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*C. J. M.*Phoenix, Arizona
October 31, 1927.

REPORT ON MINERAL HILL DISTRICT

Mr. T. T. Powers:

At your request I have made an examination of the Mineral Hill Mining District in which you have some sixteen claims. This survey, however, was not made relative to the ore values of the different deposits, as my examination was confined to that of estimating the available tonnage supplementary to the erection and operation of a custom mill in this district, and in particular those claims under your control. It was imperative that the entire basin should be taken into consideration, so I made a survey of all the properties exclusive of your holdings within a radius of a possible mile and a half, or in fact, about five or six square miles.

Beginning on those properties that are possible and probable sources of ore that would furnish tonnage to a custom mill in the district, then a further report embracing the tonnage available on your property.

The Oklahoma Group embraces about twenty claims. The most important of these in my estimation are the SILVER SPRAY and the MALACON. The Silver Spray has a shaft 40 to 50' in depth, width of vein about 4'; outcrops approximately a mile long. Estimated available tonnage on the explored depth Forty-two thousand tons, (42,000). The Malacon 250' deep, vein said to be from four to nine feet wide, and in ore from top to bottom of the shaft. Estimated tonnage available based on 200' deep and 2000' long would be approximately 100,000 tons.

Vein paralleling Silver Spray and Malacon to the east, shaft 100' in depth on $2\frac{1}{2}$ ' vein, said to be gold bearing; estimated tonnage available on 1500' in length about 18,750 tons. Between the ledges there are two other ledges reputed to carry fair values and the veins are very strong which will make available more possible tonnage.

The Last Chance:-- 100' of tunnel in three feet of ore. This vein parallels the porphyry dyke that cuts the district from south to north, laying about one mile west of the fault on the east of the ore basin embraced in this report. There is a possibility of available tonnage of approximately 45,000 tons.

To the north and adjoining the Oklahoma Group are some 30 or more claims, known as the "alta Group." These claims were not visited by the writer, but are more or less extensions of the claims mentioned. These claims, however, are in the district and their ore bodies have been extensively developed, as it is my understanding there have been some \$200,000 expended in the development of these claims, thereby making another possible source of custom mill supply.

ARIBILLO - PROPERTY - Tunnel about 100' on vein, block galena shutes from 20 to 75' apart with a filling of mineralized material, making a splendid milling ore on an average. Another opening on this vein shows good lead silver, carbonates and silicates. No work has been done on the south extension of this vein, however, on the one claim I would estimate an available tonnage of 30,000 tons.

THE BEEHIVE--About 300 yards east of the Arbillo claim is the Beehive, and east of the Beehive about 400 yards is the "Nugget". About one-half mile south of the Nugget is the Lead Hill. These claims, could, no doubt, produce more than 150,000 tons of ore judging from the size and strength of their respective ore bodies in sight. The Nugget and Lead Hill claims herein mentioned, are a portion of the Powers group.

LEAD KING Nos. 1, 2, 3 - A group 4500' in length; showing a splendid strong vein through the three claims. There are openings and some development work done on these ore bodies, which would indicate an available tonnage of some 35,000 to 75,000 tons at a depth of 50'.

McCARTY CLAIMS--embrace a group of three claims. Some ore was shipped to the smelter from these claims; good ore bodies and a possibility of available ore to the extent of 10,000 tons.

BURRO IKE--A claim laying just west and under the mica schist dyke that forms the eastern fault of the entire basin. This claim was in no condition to make an estimate for tonnage. However, it is a good strong vein and outcrop some 2000'. I would judge that this claim would produce equal to any in the district. There are two other veins on this property within 75 to 100' of the main dyke. All are mineralized.

POWERS GROUP

This group comprises some 16 claims. A very considerable amount of development work has been done on this property in the way of tunnels, shafts and opencuts. There are some 1000 to 1200 tons of ores on the various dumps. Also a possible immediate amount of available of that much more. The ore on these dumps are all vein matter and were selected for milling purposes.

LENORA BISHOP - A spur out from the Nugget Claim, carrying gold, silver and copper. The extension to the Lenora Bishop is copper glance, both could make good producers. No tonnage was estimated.

NIL DESPERANDUM--This is the south extension of the Nugget Claim. A probable tonnage in sight of 30,000 to 40,000 tons.

LEAD HILL--Shaft 25 feet, along with several other openings and opencuts. Vein about $2\frac{1}{2}$ ' in width, showing a possible available tonnage of 10,000 tons.

IDA BELLE--Bee shaft about 40' deep; vein 5' wide and 600' long. Gives approximately 8000 tons in sight.

VIOLET M No. 3--This shows outcropping about 3000' in length with 5 spurs ranging from $1\frac{1}{2}$ ' to 3' in width, making available approximately 70,000 tons.

IDA BELLE EXTENSION--Shaft 40' deep with a 6' vein. Estimated tonnage available 30,000. Another opencut on the Ida Belle Extension with a perpendicular face in the quartz would indicate another 10,000 tons available on this ore body. Another opencut on the spar vein indicates a possible available tonnage of 25,200 tons. A gold

bearing vein of quartz parallels this spar vein. This vein is about 3' wide and would produce some 5000 tons of ore. Another vein of a 2' width and a good strong looking lead ore.

Parallel to the Violet M. No. 3 is a strong ledge of Silver and copper about 2' in width. This vein shows a possible 10,000 tons available.

Another spur about 600' long and 4' wide of gold, silver and copper shows a possible tonnage available of about 3000 tons.

Total estimated tonnage available on the Power Group would range from 180,000 to 250,000.

All other claims visited in the district 420,000 tons.

The above estimates were based on ore practically in sight that would be available without further development work. Should the ore bodies extend to any considerable depth there would be a possibility of several millions of tons of ore available. There is every reason to believe that these ore bodies will continue to a depth of 200' or more, as there are shafts on different veins in this basin from 100' to 250' in ore.

The writer's opinion based on the above survey, is that this district is exceptionally good as a possible producer of good milling ore and in many instances would produce shipping ore of a good quality. These higher grade ounces which occur along with the ore in place, practically insures the mine operator as well as the mill operator a continuity of production of a grade of ore satisfactory for milling purposes.

Respectfully submitted,

(Signed) Fred C. Cowan.

PRELIMINARY REPORT ON
MINERAL HILL INVESTMENT ASSOCIATION'S
GROUP OF CLAIMS

PINAL COUNTY

ARIZONA

Fred H. Perkins, Consulting Mining Engineer
Registered Mining Engineer
State of Arizona.

No. 368
No. 918 North Second Street, Phoenix, Arizona

SITUATION:

The 26 Lode Mining Claims this report covers are about 14 miles in a north-easterly direction from Florence, Arizona, a station on the Southern Pacific Railroad and in the Mineral Hill Mining District of Pinal County, Arizona.

When surveyed by the Government these claims will be located in Township 3, South, Range 11 East, Gila and Salt River Base and Meridian Sections 16, 17, 21, 22.

CLAIMS:

The claims comprising these holdings consist of 26 Lode Mining Claims and cover a total area of 520 acres.

CLAIMS: JENNIE CAPTAIN, SAN FRANCISCO, SILVER SPRAY, MALACON, MALABON, MONTGOMERY, DICK GEORGE, BELLE ISLE, BLUE FRONT, NANNIE BARTLES, OLD TIME, IUBA, COPPER REEF, TIP TOP, PHILADELPHIA, STRIP, AUSTRALIA, GOOD ENOUGH, BOONSBORO, GOLD SPRAY, ORIENTAL, INDEPENDENCE, LUCKY STRIKE, ONLY CHANCE, LONG BHANCE, CROSSCUT.

Prospecting for high grade ore production has been carried on for the last 35 years on this ground, there having been several owners during this time.

TITLES: The Titles are held by the performance of annual assessment work. So far as could be determined on the ground there are no adverse claimants. No abstract of title has been made for this report, but an abstract should be made in the future and before much money is spent.

ROADS:

A fair wagon road 14 miles long connects this group of claims and Florence, the nearest supply point. Munns siding, the nearest

railroad point, and is only 1200 yards from the ground and has a daily passenger train service each way. A good highway to within six miles of this property makes the property easily accessible. The hauling costs from Phoenix, would probably be as cheap as hauling from Florence and especially while the hauling is only one way. Carload lots will only require a haul of $3\frac{1}{2}$ to 4 miles haul to the mine and less than a half mile to the mill from Munn's siding on the S. P. R. R.

CLIMATE:

The claims are from 2000 to 3000' above sea level. At this elevation the desert climate is very mild with but three warm months during the year. During these months the weather is not hot enough to interfere with the work and the nights are usually cool. There is no snow in the winter and the average rain fall during the year is about 3". The Climatological conditions are exceptionally favorable and the work need never be interrupted by unfavorable weather.

WOOD AND WATER:

These claims and surrounding area will furnish wood in limited quantities for domestic purposes only. Water furnished by two shallow wells on the ground will take care of the camp needs for the present. The Gila River, south of the property a short distance will furnish all the water the property in its operations will ever need.

LABOR:

The wages for miners has been reduced in some districts in the State, often resulting in strikes and delays, thereby increasing the labor costs. Good steady miners can be obtained and kept satisfied on \$5.00 per day. This price can be used as a basis for estimates of mining costs. After the camp is well established and outfitted, it might be possible to reduce labor costs, but a new camp good wages will have to be paid in order to get competent miners. Muckers, laborers and car men will command \$3.00 to \$4.50 per day.

EQUIPMENT:

With the exception of a few hand tools and living quarters for a very small force of men the property will have to be entirely reoutfitted. The present roads are only in fair shape and before it is necessary to move large loads some work must be done on the road system.

TOPOGRAPHY:

These claims cover an area of about 520 acres on the South-westerly slope of Mineral Mountain and drainage is southerly into the Gila River, about three miles away. There is an approximate difference of 800' in elevation between the highest and lowest points on the property. This area is in the nature of a sloping plain or basin cut by numerous gulches and an occasional small butte standing up 200 or 300' above the surrounding country.

GEOLOGY AND COMMERCIAL CONDITIONS:

Accepting the classification of the general formation as made by Clyde P. Ross of the U. S. G. S. in his Geology of the Lower River Region, the formations are of pre-Cambrian and Paleozoic age and as a whole is called "A basal Complex". The Mineral Hill investment Association's ground parallels and partially covers a width much brecciated zone composed of a liminated formation of granite, gneissic granite, schist, dolomite, lime quartz, quartzite and diorite. This zone is bound on the west with a large body of granite and on the east by schist. The two large principal dikes or veins cut the lime beds northerly and southerly and parallel the granite and schist contacts to this zone, one of an parallel the the granite and schist contacts. (?) One of these dikes stands up, some 100 to 150' high above the surrounding country and dry washes and presents a bold outcrop for a distance, north and south of over 6000' on this group of claims. Several other veins or dikes are strong and continuous and range from 8 to 70' in width with fair values in lead, gold and silver uniformly disseminated throughout the entire width. The outcrop of the large vein shows good values, not only its entire width but for a length of over 6000'. All indica-

tions point to the permanency of ore values for great depths. The large quantities of ore both length and width and because of no overburden can be handled by steam shovel operations. By operating in one or more open cuts no difficulty will be encountered in furnishing ore for a 50 ton plant or even more for a considerable time to come.

