

AMERICAN SMELTING AND REFINING COMPANY
EL PASO SMELTING WORKS

July 17, 1937.

Mr. G. W. Prince,
609 Crest Avenue,
Prescott, Arizona.

Dear Sir:-

Acknowledging receipt of your letter of July 5th, this will advise you that the sample of ore mentioned in your letter has been received and assayed, and we are enclosing herewith copy of our assay certificate.

This sample represents a desirable lead ore which we will be pleased to receive at our El Paso smelter, this being the only lead plant to which you could ship.

On the basis of our enclosed Schedule "A", ore similar to your sample would return you approximately the following:

Gold		\$19.03 per ton
Silver		6.27
Lead		7.86
Copper		<u>2.17</u>
		35.33
Treatment	5.56	
Insoluble Penalty	1.51	
Zinc penalty	1.62	
Sulphur penalty	<u>1.80</u>	<u>10.49</u>
F.o.b. El Paso		24.84
Freight Prescott to El Paso		<u>3.50</u>
F.o.b. Prescott		21.34

We are enclosing herewith copy of our customary release form, which we will ask you to fill out and attach to your bill of lading in making your shipment. We will give this car our best attention, and trust that you may be able to start regular shipments of this type of ore.

Yours very truly,

H. P. HILL

Enc:

American Smelting and Refining Company

EL PASO SMELTING WORKS
EL PASO, TEXAS

SCHEDULE A

Date Effective July 17, 1937.

Mr. G. W. Prince,
Prescott, Ariz. Domestic Lead Products

The following terms are subject to the General Clauses shown on the back of this sheet, and are subject to prompt acceptance. Unless shipments are begun within 30 days this quotation is automatically cancelled.

PAYMENTS

GOLD: If 3/100 of an ounce per dry ton or over pay for all at the rate of \$ 20.00 per Troy ounce, plus 90% of the realized gold premium in excess or \$20.67 per Troy ounce. Under present Government net realized price (\$34.9125), this is equivalent to \$ 32.81825 per Troy ounce.

SILVER: Pay for 95% (minimum deduction of 1/2 ounce) at the average Handy & Harman New York Silver quotations for the calendar week, including date of arrival of last car of each lot at plant of Buyer, or, if higher, at the realized Mint price provided silver qualifies for Government purchase and affidavit is furnished, less a deduction in either case of 1 1/2 c per ounce. Present Mint price is 77 c per ounce.

LEAD: Deduct from the wet lead assay 1.5 units and pay for 90% of the remaining lead at AS&R quotation less 1.5 cents per pound of lead accounted for. Nothing paid for lead if less than five per cent by wet assay.

A. S. & R. Quotation: Settlement under this quotation shall be the average of the daily published quotations of the American Smelting & Refining Company for common desilverized lead for delivery in New York City for the calendar week including date of arrival of last car of each lot at the plant of the Buyer.

London Quotation: Settlement under this quotation shall be the average of the daily official London Metal Exchange "Current Month Buyers" and "Current Month Sellers" and "Third Following Month Buyers" and "Third Following Month Sellers" lead quotations, as published in the Engineering and Mining Journal of New York, averaged for the calendar week, including date of arrival of the material at the plant of Buyer. London quotations will be converted into United States currency at the average New York 90-day demand rate of exchange, as published in the Engineering and Mining Journal of New York, for the applicable quotational period.

COPPER: Deduct from the wet copper assay eight pounds and pay for ninety-five per cent of the remaining copper at the daily net refinery quotations for electrolytic cathodes as published in the Engineering & Mining Journal of New York averaged for the calendar week including date of arrival of last car of each lot at the plant of the Buyer less a deduction of 6.0 cents per pound of copper accounted for. Nothing paid for copper if less than one-half per cent by wet assay.

No payment will be made for any metal or content except as above specified.

DEDUCTIONS

BASE CHARGE: \$ 3.50 per net dry ton of 2,000 pounds; provided the sum of payments for gold, silver, lead and copper does not exceed \$ 15.00 per ton. Add to the base charge ten per cent of the excess over \$ 15.00 to a maximum charge of \$ 6.00 per ton.

The base charge just specified is for ores containing at least eight pounds of copper per ton; when a smaller quantity is contained, there will be added to the base charge a sum equivalent to the value of the deficiency between actual contents and eight pounds per ton computed according to the terms specified herein for copper payment.

No charge

INSOLUBLE: Allow 20 units free; charge for the excess at 5 cents per unit, fractions in proportion.

ZINC: Allow five units free; charge for the excess at thirty cents per unit, fractions in proportion.

SULPHUR: Allow two units free; charge for the excess at twenty cents per unit, fractions in proportion. Maximum charge \$2.00 per dry ton of material.

ARSENIC: Allow two units free; charge for the excess at \$0.50 per unit, fractions in proportion.

ANTIMONY: Allow one unit free; charge for the excess at \$1.50 per unit, fractions in proportion.

BISMUTH: One-tenth of one per cent (.1%) of the lead content by wet assay will be allowed free. The excess will be charged at fifty cents (\$0.50) per pound, fractions in proportion.

MOISTURE: A minimum deduction of one per cent will be made from wet weight; when over one per cent contained the actual moisture will be deducted.

DELIVERY: F. O. B. unloading bins American Smelting and Refining Company, El Paso, Texas.

TAXES: Deduct Federal or State taxes, import duties, stamps and/or other charges now or hereafter imposed.

FREIGHT: All railroad freight and delivery charges for account of seller. Deduct from settlement freight and other advances made by Buyer.

TONNAGE: Limited to 200 tons per month except by special arrangement.

AMERICAN SMELTING AND REFINING COMPANY

By B. N. Rickard.

(over)

General Clauses Governing All Open Schedules

The following terms are subject to the General Clauses shown on the back of this sheet and are subject to prompt acceptance by Buyer. Weighing, moisture and ore sampling (at which seller or a representative may be present) as done by Buyer according to standard practice, promptly after receipt of product, will be accepted as final. The absence of seller or a representative shall be deemed a waiver of the right in each instance. After sampling, the product may be placed in process, commingled, or otherwise disposed of by Buyer. In case of disagreement on assays, an umpire shall be selected in rotation from a list mutually agreed upon, whose assays shall be final if within the limits of the assays of the two parties; and if not, the assay of the party nearer to the umpire shall prevail.

Losing party shall pay cost of umpire. In case of Seller's failure to make or submit assays, Buyer's assays shall govern.

2. All schedules on ore not under contract for a definite period of time are subject to change without notice.

3. The rates quoted herein are for carload lots. On any lot containing one ton or less, there will be a sampling and handling charge of \$10.00. This charge will be decreased by \$1.00 for each ton in excess of one ton.

4. The rates quoted apply only to ore in bulk. Fifty cents per ton additional will be charged for ore in sacks, to cover extra cost of handling.

5. In the event quotation date should fall on a legal Holiday or one upon which no quotation is issued, the next succeeding quotation will be used in settlement.

6. In this schedule where the word "ton" is used, it is understood to be a ton of two thousand pounds avoirdupois; where the word "ounce" is used, as referring to gold and silver, it is understood to mean the troy ounce; and where the word "unit" is used, it is understood to mean one per cent of a ton, or twenty pounds avoirdupois.

7. In order that delivery of the ore at our plant may not be unnecessarily delayed, we make it a general rule that THE FREIGHT CHARGES MUST BE PREPAID OR GUARANTEED BY THE SHIPPER.

8. The rates quoted herein are based on present existing scale for common labor at El Paso Smelting Works, and present published all rail freight rates on lead and copper bullion from El Paso, Texas, to New York City. Any increase or decrease is for account of Seller, and proper deduction or credit shall be made accordingly.

AMERICAN SMELTING AND REFINING COMPANY

El Paso Smelting Works

El Paso, Texas

DELIVERY: F. O. B. unloading into American Smelting and Refining Company, El Paso, Texas.
 TAXES: Deduct Federal or State taxes, import duties, stamps and/or other charges now or hereafter imposed.
 FREIGHT: All railroad freight and delivery charges for account of seller. Deduct from settlement freight and other advances made by Buyer.
 TONNAGE: Limited to 300 tons per month except by special arrangement.

AMERICAN SMELTING AND REFINING COMPANY

B. N. Rickard

(OVER)

(over)

Storm Cloud Technical file

Car - 36 tons

Shipped by Prince and Hussen from Curtis
and Galena Veins - August 1937

	Gross Value Per Ton	Gross Value 1938
Au. 0.59 oz.	\$20.65	\$20.65
Ag. 7.0 oz. @ 77.5	5.43	4.50
Cu. 1.5% @ 13.6	4.08	2.70
Pb. 3.2 (no pay. quotation 6¢)	3.84	2.55
	<hr/>	<hr/>
	\$34.00	\$30.40
Zn. - 2.1 %		
Fe. - 5.6		
As,Sb,Bi. - 0.2		
Insol. - 72.4		
SiO ₂ - 61.4		
S - 8.1		
CaO - 0.2		
Al ₂ O ₃ - 6.0		

GEORGE M. COLVOCORESSES
MINING AND METALLURGICAL ENGINEER
1108 LUHRS TOWER
PHOENIX, ARIZONA

(office copy)

December 6th, 1934

REPORT ON THE STORM CLOUD PROPERTY
AS A PROSPECTIVE GOLD PRODUCER

The Storm Cloud Group of mining claims belong to M. J. O'Brien, Ltd. of Ottawa, Canada, whom I represent locally.

Although originally located and worked as a gold mine the production during the last 35 years has been almost entirely from the copper veins and as far as I can learn the last production of gold ore was made in 1898 and '99.

Some production of copper was made in 1906 and later, but the mine was closed down from 1913 to 1925. From 1925 to 1930 it was operated by leasers under my direction and during the last two years of that period it was equipped with a concentrating mill. The production made by these leasers amounted to 13,830 tons with a value of \$81,382.00 in gold and silver (present price) and containing 1,031,000 pounds of copper.

Substantial reserves of copper ore still remain in the workings, but although all of this carries gold and silver the value of these metals is generally not sufficient to permit profitable mining and treatment while the price of copper remains at its present low level. Therefore, this statement will neglect the occurrences of copper ore and also the smaller showings of lead and zinc ore, and will be practically confined to such data as is obtainable regarding the gold-silver ores on the property and the probable results of resuming mining activity for the production of these metals.

The Storm Cloud has been examined at intervals by a number of Engineers. Their reports deal mostly with the copper showings, but I quote below certain portions which refer to the gold and silver ores. All assay values have been adjusted to the present prices of gold and silver.

LOCATION AND AREA

The Storm Cloud property consists of fifteen patented and two unpatented claims, about 220 acres altogether, located in the Senator (Hassayampa) Mining District of the Bradshaw Mountains, Yavapai County, Arizona. The list of claims is as follows:

PATENTED CLAIMS

Storm Cloud
Lion
Abbie
Bugle
Parintha
Hoot Owl
Johnnie
Ginger
Fraction
Trapezoid
St. Cloud
Paw Paw
Palmetto & Betsy Ann
Dakota
Cracker

UNPATENTED CLAIMS

McCleur
Rangerchief.

