,000 tons of ore exposed that could be mined and broken for possibly not th exceed $1.50 per ton, the form and character of the deposit offering splendid advantages for its economical extraction.

Geology and Ore Deposit "The isolated hill or knoll near the top of which these mines are situated, and which on three sides has bean eroded down to its present shape, forms a spur and part of the southern slope of the range. It rises about 600 feet in elevation above the level of the desert and represents in the upper 300' of cap rock the remnant of the lava flow which originally must have covered a larger area of the granite-schist complex of this region. This cap consists of tuff and andesiticrocks and contains the ore deposit as a fissure vein, with a flat dip of about 45 deg. The average width of the vein is between 2 to 2½ feet, it seldom goes below this in dimensions and not often exceeds them. It is clearly and well defined against the enclosing igneous rocks, although numerous veinlets and fissures filled with calcite are noticed in the immediate wall rocks of the vein. The vein filling consists of principally quartz and some calcite as gangue, with chrysocolla and some associated other oxidized products as copper ores. Copper-glance is also present in small quantities here and there, while hematite is more abundant. The distribution of the ores throughout the deposit is fairly regular in proportion to about one part of ore to one part of gangue minerals.

"The deposit has been thoroughly prospected along its outcrop and strike and is found to extend in that direction for approximatly 1500 feet. The mean distance across the plane of the deposit, from line of outcrop on the North to line of erosion on the south, aver-

ages about 500 feet, so that in this area, preserved and exposed, there are contained approximately 75,000 tons of ore, assuming an average thickness of one foot for the ore measure.

"There is no evidence of this deposit extending or continuing on its dip into the adjoining hill on the south, conditions at that point are rather obscured and obliterated on account of the high degree of alteration and metamorphism to which the adjoining rocks have been subjected.

"The assay returns of the samples taken from the Home Group are as follows:

E. A. Jacobs, Assayer, November 14, 1912

No. 1	average ore streak,	inclined shaft	No. 1	0.18 oz.	Au: 6% Cu.
No. 3	" " "	" "	" 3	0.22 "	":6.4% "
No. 2	specimen crysocolla			0.20 "	":12.2% Cu.
No. 4	" "	with chalcocite		0.02 "	":18.3% Cu.

In August 1919, another engineer for our Company made a careful examination of the property and made several maps. A summary of his report is as follows:

Geology "The mine is situated aroundthe sides of a small hill, composed of various flows of andesite with a later granitic intrusion, which appears as granitic veins, or feeders through the andesite tuff covering the top of the hill and as the footwall in one portion of the highest vein or bed. These flows have subsequently been fissured and faulted on the contacts of the various flows and flow planes with some consequent brecciation of the country rock. The mineralizing solutions resulting from the granitic intrusion have followed these openings, making a series of veins or beds, all dipping east at 35 and 45 deg. lying one over the other from 40 to 200-300 feet vertically apart. Approaching the mine by the new road from Aguila station, five distinct veins or beds can be counted, on the lowest of which a large amount of work was done by the old leasing company. The lower veins, whose exposures are the greatest distance from the granitic intrusion contained noticeably much less quartz than the highest beds in the series which make in places an aparent contact with the granitic intrusions. Here the quartz is very predominant and there is a tendency of the bed to widen with a replacement of the overlying andesite over quite wide areas. This bed also appears to contain the highest grade ore.

Ore "The ore occurs as copper oxides and silicates with a little copper glance in a gangue containing quartz and some calcite or in a partially replaced andesite. In the lower veins there is quite a portion of chalcopyrite and bornite with occasional bunches of galena, the mineralization occurring in the partially replaced and brecciated andesites.

"In mining on any scale of consequence, say 1000 tons per month, which is about the amount of ore the property could produce, there might be a drop in the grade, as a certain amount of ore would have to be mined from the lower veins.

"The occurrence is rather spotty and irregular as well as uniformly narrow, resulting in a high cost and low tonnage production. All of the ore mined will have to be sorted and the development ratio will be very low. The highest and lowest beds in the series have been best developed and in checking up the results they have not been found to be particularly encouraging.