DEVELOPMENTS:

The ore body which is 61 feet wide in the Iuba Lode Claim is particularly developed by means of an open cut 28 feet long, 16' deep and 10' wide. At the south end of this deposit is a shaft about 50' deep, bottoming in ore, also a cross tunnel driven across the vein at the wash level. These developments combined expose ore for more than 100' in depth and 61' wide. The above described vein continues on north across the Independence Lode, Oriental, Lode, Across the northeast corner of Tip Top Lode, across Strip Lode, Philadelphia Lode, Australia Lode, Blue Front and Good Enough Lode Claims. Openings consisting of open cuts, tunnels and shafts of varying sizes prove this vein a continuous commercial ore body. On the west side of this group is a large vein or dyke, called the Jones Lead and is continuous across the length of the claims, San Francisco, Silver Spray, Malacon and the Malacon Lode Claims.

A 100' shaft at the extreme south end of the San Francisco Claim shows ore continuously to its bottom, and surface showings indicate a vein from 60 to 70' wide. At or near the south end of the Claim San Francisco is a tunnel driven 60' long in a northwest course partially crosscutting the vein showing ore all the way, but not yet reaching the west limit of the ore body. Surface croppings above the face of this tunnel show the vein to be 70' wide. Two openings on the Silver Spray show good values, and of vein width of about 60'.

A shaft 200' deep on the Malacon Lode Claim. This shaft is fitted with a steam boiler hoist and compressor. The tunnel on this claim 75' long driven parallel with and in the vein on an enrich-

ed seam of steel galena about 2' wide, which gave the surprising value of \$98.00 per ton. A little north of the 200' shaft is a slightly inclined shaft exposing 5' of highgrade ore and still 6' of high grade ore on the foot wall side.

The quantity of mill ore in this inclined shaft indicates that it is at least 50' deep, or perhaps deeper. In addition to the above mentioned openings on the Iuba and Jones veins are numerous open cuts, a shaft 100' deep and a tunnel 75' long, all of which are important in developing a property, but these are all developing a mass of cross breaks of more or less unimportant parallel ledges.

ASSAYS:

No attempt was made by the author to thoroughly sample this property at this time, but sufficient samples were taken across the larger ore bodies where low cost mining operations could be carried on, such as open cut or steam shovel operations. One sample of several tons made up of samples from 20 demps on the property was taken for general purposes. One split sent to Phelps Dodge Co. for them to base a contract on. One split was for concentration, etc.

NAME	WIDTH	LEAD %	GOLD OZ.	SILVER OZ.	CU	ZN.	VALUE PR.T.
Iuba Cut	62'	3.85	0.01	1.08	0.2	5.4	\$12.25
Iuba Cump	28½'	9.8	0.01	0.2			12.45
Lead Hill	8'	10.55	0.02	13.44			21.50
Long Chance	8'	8.00	0.05	1.80	4.19		23.75
San Francis- co	25'	3.8	0.01	0.50			4.46
Silver) Shaft)	20'	6.8	0.02	1.0			9.45
Spray)	14'	5.8	0.01	1.0			8.00
Crosscut Jones							
Lead #1	30"	3.3	0.02	1.0			12.35
" #2	18"	5.0	0.02	2.4	4.5	4.5	8.10
" #3	30"	6.6	0.01	0.2		4.5	13.90
Phelps Dodge							
Avg. 20 samples		10.3	0.02	3.2			15.55
Concentrates from 20 samples 7 to 1		67.40		9.54			88.90

APPROXIMATE COSTS:

Concentrating and Sampling plant (50 tons)	\$22,000.00
Mine Equipment, Complete	11,000.00
Laboratory equipment installed, roads, etc.	2,500.00
Cost reserve operating fund	12,500.00
Total	\$48,000.00

Basing further costs on a simple, gravity flow, 50 ton concentrator and ore whose value as mined is \$12.00 per ton (a safe estimate average.)

Cost of mining and hauling	\$1.50 per ton or	\$75.00
Cost of milling	2.00 " " "	100.00
Cost of shipping and smelting	1.50 " " "	57.50
20% loss of value in Concentrating	2.40 " " "	120.00
Royalties based on net receipts	0.336 " " "	18.30
Depreciation based on 10% net ba.	.33 " " "	16.47
<hr/>		
TOTAL OF COSTS	\$7.746	\$387.27 per day.
Gross value 50 tons ore at	\$12.00	\$600.00 per day.
Total costs less royalties and depreciation		352.50
	Net profit per day	\$247.50
Net profit per year of operation	\$89,000.00	

CONCLUSION:

The prospect of developing a large deposit of commercial ore are more than favorable. The surface indications, the character of the vein and its geologic relations indicate a deep mineralized zone whose values will increase with depth, and whose surface croppings now indicate it to be 6000' or over, long and 20' wide. No change in the character of the ore need be feared with depth, as the final form, sulphides, crop on the surface.

The ore presents no complicated metallurgical or ore dressing problems and even higher extraction of values than 10% should be easily obtained after construction and operations of plant, allowing management to become thoroughly acquainted with the ore. A profit of \$4.94 per ton may be expected after all charges have been made. A half million tons of ore above lowest present workings may be assumed as available, and many times this tonnage available through shaft work.

The price of this mine and the cost of the mill is small considering the extent of the deposit and the uniform value of the ore, and the probability of developing a very large mine operation.

It is unusual to find a mining property that will return profits from the beginning. A large investment ordinarily is required to prospect the ground, and much time consumed. In this case these

problems are already solved and profits may be expected just as soon as milling operations are started. For the reason just given, this group of claims recommends itself as a legitimate mining investment, worthy of expenditures to place it in the dividend earning class of mine operations.

Dated August 1st, 1928, Phoenix, Arizona.

REPORT

To the President and Board of Directors of
PINAL MINING AND MILLING COMPANY
On

Quantities, Location, Values, Metallurgical Analysis, Operation, Etc.
BY F. C. Gowan, Consulting and Metallurgical
Engineer of Phoenix, Arizona

*Not the
Mineral Hill
see Iron Bank*

The 17 Lode Mining Claims this report covers are situated some 18 miles in a northeasterly direction from the town of Florence Arizona, a station on the southern Pacific R. R., and in the Mineral Hill Mining District of Pinal County, Upon the survey of the Government these claims will be located in Township 3 South, Range, 11 East, Gila and Salt River Base Meridian.

DEEDED PROPERTY: Ida Bella, Ida Belle Extension, Violet M. No. 2
Vilote M. No. 3, Violet M. No. 4, Gold Coin, Portland, and Edna B.

OWNERSHIP BY LOCATION: Alabama, Chestatee, Spendthrift, Habersham.

LEASE AND OPTION: Treasurer, Leona Bishop, General, Copper Glance,
Governor. The writer made a general survey of the above claims

and established the lines and corners and had maps made from the notes of such survey. This survey was made, then the claims under the lease and option and five of the deeded claims were grouped into groups of five claims each. The remaining claims were located and the proper labor performed as required by law on such claims. The proper affidavits of such labor having been filed for recording upon the completing of all the work done on the two groups of claims, known as the Colorado Group and the Ida Belle Group.

ROADS:

A good County highway from Florence to the Diversion Dam on the Gila River, a distance of 11 miles and an extra good road for a Mountain Road 7 miles to the property from the Gila River, Munns siding on the Arizona Eastern R. R., is situated some 4 or 5 miles south from these claims. This is your companies loading point for ores and concentrates, The roads from the claims to the R. R. are good and you may expect capacity loads for your trucks.

CLIMATE:

These claims are from 2000' to 3000' above sea level and at this elevation the desert climate is very mild with but three warm months during the summer, however, during these months the weather is not hot enough to interfere with the work and the nights are generally cool. There is no snow and the rainfall during the winter months is about 3 inches. The Climatic conditions are exceptionally favorable and the work need never be interrupted by unfavorable weather.

WOOD AND WATER:

These claims and the surrounding are well furnished for wood for domestic purposes only. Water furnished by shallow wells will take care of camp needs. The Gila River a short distance south of the property will furnish all the water the property will need at any time for operation purposes.

TOPOGRAPHY:

These claims covering some 340 acres on the south eastern slope of Mineral Mountain and with a drainage to the south into the Gila River about 3 miles distance. There is an approximate difference of 400' in elevation between the lowest and highest points on the property.

GEOLOGY AND COMMERCIAL CONDITIONS:

Accepting the classification of the general formation as made by Clyde, P. R. of the U. S. G. S., in his Geology of the lower Gila River Region, the formations are of the Pre-Cambrian and Paleozoic Age and as a whole is called a "Basal Complex."

The Pinal Mining and Milling Companies ground parallels and partially covers a wide, much brecciated zone composed of limonated formation of granite, gneissic, granite schist, dolomite, lime quartz, quartzite, andiorite. This zone is bounded on the southwest and west by a large body of granite and on the east by schist. Several large principal dykes or vein cuts the lime beds northerly and southerly and parallel the granite and schist bedding planes of this zone. A

A birdseye porphyry dyke parallels the veins on the west. All indications point to the permanency of ore values to a great depth. The large quantities of ore both in length and breadth facilitate greatly the economical conditions pertaining to mining and the lower cost of production. The ledges or veins are easily and distinctly traceable, on many of your claims the outcroppings (which is evidence of continuity of vein matter) can be easily seen along the entire length of claims.

GENERAL INFORMATION:

In October, 1927, the author made an examination of the entire Mineral Hill basin with the view of determining quantities of the ores (commercial) of the district, and in particular that portion now comprising the holdings of your company. I will embody herein that portion of the report made at that time, covering the claims your company now owns and controls. This group comprised at that time 16 claims and a very considerable amount of development had been done on this property in the form of tunnels, shafts, and open cuts.

There are some 1000 to 1200 tons of ore on the various dumps, also a possible immediate amount available of that much more. The ores on these dumps are all vein matter and were selected for concentration purposes. At this time the ores on the various dumps and that in sight as indicated by the development work and the outcroppings is estimated at from 180,000 to 250,000 tons. These estimates were based on ore practically in sight that would be available without further development work. Should the ore bodies extend any considerable depth there would be a possibility of several millions tons of ore upon development. There is every reason to believe that these ore bodies will continue to a depth of 200' or more, as there are shafts on different veins in this basin from 100 to 250' in ore. For your further information and in answer to your request I will submit herewith more detailed information pertaining to individual claims and their commercial and physical values. Also will make recommendations as to the procedure of activities whereby your company can convert their large reserves into a commercial enterprise.