The elevation of the property is from 6700 feet to 7500 feet, the main workings are situated near the summit of Storm Cloud Mountain between Senator Mountain and Mt. Union. The property is reached by thirteen miles of good road running south from Prescott, County Seat of Yavapai County, a town of 7,000 inhabitants, served by the Santa re Railway.

The topography is rough and steep. The mountain sides are covered with a heavy growth of yellow pine and spruce, furnishing ample timber for mining purposes. There is also a considerable growth of oak and various kinds of brush and grass. The Hassayampa River runs near the claims and Jersey Creek comes down from the slopes of Mt. Union at the southern end and traverses the entire property supplying some water during all seasons of the year.

GEOLOGY

The country rock is largely hornblende-schist with the Bradshaw granite which forms Mt. Union and Mt. Davis intruding from the East. A Long narrow tongue of very silicious schist mixed with conglomerate extends into these claims from the southwest, and near by is found an intrusion of diorite from which it is reasonable to suppose originated the mineral bearing solutions that impregnated the veins. The veins, themselves, of which there are a great number, are generally found along the contact of the country rock with narrow porphyritic dykes which run northeast-southwest. They are mainly filled with quartz and silicified country rock, together with iron and copper sulphides containing in places substantial values in gold and silver, and elsewhere sulphides of lead and zinc. Near the surface the usual leaching has taken place with secondary enrichment and formation of oxidizes and carbonates, giving way gradually to the more solid primary sulphides below.

HISTORY

From 1870 to 1906 a great number of claims were located in this District, and many small mines were active, yielding a large aggregate production from comparatively shallow workings. The

principal values from these mines were in gold and silver, and while no accurate records are available, it is certain that a very considerable tonnage of high grade ore was produced and shipped or treated locally by the Senator, Cash, Venezia, Ten Spot, Storm Cloud and other properties.

After 1907 production became very erratic and during the last 15 years most of the work in this section has been done by leasers operating on a small scale and generally during periods of high market values for silver and copper.

EXTRACTS FROM REPORT OF LEO VON ROSENBERG; SEPTEMBER 15, 1907

GEOLOGY

The country rock of the locality in which the Storm Cloud group is situated is mainly schist. The veins have a general north-easterly direction following, usually, the trend of the schist. The most important veins occur along, or near, porphyry dikes, some of which are very prominent. The veins are fissure veins, a dike and its accompanying vein or veins often occupying ^{one} and the same fissure.

The dip of the vein is usually steep, from 70 to 85 degrees, and to the east, with some exceptions as, for instance, the "conglomerate" gold vein of the old Storm Cloud mine which dips to the west, toward a very prominent porphyry dike. Associated with this dike is the "Copper" vein, of the Storm Cloud claim, which now forms a very important part of this property as will be described further on. The vein of the old Storm Cloud Mine was worked for the gold only.

Between the northwestern and northeastern boundaries of the tract are a number of veins. In a general way it may be stated that of the twenty or more veins traversing the property, at least three quarters of that number will become good producers, chiefly in gold, and also copper. The most important of them will be

described in a following chapter. The vein matter is usually quartz. The ores carry some native gold, silver, and some galena, iron and copper pyrites, etc. To a large extent, however, the values are carried in sulphide minerals. A part of these ores (as those of the Storm Cloud copper vein) form a shipping product carrying about 10% copper and some gold and silver. This ore is shipped to the smelter at Humboldt. The bulk of the product of the various veins will be milling or concentrating material. As there are more "gold" veins than "copper" veins, the greater part of the income will be derived from the product of the former series.

The ore of the old Storm Cloud mine was reduced in a stamp mill near the mine. The ore is said to have yielded about \$20.00 in free gold per ton. No effort was made to save the values contained in the sulphides, which were carried off with the tailings, therefore lost. The mine is reported to have produced about \$40,000. The ore of this vein consists chiefly of brecciated material cemented by quartz and sulphides. Locally it is known as a "conglomerate" vein. The schists carrying the lenses of this vein appear to be very silicious. The thickness of the pay ore of the various veins varies from a foot to seven feet; however, the ore bodies are occasionally much thicker, measuring as much as fifteen feet across the vein.

The pay ore occurs in a succession of swells or lenticular shaped bodies, called ore-shoots. These shoots are found more or less in close proximity to each other, on the course and dip of the vein. The intervening spaces may sometimes be barren, the vein being represented by a mere gouge seam or narrow streaks of ore. By sinking or upraising in these narrow or less productive parts of the vein, other ore shoots will in most cases be developed.

THE MCCLEUR, LION OR TEN SPOT WORKINGS

This part of the property will form a mine in itself, when more fully developed. The "Paw Paw" might also be included in this series. The shaft on the "McCleur" known as the "Ten Spot" is now 267 feet deep; at a depth of 80 ft., there are two crosscuts, which were not accessible during my examination. I am informed that the southeasterly crosscut is 30 feet long, cutting a small vein, 20 feet from the shaft. The northwesterly crosscut is about 110 feet long, cutting the "Ten Spot", vein withing 68 feet from the shaft. The vein is 40 feet thick. It is described to consist chiefly of "porphyritic" matter with bands of quartz. The values reported ranged from several to forty dollars per ton.

At a depth of 237 feet two crosscuts were driven. The southeasterly is about 80 feet long showing two quartz veins, each about 12 inches thick. The northwesterly crosscut is 70 ft. long. At a point 45 feet from the shaft the "Ten Spot" vein was encountered in this crosscut. A sample taken across three feet of quartz matter yielded; ~~16.45~~ \$16.45 in gold and silver and 4.4% copper.

About 250 feet south of the Ten Spot shaft, on the Lion claim is a crosscut about 200 ft. long; it intersects three or four veins as shown on the accompanying maps. Most of these veins should eventually be cut at much lower depth by the crosscuts to be extended southeasterly from the Ten Spot shaft, as indicated in plan and section on the maps.

The veins cut in the Lion crosscut may be identified as the Galena, Curtis, and Lion. These veins are from a foot to several feet in thickness in the various drifts. The Lion, which is at the face of the crosscut is a large vein being over 4 ft. thick. The values

however, are low at this point.

The Galena vein showed good values; a sample taken yielded \$42.00 in gold, \$7.47 in silver, and 1.5% copper. The maps shows the extent of drifting done on these veins. Some stoping has been done in the southwesterly drift on the Galena vein.

However, this working is too shallow to prove the veins. They will be more effectively developed by the lower crosscuts from the Ten Spot shaft and the drifts to be run on them from the crosscuts. By extending the lower crosscuts far enough the "Treadwell" and a number of other veins will be encountered.

The old Storm Cloud mine consists of the Storm Cloud shaft, 156 ft. deep, levels and stopes; these workings are approximately 125 feet east of the copper veins workings and are now connected with the same by a crosscut about 115 ft. long, the accompanying cross section and plan of the mine shows this connection, also the shaft and levels on the old Storm Cloud mine. The connection of the new with the old workings was made during last spring, thus securing ventilation for all the present workings. Practically there is now no workable ore available in the old Storm Cloud workings. Ore of very good value is said to have been produced from the stopes in quantities; the product was chiefly in gold; the total amount is said to have been \$40,000. The stopes are very limited in extent.

A winze was sunk in the Old Storm Cloud level about 60 ft. south of the shaft. At the time of my examination this winze was 15½ ft. deep, showing the ore body to be 5 ft. thick; a sample taken from the bottom of the winze across the vein yielded \$24.50 gold and \$1.25 in silver and 0.5% in copper

The dip of the Copper vein and the dike being to the east and that of the Storm Cloud Conglomerate gold vein being to the

west, it is fair to assume that the veins will meet at a depth of from 150 to 180 feet below the tunnel level.

The Storm Cloud conglomerate vein will be further developed in depth when the new shaft of the Storm Cloud copper vein has been sunk to greater depth. It is quite possible that large ore bodies carrying good values will be found at or near the junction of these two veins.

Samples taken in the Dead Shot claim, on the Storm Cloud conglomerate gold vein:

No. 2 sample--	gold	\$56.00	silver	\$3.92	Copper	3.4%
3 #	"	39.20	"	3.41	"	0.7%
4 "	"	36.75	"	0.98	"	---

This is a southwesterly extension of the conglomerate gold vein of the Storm Cloud claim. It will be seen that the gold values predominate in the ore of this vein.

A sufficient amount of water will be obtained for milling purposes from several sources, the present ones being chiefly Jersey and Maple gulches, and the pumps of the shafts. When the deep crosscut has been extended for some distance and a number of the other veins have been cut, the supply will be more than ample for even a very large mill.

GENERAL REMARKS

The Storm Cloud group is a valuable and exceptionally promising property. As already stated, part of the product will be shipping ore, but the bulk will consist of milling material.

The veins and ore deposits of this locality belong to some of the oldest in existence, and are bound to hold out in depth as well as in values. My observations lead me to believe that a number of the as yet undeveloped veins on the property will produce being much richer ores than those of the veins now/developed and that they

they will carry especially good gold values. The surface showings on a number of the undeveloped claims are exceptionally good. On the St. Cloud claim, which is the immediate northerly extension of the Storm Cloud Claim the showing appears to be very good. Another mine could be easily created here. The same argument holds good for several other parts of the property. The Dakota has a good copper vein etc.

CONCLUSION

The Storm Cloud has every promise to become one of the best producers in the Hassayampa district. This group and that known as the "Senator" property, controlled by Phelps, Dodge & Co., form the most important mining enterprises of this section. With one exception the several large veins, cut in the "Senator" tunnel, traverse also the northwesterly portion of the Storm Cloud group, forming, however, only a small part of the entire vein system of the latter. Of the many veins of the Storm Cloud property, those associated with the various dikes will be found to carry ore bodies to great depth and will prove to be the most permanent producers.

The development work done so far has given very satisfactory results. The property being a valuable and a very promising one deserves to be explored upon a very large scale. The property will be both a gold and a copper producer. When a number of the veins of the different series have been developed, the value of the product will be chiefly in gold.

EXTRACTS FROM LETTER FROM M. J. O'BRIEN

The gold vein seems to have great possibilities, having a fair grade of ore of comparatively simple character showing in the bottom of the two winzes and in the S. W. winze is of fair width (5ft)

Mr. Reid recommends deepening this S. winze to 50 or 60 ft. then drifting 60 feet S. W., that being the direction in which the ore should pitch.

The vein can be reached more readily by crosscutting from the lower tunnel but as it is irregular such work may not be attained with success. If the work on the winze were attained with success it might be as well to crosscut in the bottom of the new shaft on Copper vein, where it should be cut a distance of 40 feet if the present dip and strike of the gold veins continue as they are. If ore is struck, drifting to the S. W. might be done, and I believe some lenses of gold ore will be discovered.