Workings "The workings are relatively unimportant and are represented by a series of open cuts, tunnels and short surface shafts, the

highest and lowest beds or veins in the series having been best developed, the ones between having only a few open cuts to show up the ore at various places. The lowest in the series was developed by the old leasing company by a tunnel and shaft and series of small stopes. The showing is inconsiderable, though a small tonnage of high grade ore could probably be extracted by leasing methods and other development. The intermediate beds would probably produce a small tonnage by open cuts.

"The upper bed, which shows some faulting and considerable irregularity, especially in the proximity of the granite intrusion, has several open cuts that could deliver a small tonnage of ore of good grade—5% or better.

"A tunnel driven below the blacksmith shop and connecting with the 100' shaft should prove good development and would probably be the most economical way to open up the ore possibilities on the highest vein or bed.

The property was again brought to our attention in August 1926 and the following is the opinion of the Manager of our Mining Dept. here who had personally examined the mine.

". . . The deposit occupies a mineralized contact between two different andesitic rocks. Contact dips at 15 to 20 degrees from the horizontal and practically passes through the hill in which it occurs. Our survey and sampling indicate a possibility of say 20,000 to 25,000 tons of ore which would average Au. 0.25 oz, Ag. 0.5 oz., Cu. 2.6% with an average width of two and a half feet. This ore is oxidized and the gangue is a mixture of quartz and country rock and is quite aluminous. I do not believe there is any way of milling this material and the likelihood of encountering sulphides is extremely remote, since, as stated above, the deposit practically passes through the hill. The property has been of interest to us on occasions as a limited supply of siliceous ore for fluxing purposes."

The above extracts reflect the opinions of several competent engineers who have looked at the property in past years with the idea of buying the mine to have a source of silica for our smelters operating at Silver Bell and Hayden, Arizona. Since the time these reports were made a considerable amount of ore has been shipped from the Bullard and no more ore has been put in sight. Our company today is not interested in the purchase or operation of this group of mines.

Yours very truly,

BRENT N. RICKARD

Attach to Bullard Lease

For and in consideration of the sum of Five Dollars ($5.00) to me in hand paid, receipt whereof is hereby acknowledged, I hereby sell, assign and transfer to J. BEN ROSS, Trustee, all of my right title and interest in and to that certain agreement captioned "Lease and Option" bearing date August 4th, 1938, by and between R. W. Bullard, party of the first part and R. M. Merrill and Florence A. Merrill, parties of the second part, relating to the lease and purchase of certain mining properties situate in Pierce Mining District, Yavapai County, Arizona, all of which said mining claims are particularly therein described.

This assignment is given subject to that certain agreement between Robert M. Merrill and Florence A. Merrill, parties of the first part and M. Campbell Dan, party of the second part, dated August 31st, 1938, a copy of which is hereby attached.

Dated December 31st, 1938.

(Signed) Robert M. Merrill

Florence A. Merrill

STATE OF ARIZONA, } ss
County of Maricopa }

On this 31st day of December, 1938, before me, John M. Levy, a Notary Public in and for the said county and state, residing therein duly commissioned and sworn, personally appeared Robert M. Merrill and Florence A. Merrill, known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal on the date first above written.

JOHN M. LEVY
Notary Public

My commission expires January 17, 1939

(NOTARIAL SEAL)

Phoenix, Arizona
January 6, 1939.

For and in consideration of the sum of Five Dollars and other valuable consideration to me in hand paid, receipt whereof is hereby acknowledged, I hereby sell, assign and transfer to the Bullard Gold Mines, Inc., all of my right, title and interest in and to that certain agreement captioned "Lease and Option" bearing date 4th of August, 1938, by and between R. W. Bullard, Party of the First Part, and R. M. Merrill and Florence A. Merrill, Parties of the Second Part, relating to the lease and purchase of certain mining properties situate in Pierce Mining District, Yavapai County, Arizona, all of which said mining claims are particularly therein described.

Dated: January 6th, 1939

(Signed) J. Ben Ross, Trustee,

STATE OF ARIZONA,)
) ss.
COUNTY OF MARICOPA)

On this 6th day of January, 1939, before me, Vera G. Bates, a Notary Public in and for the said county and state, residing therein, duly commissioned and sworn, personally appeared J. Ben Ross, known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that they executed the same.

IN WITNESS WHEREOF, Ihave hereunto set my hand and affixed my official seal on the date first above written.