CLASSIFICATION OF CLAIMS:

Ida Belle: A shaft 40' in depth shows 5 to 6' of ore in place. A crosscut tunnel driven to contact of the vein shows the vein to be $4\frac{1}{2}$ ' in width. Available ore in sight on this claim exclusive of the spur vein and outcroppings approximately 25,000 tons.

Ida Belle Extension: Shaft 40' DEEP SHOWING a 6' vein, opencuts, shallow shafts and tunnels indicate an approximate tonnage of 40,000 tons. An open cut on a dolomite ledge spar indicates a possible 25,000 tons of ore. A gold bearing quartz vein paralleling the main vein about 3' wide would produce approximately 8,000 tons. Several veins paralleling and crosscutting the main vein ledge indicate good values and range in width from 2 to 3 feet, which would probably produce some 5000 tons of ore/

Violet M. #2. A good strong vein about 2 to 3 feet in width lying to the south of the Ida Belle. Outcroppings are of good values and a tunnel approximately 250' long driven to cross this vein would tap it at about 200' in depth making available approximately 25,000 tons of ore.

Violet M. #3. The outcroppings on this claim are some 1500' in length with 5 spur veins ranging from 18" to 3' in width making available and approximate 80,000 tons of ore. Parallel to this ledge is a strong vein of silver and copper about 2' in width, showing a probable 10,000 tons of ore in sight.

Violet M. #4. Shaft 60' deep on main ledge or vein, approximately 1500' in length and about 3' wide with several spurs off from the main ledge. I should judge there would be a probable 20,000 tons available on this claim.

Chestatee; A good strong $2\frac{1}{2}$ ' vein of good values which would indicate a tonnage of about 5000 tons.

Alabama: Undeveloped, however good indications.

Spendthrift: This claim is worthy of special mention, situated between Violet #3 and 4 is approximately 600' long as indicated by the outcroppings and shows higher values throughout its entire length than any other vein mentioned. This vein has an average

of 3' in width on the surface and of a quality worthy of considerable expenditure in development. Consists of a lime quartz which in the writers opinion will increase materially as depth is obtained. Values are in gold, silver and lead. Approximate tonnage in sight about 7,000 tons.

CLAIMS UNDER LEASE AND OPTION TO PURCHASE:::COLORADO GROUP.

TREASURER: Surface indications along the outcrop for a distance of about 1,500' on the vein ranging from 3 to 5' in width. This claim has one shaft 25' deep, one tunnel some 20 to 25' long, open cuts and other openings showing at least 100' in depth of ore bodies. The tonnage on this claim is quite large and easily accessible and will develop without much preliminary work and probable 35,000 tons of ore.

LEONA BISHOP: Northwest and adjoining the Treasurer on the Northwest end. The same character of ore exists, in fact a continuation of the Treasurer vein and indicates by the outcroppings to be of approximately the same size and of the same value. There should be available on this claim some 25,000 tons of ore.

GENERAL: Situated on the north and adjoining the Leona Bishop. This claim from the outcrop and tunnel indications is the largest dyke or vein in this group. Outcropping some 5 to 8' in width and about 1,000' long. Tunnels on this claim opened up high grade vein matter in some places 18" to 2' wide of very high grade galena, Easily accessible, approximately ore available 40,000 tons.

HABERSHAM: There has been no development of this claim except location and assessment work which shows a good strong vein of fair values. You can depend, however, on a large tonnage of fair values, approximately 20,000 tons.

GOVERNOR: This claim is situated at the west end of the Ida Belle Extension and the same vein or ore body continues through the length of the claim. This is a good strong ledge with approximately 20,000 tons available.

COPPER GLANCE: This claim is more particularly valuable as a camp and mill site, although the ore in the outcrop would indicate that further development would be justifiable.

EDNA B. PORTLAND & GOLD COIN CLAIMS: Are undeveloped except for the assessment work, however, all show good strong veins. The Portland claim has an opening showing a vein from 6 to 10' in width. The Edns B. indicates gold, silver and copper values in a vein about 4' wide. In my opinion and based on considerable study and research work, your company can be reasonably sure of an available tonnage from all the holdings of approximately 250,000 to 400,000 tons. These estimates are based on the ore in place as indicated by the depth of development on each claim by the width and length. In many cases the opening on the claim and ore body is such that ore can be produced in considerable quantities with no further work than that of mining the vein matter.

Your company in my opinion will be justified in building a concentrating plant for the purpose of the treatment of the ores. A plant with a capacity of 50 tons daily capacity, would not be too large so far as the immediate ore supply is concerned, however, as I have previously advised and recommended that you equip the property with a small mill as a pilot to your future needs and problems. The water supply at the mines is sufficient for the operation of a ten ton concentrator and it is advisable to continue along the same lines of procedure as that of the past few months. The few months of your company's activities have accomplished much toward the completion of the plant. Your camp is in excellent condition with a large house fully equipped and concrete floors. The improvement of the water supply and the several miles of good roads constructed during the summer. The improvement of the camp and the roads are quite important especially the roads constructed to the different claims and ore dumps.

There has been a good start made toward the erection of a ten ton concentrator. Now installed is a good pulverizing mill, concentrating table, foundations for crushing machinery, tanks, ore

bins, etc., also improvement to the water supply. The additional ore mined during the past few months brings the total milling ores on the dumps to approximately 2500 tons. As a whole you have made a very business like and economical expenditure of the funds at your disposal.

My recommendation is, that you complete the concentrator at the earliest possible time and get into operation. The total cost of this plant will approximately be \$4,500.00 and as you have now expended about \$1500 on equipment installed, your further needs will be some \$3,000.00 for completion of the plant. You will need an additional amount of from \$3500 to \$4,000 for operating expenses covering a period of from 60 to 90 days. I will outline in a separate report fully the plan of construction and operation coupled with recommendations as to the locations and advantage points of producing ores with which to supply the mill.

It cannot be expected that a mill of small capacity could produce the profits per ton of ore treated that a larger capacity would, however, in making the estimate of cost of operation based on a slightly higher grade of ores of which you have considerable quantities easily available your profits will be quite attractive as the following tabulation of costs will indicate.

Ores delivered to mill, avg. assay	\$16.00 per ton--10 tons	\$160.00	
Extraction of values 85% net Gross	\$136.00		
Supt. and incidentals	--\$14.00		
Power	6.00	Concentrates-	
Mill labor	12.00	Bags and loading	\$2.50
Hauling	10.00	Freight	4.40
Mining	20.00	Smelter charges	6.50
Royalties	5.96	Sintering & penalties	3.00
Depreciation	1.00		<u>\$16.40</u>
CRUDE ORE	<u>\$668.96</u>	Net Gross	\$136.00
CONCENTRATES	<u>16.40</u>	Cost	85.36
	<u>\$ 85.36</u>	Net Gain	\$ 50.64 per day

By F. C. Cowan
 Consulting and Metallurgical Eng.
 Phoenix, Arizona.

Forwarded

July 10, 1942

Mr. Frank A. Ayer
Assistant Chief, Copper Branch
War Production Board
Washington, D. C.

Dear Mr. Ayer:

This will acknowledge yours of June 24th, your file 4H-FAA. Also yours without date, mailed on July 8th, your file 4H-MGB.

From the second letter I note that you have in your possession an assay map of the 5th and 6th levels of the Mineral Hill Mine near Twin Buttes and that you do not believe that this property warrants the construction of an independent mill. I personally have never seen any of the assay maps of the Mineral Hill Mine but merely quoted the statement which was supposed to embody the conclusions of Mr. Minard's report to the owners.

The plan of operating both the Twin Butte Mines and the Mineral Hill property, together with some others in that vicinity, and treating the ore in a central mill is one to which I have given careful consideration but lacking complete information on the Mineral Hill, which apparently contains the largest reserve of milling ore in that district, did not seem likely that private capital would be attracted to such a procedure. There is probably a large reserve of fairly good grade ore in the old mines of the Twin Butte Company but the bulk of this is oxidized and it is not suitable for flotation concentration. The resumption of active work at Twin Buttes has been handicapped by certain contracts and leasing agreements into which the company had previously entered with local parties and the efforts which have been made to straighten out this situation and revise the contracts so as to encourage a resumption of work have so far made but little progress. Perhaps the situation will change in the near future, and if so I will certainly do my best to work out some program which might include the Mineral Hill if the condition of that mine can be determined and is found to be satisfactory.

I do not believe that there is anything which your board could do to assist in the resumption of work at the Blue Bell and De Soto Mines concerning which I believe you have had some correspondence with the Ohio Copper Company of Utah, who are interested with me in the ownership of these properties. The present litigation involves the title to the mines and although we won a decision in the lower court the case has been appealed to the Supreme Court of Arizona from whom we shall earnestly hope to obtain a favorable decision during the present month but it may be that no decision will be handed down until after the summer recess which will involve marking time until October or November of this year.

Mr. Ayer-2
War Production Board

I am glad to note that you have been investigating the mining properties of which I sent you a list on June 9th and I fully agree with you that caution must be exercised in encouraging all new operations which at present are particularly handicapped by the difficulty of securing competent labor at rates which will permit a profitable operation. Most of the equipment which would be required can be secured second-hand and locally although that might not be true in the case of some of the larger properties.

I shall keep you advised of any new developments of interest.

Yours very truly,

GMC:CG

We are sorry that you are receiving this letter late,
It was sent Air Mail, but due to failure of Mail Room
to place Air Mail stamps thereon was returned to us.

FAA

WAR PRODUCTION BOARD

WASHINGTON, D. C.

A 7/10/42

IN REPLY REFER TO:

4H MJE

AIR MAIL

Mr. George M. Colvocoresses
Mining and Metallurgical Engineer
1102 Luhrs Building
Phoenix, Arizona

Dear Mr. Colvocoresses:

This is in reply to your letter of June 25, relative to the Mineral Hill Mine.

We have received a copy of your letter to Mr. Reeser of the Barnsdall Oil Company and his reply. We have not written to Mr. Reeser but we have an assay map of the fifth and sixth levels of the Mineral Hill Mine. From a study of this map we have concluded that while it is possible to produce some ore from these levels, it is doubtful whether an independent mill operation is warranted. From a previous letter we inferred that you had in mind that possibly Mineral Hill could be operated in conjunction with the Twin Buttes Mine. A centrally located mill might serve several mines. We would be glad to hear from you in respect to this.

In your letter of June 9 we note that you say when pending current litigation regarding title to the Blue Bell and De Soto Mines is terminated, private capital will probably operate them. If there is anything we can do in regard to this matter, please advise us.

Of the sixteen copper mines on your lists we have already contacted the owners of a number of them and we will write to several of the others.

With the present shortage of equipment and material of almost every kind and especially due to the shortage of labor, we believe caution should be observed in starting new projects. We, therefore, have to be certain before recommending that labor and critical materials be used on any property, that we have definite proof of the existence of sufficient ore. We have also to be sure that it can be brought into production at an early date.