Another report, by J. B. Woodworth, Mining Engineer speaks very favourably of the group, and I quote herewith an extract;

"With a mill of sufficient size to handle 100 tons or more per day the property will pay good profit over operating expenses. When several of the gold veins have been developed the gold contents of the ore will form the main source of revenue."

Woodworth places the value of the tonnage at an estimated amount of \$500,000.00 and says further;

"It must be borne in mind that this particular block of ore referred to, forms a very small part of the mineable areas of the veins."

EXTRACTS FROM REPORT BY J. OWEN JAMES

ORE VEINS

As mentioned above the gold or conglomerate vein was the first discovered and worked and it is stated that the value of the ore won from this vein gave a return of \$20.00 to the ton. This vein dips at a steep angle between 80 to 85 degrees to the West, for a depth of 145 feet from the surface where it becomes almost vertical, a sample taken from the top of the old stope gave a value of \$10.00 per ton in gold and silver.

From the history of this vein and others in this locality the value of \$20.00 is fairly consistent although I am informed that richer shoots of ore occur in the veins that reach a much higher value.

There are numerous veins on the property some of which have been worked, notably the Ten Spot on which a shaft was sunk and the vein drifted upon. This vein was worked for the gold content. The sample taken when the shaft, which is 237 feet in depth, was unwatered gave a result of \$16.45 in gold and silver and 4.4% Copper.

The Snoozer, Dakota, Treadwell are other veins of importance, but there are many more, all of which have a Northerly trend the length of the property, showing that the property is well mineralized.

At a point about 552' from the portal on the 200' level a raise was put up and a crosscut driven that intersected the gold vein at a point near the foot of its shaft. The effect on the air in the mine was beneficial as the Gold vein shaft now acts as a down cast, apart from this no advantage was taken of it and no ore was mined.

From the point of intersection a drift was put in on the Gold Vein to the present South face. Twenty feet from the face

a winze was sunk it is stated, to the depth of 60 ft. At a depth of $15\frac{1}{2}$ feet a sample was taken across the vein that yielded \$24.50 gold, \$1.25 silver and 5% copper. The northerly drift is in 110 ft. and in ore the whole way. The gangue of the gold vein is a conglomerate quartz.

In the copper vein there is a good deal of calcite. It has been remarked that when the gold and copper veins intersect each other that a great enrichment of the ore may be expected.

TIMBER

The property is covered with a bountiful supply of excellent timber and easily available, for all mining purposes. The timber goes with the property.

EXTRACT FROM REPORT BY FRANK KENNEDY, JUNE 25, 1928

HISTORY AND DEVELOPMENT

The Storm Cloud is one of the oldest known properties in this district, having been located in 1875, Its old workings and dumps show that it has produced considerable shipping ore.

The Gold Vein was mined from near the surface to the 200' level, and the ore milled at mills situated on nearby properties. The gold occurred in a free state and was amalgamated. How much was lost in sulphides, I do not know, but believe that the ore was of a very good grade.

The Ten Spot Shaft located on the McCléur claim of the Storm Cloud group, is reported to be down 267 feet. The maps show a level 80 feet from the collar of the shaft, with two crosscuts. The one to the southeast cuts a small vein 20' from the shaft. The crosscut to the northwest is a little over 100' long and crosscuts the Ten Spot vein reported to be 40' in width at that elevation.

Another level was made at approximately 235 feet in depth and cross-cuts driven to both the northwest and southeast. The one to the Southeast is reported to have crossed two veins and the other cross-cut cut the Ten Spot vein.

There are several short tunnels on different claims, all driven to intersect veins, and all look promising and warrant further prospecting.

The gold vein already referred to has been mined down to approximately 30' below the present main level. It is officially reported to have produced \$40,000 in gold. More work should be done on this vein in order to determine its extent and value.

The Ten Spot Vein, together with the Storm Cloud, appear to be the two strongest veins on the entire property, the Ten Spot surface indications show it to be a wider and stronger vein, apparently than the Storm Cloud vein. It has been developed, according to the survey map of the underground workings on the Senator Mine, for some 750 feet in length. The nearest breast of this vein toward the Ten Spot shaft is some 900', from the boundary line of the Storm Cloud group. It is reported that the Ten Spot vein is from 40 to 60 feet in width on the Senator property. This appears to be true, for the surface shows the vein to be a very wide highly mineralized vein. Considerable work has been done recently by leasers on this vein, and direct shipping gold ore has been mined and shipped this season. Five surface samples on the Ten Spot vein were taken just south of the Bugle Claim line. The following results show very good gold and silver content on three of the samples taken.

No.	Width	Location	Oz. Au.	Oz. Ag.
1	4 ft.	Near South tunnel	0.08	1.50
2	3 ft.	200 ft. No. of #1	0.50	16.67
3	2 ft.	100 ft. No. of #2	0.17	17.90
4		200 ft. No. of #3	0.37	1.40
5	7 ft.	General N. of #4	0.16	.60

The Galena Vein runs parallel to the Ten Spot and as stated before, has been crosscut by a level at the 80 foot station in the shaft, also by a shallow tunnel and the vein followed some distance. Further development on this lead vein may develop sufficient tonnage to warrant milling.

WATER

The quantity of water is always a serious question in most places in Arizona. At the present time the mine and mill are being operated sixteen hours per day without any trouble. I believe ample water can be developed to supply the mine and mill through any dry season, whereas during the wet season there is plenty of water.

EXTRACTS FROM A REPORT BY GEORGE A. KIRKBRIDE, MANAGER, ON STORM CLOUD
JULY 12, 1928.

THE STORM CLOUD GOLD VEIN

Considerable work has been done on this section of the group. The vein lies about 125' east of the Storm Cloud copper vein, and a shoot of ore has been removed by sinking and stoping to a depth of about 200' and a length of about 300'. This vein is also lenticular in formation, the old workings showing a width of from one to seven feet.

There is reported to have been a production of \$40,000 from this work, mostly ore that had a value of about \$20.00 per ton. The surface showing is very good for a continuation of this vein, and a small amount of money spent in reopening the old workings would soon prove the lower extent.

THE TEN SPOT.

The Ten Spot Shaft has a reported depth of 267 feet. Unwatering is under way at this time and the water has been removed to

a depth of 180 feet. The water is used in the mill as pumped from the shaft. At a depth of 80' there are two crosscuts. The southeasterly crosscut is 30' long and cuts a small vein of no value. The northwesterly crosscut is about 80' long and cuts the Ten Spot Vein which appears to be about 30' in width, although only 20' could be sampled on account of timbers. The vein is badly broken up at this depth and composed of a banded quartz conglomerate. Samples taken assayed as follows:

Width	Location	Au. oz.	Ag. oz.	Cu%	Pb. oz
2 ft. Narrow vein	North hard band Hanging Wall	0.16 0.01	2.3 1.5	0.24%	1.5 0.4
1½ ft.	S. Drift hardband	0.06	4.6	1.06	3.8
14 in.	Hard quartz in large vein	0.01	0.5	0.08	-----
20 ft.	vein sample north	0.01	0.2	0.12	-----

Samples from surface of the same vein

Width	Location	Au. oz.	Ag. oz.
4 ft.	Near South tunnel	0.08	1.5
3 ft.	200 N. near # 1	1.50	16.7
2 ft.	100 N. near #2	0.17	17.9
3 ft.	200 N. North of #3	0.37	1.4
7 ft.	General Sample	0.16	0.6

A report on the Senator Group shows the Ten Spot as being about 22 inches in width and gives an assay of:

\$14.35 gold 7.1 oz silver 1.2% copper

This was probably one of the bands in the conglomerate.

The dump of the Ten Spot on the Senator shows very good lead-silver ore which was evidently encountered in the bottom of the workings. The Galena vein to the east has good grade lead-zinc copper ore and should be cut by the lower crosscut in the Ten Spot shaft at a depth of 237 feet. A sample of this ore gave.

\$42.00 Gold \$7.47 Silver 2% Copper
14% Zinc 2 % Lead

Water will be lowered below this level soon. A crosscut tunnel southeast from the bottom of the Ten Spot shaft would cut several veins that have excellent surface showings.

The Cash Veins crossing the Storm Cloud property show some very good sulphide ore bodies, quartz with pyrite, sphalerite, chalcopyrite, and galena. There are a good many veins paralleling the Storm Cloud that would be worked at a profit through a crosscut from the lower level of the Ten Spot shaft. Among the veins which have proven to carry large ores of commercial value on adjoining properties are/-- The Galena, Curtis, Lion, Treadwell, and Cash. The Snoozer vein, which was the best producer on the Senator Group, should cross the Storm Cloud property through the Johnny or Hoot Owl claims.

EXTRACTS FROM VARIOUS REPORTS AND LETTERS BY G. M. COLVOCORESSES

In the course of my own investigation I have obtained a letter from a reliable miner who worked in the gold (conglomerate) vein in 1898 and '99, and who stated that the ore which they were then mining plated 1 oz. in gold per ton. Mr. James Douglas told me verbally that somewhat later he purchased ore from this mine which carried from 0.8 to 1 oz. per ton.

In '29 I took samples from the veins which are crosscut by the Lion Tunnel. These represent pockets or lenses of higher grade ore and the results were as follows:

	Au	Ag.	Cu	Pb	values
Curtis vein, 18 in.	0.51	13.52	10.78	0.12	\$42.00
Galena vein, 18 in.	0.15	11.67	3.52	0.30	18.00
Galena Quartz, 4 ft.	0.13	3.2	2.06	---	9.70
Galena quartz 8 in.	0.63	50.5	6.64	---	65.00
Galena quartz	0.18	11.5	3.81	---	20.00

In 1931 I made a careful inspection of the gold (conglomerate) vein and submitted some notes on this to Mr. O'Brien, from which I quote as follows:

This is a nearly vertical quartz vein with walls of very hard silicious schist and in places brecciated material is noted which gave rise to the term "conglomerate vein" used by Von Rosenberg and others. The most northerly outcrop is noted on the hillside near to the portal of the #1 adit level on the copper vein. The strike from this point is South 30 degrees West, whereas the copper vein strikes South 25 degrees West, so that these veins diverge as they are traced in a southerly direction.

The surface of the gold vein is mostly covered with soil and forest vegetation so that it can only be seen in a few test pits which are now wholly or partially filled with debris. It is however, exposed in the old surface stopes, which are located near to the shaft, and on the walls of the shaft itself. The shaft is approximately 500' southwest from the entrance to the #1 adit on the copper vein and the collar is caved so that timbers and rock nearly block the shaft/a few feet below the surface, but there is still sufficient opening to permit air to pass through and daylight can be seen when looking up from below.