My commission expires May 18th, 1942.

VERA G. BATES
Notary Public

(NOTARIAL SEAL)

January 25, 1943

Bullard Gold Mines, Inc.
Heard Building
Phoenix, Arizona

REPORT ON BULLARD MINE

Gentlemen:

As requested by your officials I have recently reexamined this property with which I have been personally familiar for some years and have obtained maps and data from your office and other sources and I now beg to submit the following report with exhibits.

PROPERTY, LOCATION AND GENERAL CONDITIONS

The property now held by your company under lease from the owner, with option to purchase, consists of twenty-seven (27) patented and one (1) unpatented lode mining claims, about 560 acres, located in the Pierce Mining District, Yavapai County, Arizona. These claims are shown on the map attached as Exhibit A and they are listed in the Lease Agreement.

The main workings are reached by nine miles of good desert road from Aguila, a small town on the Parker Cutoff Branch of the Santa Fe Railroad. The elevation is from 2400 to 2800 feet above sea level and the surface is barren, rough and rocky with very scant vegetation and no timber.

The claims lie on and around Bullard Peak, which is a 300 foot hill south of the eastern end of the Harcuvar Range of Mountains.

Domestic water is obtainable from shallow wells sunk in the washes both north and south of Bullard Peak, but any supply adequate

for milling purposes would have to be secured from wells sunk in the valley south of the claims. It is reported that an ample supply could thus be obtained some four miles from the mine and pumped from a depth of 300 feet below the surface.

The climate, while hot in summer, is entirely suitable for both surface and underground operations at all seasons of the year, the mean annual rainfall is about nine inches, snow is rare but during the winter nights a temperature of five to ten degrees below freezing is fairly common.

In normal times the labor supply is plentiful by reason of the nearness of the property to various other mining districts and the Salt River Valley. All supplies must be hauled from the railroad at Aguila or trucked directly from Phoenix 85 miles distant. No electrical power is available locally, although this condition may change at some future date.

GEOLOGY AND ORE OCCURRENCE

The Harcuvar Range and vicinity are mostly composed of pre-Cambrian granite, gneiss, and schist, with some intrusions of porphyry. At and near to Bullard Peak these are overlain by conglomerate, andesite, tuff, limestone, quartzite and basalt. The various ore bearing veins appear to have been formed in thrust or shear zones in the flows of andesite.

The main or Home Vein lies between two phases of augite-andesite (probably of Tertiary age) some of which closely resembles a basalt. The other veins are mostly found in similar andesite, conglomerate or limestone. A detailed description of some of these is to be found in this report or in the attached exhibits

but many of the veins have been prospected only near to the surface or are developed by old shafts and workings which are not accessible at present.

All of the veins are found in fault or shear zones where the rock has been silicified and in which the ore is associated with a brecchiated gangue of wall rock, quartz, calcite, and hematite and occurs mainly in the form of copper silicate (crysocolla) and to a lesser extent as copper carbonate and oxide while copper and iron sulphide appear to come in as depth is gained. The gold is free but in very fine particles and is associated with the quartz while the character of the small amount of silver does not appear to have been determined.

The ore appears to me to have originally been deposited as a sulphide by circulating solutions during the Tertiary period and later oxidized near the surface and sometimes to a considerable depth.

There is no basis for estimating the character or value of the ore below the present accessible and comparatively shallow workings, but the ore zones appear to continue downward and at greater depth and it is my opinion that copper values will tend to increase and gold values to diminish. This is borne out by the observations of other engineers.

HISTORY

Ore on the claims now comprising this group is said to have been discovered by the late John Bullard in 1868 and many of these claims were staked by him during the next few years when he opened up showings on several different portions of the property. Later

they passed to the Yuma Copper Company which operated quite extensively until about 1890 during which period they carried out a large part of the development work which is shown on the A. S. & R. map of 1913 (Exhibit C) and in other parts of the property. They erected and for a short time operated a small smelting furnace and subsequently a small mill.

After this company relinquished the property it passed back into the hands of John Bullard who held it until the time of his death some seven or eight years ago placing so high a value on the mine that none of the several very responsible companies who sought to do business with him could ever make a satisfactory deal.