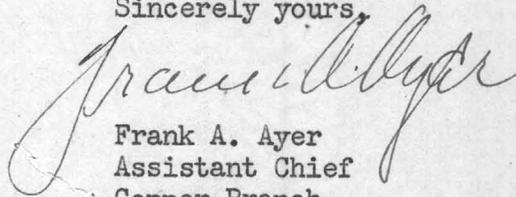
FOR DEFENSE



BUY
UNITED
STATES
SAVINGS
BONDS
AND STAMPS

We appreciate your letters and suggestions and shall look forward to receiving any further suggestions whereby the production of copper may be increased.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Frank A. Ayer". The signature is written in dark ink and is positioned to the right of the typed name.

Frank A. Ayer
Assistant Chief
Copper Branch

Mineral Hill
Senate Hotel
Washington, D. C.
July 8, 1942

Frank Butler file

Mr. George M. Colvocoresses
Luhr Tower
Phoenix, Arizona

Dear Mr. Colvocoresses:

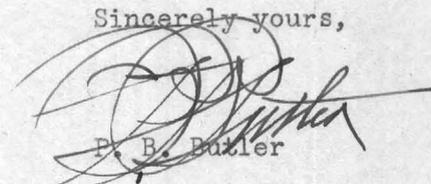
I have received your letter regarding the zinc property and will discuss the same with our Chiefs, Mr. George C. Heikes and Mr. W. C. Page, and will write you their reaction.

The fact that the mine has to be unwatered, is against the chances of getting a loan because no loans are made by the Reconstruction Finance Corporation that may be used for unwatering a property.

I will be on my way West very shortly, I expect, and will see Mr. Reeser when I am in Tulsa. At this time I will discuss the Mineral Hill and Plume Knight properties and will in turn let you know about them. It may even be I may pass through Phoenix when out West and if so, I will see you.

With best regards.

Sincerely yours,


P. B. Butler

Government File

June 25, 1942

Mr. Frank A. Ayer, Assistant Chief
Copper Branch
War Production Board
Washington, D. C.

Re: Mineral Hill

Dear Mr. Ayer:

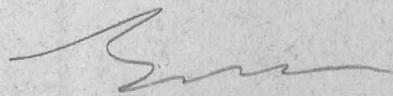
I have delayed replying to your letter of June 8th on the above subject, your file 4H-MJE, hoping to be in a position to say something definite regarding the Mineral Hill Mine which was the subject of your previous letter, particularly my letter to you of June 3rd.

I enclose a copy of Mr. Reeser's letter to me of June 9th and my reply of June 12th and to date I have had no further response from Mr. Reeser so that I must assume that either he does not possess a copy of Mr. Minard's report on this mine or that he does not care to send me this report.

If the Minard' report is as detailed as I assume it must have been and contains data which would confirm the general estimate of tonnage and grade of ore developed I do not think that I should have any great difficulty in persuading my own clients to undertake the reopening and operating of this property under a lease with option to purchase from the owners but I have no personal knowledge concerning the underground conditions in the mine and although several parties have informed me that the reserves of ore are approximately as estimated by Minard it would obviously be unlikely that any private capital would engage in this enterprise and I should not care to recommend such a procedure.

Let me suggest that you may perhaps have better luck than I in obtaining the desired information by writing directly to Mr. Reeser for I cannot assume that there is any good reason why his company should wish to continue to hold an abandoned and dismantled copper mine at this time when the production would be so valuable to the government and should be reasonably profitable to the operators.

Yours very truly,



WAR PRODUCTION BOARD

WASHINGTON, D. C.

June 8, 1942

A. 6/25/42

IN REPLY REFER TO:

AIR MAIL

4H MJE

Mr. George M. Colvocoresses
Mining & Metallurgical Engineer
1102 Luhrs Tower
Phoenix, Arizona

Dear Mr. Colvocoresses:

This is in reply to your letter of June 3, relative to the Mineral Hill property in the Twin Buttes District.

We note with interest that the Twin Buttes Company is considering the reopening of their mines and that there is a possibility that the Mineral Hill property might also be worked under lease or otherwise in conjunction with the Twin Buttes.

We think that such a combination might be the best solution and, therefore, we are not writing to Mr. Reiser, President of the Barndall Oil Company until you have heard from him relative to your request for the report on the property.

We will be glad to give prompt consideration to any proposal that you may be able to work out for bringing any or all of these properties into production.

We thank you for your letter.

Very truly yours,

Frank A. Ayer
Frank A. Ayer
Assistant Chief
Copper Branch

FOR DEFENSE



BUY
UNITED
STATES
SAVINGS
BONDS
AND STAMPS

June 12, 1942

John Butler files

Mr. E. B. Reeser, President
Barnsdall Oil Company
Petroleum Building
Tulsa, Oklahoma

Re: Mineral Hill

Dear Sir:

I have received your letter of June 9th and note that you did not object to my having mentioned the Mineral Hill to the War Production Board who are extremely anxious to assist in every possible way in increasing the present output of copper which is so badly needed for carrying on the war.

In the last paragraph of your letter you state that there is an absence of reliable information concerning the mine but in writing you previously I had assumed that a complete copy of Mr. Minard's report together with assay maps etc. would have been preserved either by Mr. Minard or in the files of your company. If it were possible to forward to me a copy of this report with maps and full details I feel that negotiations might be carried on with every prospect of a successful conclusion but lacking such detailed information it is hardly likely that either the War Production Board or private capital would care to consider reopening and operating either under lease or after purchase.

At my request Mr. Percy B. Butler wrote ^{you} in respect to the maps and data on June 1st and I sincerely hope that further information may be forthcoming in the near future.

Yours very truly,

John C

GMC:CG

BARNSDALL OIL COMPANY

PETROLEUM BUILDING

TULSA, OKLA.

E. B. REESER
PRESIDENT



June 9, 1942.

Mineral Hill
A 6/12
'42

copy

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

Dear Sir:-

We note what you say in your letter of the 3rd with reference to Mineral Hill. We have no objection to your having referred the subject to the Bureau of Mines and I might say that we have had a letter from the Tucson Branch of the Bureau of Mines.

The time seems ripe for doing something in connection with this property but because of the absence of reliable information, it will be difficult to bring any negotiations to a conclusion.

Yours truly,

President.

Copy

Senate Hotel,
Washington, D.C.
June 1st. 1942.

Re Mineral Hill

E. B. Reeser, Pres.,
Barnsdall Oil Co.,
Tulsa, Okla.

Dear Ed,

I have just received a letter from Mr. George M. Colvocoresses, a well known mining engineer at Phoenix, Ariz., who writes he is interested in the Mineral Hill property south of Tucson and the Plumed Knight-Johnny Bull claims at Chloride, Ariz.

If you have any intention of disposing of these properties, I can recommend Mr. Colvocoresses as a very sound person to handle them. From the standpoint of the economic conditions surrounding copper, zinc and lead properties, I believe it to be a good time to do something with them,---the government of course is anxious that they be brought into production and is willing to assist in their rehabilitation.

Mr. Colvocoresses expresses a desire to study the maps and data on these two mines and I am sure that if you permitted him look over what you have, it would be in good hands.

H aven't heard from Jobbin yet but will advise as soon as I do. Regards,

Sincerely,



P. B. Butler.

*S.M.C. —
This may help.*



June 3, 1942

Mr. E. B. Reeser, President
Barnsdall Oil Company
Petroleum Building
Tulsa, Oklahoma

*Twin Buttes
file*

Re: Mineral Hill

Dear Sir:

Further reference to previous correspondence, I took the liberty on May 26th to write to the chief of the copper branch of the War Production Board in Washington mentioning the possibilities of producing considerable copper ore from your Mineral Hill Mine. I did this in reply to his request that I should suggest ways and means of increasing the local production of copper during the present war emergency but as I did not mention your mine by name and merely gave a general outline of its possibilities I have today received a telegram of which copy is enclosed requesting further details and I herewith attach a copy of the letter which I am writing to Mr. King.

I hope that you will not feel that I have been butting into a situation with which I have no actual concern and my first approach to you in my letter of May 11th was made entirely on behalf of the Twin Buttes Company but after looking over your property it appeared to me that there would be little reason for a combination between the Twin Buttes and the Mineral Hill since the ores will require an entirely different type of metallurgical treatment and I felt that the opportunity for producing copper under present conditions should be called to the attention of our War Production Board to whom I have suggested that several mines of this type might actually be taken over by the Federal government under lease and equipped and operated during the emergency with payment of the usual royalty to the mine owners.

Yours very truly,

J. M. King

Twin Buttes file

May 27, 1942

Mr. Percy B. Butler
Senate Hotel
Washington, D. C.

Re Mineral Hill

Dear Mr. Butler:

I was pleased to receive your letter of February 3rd which has long lain unanswered in my desk. It is good to know that you are doing such active work with the War Production Board and it seems as if a very large percentage of mining engineers had already gravitated in that direction.

I hope that you may be able to work out the program for reopening the zinc mines in the vicinity of Good Springs, Nevada, concerning which we have corresponded and I should think that a method of concentrating this ore could be worked out and made reasonably profitable as long as the bonus price of zinc is maintained by the government and in operations of that nature the government will certainly have to take a hand and offer some financial assistance since private capital cannot be expected to engage in enterprises from which little or no profit is likely to accrue. It happens that I have been in correspondence with Mr. King of the Copper Branch of the W. P. B. and on this point and I hope that the government's policy may be liberalized and carried on in a more energetic manner in the future.

I was reminded of you and of your relative, Mr. Minard, a few days ago when I was examining some copper properties belonging to the Twin Buttes Mining Company and located 30 miles south of Tucson. Close to these mines are the old workings of the Mineral Hill which belongs to the Barnsdall Corporation and of which, I believe, that you are or were a director and in an old report made by that company to its stockholders I found a statement to the effect that Mr. Minard reported in 1918 that 500,000 tons of 3% ore were then developed in the mine and he recommended the ~~prompt~~ construction of a 500 ton mill which doubtless was not built because of the prompt cessation of the first World War and the subsequent collapse of the copper market.

I wrote to E. B. Reeser, the president of the Barnsdall Company at Tulsa, Oklahoma, and learned that the Mineral Hill and Plumed Knight groups of mining claims were open for negotiations and I subsequently looked over the surface of this property and could gather very little concerning the conditions underground as none of the shafts can now be entered.

I am writing again to Mr. Reeser requesting that if possible he send me a copy of Mr. Minard's report with assay maps, etc. and I hope that he will comply with this request since it would be very advantageous to the Twin Buttes Company or others who might reopen their mines to

2-Mr. Butler

take over and operate the Mineral Hill provided that the ore in that mine can be worked with some margin of profit under present conditions.