When the surface of the vein is exposed it appears to have a width of about 2'-5' and iron oxides are noted in the quartz. Continuing southward from the shaft a few test pits indicate that the vein had originally been traced approximately 450' farther to the south line of the Storm Cloud Claims and for a short distance on the Palmetto, but trenching would be necessary in order to expose the outcrop at the present time and it does not appear that commercial values extended to the surface excepting where the old stopes are found in the vicinity of the shaft.

Underground the vein was developed by drifts at a depth of approximately 150' from the collar of the shaft and from these

drifts stoping was carried upwards. These stopes are now rendered accessible from the copper workings by a crosscut about 115' long reached by a 25' raise from the second or main adit level. The crosscut through the hanging wall of the copper vein is apparently barren of values, until it reaches the western or hanging wall stringer of the gold vein. At this point stoping was carried on both north and south for a total length of about 190' and the bottom of these stopes is some 10' to 15' below the level of the crosscut. They are stillopen from 30 to 50' above the level and perhaps for a considerably greater distance at certain points. In all probability these stopes connect with the stopes noted on the surface, but, without ladders, it is impossible to thoroughly explore them. The survey map is in error in showing the south drift to have a length of only about 20'; actually it is about 80' but the end was blocked when the survey was made.

In these stopes the vein appears to have an average width of about 3' and the walls stand up well so that stulls are generally in good condition. Quartz appears to occur for the full width of the vein and some oxidized iron and a little sulphides were noted but mostly through the 6" to 1' adjacent to the foot wall suggesting that the higher grade ore may have been confined to this portion of the vein. Near the ends of the stope the back is visible and some pillars have been left which could be sampled without great difficulty.

Some 15' further to the east the crosscut intersects the old shaft and here ~~and~~ there occurs a second vein which may be termed the foot wall or eastern stringer of the gold vein since this, like the copper vein, appears to be of the duplex type. The dip of the foot wall stringer is considerable steeper than that of the hanging wall and it is therefore probable that these two converge as they approach the surface as shown in the maps of Von Rosenberg.

Such an occurrence would stamp the gold vein as a type of saddle reef similar to the well known veins at Bendigo, Australia.

The foot wall stringer has been stoped out only to the south of the shaft and for a length of about 75' and the stope appears to have a height of well over 30'. The width and character of the vein are similar to the hanging wall stringer and the walls also stand well with the old stulls generally pretty solid. Near the south end of the drift a winze was sunk 15' and from here von Rosenberg reported an assay of \$24.50 Au. 0.5% Cu. While Balter was leasing the property in 1928 the winze was again unwatered and samples taken here and elsewhere showed values which Kirkbride mentions as assaying about \$18.00 per ton. In 1926 I took a sample near the north end of the vein which showed \$11.25 per ton.

Balter started to crosscut to the gold vein 100' below the bottom of the present stopes but he failed to find anything more than a few quartz stringers indicating that the vein might have pinched in depth. It is, however, quite possible that one of his crosscuts never extended far enough and that the other was too far to the south to tap the ore shoot. The gold vein itself, appears to straighten up as depth is gained, and very possibly does not ^{any of} intersect/the workings so far completed, particularly in the cross cut from the downward extension of the old copper shaft which was deepened 150' by Balter.

There is apparently sufficient unstoped ore of the vein left above the crosscut level to provide for a substantial future production and at greater depth the chances for developing additional ore should be good, but the vital question is to determine whether or not the grade of the remaining material would be sufficiently good to make such operations profitable. Mining could now be carried on reason-

ably cheaply above the crosscut level by utilizing this crosscut and the adit level on the copper vein which would serve for drainage and haulage.

S. H. Colverson

Copies of maps and additional data will be furnished on request of any responsible party.

#28

MAGMA COPPER COMPANY

SUPERIOR, ARIZONA

Settlement No. 696

Smelter Lot 817

DATE Dec. 20, 1928

Shipper Lot M-223

BOUGHT OF Bluford H. J. Balter,

Classification.....

ADDRESS Prescott, Arizona

MS-23533

CAR		WET WEIGHT			Moisture	DRY WEIGHT	N. Y. QUOTATIONS	
Initial	Number	Gross	Tare	Net	%			
AT	116533	115440	46460	68980	11.3	61185	DATE	<u>Dec. 13, 1928</u>
				34.49		30.5925	Copper (per lb.)	<u>.15775</u>
							Less	<u>.025</u>
							Silver (per oz.)	<u>.5700</u>
							Gold (per oz.)	<u>19.50</u>

ASSAY and ANALYSIS	PAYMENTS PER TON		DEBITS	CREDITS
Copper <u>19.00</u> Pct.	<u>380.0</u> lbs. per ton, less <u>15%</u>	<u>365.0</u> lbs. at <u>.13275</u> Per lb.		<u>48.4538</u>
Gold <u>.18</u> Oz.	<u>.18</u> oz. per ton	oz. at <u>19.50</u> Per oz.		<u>3.5100</u>
Silver <u>14.70</u> Oz.	<u>14.70</u> oz. per ton, less <u>5%</u>	<u>13.965</u> oz. at <u>.5700</u> Per oz.		<u>7.9601</u>
Insoluble..... Pct.	units at.....	Per Unit.		
Silica <u>9.6</u> "	units at.....	Per Unit.		
Alumina <u>1.6</u> "	units at.....	Per Unit.		
Iron <u>30.5</u> "	units at.....	Per Unit.		
Lime <u>1.4</u> "	units at.....	Per Unit.		
Sulphur <u>34.0</u> "	units at.....	Per Unit.		
Arsenic..... "	units at.....	Per Unit.		
Antimony..... "	units at.....	Per Unit.		
Bismuth..... "	units at.....	Per Unit.		
Manganese..... "	units at.....	Per Unit.		
	Treatment Charge.....		<u>4.00</u>	
	TOTALS.....		<u>4.00</u>	<u>59.9239</u>
	Net Value Per Ton.....			<u>55.9239</u>

Total Value of <u>30.5925</u> Dry Tons at \$ <u>55.9239</u>		<u>1710.85</u>
Less Freight <u>34.49</u> Tons at \$ <u>4.15</u> From Val. <u>49.60</u>	<u>143.13</u>	
Less Switching <u>15% Royalty on 1710.85 - 143.13 --- 1567.72 paid to M.J.O'Brien, Ltd., c/o G. M. Colvocoresses, Humboldt, Arizona, Vo. # 3758</u>	<u>235.16</u>	
Less Additional Treatment Charge.....		
<i>ok. as to terms of royalty. S.M.C.</i>		
TOTALS.....	<u>378.29</u>	<u>1710.85</u>
Amount Due Shipper—Voucher No. <u>3757</u>		<u>1332.56</u>

AMENDED

Notice of Mining Location

LODE CLAIM

TO WHOM IT MAY CONCERN:

This Mining Claim, the name of which is the MCCLEUR Mining Claim, situate on lands belonging to the United States of America, and in which there are valuable mineral deposits, was entered upon and located for the purpose of exploration and purchase by.....

(Locator must insert either "a citizen of the United States" or "who has declared his intention to become a citizen of the United States".)

the undersigned, on the..... day of....., 192.....

The length of this claim is..... **505**..... feet,

and..... claim..... **50**..... feet,

in a **northeasterly**..... direction and..... **455**.....

..... feet in a **southwesterly**..... direction from

the center of the discovery shaft, at which this notice is posted, lengthwise of the claim, together with.....

..... **300**..... feet in width of the surface grounds, on each side

of the center of said claim. The general course of the lode deposit and premises is from the.....

northeast..... to the..... **southwest**.....

The claim is situated and located in the..... **Hassayampa**..... Mining District, in

Yavapai..... County, in the State of Arizona, about..... **1/4 mile**.....

in a..... **southerly**..... direction from..... **the old Maxton P.O.,**

in Maple Gulch, lying between the Jersey and Fraction patented

claims.

The surface boundaries of the claim are marked upon the ground as follows: Beginning at.....

..... **mon.**.....

at a point in a..... **northeasterly**..... direction..... **50**..... feet from

the discovery shaft (at which this notice is posted, being in the center of the..... **northeasterly**.....

end line of said claim; thence..... **S.E. 300**..... feet to a..... **mon.**.....

....., being the..... **most easterly**..... corner of said claim; thence

..... **S.W. 510**..... feet to a..... **mon.**....., being at the

..... **most southerly**..... corner of said claim; thence..... **N.W. 300**..... feet

to a..... **mon.**..... at the center of the..... **southwesterly**..... end of said claim;

thence..... **N.W. 173**..... feet to a..... **mon.**....., being at the

..... **most westerly**..... corner of said claim; thence..... **N.E. 500**..... feet

to a..... **mon.**..... at the..... **most northerly**..... corner of said claim,

thence..... **S.E. 140**..... feet to the place of beginning.

All done under the provisions of the laws of the United States, and of the State of Arizona.

This is an Amended Location Notice of the..... **MCCleaur**.....

Mining Claim, located by..... **Abbie Williams**.....

..... on the..... **1 st**..... day of

Jan. 1885....., ~~188~~....., and recorded in Book..... **20**..... of Record of Mines, at

page..... **250**....., in the office of the County Recorder of the aforesaid County of..... **Yavapai**.....,

to which reference is hereby made, and this amended Location Notice is made and posted to correct errors in

the description in the said original Location Notice.....

Dated and posted on the grounds this..... day of....., 192.....

Witness

STATE OF ARIZONA,

County of

} ss.

I,, County Recorder in and for the County and

State aforesaid, do hereby certify that the within instrument was filed for record at, o'clock

..... M., on this day of, 192....., and duly

recorded in Book No. of Records of County,

Arizona, at pages

WITNESS my hand and official seal the day and year first above written.

County Recorder.

AMENDED
Notice of Location
LODE CLAIM

Dated, 192.....

Filed and recorded at the request of

....., A. D. 192.....

at, M.

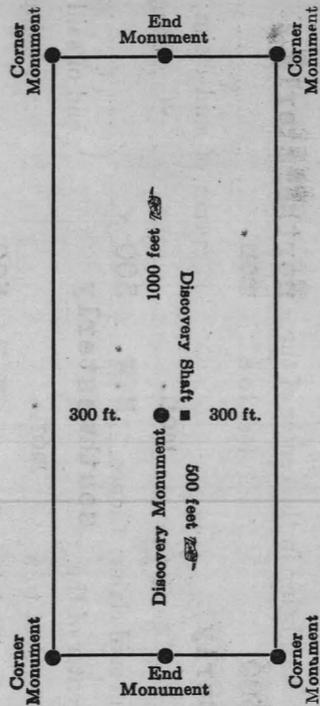
Book

Pages

County Recorder.

Deputy Recorder.

By



This diagram is to give locator a general idea of plan of location under the new law. The Discovery Shaft can be in the center of claim or any distance from either end desired. In the diagram it is placed 500 feet from one end and 1000 feet from the other. Commence description of claim at a center end monument, giving its distance and direction from center of Discovery Shaft; thence bound the claim in either direction. In description be careful to state locality of claim with reference to some natural object, or permanent monument, as will identify the claim.