On the death of John Bullard his brother Dick became the principal owner and eventually the property was leased in August 1938 to parties who assigned this contract (attached as an Exhibit) to the Bullard Gold Mines, Inc., which has continued to hold possession of the property since that date and has operated and made shipments as noted elsewhere in this report. Unfortunately this company has never been in a financial position to carry out a comprehensive program of development which might have resulted in blocking out a substantial reserve of ore and also would have permitted a consistent and economical production from the ore bodies which are already opened up or partially indicated instead of wastefully gouging out ore from a dozen different showings with inadequate mining and transportation facilities.

I have no record of the old production made by the Yuma Copper Company and John Bullard but I believe that the tonnage probably did not exceed 2500.

In 1919 Abbott and Bryan, leasing on a portion of the property

shipped about 300 tons of ore averaging Au. 0.27 ozs.; Ag. 0.66 ozs.; and Cu. 4.21%.

In 1936, George Long, also leasing, shipped from the north side of the Home Vein 946.45 dry tons averaging Au. 0.996 ozs.; Ag. about 0.5 ozs. and Cu. 3.84%.

Since the Bullard Gold Mines took over their shipments have aggregated 5,762 tons with round figure average of Au. 0.3647 ozs.; Ag. 0.30 ozs. and Cu. 2.25%, and in addition a number of cars of ore of similar grade were shipped by sub-leasers.

The smelter settlement sheets for all of these shipments are on file in the Company's office in Phoenix.

The total production of the mine from 1915 to date may therefore be roughly figured at 7500 tons, which have averaged approximately Au. 0.4 oz.; Ag. 0.3 oz.; Cu. 2.50%.

All of the operators have naturally sought to mine and ship the highest grade of ore that was available and the estimated value of the remaining ore is somewhat lower as may be determined from the attached assay maps and engineer's reports.

PREVIOUS EXAMINATIONS

During the past 50 years this mine has been examined more or less thoroughly by a great many engineers and most of their reports are not now available but I will mention the following of which I have secured complete or partial copies.

E. C. Morris reported on January 10, 1901, described a number of workings and took many samples which appear to have been combined into six large composite samples that averaged about 10% copper and over 0.5 oz. gold per ton. Morris also quotes the

results of samples previously taken as follows: By Burlingame at some time prior to 1890 averaging 1.30 oz. gold and 8% copper.

Another sampling in 1890 averaging 5.5% copper.

By Hanks in 1894 averaging over 2 oz. gold.

By Kelly in 1896 averaging 0.7 oz. gold and by Kelly at a later date averaging about 2.0z. in gold.

Norris concludes his report by saying that he believes that there are "240,000 tons of ore in sight" having an average value of $10.00 per ton with gold valued at $20.67 per oz. and copper selling at about 12¢ per pound.

At some date prior to 1917 the property was examined and portions quite thoroughly sampled by E. W. Durfee who prepared a report with assay map of the Home Group deposits of which a copy is attached as an Exhibit B. Durfee recommended extensive development and concluded that there were 43,700 tons of "positive" ore averaging 0.376 oz. gold and 2.94% copper and 34,100 tons of probable ore of a similar grade.

In October 1912 and again in August 1913, the mine was thoroughly examined by the A. S. & R. Company under direction of Julius Krittschnitt who was assisted by M. Stockder. According to information kindly furnished me by officials of the A. S. & R. Stockder estimated 32,692 tons of probable ore in the Home Vein workings and the average value obtained from his very extensive sampling was gold 0.25 oz., silver 0.50 oz., copper 2.67%; a gross value (neglecting the silver for which no payment would be made) of $17.83 with gold at present price and copper at bonus price of 17¢ per pound. An average analysis of this ore was SiO_2 73.00;

Fe. 6.9%; Al_2O_3 4.6%; CaO 0.6% thus making it suitable for converter flux and highly desirable for any smelter requiring additional silica in their charge. The assay map prepared by the A. S. & R. is attached to this report as an Exhibit.

L. F. S. Holland and W. V. DeCamp, field engineers for the Consolidated Arizona Smelting Company, of which I was then General Manager, visited the property respectively in October 1917 and September, 1919.

Their examinations were largely limited to the Home Group from which a few samples were taken and De Camp estimated that 80,000 tons of ore were partially developed which should average 4% copper and 0.2 oz. gold.