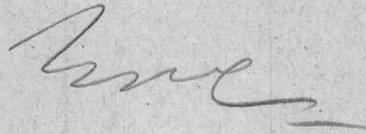
Since I am entirely unknown to Mr. Reeser it has occurred to me that perhaps you could be of some assistance in procuring a copy of this report either from the Barandall Company or from Mr. Minard and I should arrange to have the same copied in my office and return the original after a very short delay.

It is just such mines as the Mineral Hill and perhaps some of the Twin Buttes properties which should now be put into operation without delay in order to increase the output of copper while it is so badly needed for the prosecution of the war.

I am sure that you are having a pleasant if somewhat strenuous stay in Washington and trust that you will remember me to any mutual friends whom you may meet in that city. I quite often see E. D. Morton and Douglas Corner who is now living in Mayer but plans to reopen the old Crown King Mines which I fear may be a pretty big task.

Personal regards.

Sincerely,

A handwritten signature in dark ink, appearing to be 'W. C. C.', written in a cursive style.

GEG:CG

Senate Hotel,
Washington, D.C.,
February 3rd. 1942.

A. 5/27 '42

Mr. George M. Colvocoresses,
1102 Luhr Tower,
Phoenix, Ariz.

Dear Mr. Colvocoresses,

I am here in Washington with the WPB (ex OPM) in the Zinc Branch of the Materials Division, in the Production section, but my associate is working up the zinc project mentioned to you, with a syndicate of clients in New York. This project is a rather involved situation and is being made more so by others who have been attracted by the recent prominence given copper, zinc and lead. The crux of the matter, or project, is the difficulty in devising a means of concentration, and the very large plant expense even though it be of moderate tonnage. I rather discount the possibility of the large companies being interested in view of the above. I of course know them all, especially the zinc companies, and the opposition one encounters in presenting to them methods which are far from standard practice, is quite discouraging. I have discussed this with most of them recently (I see most of them here from day to day) but am unable to see matters eye to eye with them.

Thank you for your offer of assistance and if I am stymied with those I have now interested, I would be highly pleased to discuss the matter further with you.

With warmest regards, I am,

Sincerely,



P.B. Butler

May 27, 1942

Mr. E. B. Reeser, President
Barnsdall Oil Company
Petroleum Building
Tulsa, Oklahoma

Re: Mineral Hill

Dear Sir:

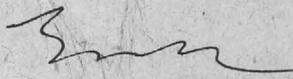
Thank you for your letter of May 14th replying to mine of the 11th and giving me information concerning the Mineral Hill and Plumed Knight groups of mining claims.

In line with the permission granted in the last paragraph of your letter, I inspected the surface of portions of these claims last week but none of the shafts were in a condition to be entered so that I can form no opinion concerning the underground workings.

The report made to your company by F. H. Minard in 1918 to which I referred in my letter of May 11th, was merely an extract of the conclusion of his complete report. This was printed in your company's report to its stockholders for 1918 or 1919 and merely consisted of a paragraph setting forth the tonnage and values of the ore and recommending the construction of a concentrating mill. This was evidently the gist or conclusions of the complete report which Mr. Minard prepared for the Barnsdall Company and if it is at all possible for me to secure a copy of the complete report with assay maps, etc. I should greatly like to do so.

Lacking such detailed information, it is naturally impossible to form any conclusions concerning the value of the Mineral Hill Mine or to make any recommendations to the Twin Buttes Company in regard to negotiating for same but it is obvious that if fairly extensive mining operations are now to be undertaken in the Twin Buttes district the Mineral Hill might be a valuable asset and I wish to be in a position to do some figuring in that respect.

Yours very truly,



GMC:CG

BARNSDALL OIL COMPANY

PETROLEUM BUILDING

TULSA, OKLA.

May 14, 1942

E. B. REESER
PRESIDENT



A $\frac{57}{27}$
42

Mr. George M. Colvocoresses,
Mining and Metallurgical Engineer,
1102 Luhrs Tower,
Phoenix, Arizona.

Mineral Hill

Dear Sir:-

We have your favor of the 11th inst. and in reply, beg to suggest that our Mineral Hill properties, including the Plumed Knight Group, are open for negotiation. We have received several requests for information in connection with these properties but no option is outstanding at this time. If the Twin Buttes property is placed in operation, Mineral Hill would fit into the picture very nicely.

Unfortunately, we do not have much information. The property has been gouged and robbed at different times, about which we know very little.

The report by F. H. Minard, to which you refer, is probably as accurate as anything that can be secured.

You are hereby granted permission to inspect the surface and such workings of the property as are now accessible. This privilege is subject to revocation on twenty-four hours' notice.

Asst of Mr. Reeser

Yours truly,

President.

Twin Butte file

May 11, 1942

Mr. E. B. Heeser, President
Barnsdall Corporation
Petroleum Building
Tulsa, Oklahoma

Mineral Hill

Dear Sir:

I am at present engaged in making an examination of the properties of the Twin Buttes Mining and Smelting Company located near Twin Buttes, Arizona.

In this connection I am anxious to obtain some information, if possible, concerning the Mineral Hill Mine (including the Plumed Knight Group of mining claims) which is located a short distance north of the Twin Buttes Mines. Should the Twin Buttes Company or other parties associated with them decide to reopen their mines and to construct a mill in this locality it would obviously be quite important for them to be in a position to either operate some of the other mines in their vicinity or to purchase the ores from these mines on a custom basis.

I understand that your corporation owns or controls the Mineral Hill properties and I have seen a report by F. H. Minard written to your company in 1918 and stating that at one time there was approximately five hundred thousand tons of ore containing 3 to 4% copper which would be very suitable for milling.

If the present policy of your company would favor negotiations for lease or purchase of this property I would be greatly obliged for some further and more detailed information concerning the Mineral Hill and also permission to inspect the surface and such workings of this property as are now accessible.

Trusting to hear from you at your earliest convenience.

I remain

Yours very truly,



Mineral Hill (Pinal County)

Note by G. M. Colvocoresses

March 1938

I have no personal knowledge concerning this property nor concerning the men who made the reports which seem to have been left in my office some years ago but were not put in the mines file.

Judging by the small amount of development work it would appear that Cowans' estimates of tonnage may be greatly exaggerated and unless I am mistaken he is the same man who wrote some entirely worthless accounts of placer gold in Dakota which were given some publicity during the last two years. Apparently he no longer lives in Phoenix.

According to Cowans' and Perkins samples some of the outcrops carry good values in lead and it would probably be worth while to obtain such further data as could be obtained by a preliminary inspection of the surface and accessible workings.

G.M.C.

No.	Ag. ozs.	Au ozs.	Pb.	Total Values	Values
1	3.2	tr.	10.3	\$16.21	Heads-20 samples several claims
2	10.5	.04	63.4	95.30	Concts. Composite samp. Chas. Diehl
3	9.51	tr.	67.4	99.54	Concts. same sample Phelps Dodge
Note--About 20 samples taken from the above from Ida Belle & Ida Bell Ext. Ratio about 7.5 tons to 1 - Indicated extraction 35.3%.					
4	Sample taken from 6' vein matter Ida Belle			Value per ton	\$18.75
5	38.8	.02	64.3	\$114.80	Concts. ratio 6.5-1, ext. 94.2% by Diehl
6	1.88	.01	9.0	12.60	Ida Belle Extns. ore dump
7	5.6	.04	20.0	28.07	4' vein on Ida Belle Ext.
8	1.8	.14	4.0	9.40	From top of Ridge, Ida Belle Ex.
9	1.1	.01	4.4	6.98	" " " " " " "
10	1.9	.04	15.4	23.42	Composite from Ida. B & I.B. Ex.
11.	1.2	.06	14.0	19.60	" " " " Ext.
12	3.3	.03	15.2	21.28	Ida B. Ext. by J. K. Lewis
13	36.7	.05	60.58	106.35	" " " Concts. Ratio 9 - 1.
14	3.35	.05	2.78	6.95	" " " J. K. Lewis
15	1.1	.01	4.4	6.98	" " " by J. T. Powers.
16	12.5	.06	46.6	65.24	At Portal of tunnel. High grade T.
17	9.4	.18	43.55	60.97	Ida Bell dump at shaft by T.T.P.
18	4.0	.04	4.1	8.78	" " " tunnel by T.T.P.
19	4.3	.03	5.13	10.18	" " " " " "
20	3.8	.04	6.3	11.74	Samples taken on ridge of I.B.
21	8.0	.06	3.75	10.93	Ext. sampled by miners 10"
22	3.85	.18	4.25	10.45	
23	4.0	.16	6.8	14.96	
24	12.75	.11	3.1	13.97	Unidentified
25	4.0	.01	15.9	24.60	Composite from I.B.&I.B. Ext.
Note #25 is sample submitted to Exten. Lead Mill outcrops Ida Belle to Samples by T. T. Powers					
26	3.44	tr.	9.5	15.22	Sample by Cownat to be concentrate
27	13.44	.02	10.55	22.70	44" vein on Leona Bisho. Shanefit
28	39.58	.42	56.1	109.34	Concts. from #26, Tails--\$.93
29	.20	.02	3.3	5.12	From joining property Veins
30	2.40	.02	5.0	8.74	" " " 20' veins.
31	Check on #30		6.6	9.24	Led from S. F. 20' Cowan

Average of all mine run samples \$13.83
 Average from 12 samples taken from Ida Belle Extension as mine run 13.54)
 Ida Belle, 3 runs of mine average 13.24) Avg. from mine vein \$16.50
 Leona Bishop, one sample run of mine 22.70)

Average value of all concentrate samples from five experimentations from average composites. 105.70 average ratio
 of concentration about 8 to 1, Composite samples taken for concentration tests, 19.21
 Extraction indicated 82.5%, one extraction as low as 53%, evidently not carefully manipulated, two ave. extraction, 86% and one 94.2% another 96.3%.

The average of the high grade taken and not figured in with the average is \$63.10.

NOTE FOR MINE FILE

June 11, 1942

MINERAL HILL OR MINERAL MOUNTAIN

Pinal County

Alta Group and Vicinity

Group of Claims owned mostly by Alex Hamilton and two or three claims owned by McMechan of Los Angeles, both of whom called. Trying to get Government loan for development.

Claims include: Juno, Carbonate Azurite, Silverado, Black Copper and others all patented. Adjoin Oklahoma Group which lies east of them.

Several car loads shipped from workings to El Paso and Hayden. Average about 3% copper and 0.10 oz. gold with 1.00 to 4.00 silver. All oxidized ore and one car load carried:

SiO ₂	42.3%
Fe	24.00
S	trace

Shafts (2) now full of water and only accessible workings are a number of surface pits and two long adit tunnels in hill side in which it is claimed that veins can be seen and sampled.

Shannon Copper Company had option during World War but dropped it after sinking one of the shafts and cross-cutting to a vein which was only 18" wide and carried about 10% copper.

Showings are not likely to be as attractive as claimed by owners although Muter (Engineer) advised spending \$130,000 for development etc. and there is a favorable report on the geology made in 1906..