R E P O R T T O

BLUFORD H. J. BALTER

on

THE STORM CLOUD MINE.

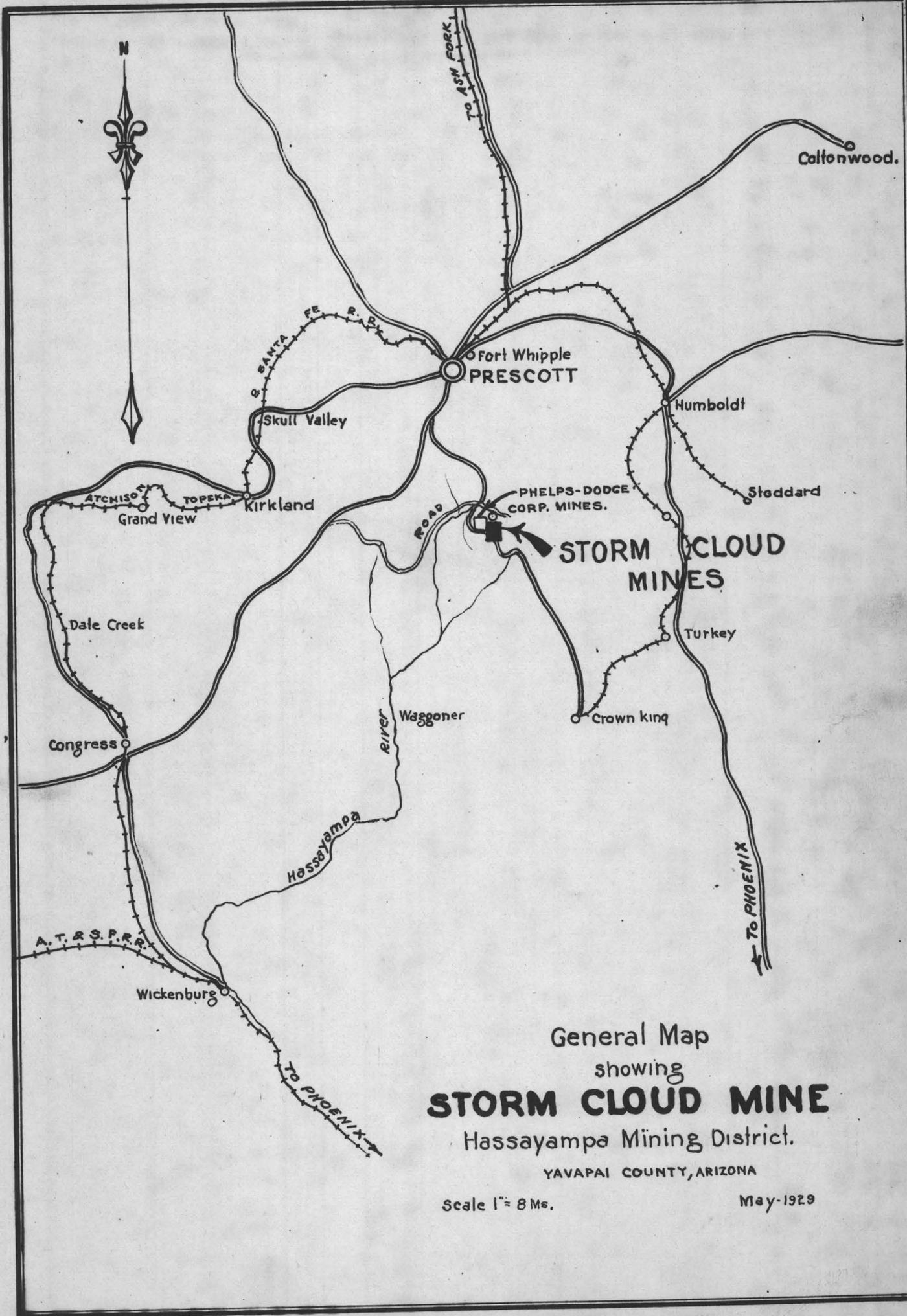
By

HARRY L. SEARES

Consulting Mining Engineer.

1929

*Original
New York*



General Map
showing
STORM CLOUD MINE

Hassayampa Mining District.

YAVAPAI COUNTY, ARIZONA

Scale 1" = 8 Ms.

May-1929

REPORT TO BLUFORD H. J. BALTER ON THE STORM CLOUD MINE.

The Storm Cloud Mine is located in the Hassayampa Mining District, Yavapai Co., Arizona, fourteen miles over the Senator Highway Southeast of Prescott. The elevation of the property varies from about 6700 feet at the camp to 7500 feet at the main workings. Climatic conditions are excellent and while there is some snow in the winter, work can be carried on at all times. There is an abundance of timber on the ground and sufficient water for camp and mill uses. Supplies of all kinds are procurable at Prescott which is the county seat of Yavapai County and a town of about 25000 population. The Humbolt Smelter situated about 20 miles from Prescott, is to be opened soon and will afford a nearby market for ore and concentrates.

Yavapai County has been one of the most productive mining sections of the West, work having been carried on continuously since 1863 producing from then until 1924, better than \$300,000,000 in gold, silver, copper, lead and zinc. The geology and ore deposits of the region have been described by Joggar and Palache in U. S. G. S. Atlas, Folio 126 Lindgren-Bulletin 782 and by many other writers.

Briefly from a geologic standpoint the district is made up of a series of old schists (Yavapai) which have been uplifted and intruded by Pre-Cambrian granite (Bradshaw).

2

Many dikes of diorite and rhyolite have intruded both of the earlier rocks. There have been two periods of mineralization, one associated with the intrusion of the Bradshaw granite and the other accompanying the later dikes. The first of these is the most important and it is from the ores of this period that most of the production has come.

The Storm Cloud property consists of seventeen claims, fifteen of which are patented, the other two being held by location. It is bounded by the Senator, Cash and Chase Mines all of which have been important producers.

The Storm Cloud is one of the oldest locations in the district the first work having been done in 1875 on a gold vein which parallels the copper vein now being worked. The principal rock exposed on the property is the Yavapai schist which has a general strike of North-east-Southwest. The schist has been cut by a system of rhyolite dikes which follow the planes of schistosity. The veins the most important of which are the Ten Spot, Paw-Paw, Galena, Gold Vein, and Storm Cloud have a North-east strike and dip 70° - 80° to the east. The Ten-Spot, Gold Vein and Storm Cloud veins have had the most work done on them and of these the Storm Cloud is the most important. This vein is undoubtedly the result of the first mineralization mentioned above and should go to great depth.

The Gold vein on which the first work was done was opened through drifts from a 200 foot shaft and is reported to have produced \$40,000. The Storm Cloud on which the most extensive ~~intrusive~~ work has been done is about 125 feet West of the Gold vein and on hanging wall of a large rhyolitic dike. The outcrop of this vein is very prominent and is easily traceable for over 3000 feet. The ore occurs in lenses which are replacements in the schist and consists of chalcopyrite, chalcocite, iron sulphide, with occasional bunches of lead and zinc sulphides occurring in a quartz gangue. There are small values in gold and silver usually running from \$2 to \$4 per ton.

On the McCluer claim 3600 feet northerly from the Storm Cloud, a shaft has been sunk 267 feet with crosscuts to the Ten Spot vein. This work is not accessible at present but it is reported that the 300 feet of work done from this shaft has cut the Ten Spot vein on two levels and that assays from here ran from a few dollars up to \$40.00 per ton in gold, silver and copper. From the Senator Tunnel, a long crosscut on the Phelps-Dodge property joining this ground on the West, 1000 feet of drifting has been done on the Ten Spot vein and good values are reported in this work with the vein better than twenty feet wide in places. Samples reported from these workings show values over 2 to 7 foot widths of from \$2.00 to \$20.00 per ton.

This part of the property should be carefully investigated and I believe that intelligent development will open important ore bodies here. Between the Ten Spot and Storm Cloud there are a number of veins on which only a small amount of work has been done. This work, however, has shown that this entire section of the property is worthy of careful investigation with excellent possibilities for commercial bodies of ore.

The Storm Cloud copper vein has been opened up through a 350 foot shaft with adits cutting the shaft at 100 and 200 foot levels. Drifting has been done on the 300 foot level and a winze sunk 75 feet below the 200 foot level at a point 280 feet from the portal and 380 feet north of stopes recently mined. This work is not accessible but it is reported that drifting was done 100 feet to the north and about the same to the south. The assay map shows the following values in these workings.

Width	Gold ozs.	Silver ozs.	Copper %
3 feet	.48	19.9	10.2
3 "	.14	6.8	3.30
1.5 "	.01	.6	.88
2.4 "	.05	2.4	4.38
2.4 "	.04	.8	1.20

About 2000 feet of drifting has been done on the vein and this work has opened important bodies of ore. The face of the 200 foot level is at present in a fault and a small amount of driving (less than 100 feet) will be necessary to pick up the vein which on the surface shows as strong as ever beyond this point.

On the 200 foot level several stopes have been opened and from two of these 201 and 202 the ore to the 100 foot level has been mined and shipped. The ore had an average value as follows:

Gold	Silver	Copper
.064 ozs.	4.88 ozs.	8.54 %

The ore from stopes 203 and 204 has been milled running about

Gold	Silver	Copper
.04 ozs	2.9 ozs	3.34%

There is broken in these stopes about ²⁰⁰⁰ tons of ore which should have a value equal to that milled from here.

Drifting on the 300 foot level has cut the ore both to north and the south. To the south, four feet of ore of mill grade has been opened to the north six feet running gold .1, silver 2.8 ozs, and copper 3%. A stope fifty feet long has been started here and ore is now being extracted. The shaft has been sunk seventy feet below the 300' level and drifts from this point to the north and south will undoubtedly pick up the ore showing on the levels above.

The ore extracted to date has proven very amenable to concentration by flotation and the present management during ten months which they operated the mill last year, handled 8014 tons with the following results:

Tons milled.	Heads	Copper Concentrats	Tails	Recovery
8014.5	% copper	%	%	
	2.85	20.53	.29	91.3%

16

The average gold in the heads was .036 recovery 92%
" " silver " " " " 2.56 " 81%

The monthly mill report for March of this year shows
785 tons treated having an average value of

Copper	Gold	Silver
2.48%	.06 ozs.	1.6 ozs.

from which 96.2 tons of concentrate containing 19.08%
copper were produced.

The costs considering the small tonnage handled
have been low, running about \$^{7.00}7 per ton for mining, mill-
ing, overhead and hauling. While your operations during
the past year have not been profitable in the way of
immediate return, you have through your development
work proven the continuity of the ore bodies and through
your mill operations settled what metallurgical difficult-
ies there were at the same time making the mine carry
most of the burden. You now have the property proven
to a point where you are justified in making the ex-
penditure necessary to put it on a profit making basis.