In 1931 the El Tigre Mining Company conducted an examination of the mine under direction of R. T. Mishler, General Manager assisted by two of his engineers, Thompson and J. V. McConnell who took 287 samples and rechecked many of them. They estimated as "very probable ore" in the Home Vein 20,000 tons with average value Au. 0.182; Ag. 0.58 oz. and Cu. 2.23%, while an additional 25,000 tons of similar grade ore was considered as "possible". The gross value of gold and copper in this ore would have been $13.94 per ton at current prices for gold and copper.

At the Quail's Nest workings a less thorough examination disclosed that the vein had a width of 2' to 4' with gold values averaging close to 1. oz. and copper contents lower than in the Home Vein. Not enough development work had been done there to permit any estimate of tonnage.

McConnell's report to the El Tigre Company of which a copy

is attached as an Exhibit was made before his company had conducted the final check sampling which resulted in reducing his estimate of highly probable ore from 25000. to 20000 tons but left the estimated grade unchanged.

In 1942 the A. S. & R. Company conducted another investigation of the property which was made by engineers who paid particular attention to the geology and the chances for developing a very large body of ore at greater depth. These engineers examined only the workings on the two main veins (Home or Bullard Vein and Quail's Nest) and sampled the former where they estimated that 12,000 tons of shipping ore remained to be mined with an approximate average of 0.32 oz. gold, 0.40 oz. silver and 2.70% copper,--gross value of gold and copper $20.38 per ton. This estimate is based on a narrower width of ore than those which others have made and hence shows a smaller tonnage with higher value. They did not consider that the workings at the Quail's Nest permitted any estimate of tonnage and made the same observation in respect to the C Tunnel workings which they judged to be located on a split or branch of the Quail's Nest Vein.

None of the engineers who have recently examined the mine have agreed with the theory of the owners and some others that all or several of the veins would form a junction to the south and east of most of the workings and at a considerable depth below the surface. I also have never been able to find any evidence to support it but further development might lead to a different conclusion.

The most recent work at the mine has consisted in the small

scale operations by the owners and sub-leasers who gouged out ore from sections of the vein along the north face of the Bullard Hill particularly near the west end and in one case put up a raise from an adit tunnel driven on the south side which cut the Home Vein only a short distance from an upper adit and did not serve to block out any additional ore.

My personal visits to the mine began in 1938 and were made at frequent intervals until 1940 and I have again inspected all of the accessible workings during the past week and noted particularly the work which had been done since 1940 by your company and various lessees as a result of which visit I have somewhat revised my previous estimates and conclusions to conform to those which are now embodied in this report.

On many different occasions in the past, offers to purchase or to develop and operate this mine were made to the owners by the companies which caused the examinations to be made but the terms which were asked for a sale or even a long time lease on the mine were so outrageous that no deal resulted until after the death of John Bullard and the execution of the present lease which is enclosed with this report as an Exhibit together with the modification of same effected through the attached Court Order dated July 28, 1942.

DETAILED DESCRIPTION OF PRINCIPAL WORKINGS

Home Vein

These workings are mostly on the Homestake Mining Claim and by far the best picture of them is given by attached exhibit

Briefly the flat-lying vein as exposed on three sides of the Bullard Hill and in the various workings shown on the map has a varying width of 4 to 10' but the pay streak is much narrower and will not average more than 3'. This vein has been developed and mined by gouging into all the exposed faces particularly on the west and north side and since the dip is from 20-25 deg. to the southeast the great proportion of the mined ore has had to be dragged up along the inclines in a most expensive and inefficient manner. The workings which extend for a lengh of some 1700' along the north slope of the hill have however served to permit a pretty thorough sampling of the ore and taken in conjunction with the recorded value of the shipments, at least 80% of which came from this vein, I have no hesitation in approximately confirming values given by the El Tigre Company and the A. S. & R,--some of which have been checked by my own sampling,--and placing it's average content after sorting, at 0.22 oz. gold; 0.5 oz. silver and 2.50% copper, with gross value of gold and copper at present prices amounting to $13.20 per ton. The much higher assays obtained by Morris and Burfee and claimed by Bullard may be attributed to the fact that most of their samples were probably taken in high grade pockets which gave an exaggerated average and many of these showings were subsequently mined by Logan and Bryan and by George Long who gouged out the best ore that they could find.