(Put in Twin Buttes file)

H. L. Carr, Engineer who examined the mine, says that it contains only isolated and comparatively small bunches of 2%, 3% and 4% copper ore which could not be mined with profit except with very high price for copper. All the mineralized area was thoroughly prospected with very poor results.

Rickard is convinced that the mine is worthless and says that Minard was never willing to confirm the statements which were attributed to him in the report of the ^{h.s.} Barrisdall Corp.

I exam surface in May 42,
large dumps & find extensive workings
but could form no opinion as all
shafts closed

See 48

Allison Co. is investigating

COPY

Copied M.T.

PRELIMINARY REPORT ON
MINERAL HILL INVESTMENT ASSOCIATION'S
GROUP OF CLAIMS.

PINAL COUNTY

ARIZONA

FRED H. PERKINS**CONSULTING MINING ENGINEER
REGISTERED MINING ENGINEER, STATE OF ARIZONA

No. 368.

No. 918 North Second Street, Phoenix, Arizona

SITUATION:

The 26 Lode Mining Claims this report covers are about 14 miles in a north-easterly direction from Florence, Arizona, a station on the Southern Pacific Railroad and in the Mineral Hill Mining District of Pinal County, Arizona.

When surveyed by the Government these claims will be located in Township 3, South, Range 11 East, Gila and Salt River Base and Meridian Sections 16, 17, 21, 22.

CLAIMS: The claims comprising these holdings consist of 26 Lode Mining claims and cover a total area of 520 acres.

CLAIMS: JENNIE CAPTAIN, SAN FRANCISCO, SILVER SPRAY, MALACON, MALABON, MONTGOMERY, DICK GEORGE, BELLE ISLE, BLUE FRONT, NANNIE BARTLES, OLD TIME, IUBA, COPPER REEF, TIP TOP, PHILADELPHIA, STRIP, AUSTRALIA, GOOD ENOUGH, BOONSBORO, GOLD SPRAY, ORIENTAL, INDEPENDENCE, LUCKY STRIKE ONLY CHANCE, LONG CHANCE, CROSSCUT.

Prospecting for high grade ore production has been carried on for the last 35 years on this ground, there having been several owners during this time.

TITLES: The titles are held by the performance of annual assessment work. So far as could be determined on the ground there are no adverse claimants. No abstract of title has been made for this report, but an abstract should be made in the future and before much money is spent.

ROADS: A fair wagon road 14 miles long connects this group of claims and Florence, the nearest supply point. Munns siding, the nearest railroad point, and is only 1200 yards from the ground and has a daily passenger train service each way. A good highway to within six miles of this property makes the property easily accessible. The hauling costs from Phoenix, would probably be as cheap as hauling from Florence and especially while the hauling is only one way. Carload lots will only require a haul of $3\frac{1}{2}$ to 4 miles haul to the mine and less than a half mile to the mill from Munn's siding on the S. P. R. R.

CLIMATE: The claims are from 2000 to 3000' above sea level. At this elevation the desert climate is very mild with but three warm months during the year. During these months the weather is not hot enough

interfere with the work and the nights are usually cool. There is no snow in the winter and the average rain fall during the year is about 3". The Climatological conditions are exceptionally favorable and the work need never be interrupted by unfavorable weather.

WOOD AND WATER: These claims and surrounding area will furnish wood in limited quantities for domestic purposes only. Water furnished by two shallow wells on the ground will take care of the camp needs for the present. The Gila River, south of the property a short distance will furnish all the water the property in its operations will ever need.

LABOR: The wages for miners has been reduced in some districts in the State, often resulting in strikes and delays, thereby increasing the labor costs. Good steady miners can be obtained and kept satisfied on \$5.00 per day. This price can be used as a basis for estimates of mining costs. After the camp is well established and outfitted, it might be possible to reduce labor costs, but a new camp good wages will have to be paid in order to get competent miners. Muckers, laborers and car men will command \$3.00 to \$4.50 per day.

EQUIPMENT: With the exception of a few hand tools and living quarters for a very small force of men the property will have to be entirely refitted. The present roads are only in fair shape and before it is necessary to move large loads some work must be done on the road system.

TOPOGRAPHY: These claims cover an area of about 520 acres on the Southwesterly slope of Mineral Mountain and drainage is southerly into the Gila River, about three miles away. There is an approximate difference of 800' in elevation between the highest and lowest points on the property. This area is in the nature of a sloping plain or basin cut by numerous gulches and on occasional small butte standing up 200 or 300' feet above the surrounding country.

GEOLOGY AND COMMERCIAL CONDITIONS. Accepting the classification of the general formation as made by Clyde P. Ross of the U. S. G. S. in his Geology of the Lower River Region, the formations are of pre-Cambrian and Paleozoic age and as a whole is called "A basal Complex". The Mineral Hill investment Association's ground parallels and partially covers a wide much brecciated zone composed of a liminated formation of granite, gneissic granite, schist, dolomite, lime quartz, quartzite and diorite. This zone is bound on the west with a large body of granite and on the east by schist. The two large principal dikes or veins cuts the lime beds northerly and southerly and parallel the granite and schist contacts to this zone, one of an parallel the the granite and schist contacts. (?) One of these dikes stands up, some 100 to 150' high above the surrounding country and dry washes and presents a bold outcrop for a distance, north and south of over 6000' on this group of claims. Several other veins or dikes are strong and continuous and range from 8 to 70' in width with fair values in lead, gold and silver uniformly disseminated throughout the entire width. The outcrop of the large vein shows good values, not only its entire width but for a length of over 6000'. All indications point to the permanency of ore values for great depths. The large quantities of ore both length and width and because of no overburden can be handled by steam shovel operations. By operating in one or more open cuts no difficulty will be encountered in furnishing ore for a 50 ton plant or even more for a considerable time to come.

DEVELOPMENTS: The ore body which is 61 feet wide in the Iuba Lode Claim is particularly developed by means of an open cut 28 feet long, 16' wide deep and 10' wide. At the south end of this deposit is a shaft about 50' deep, bottoming in ore, also a cross tunnel driven across the vein at the wash level. These developments combine expose ore for more than 100' in depth and 61' wide. The above described vein continues on north across the Independence Lode, Oriental Lode, Across the northeast corner of Tip Top Lode, across Strip Lode, Philadelphia Lode, Australia Lode,

Blue Front and Good Enough Lode Claims. Openings consisting of open cuts, tunnels and shafts of varying sizes prove this vein a continuous commercial ore body. On the west side of this group is a large vein or dyke, called the Jones Lead and is continuous across the length of the claims, San Francisco, Silver Spray, Malacon and the Malabon Lode Claims.

a 100' shaft at the extreme south end of the San Francisco Claim shows ore continuously to its bottom, and surface showings indicate a vein from 60 to 70' wide. At or near the south end of the Claim San Francisco is a tunnel driven 60' long in an northwest course partially crosscutting the vein showing ore all the way, but not yet reaching the west limit of the ore body. Surface croppings above the face of this tunnel show the vein to be 70' wide. Two opening on the Silver Spray show good values, and of vein width of about 60'.

A shaft 200' deep on the Malacon Lode Claim. This shaft is fitted with a steam boiler hoist and compressor. The tunnel on this claim 75' long driven parallel with and in the vein on an enriched seam of steel galena about 2' wide, which gave the surprising value of \$98.00 per ton. A little north of the 200' shaft is a slightly inclined shaft exposing 5' of high grade ore and still 6' of high grade ore on the foot wall side.

The quantity of mill ore in this inclined shaft indicates that it is at least 50' deep, or perhaps deeper. In addition to the above mentioned openings on the Iuba and Jones veins are numerous open cuts, a shaft 100' deep and a tunnel 75' long, all of which are important in developing a property, but these are all developing a mass of cross breaks of more or less unimportant parallel ledges.

ASSAYS: No attempt was made by the author to thoroughly sample this property at this time, but sufficient samples were taken across the larger ore bodies where low cost mining operations could be carried on, such as open cut or steam shovel operations. One sample of several tons made up of samples from 20 dumps on the property was taken for general purposes. one split sent to Phelps Dodge Co. for them to base a contract on. One split was for concentration, etc.

NAME	WIDTH	LEAD%	GOLD oz.	SILVER oz.	CU	ZN.	VALUE PR TON
Iuba Cut	62'	3.85	0.01	1.08	0.2	5.4	\$12.25
Iuba Cump	28½'	9.8	0.01	0.2			12.45
Lead Hill	8'	10.55	0.02	13.44			21.50
Long Chance	8'	8.00	0.05	1.80	4.19		23.75
San Francis- co	25'	3.8	0.01	0.50			4.46
Silver) shaft Shaft)	20'	6.8	0.02	1.0			9.45
Silver Spray	14'	5.8	0.01	1.0			8.00
Crosscut Jones							
Lead #1	30"	3.3	0.02	1.0			12.35
" #2	18"	5.0	0.02	2.4		4.5	8.10
" #3	30"	6.6	0.01	0.2		4.5	13.90
Phelps Dodge							
Avg. 20 samples		10.3	0.02	3.2			15.55
Concentrates from 20 samples 7 to 1		67.40		9.54			88.90

APPROXIMATE COSTS.

Concentrating and Sampling plant (50 tons)	\$22,000
Mine Equipment, Complete	11,000
Laboratory equipment installed, roads, etc.	2,500

COSTS*CONTINUED

Cost reserve operating fund

\$12,500

Total

\$48,000

Basing further costs on a simple, gravity flow, 50 ton concentrator and ore whose value as mined is \$12.00 per ton (a safe estimate average).

Cost of mining and hauling	\$1.50 per ton or	\$75.00
Costing of milling	2.00 " " "	100.00
Cost of shipping and smelting 20	1.50 " " "	57.50
20% loss of value in Concentrating	2.40 " " "	120.00
Royalties based on net receipts	0.336 " " "	18.30
Depreciation based on 10% net ba.	.33 " " "	16.47

TOTAL OF COSTS	\$7.746	\$387.27 per day.
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Gross value 50 tons ore at	\$12.00	\$600.00 per day
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Total costs less royalties and depreciation		352.50
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Net profit per day.		\$247.50
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Net profit per year of operation	\$89,000.00	
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CONCLUSION:

The prospect of developing a large deposit of commercial ore are more than favorable. The surface indications, the character of the vein and its geologic relations indicate a deep mineralized zone whose values will increase with depth, and whose surface croppings now indicate it to be 6000' or over, long and 20' wide. No change in the character of the ore need be feared with depth, as the final form, sulphides, crop on the surface.

The ore presents no complicated metallurgical^{or} ore dressing problems and even higher extraction of values than 10% should be easily obtained after construction and operations of plant, allowing management to become thoroughly acquainted with the ore. A profit of \$4.94 per ton may be expected after all charges have been made. A half million tons of ore above lowest present workings may be assumed as available, and many times this tonnage available through shaft work.