(I) Some recent shallow work has been done on
what is known as the Conglomerate vein. This work is just
off the road below the Storm Cloud workings and has shown
some very good values in gold with assays reported running
from \$3.50 to \$452.48. This is a strong outcrop and is
worthy of development, as the chances for opening commercial
ore here are very good.

The property has a well equipped camp sufficient for twenty-five men.

The mine has a 75 H.P. Holt and 50 H.P. Seaver Morgan engine, fitted to compressors good for 465 cu ft. of air. Other equipment includes air hoist, drills, cars etc., in fact everything needed for mining.

The mill is a 50 ton South-western Engineering Company, flotation mill and has a well equipped assay laboratory connected with it. The mill equipment consists of a 100 H. P. Deisel engine, Wheeling crusher, Marcy 54 ball mill, Dorr Classifier, Southwestern air flotation machines, pumps, etc.

Summoning up this property is well located, well equipped and has a showing from the standpoint of ore, sufficient to justify the expenditure of the money needed to put it on a profitable basis. In order to do this, it will be necessary to develop ore enough ahead to warrant the erection of a 100 to 150 ton mill.

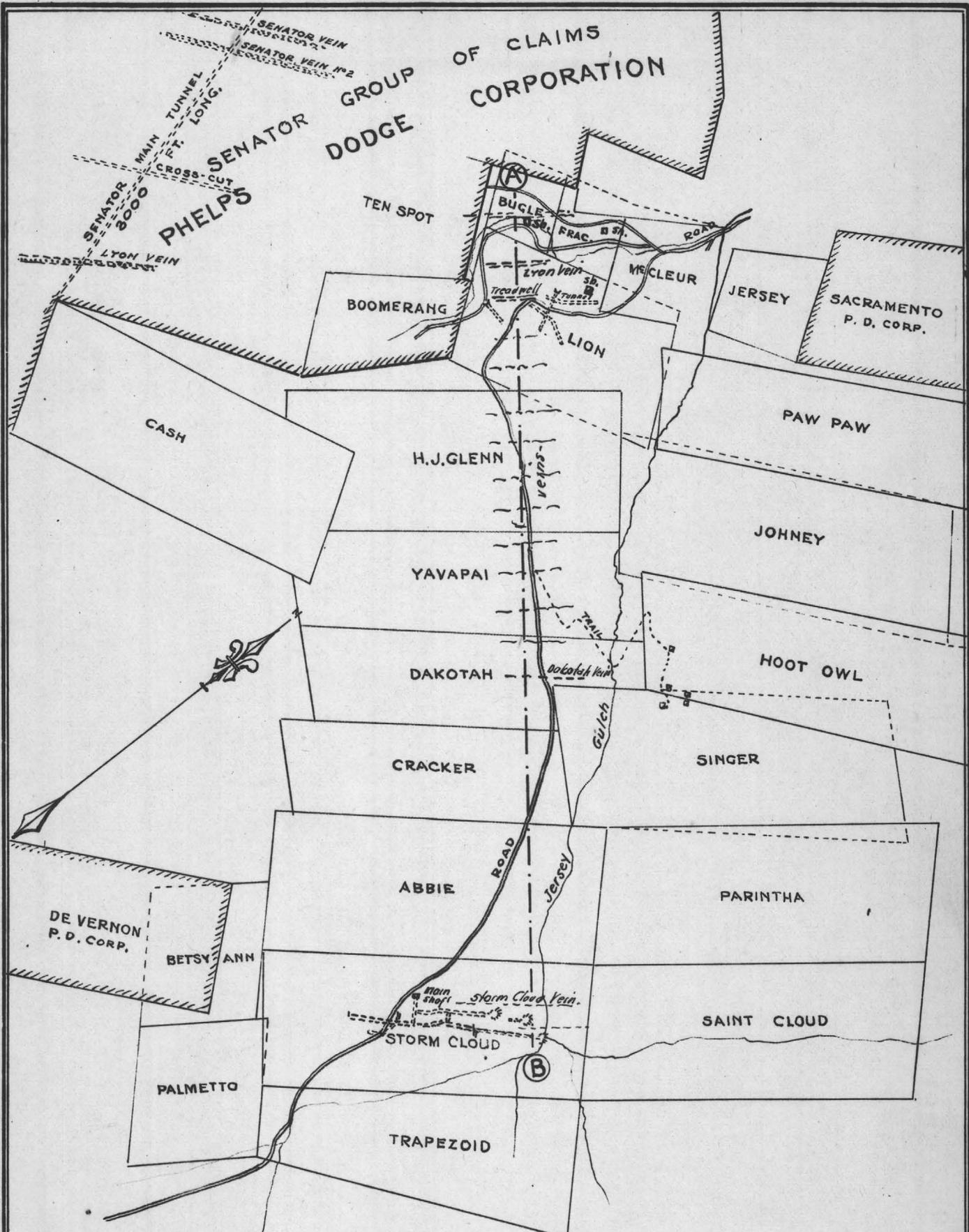
To accomplish this result, I would recommend that the work be carried on as follows: The present levels should be driven further to the South and the 300 foot level should be driven north to a point under the portal of the 200 foot level. Equipment should be installed and a shaft sunk here to a point on the line of the proposed crosscut from the Ten Spot vein to the Storm Cloud. Drifting should be done on the various

omit

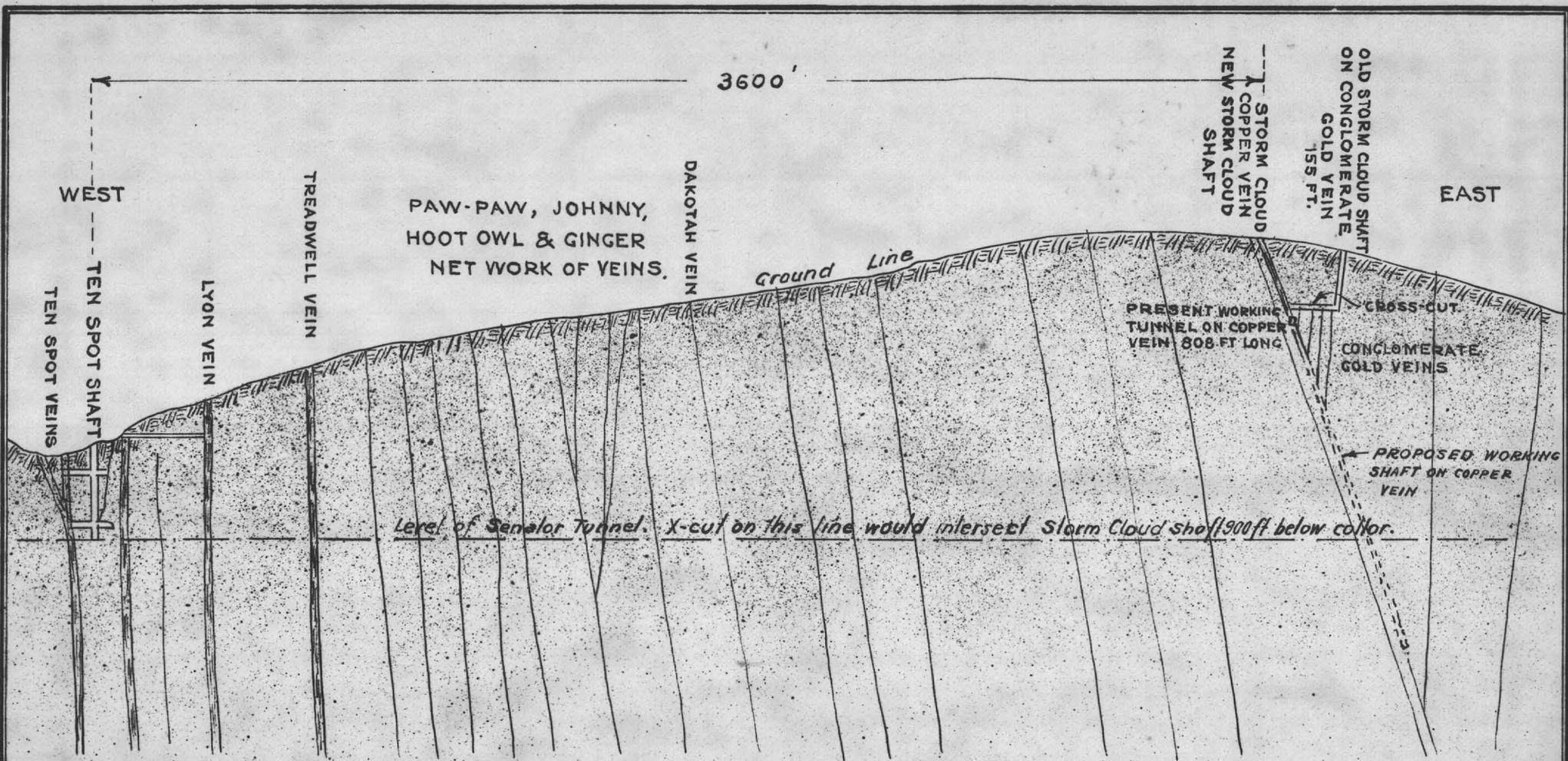
levels from this shaft. This work should cut the ore shoots opened on the upper levels and soon develop enough ore to justify the enlargement of the mill. When this point is reached, the mill should either be moved to a point near the shaft or a tram built from here to the mill. Developments on other parts of the property would determine which of these two courses should be followed.

"The Ten Spot shaft should be pumped out and the showings there investigated. Some cross-cutting should be done to pick up the vein croppings between here and the Storm Cloud with the possibility of connecting this and the Storm Cloud workings in mind.

"I believe that a campaign along the lines suggested is fully justified and that with proper development, the success of your operation is assured."



Map Showing
 STORM CLOUD GROUP OF CLAIMS
 YAVAPAI COUNTY, ARIZONA.
 Scale 1"=600' May-1929.