The tonnage of remaining ore which can now be estimated as probable is obviously difficult to determine since only near to it's very top has the ore body been cut through from north to south but it is logical to assume from the existing exposures and

workings that this ore will extend downward to the line marked on the A. S. & R. map and also that a further extension will be found in the vicinity of the Blacksmith Shaft from which my sample, taken a few days ago, assayed 0.11 oz. gold and 6.00% copper. Such being the case I think it fair to estimate as probable a tonnage of 20,000 tons (which checks fairly close with previous estimates after deducting the ore which has since been mined) and to add as fairly probable or possible ore another 20,000 tons.

QUAIL'S NEST

The Quail's Nest workings (which have never been accurately mapped) are located mainly on the State Claim where a vein of similar character to the Home Vein strikes N. 55deg. E and dips about 30 deg. to the northwest. The work here consists of four shafts having depths of 50 to 100 feet with considerable trenching and gouging on the surface. From the shafts and along the outcrop small stopes served to permit the mining of irregular pockets of the better grade ore to the extent of probably 1500 tons. This ore is more erratic in width and character than that in the Home Group but where mined was generally of higher grade. Some of the car lots shipped had a value of over $30.00 per ton while from the vein on one of the surface pits (which seemed to have been overlooked by the miners) I recently cut a sample over a width of 2.5' which assayed 0.72 ozs. in gold and 6.29% copper. Further development here is very much in order since the remaining tonnage of ore is entirely problematical.

On the Avalanche Claim and about 1200' to the northeast an

extension of this vein or a branch of it was opened up by an adit known as the Bat or C Tunnel which cut the vein and then followed along it's strike for 150 feet some 50 feet down the incline below the outcrop. Above this tunnel the ore has been stoped out to the surface but the drift should be extended to the southwest and the ore, which appears to be good and strong in the floor of the drift, should be followed to greater depth. Here also there is no basis for estimating remaining tonnage.

On the Stonewall Claim near to the smelter site an old shaft was reopened in 1939 and a little very good ore was mined but this work was costly and was soon discontinued. This vein seemed to be roughly parallel to the Home and Quail's nest and is of similar character.

Farther to the west there are some very old workings now inaccessible but showing good looking ore on the dumps and I will particularly mention one shaft (known as the Water Shaft) which is reported to have had a depth of 300 feet and to have encountered sulphides at a depth of some 200 feet. Many specimens of sulphides ore were found on the dump (the only sulphides that I have seen on the property) and some of these which I collected assayed 0.08 oz. gold, 0.7 oz. silver and 6.62% copper in the form of chalcopyrite.

It seems to me very unfortunate that this shaft has not been dewatered since a thorough examination of the ore occurrence might give much valuable information as to the conditions which will probably prevail below the openings in other veins and confirm or disprove the general opinion that the copper values will sub-

stantially increase below the local water level which is about 100 feet below the collar of this shaft.

In none of these outlying workings can there be estimated anything more than possible ore but they very definitely justify further development.

RECOMMENDATIONS

I desire to repeat my recommendation that this property should be systematically developed and properly equipped before operations are resumed. Aside from the higher grade material, the tonnage and value of which has been described, there are areas in all of the veins which carry a lower grade that will not stand direct shipment to a smelter and must be left in place or concentrated on the ground.

I have no doubt that the tonnage of such material is far in excess of that of the shipping ore, and although the best method of metallurgical treatment has not yet been definitely determined, experiments have proved that a fairly high recovery of both gold and copper can be secured by a combination of amalgamation and leaching while the possibilities of other suggested methods have hardly been explored.

It is however first of all essential to further develop both the higher grade of ore which can be shipped direct to a smelter and of the lower grade, the tonnage and value of which can only be guessed at present. The policy of every one of the operators of this mine has been to gouge out and drag out the pockets and lenses of the best ore that was immediately available and to stop such operations as soon as the face of the ore would not pay to

work and since the values at theBullard,--as at most other mines, fluctuate considerably, many of the present exposures of ore represent sections of low grade material which might substantially improve if the drifts, shafts and stopes were advanced a little farther.