The price of this mine and the cost of the mill is small considering the extent of the deposit and the uniform value of the ore, and the probability of developing a very large mine operation.

It is unusual to find a mining property that will return profits from the beginning. A large investment ordinarily is required to prospect the ground, and much time consumed. In this case these problems are already solved and profits may be expected just as soon as milling operations are started. For the reasons just given, this group of claims recommends itself as a legitimate mining investment, worthy of expenditures to place it in the dividend earning class of mine operations.

Dated August 1st, 1928, Phoenix, Arizona

COPY

Phoenix, Arizona
October 31, 1927

*Copied
m-2*

REPORT ON MINERAL HILL DISTRICT

Mr. T. T. Powers:

At your request I have made an examination of the Mineral Hill Mining District in which you have some sixteen claims. This survey, however, was not made relative to the ore values of the different deposits, as my examination was confined to that of estimating the available tonnage supplementary to the erection and operation of a custom mill in this district, and in particular those claims under your control. It was imperative that the entire basin should be taken into consideration, so I made a survey of all the properties exclusive of your holdings within a radius of a possible mile and a half, or in fact, about five or six square miles.

Beginning on those properties that are possible and probable sources of ore that would furnish tonnage to a custom mill in the district, then a further report embracing the tonnage available on your property.

The Oklahoma Group embraces about twenty claims. The most important of these in my estimation are the SILVER SPRAY and the MALACON. The Silver Spray has a shaft 40 to 50' in depth, width of vein about 4'; outcrops approximately a mile long. Estimated available tonnage on the explored depth forty-two thousand tons, (42,000). The Malacon 250' deep, vein said to be from four to nine feet wide, and in ore from top to bottom of the shaft. Estimated tonnage available based on 200' deep and 2000' long would be approximately 100,000 tons.

vein paralleling Silver Spray and Malacon to the east, shaft 100' in depth on $2\frac{1}{2}$ ' vein, said to be gold bearing; estimated tonnage available on 1500' in length about 18,750 tons. Between the ledges there are two other ledges reputed to carry fair values and the veins are very strong which will make available more possible tonnage.

The Last Chance--100' of tunnel in three feet of ore. This vein parallels the porphyry dyke that cuts the district from south to north, laying about one mile west of the fault on the east of the ore basin embraced in this report. There is a possibility of available tonnage of approximately 45,000 tons.

To the north and adjoining the Oklahoma Group are some 30 or more claims, known as the "Alta Group." These claims were not visited by the writer, but are more or less extensions of the claims mentioned. These claims, however, are in the district and their ore bodies have been extensively developed, as it is my understanding there have been some \$200,000 expended in the development of these claims, thereby making another possible source of custom mill supply.

ARIBILLO -Property. Tunnel about 100' on vein, block galena shutes from 20 to 75' apart with a filling of mineralized material, making a splendid milling ore on an average. Another opening on this vein shows good lead silver, carbonates and silicates. No work has been done on the south extension of this vein, however, on the the one claim I would estimate an available tonnage of 30,000 tons.

THE BEEHIVE--About 300 yards east of the Aribillo claim is the Beehive, and east of the Beehive about 400 yards is the "Nugget" About one-half mile south of the Nugget is the Lead Hill. These claims, could, no doubt, produce more than 150,000 tons of ore judging from the size and strength of their respective ore bodies in sight. The Nugget and Lead Hill claims herein mentioned, are a portion of the Powers group.

LEAD KING Nos. 1, 2, and 3 **A group 4500' in length; showing a splendid strong vein through the three claims. There are openings and some development work done on these ore bodies, which would indicate an available tonnage of some 35,000 to 75,000 tons at a depth of 50'.

MCCARTY CLAIMS--embrace a group of three claims. Some ore was shipped to the smelter from these claims; good ore bodies and a possibility of available ore to the extent of 10,000 tons.

BURRO IKE- A claim laying just west and under the mica schist dyke that forms the eastern fault of the entire basin. This claim was in no condition to make an estimate for tonnage. However, it is a good strong vein and outcrop some 2000'. I would judge that this claim would produce equal to any in the district. There are two other veins on this property within 75 to 100' of the main dyke. All are mineralized.

POWERS GROUP

This group comprises some 16 claims. A very considerable amount of development work has been done on this property in the way of tunnels, shafts and opencuts. There are some 1000 to 1200 tons of ores on the various dumps. Also a possible immediate amount available of that much more. The ore on these dumps are all vein matter and were selected for milling purposes.

LENORA BISHOP- A spur out from the Nugget Claim, carrying gold, silver and copper. The extension to the Lenora Bishop is copper glance, both could make good producers. No tonnage was estimated.

NIL DESPERANDUM--This is the south extension of the Nugget Claim. A probable tonnage in sight of 30,000 to 40,000 tons.

LEAD HILL- Shaft 25 feet, along with several other openings and opencuts. Vein about $2\frac{1}{2}$ ' in width, showing a possible development tonnage of available ore of some 28,000 tons.

VIOLET M No. 4 Shaft 60' deep and several spurs off from the main ledge. I should judge there would be a possible available tonnage of 10,000 tons.

IDA BELLE--Bee shaft about 40' deep; vein 5' wide and 600' long. Gives approximately 8000 tons in sight.

VIOLET M No. 3-- This shows outcropping about 3000' in length with 5 spurs ranging from $1\frac{1}{2}$ ' to 3' in width, making available approximately 70,000 tons.

IDA BELLE EXTENSION Shaft 40' deep with a 6' vein. Estimated tonnage available 30,000. Another opencut on the Ida Belle Extension with a perpendicular face in the quartz would indicate another 10,000 tons available on this ore body. Another opencut on the spar vein indicates a possible available tonnage of 25,200 tons. A gold

bearing vein of quartz parallels this spar vein. This vein is about 3' wide and would produce some 5000 tons of ore. Another vein of a 2' width and a good strong looking lead ore.

Parallel to the Violet M. No. 3 is a strong ledge of Silver and copper about 2' in width. This vein shows a possible 10,000 tons available.

Another spur about 600' long and 4' wide of gold, silver and copper shows a possible tonnage available of about 3000 tons.

Total estimated tonnage available on the Power group would range from 180,000 to 250,000.

All other claims visited in the district 420,000 tons.

The above estimates were based on ore practically in sight that would be available without further development work. Should the ore bodies extend to any considerable depth there would be a possibility of several millions of tons of ore available. There is every reason to believe that these ore bodies will continue to a depth of 200' or more, as there are shafts on different veins in this basin from 100' to 250' in ore.

The writer's opinion based on the above survey, is that this district is exceptionally good as a possible producer of good milling ore and in many instances would produce shipping ore of a good quality. These higher grade chutes which occur along with the ore in place, practically insures the mine operator as well as the mill operator a continuity of production of a grade of ore satisfactory for milling purposes.

Respectfully submitted.

Fred C. Cowan (signed)

Copied M.F.

REPORT

To the President and Board of Directors of
PINAL MINING AND MILLING COMPANY

On
Quantities, Location, values, Metallurgical Analysis, Operation, Etc.
BY F. C. GOWAN, Consulting and Metallurgical
Engineer of Phoenix, Arizona

The 17 Lode Mining Claims this report covers are situated some 18 miles in a northeasterly direction from the town of Florence, Ariz. a station on the Southern Pacific R. R., and in the Mineral Hill Mining District of Pinal County, Upon the survey of the Government these claims will be located in Township 3 South, Range 11 East, Gila and Salt River Base Meridian.

DEEDED PROPERTY: Ida Bella, Ida Belle Extension, Violet M. No 2
Violet M. No. 3, Violet M. No 4, Gold Coin, Portland, and Edna B.

OWNERSHIP BY LOCATION: Alabama, Chestnut, Spendthrift, Habersham.

LEASE AND OPTION: Treasurer, Leona Bishop, General, Copper Glade, Governor. The writer made a general survey of the above claims and established the lines and corners and had maps made from the notes of such survey. This survey was made, then the claims under lease and option and five of the deeded claims were grouped into groups of five claims each. The remaining claims were located and the proper labor performed as required by law on such claims. The proper affidavits of such labor having been filed for recording upon the completing of all the work done on the two groups of claims, known as the Colorado Group and the Ida Belle Group.

ROADS: A

A good County highway from Florence to the Diversion Dam on the Gila River, a distance of 11 miles and an extra good road for a Mountain Road 7 miles to the property from the Gila River, Munns siding on the Arizona Eastern R. R., is situated some 4 or 5 miles south from these claims, This is your companies loading point for ores and concentrates, The roads from the claims to the R. R. are good and you may expect capacity loads for your trucks.

CLIMATE:

These claims are from 2000' to 3000' above sea level and at this elevation the desert climate is very mild with but three warm months during the summer, however, during these months the weather is not hot enough to interfere with the work and the nights are generally cool. There is no snow and the rainfall during the winter months is about 3 inches. The climatic conditions are exceptionally favorable and the work need never be interrupted by unfavorable weather.

WOOD AND WATER: These claims and the surrounding are will furnish wood for domestic purposes only. Water furnished by shallow wells will take care of camp needs. The Gila River a short distance south of the property will furnish all the water the property will need at any time for operation purposes.

TOPOGRAPHY:

These claims covering some 340 acres on the south eastern slope of Mineral Mountain and with a drainage to the south into the Gila River about 3 miles distance. There is an approximate difference of 400' in elevation between the lowest and highest points on the property.

GEOLOGY AND COMMERCIAL CONDITIONS:

Accepting the classification of the general formation as made by Clyde, P. R. of the U. S. G. S., in his Geology of the lower Gila River Region, the formations are of the Pre-Cambrian and Paleozoic Age and as a whole is called a "Basal Complex".

The Pinal Mining and Milling Companies ground parallels and partially covers a wide, much brecciated zone composed of limenated formation of gyranite, gneissic, granite schist, dolomite, lime quartz, quartzite, and diorite. This zone is bounded on the southwest and west by a large body of granite and on the east by schist. Several large principal dykes or veins cut the lime beds northerly and southerly and parallel the granite and schist bedding planes of this zone. A birdseye porphyry dyke parallels the veins on the west. All indications point to the permanency of ore values to a great depth. The large quantities of ore both in length and breadth facilitate greatly the economical conditions pertaining to mining and the lower cost of production. The ledges or veins are easily and distinctly traceable, on many of your claims the outcroppings (which is evidence of continuity of vein matter) can be easily seen along the entire length of claims.

GENERAL INFORMATION:

In October, 1927, the author made an examination of the entire Mineral Hill basin with the view of determining quantities of the commercial ores of the district, and in particular that portion now comprising the holdings of your company. I will embody herein that portion of the report made at that time, covering the claims your company now owns and controls. This group comprised at that time 16 claims and a very considerable amount of development had been done on this property in the form of tunnels, shafts, and open cuts.