SECTION ON LINE "A-B"

FROM

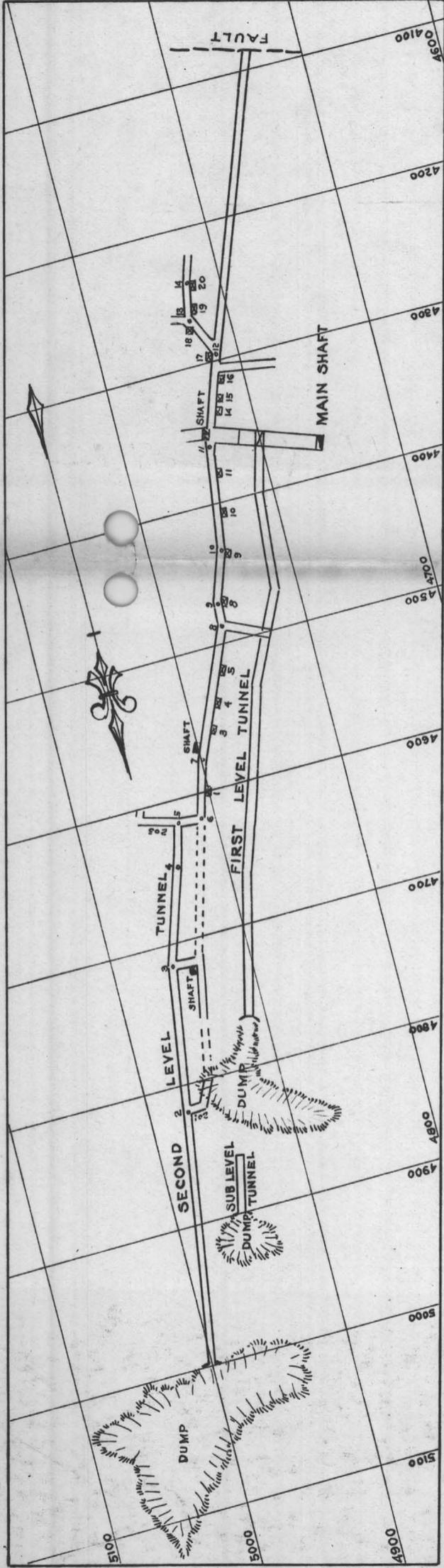
TEN SPOT SHAFT TO STORM CLOUD COPPER VEIN

ON

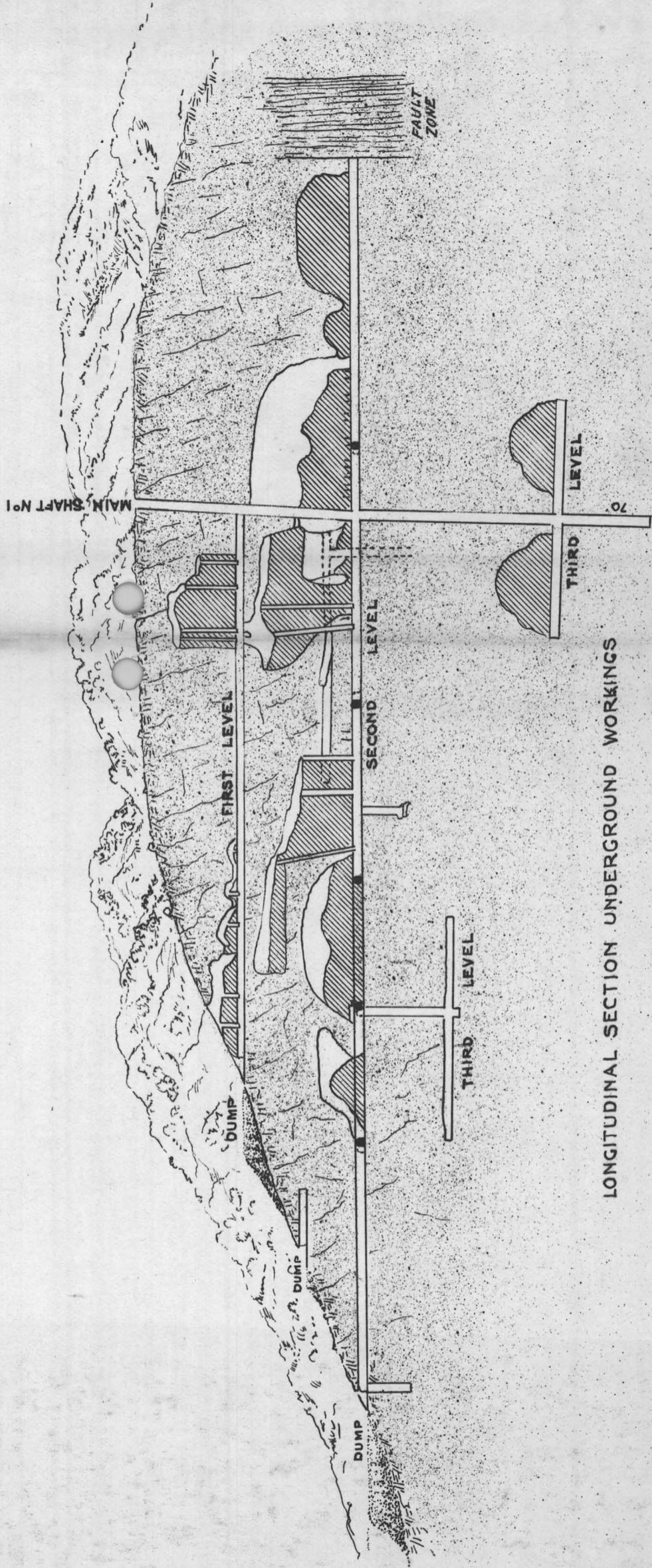
STORM CLOUD GROUP OF CLAIMS

YAVAPAI COUNTY, ARIZ.

May-1929



PLAN OF UNDERGROUND WORKINGS
Scale 1"=100'



LONGITUDINAL SECTION UNDERGROUND WORKINGS

STORM CLOUD MINE

HASSAYAMPA MINING DISTRICT

YAVAPAI CO. ARIZONA.

May-1919

Scale 1"=100'

57
14
'34

231 N. Mt. Vernon St.
Prescott, Ariz
May. 9. 1934

Mr G. M. Colvocoresses.
Phoenix, Ariz.
Dear Sir:

In regards to your letter of May 1st, this is my first opportunity to answer it.

I worked at the Storm Cloud mine in 1898 & 99 under a Mr Salgreen. The shaft of the gold vein was down 190 ft and drifted to the south about fifty ft, if my memories are correct. The conglomerate ore was 2 to 4 ft. wide and plated \$20. per ton. We stoped the ore out nearly to the surface on the south side but very little stoping has been done on the north side of the shaft. At the 190 ft. depth the vein faulted, we ran a crosscut & picked the vein up at 15 or 20 ft & drifted to the north. There we started a winz and sunk down 9 or 10 ft. That was all the workings on the gold vein and I don't think any more work

has been done since, as we crosscut
on until we struck the copper vein.

As to the remaining
amount of ore, I couldn't state that.
I left before the mine closed down
but by drifting to the south I
think more ore could be opened
up. Surface indications are very
good to the south.

Sincerely yours
Friedrich Wierthaler

St. Clair May 11, 1934.

M. J. O'Brien, Ltd.,
Ottawa, Ontario,
C a n a d a

Re

Att: Mr. J. A. O'Brien, Director.

Dear Sir:

In further reference to the gold vein, I recently got track of an old miner in Prescott who was supposed to know something about these workings and I wrote him for information and herewith enclose a copy of his reply just received.

It appears that Vierthaler's memory in regard to distances is not altogether correct, since the distance from the collar of the gold vein shaft to the level is reported by Von Rosenberg as 156' instead of 190' and while I have never been able to measure the depth of the shaft because of its condition, I think that Von Rosenberg's figure is correct.

Von Rosenberg also mentions that some work was done on this vein as late as 1906, and I have heard this from other parties, also, there are two drifts to the south of the shaft which are parallel to one another and about 20' apart, but the stopes from these two drifts seem to connect some 50' above the level.

The drift to the north is still open and at sometime or other it has been thoroughly sampled, but I can find no record of the results of this sampling either in Rosenberg's report or in any others which have come into my possession. In the north drift the vein does not look good and the few samples which were taken there since I have had charge of your property do not run more than \$6.00 or \$7.00 per ton, (old price).

I am inclined to agree with Vierthaler in believing that the best ore would probably be found south of the shaft, altho I think that some of this was stoped out after he left the property and he is correct in stating that the surface indications are very good over this portion of the vein.

His statement in reference to the value of the ore which was mined in 1898-99 checks with other information which I have received and since it is obvious from the character of the ore that some of the values were associated with sulphides and could not have been recovered by amalgamation, I believe that the value of this ore was actually in excess of \$25.00 per ton (old price) which would be more than \$40.00 per ton on the basis of the present U. S. price for gold.

M. J. O'Brien, -2.

5/11/'34

Unfortunately, neither Vierthaler's letter nor any other information which I have been able to obtain throws any light upon the question of the remaining ore reserves which is the essential factor in deciding whether or not it would pay to resume operations on this section of your property.

Yours very truly,

G. M. Colvocoresses

GMC/HC

(1)

Storm Cloud Mine

The Storm Cloud Group of 15 patented and one unpatented lode mining claims (about 240 acres) is located on the Senator Highway (improved but only partly paved) 14 miles south of Prescott in Yavapai County, Arizona, at an elevation of from 6,000' to 6,800'.

The Storm Cloud Mine is an old producer of gold, silver and copper ore the first work having been done in the 1860's when the high grade free-milling gold ore was largely worked out. Additional operations mainly for the production of copper were carried on from 1905 to 1910 and from 1920 to 1930 during the latter part of which period a 60 ton mill was operated and 14,000 tons of ore were mined from the Copper Vein (hereinafter described) which had an average content of 0.055% of gold, 2.50% of silver and 3.75% copper, a gross value of \$16.45 per ton at present prices of these metals. This copper ore could not be mined and milled with profit from 1930 until the present bonus price for that metal was established. A small production was made during 1935, '36, and '37 partly from the copper vein but mostly from the gold-silver veins in the vicinity of the Ten Spot workings from which the ore averaged about \$19.00 in gold and silver with 2.00% copper, say a gross value of \$26.00 per ton at present prices.

For the past 30 years this property has been owned by Mr. M. J. O'Brien Ltd. of Ottawa, Canada. Senator M. J. O'Brien (now deceased) acquired it through a transaction with a personal friend and was not disposed to operate it himself so far away from his home. I have acted as Engineer and representative for the owner from 1922 to the end of 1941 and am therefore personally very familiar with all of the recent operations and with all of the workings excepting some of the older ones which have not been accessible since 1920.

The geology, origin of the ore and details of the showings have been carefully studied and fully discussed in lengthy reports by the writer and a number of other engineers all of whom are in general accord as to the value of this property as a comparatively small mine. Complete reports are available by Leo Von Rosenberg, George A. Kirkbride, Harry L. Seares, and Frank A. Kennedy, all men of standing in their profession.

Briefly the veins are true fissures cutting through the Yavapai schist and the various dykes of igneous rocks and the mineralizations has generally been classed as of the replacement type, the minerals having risen in solutions which probably had their origin in deep seated magmas.

The primary ore and much of the secondary ore consists of sulphides of iron, copper, lead and zinc and secondary enrichment took place in the upper sections of the copper vein, mostly above the main or 200' adit level while the lowest explored workings in the gold vein (235' below the collar of the Ten Spot Shaft) still show the effects of

2-Storm Cloud Mine

secondary enrichment.

The depth to which this ore may extend is not of importance in the present instance since it is proposed that all of the ore from the copper vein will be mined from above the main adit and the existing winzes and all the ore from the gold vein will be mined from above the 235' level from the Ten Spot Shaft.

There are several branch veins in this vicinity some of which have been developed and mined near the surface from the Lion Adit but it is not proposed to develop or mine from these veins at present.