To properly develop and mine the main body of ore in the Home Vein it is my opinion that a substantial adit drift should be run in from the south side of the hill from a point near the location of the collar of the incline shaft at the south side of the A. S. & R. map (Exhibit C) and following in a northerly direction approximately parallel to the line which they have designated as the probable boundary of the ore for a distance of some 400 feet. This should serve as a main haulage way into which the ore could be dragged down (instead of up as in past practice) along the slope of the vein.

This adit with a main raise to the surface on the north side of the hill and other raises spaced at appropriate intervals should serve to positively develop all of the ore in this vein lying above and to the west of it and also provide an economical means for removing it from the mine.

The Blacksmith Shaft on the Home Vein should be retimbered and the very promising stope which was recently started on the 60 foot level should be extended downwards and to the west while other showings are very likely to be found when the old workings are cleaned out and made accessible. The deep shaft (Water Shaft) in which the sulphides are reported to have been found certainly should be cleaned and pumped out.

COST OF DEVELOPMENT

The equipment required to carry on this work will consist of a good gas engine driven compressor which should have a capacity in excess of 300 cu. ft. per minute, with air receiver, drills, steel, hose, etc. and the cars, track and piping. Also it will be necessary to do a small amount of road work and to build an ore bin all of which will involve an outlay of approximately $5000. The cost of the main drift with installation of track, timber, chutes, etc. may be liberally figured at $20 per foot, i.e. $8000. and the main raises to the surface and main ore passes will add another $2000.

To properly clean out and timber the Blacksmith Shaft where a serviceable hoist is already installed will cost about $1000 and a similar amount should be allowed to reopen the Water Shaft in which the sulphide ore was found.

All the work above outlined should be done at once and the cost of same is estimated at $17,000 to which $500 should be added for repairs to living accomodations (mainly the old stone house) and $2500 for miscellaneous items and working capital, brining the total to $20,000.

At a later date I hope that it may be possible to provide additional funds for development at the Quail's Nest, C Tunnel and other promising locations but for the present I particularly recommend the work on the Home Vein as above outlined since this should serve to permit the mining of the greater portion of the ore which is now indicated and partially developed amounting to probably 20,000 tons, against which a charge of $1.00 per ton would serve to pepay the initial expense.

WORKING COSTS

After the mine has been properly equipped and the main haulage tunnel and raises driven the cost of actually stoping or mining the developed ore with proper sorting should not exceed $3.50 per ton to which must be added $1.00 for trucking to Railway and $2.50 for Railroad freight to Hayden and $2.50 for smelter toll charges.

Assuming the average content of the sorted ore shipped to a smelter to be 0.22 oz. gold and 2.50% copper with gross value of $16.20 per ton the smelter payment for these metals plus the Government bonus for copper will be $12.70 per ton from which the following estimated costs will have to be paid:

Mining and Sorting	$3.50
Trucking and railway freight	3.50
Smelter toll charge	2.50
General expense (about)	0.50
Royalty to owner (about)	1.00
Total	$11.00

The shipper would thus have a margin of $1.70 per ton from which it should be possible to repay the initial investment of $20,000 at the rate of $1.00 per ton of ore shipped. Assuming that the preparatory work requires a six months period and thereafter that production should be at the rate of 1000 tons per month the repayment should be completed within a little more than two years from the date when this program is started considering only the mining of the very probable ore reserve of 20,000 tons in the Home Vein.

CONCLUSION

As long as the price of gold was fixed at $20.67 per oz.

and with copper selling at 12¢ or less per pound the operation of the Bullard Mine was definitely not attractive. That situation was materially improved when the gold price was lifted to $35.00 per oz. but none the less a reasonable margin of profit from mining and shipping the higher grade of ore has only been made possible through the payment of the 5¢ bonus for newly mined copper.

After the initial investment of $80,000 has been made the Bullard Mine should be in a position to operate steadily and to repay that investment from earnings ~~during~~ and at the same time to produce approximately one million pounds of copper which should be distinctly helpful to the war program. The profit which may eventually be obtained by the operators as well as the permanence of future activity must be largely dependent upon the success of the development program in adding to the present known ore reserve and upon the course of the copper market and other factors which cannot well be forecast at present; however, it appears to me that the partially developed ore reserves fully justify the program which I have outlined and which therefore is definitely recommended.

Yours very truly,

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