There are some 1000 to 1200 tons of ore on the various dumps, also a possible immediate amount available of that much more. The ores on these dumps are all vein matter and were selected for concentration purposes. At this time the ores on the various dumps and that in sight as indicated by the development work and the outcroppings is estimated at from 180,000 to 250,000 tons. These estimates were based on ore practically in sight that would be available without further development work. Should the ore bodies extend any considerable depth there would be a possibility of several millions tons of ore upon development. There is every reason to believe that these ore bodies will continue to a depth of 200' or more, as there are shafts on different veins in this basin from 100 to 250' in ore. For your further information and in answer to your request I will submit herewith more detailed information pertaining to individual claims and their commercial and physical values. Also will make recommendations as to the procedure of activities whereby your company can convert their large reserves into a commercial enterprise

CLASSIFICATION OF CLAIMS:-

Ida Belle: A shaft 40' in depth shows 5 to 6' of ore in place. A crosscut tunnel driven to contact of the vein shows the vein to be 4- $\frac{1}{2}$ ' in width. Available ore in sight on this claim exclusive of the spur vein and outcroppings approximately 25,000 tons. Ida Belle Extension; Shaft 40' deep showing a 6' vein, open cuts, shallow shafts and tunnels indicate an approximate tonnage of 40,000 tons. An open cut on a dolomite ledge spar indicates a possible 25,000 tons of ore. A gold bearing quartz vein paralleling the main vein about 3' wide would produce approximately 8,000 tons. Several veins paralleling and crosscutting the main vein ledge indicate good values and range in width from 2 to 3 feet, which would probably produce some 5000 tons of ore.

Violet M. #2 A good strong vein about 2 to 3 feet in width lying to the south of the Ida Belle. Outcroppings are of good values and a tunnel approximately 250' long driven to cross this vein would tap it at about 200' in depth making available approximately 25,000 tons of ore.

Violet M. #3. The outcroppings on this claim are some 1500' in length with 5 spur veins ranging from 18" to 3' in width making available an approximate 80,000 tons. of ore. Parallel to this ledge is a strong vein of silver and copper about 2' in width, showing a probable 10,000 tons of ore in sight.

Violet M. #4 Shaft 60' deep on main ledge or vein, approximately 1500' in length and about 3' wide with several spurs off from the main ledge. I should judge there would be a probable 20,000 tons available on this claim.

Chestatee; A good strong $2\frac{1}{2}$ ' vein of good values which would indicate a tonnage of about 5000 tons.

Alabama: Undeveloped, however good indications.

Spendthrift; This claim is worthy of special mention, situated between violet #3 and 4 is approximately 600' long as indicated by the outcroppings and shows higher values throughout its entire length than any other vein mentioned. This vein has an average of 3' in width on the surface and of a quality worthy of considerable expenditure in development. Consists of a lime quartz which in the writers opinion will increase materially as depth is obtained. values are in gold, silver and lead. Approximate tonnage in sight about 7,000 tons.

CLAIMS UNDER LEASE AND OPTION TO PURCHASE:::COLORADO GROUP.

TREASURER: Surface indications along the outcrop of or a distance of about 1,500' on the vein ranging from 3 to 5' in width. This claim has one shaft 25' deep, one tunnel some 20 to 25' long, open cuts and other openings showing at least 100' in depth of ore bodies. The tonnage on this claim is quite large and easily accessible and will develop without much preliminary work and probable 35,000 tons of ore.

LEONA BISHOP: Northwest and adjoining the Treasurer on the Northwest end. The same character of ore exists, in fact a continuation of the Treasurer vein and indicates by the outcroppings to be of approximately the same size and of the same value. There should be available on this claim some 25,000 tons of ore.

GENERAL ; Situated on the north and adjoining the Leona Bishop. This claim from the outcrop and tunnel indications is the largest dyke or vein in this group. Outcropping some 5 to 8' in width and about 1,000' long. Tunnels on this claim opened up high grade vein matter in some places 18" to 2' wide of very high grade galena, Easily accessible, approximately ore available 40,000 tons.

HABERSHAM: There has been no development of this claim except location and assessment work which shows a good strong vein of fair values. You can depend, however, on a large tonnage of fair values, approximately 20,000 tons.

GOVERNOR: This claim is situated at the west end of the Ida Belle Extension and the same vein or ore body continues through the length of the claim. This is a good strong ledge with approximately 20,000 tons available.

COPPER GLANCE: This claim is more particularly valuable as a camp and mill site, although the ore in the outcrop would indicate that further development would be justifiable.

EDNA B. PORTLAND & GOLD COIN CLAIMS: Are undeveloped except for the assessment work, however, all show good strong veins. The Portland claim has an opening showing a vein from 6 to 10' in width. The Edna B. Indicates gold, silver and copper values in a vein about 48 wide. In my opinion and based on considerable study and research work, your company can be reasonably sure of an available tonnage from all the holdings of approximately 350,000 to 400,000 tons. These estimates are based on the ore in place as indicated by the depth of development on each claim by the width and length. In many cases the opening on the claim and ore body is such that ore can be produced in considerable quantities with no further work than that of mining the vein matter.

Your company in my opinion will be justified in building a concentrating plant for the purpose of the treatment of the ores. A plant with a capacity of 50 tons daily capacity, would not be too large so far as the immediate ore supply is concerned, however, as I have previously advised and recommended that you equip the property with a small mill as a pilot to your future needs and problems. The water supply at the mines is sufficient for the operation of a ten ton concentrator and it is advisable to continue along the same lines of procedure as that of the past few months. The few months of your company's activities have accomplished much toward the completion of the plant. Your camp is in excellent condition with a large house fully equipped and concrete floors. The improvement of the water supply and the several miles of good roads constructed during the water supply and the several miles of good roads constructed during summer. The improvement of the camp and the roads are quite important especially the roads constructed to the different claims and ore dumps.

There has been a good start made toward the erection of a ten ton concentrator. Now installed is a good pulverizing mill, concentrating table, foundations for crushing machinery, tanks, ore bins, etc., also improvement to the water supply. The additional ore mined during the past few months brings the total milling ores on the dumps to approximately 2500 tons. As a whole you have made a very business like and economical expenditure of the funds at your disposal.

My recommendation is, that you complete the concentrator at the earliest possible time and get into operation. The total cost of this plant will approximately be \$4,500.00 and as you have now expended about \$1500.00 on equipment installed, your further needs will be some \$3,000.00 for completion of the plant. You will need an additional amount of from \$3500, to \$4,000 for operating expenses covering a period of from 60 to 90 days. I will outline in a separate report fully the plan of construction and operation coupled with recommendations as to the locations and advantages points of producing ores with which to supply the mill.

It cannot be expected that a mill of small capacity could produce the profits per ton of ore treated that a larger capacity would, however, in making the estimate of cost of operation based on a slightly higher grade of ores/which you have considerable quantities of easily available your profits will be quite attractive as the following tabulation of costs will indicate.

Ores delivered to mill, avg. assay	\$16.00 per ton--10 tons	\$160.00		
Extraction of values 85% net Gross		\$136.00		
Supt. and incidentals --	\$14.00		Concentrates-	
Power	6.00		Bags and loading	\$2.50
Mill labor	12.00		Freight	4.40
Hauling	10.00		Smelter charges	6.50
Mining	20.00		Sintering & penalties	3.00
Royalties	5.96			<u>\$16.40</u>
Depreciation	11.00			
CRUDE ORE	<u>\$668.96</u>		Net Gross	\$136.00
CONCENTRATES	16.40		Cost	85.36
	<u>\$85.36</u>		Net Gain	<u>\$ 50.64</u> per day.

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No.	Ag.ozs.	Au oz.s	Pb.	Total values	
1	3.2	tr.	10.3	\$16.21	Heads-20 samples several claims
2	10.5	.04	63.4	95.30	Concts. Composite samp. Chas. Diehl
3	9.51	tr.	67.4	99.54	Concts. same sample Phelps Dodge
Note--About 20 samples taken from the above from Ida Belle & Ida Belle ext. Ratio about 7.5 tons to 1- Indicated extraction 85.9%.					
4	Sample taken from 6' vein matter Ida Belle			Value per ton	\$18.75
5	38.8	.02	64.3	\$114.80	Concts. ration 6.5-1, extraction 94.2% Assay by Diehl.
6	1.88	.01	9.0	12.60	Ida Belle Extens. ore dump
7	5.6	.04	20.0	28.07	4' vein on Ida Belle Ext.
8	1.8	.14	4.0	9.40	From top of Ridge, Ida Belle Ex.
9	1.1	.01	4.4	6.98	" " " " " " " "
10	1.9	.04	15.4	23.42	Composite from Ida B & I. B. Ex.
11	1.2	.06	14.0	19.60	" " " " Extension
12	3.3	.03	15.2	21.28	Ida B, Extension by J. K. Lewis
13	36.7	.05	60.58	106.35	" " " " Concts. Ratio 9-1
14	3.35	.05	2.78	6.95	" " " " J. K. Lewis
15	1.1	.01	4.48	6.98	" " " " by T. T. Powers
16	12.5	.06	46.6	65.24	At Portal of tunnel. High grade T
17	9.4	.18	43.55	60.97	Ida Belle dump at shaft by T.T.P.
18	4.0	.04	4.1	8.178	" " " " tunnel by T. T. P.
19	4.3	.03	5.13	10.18	" " " " " T. T. P.
20	3.8	.04	6.3	11.74	Samples taken on ridge of I. B.
21	8.0	.06	3.75	10.93	Ext. sampled by miners 10"
22	3.85	.18	4.25	10.45	
23	4.0	.16	6.68	14.96	
24	12.75	.11	3.1	13.97	Unidentified
25	4.0	.01	15.9	24.60	Composite from I. B. & I. B. Ext.
Note #25 is sample submitted to Exten. Lead Hill outcrops Ida Belle to Samples by T. T. Powers					
26	3.44	tr.	9.5	15.22	Sample by Cowan to be concentrated
27	13.44	.02	10.55	22.70	44" vein on Leon Bisho. Shanefit
28	39.58	.42	56.1	109.34	Concts. from #26, tails--\$.93
29	.20	.02	3.3	5.12	From joining property veins
30	2.40	.02	5.0	8.74	" " " " 20' veins.
31	Check on #30		6.6	9.24	Lead from San Francisco 20' Cowan

Average of all mine run samples \$13.83

Average from 12 samples taken from

Ida Belle Extension as mine run 13.54()

Ida Belle, 3 runs of mine average 13.24) Avg from mine vein \$16.50

Leona Bishop, one sample run of mine 22.70)

Average

Average value of all concentrate samples from five

experimentations from average composites. 105.70

of concentration about 8 to 1, Composite samples taken

for concentration tests, 19.21

Extraction indicated 82.5%, one extraction as low as 53%, evidently not carefully manipulated, two ave. extraction, 86% and one 94.2% another 96.3%.

The average of the high grade taken and not figured in with the average is \$63.10.