The Ten Spot Shaft on the gold vein was last opened to the bottom in 1928 and to a depth of 100' in 1936 when the collar and upper sets were retimbered. It is believed to be in good shape right to the bottom although some slight repairs and retimbering may be necessary and probably will be required in the cross cuts.

The copper vein is located one mile from the gold vein and is reached by a steep mountain road in good condition. The main adit and the upper adit (100' level) as well as the stopes were well timbered and up to about 6 months ago when I last went through most of them they were in excellent shape and would require only minor repairs. I believe that this is their present condition.

There is no equipment on the property and no buildings belonging to the owner but the old mess house which has been sold to a neighbor could be rented for a nominal figure and living quarters could be cheaply provided.

In the autumn of 1940 I advised the O'Brien Company to reopen and operate the Ten Spot workings and after the property had been examined by their Chief Engineer, Mr. Alan Scott of Ottawa, my program was approved but this plan was balked by the refusal of the Canadian Government to permit the export of the necessary funds or for any purpose excepting the payment of taxes.

Since the entry of the United States into the war the situation has been complicated by a number of different factors for even with the present bonus price for copper it is unlikely that the developed ore remaining in the copper vein, which probably will not contain an average gross value of over \$15.00 per ton could be mined and shipped to a smelter with a net profit of over \$1.50 per ton and the tonnage developed is insufficient to justify the erection of a mill.

On the other hand the government does not encourage the production of gold-silver ore unless this has a fluxing value to a copper or lead smelter and it was only very recently that I was able to satisfy myself that by mixing the gold ore with the copper ore the Storm Cloud could produce a very desirable fluxing ore and by meeting the government requirements obtain an priority rating for equipment and supplies which will be sufficient for all practical purposes.

The product of the mine would thus consist of a mixture of approximately an equal tonnage of gold and of copper ore with content of 0.23% gold, 3.00% silver and 3.00% copper also some lead and zinc for which the smelter will not pay. The gross value of this ore would be about \$20.00

Storm Cloud Mine

per ton and the net payments by the smelter would be \$16.10 per ton. The total cost of mining, trucking, smelter toll charges and royalty--all based upon contract terms which are actually offered, except for the mining which is very liberally estimated--aggregate less than \$11.00 per ton leaving a net profit to the operator of \$5.00 per ton.

It is proposed that these operations should be conducted at the outset on a scale of 20 tons per day which can later be increased if, and when it may seem desirable to do so.

Assuming that the mine is operated 25 days per month with a profit of \$100.00 per day the monthly return would be \$2500.00 and during an operating period of two years the total profit would be \$60,000.00 from which one should deduct the net cost of the equipment estimated at \$12,000.00 and any taxes on operating profits that may be assessed, which cannot be accurately forecast at present.

In order to operate as above for the period of two years it would be necessary to mine a total of 12,000 tons i.e. 6,000 from each of the two veins and I can say without the slightest hesitation that a much larger tonnage of ore is already definitely exposed in the workings of the copper vein without requiring any additional exploration or development whatever.

In the gold vein only a small tonnage of ore can actually be classed as developed since the Ten Spot Vein is merely crosscut from the shaft on both the 80' and 235' levels and drifting on the lower of these two levels must be carried on in order to determine the length of the ore shoot. Given a vertical height or back of 150' and an average width of 6' it would only be necessary that this shoot should have a length of 70' in order to supply the quota from the gold vein. While it cannot be positively stated that this ore is actually proven all of the showings and indications both on the surface and underground make it extremely probable that it will be found.

The main point in favor of reopening this mine is the fact that a sufficient tonnage of pay ore is already positively developed or very definitely indicated to assure at least a two year production and the only development work contemplated (drifting on the 235' level at the gold vein) would start off and should continue in pay ore thus producing a substantial tonnage as it progressed.

There are several other veins on the Storm Cloud Group of claims and also there are obviously excellent chances of producing a much larger tonnage than has been estimated from the two veins which have been briefly described but this presentation has been intentionally confined to the proposed operations during the next two year period which, according to the calculation and estimates given above, should result in the repayment of an investment of \$15,000 (including \$3000.00 for working capital) with a wide margin of profit to the investors.

To amplify and substantiate this report exhibits will be furnished as follows:

- A Map of Claims
- B Map of copper vein (plan and section)
- C Map of gold vein (plan and section)
- D Terms from Clarkdale smelter
- E. Terms from Hayden
- F Letter from War Production Board in reference to
priority
- G Main items of plant and equipment required with
approximate cost

Respectfully submitted,

J. H. Co.
Phoenix, Arizona

April 22, 1942

HUMBOLDT SMELTER

SOUTHWEST METALS COMPANY
HUMBOLDT, ARIZONA

SMELTER LOT NO. 7.

SHIPPER'S LOT NO. 1.

ORE SETTLEMENTTO W.F. Grove and Sons
e/o Groom Creek Stage,
Prescott, Arizona. ("Storm Cloud")

RECEIVED: May 16, 1925.

SAMPLED: May 20, 1925.

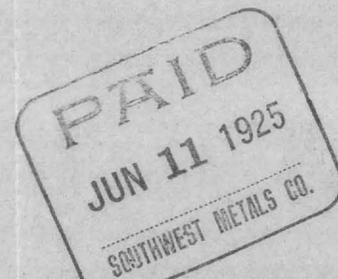
E. M. & J. QUOT. FOR week	ENDING May 13, 1925	CAR INITIAL	CAR NO.	WET WEIGHT LBS.	% MOIST	DRY WEIGHT LBS.
SILVER: 67.604	C PER OZ	A.T.	83647	100,940	1.2	99,728
COPPER: 13.367	C PER LB.					
LESS: 3.000	C PER LB.					
PAY AT: 10.367	C PER LB.					

CHARGES

PAYMENTS

EXCESS INSOLUBLE: % @ C \$	GOLD: .03 OZS. @ \$19.00 \$.57
TREATMENT: 5.00	3.71 @ 95% SILVER: 3.52 OZS. @ 67.604 ^c 2.38
5% OF GROSS VALUE OF SILVER	COPPER: 6.24 % = 124.8 LBS.
3C PER OZ. SILVER PAID FOR	Minimum LESS 12.0 LBS.
SMELTING TOLL	PAY FOR 112.8 LBS. 10.367 ^d 11.69
EXCESS LIME & IRON: % @ C CR.	TOTAL PAYMENTS PER TON \$ 14.64
TOTAL CHARGES PER TON \$ 5.00	TOTAL CHARGES PER TON \$ 5.00
	NET VALUE PER TON \$ 9.64

GROSS PROCEEDS: 49,864	TONS AT \$ 9.64	PER TON	\$ 480.69
FREIGHT: 50.47	TONS AT \$ 1.00	PER TON	50.47
SAMPLING CHARGE:			



AMOUNT DUE SHIPPER \$ 430.22

FIGURED: FPH

CHECKED: OFJ

AMERICAN SMELTING & REFINING COMPANY

HAYDEN PLANT

Hayden, Arizona, May 11, 1927

Bought of W. F. Grove & Sons,

Shipping Point Prescott, Arizona

Smelter Lot 350

Classification Storm Cloud Mine Crude

Shipper's Lot 1

CAR		WEIGHT IN POUNDS					N. Y. QUOTATIONS	
Number	Initial	Gross	Tare	Net	H ² O	Dry Weight	Date	
173532	AT	152620	47540	105080	1.2	103819	5-3-27	
							Silver .56125	
			Tons	52.54		51.9095	E. & M. J. 4-30-27	
							Copper .12802	
							Less .025	
							Net .10302	

PAYMENT FOR METALS								Value		
Elements	Assay Per Ton of 2000 Lbs.		% Deducted	Net Assay	Equiv. in Lbs.	% Paid For	Net Paid For	Rate	Amount per Ton	Total Amount
Gold	.07	oz.				100	.07 oz.	19.50	1.37	21.69
Silver	5.07	oz.	5%	4.8165		100	4.8165 oz.	.56125	2.70	
Lead		%					Lbs.			
Copper	9.30	%	15%	8.55	171	100	171 Lbs.	.10302	17.62	
Total Payment for Metals										21.69

Charges and Credits							Debits	Credits
BASE CHARGE F. O. B. HAYDEN PLANT							2.92	
Analysis		Required	Def.					
		Deduction	Max			Rate		
Insoluble	40.0	%	45	5%	%	@ .05 Cts.	.25	
Silica		%			%	@ Cts.		
Alumina		%			%	@ Cts.		
Zinc		%			%	@ Cts.		
Sulphur		%			%	@ Cts.		
As Sb Bi		%			%	@ Cts.		
Iron		%			%	@ Cts.		
Lime		%			%	@ Cts.		
Total Deductions								3.17
Net Value per Ton								18.52

		Debits	Credits
Total Value on	51.9095		961.36
Less Freight on	52.54		
Less Switching 12 1/2% Royalty to M. J. O'Brien, Ltd., Ottawa, Ontario		162.87	
Less Sampling		99.81	
Less Umpire Charges			
Balance Due Shipper		698.68	

MADE BY

BNH

CHECKED

JJB

CORRECT

APPROVED

[Handwritten signature]

3 me

STORM CLOUD MINE
CONDENSED MILL REPORT, JUNE 1928

Tons Ore Treated

Truck Estimate - 864.5 for month - 28.8 per day
Mill weight - 813.1 " " - 27.1 " "

Ore in bin June 1st - 59.2 tons
" " " July 1st - 110.6 tons

Assays for Month, simple average of daily assays:-

Percent Copper		
Head	Tail	Concentrate
3.48	0.39	23.51

By Assay Formula:-

$$\frac{3.48 - 0.39 \times 23.51}{23.51 - 0.39 \times 3.48} = 90.3 \% \text{ Copper Recovery}$$

Concentrate produced, assay formula:-

813.1 tons ore 3.48 % Copper 90.3 % Rec 23.51 Grade

$$\frac{813.1 \times 3.48 \times 90.3}{23.51} = 108.6 \text{ tons produced}$$

less 5 % transit losses and personal element

$$108.6 \times 5\% = 5.43 \quad 108.6 - 5.43 = 103.17 \text{ tons produced}$$

Ratio of concentration:- 7.88 tons of ore for each ton of concentrate.

Recovery Gold, Silver, Copper - Monthly Composite Assay

	Oz. Gold	Oz. Silver	% Copper
Head	0.05	2.6	3.68
Conc.	0.20	14.6	24.84
Tail	0.01	0.8	0.46

Gold Recovery	84.3 %
Silver "	73.2 %
Copper "	89.1 %

Copper recovery average for month 90.3 %. 89.1 % from composite assay.
90.3 % correct with tonnage produced.

Reagent Consumption

Total lbs. oil	113.84	Lime	2499.7
Total daily	4.07	Daily	89.3
Lbs. per ton	.19	Per ton	3.1

Grinding Ball Consumption

Total lbs.	1380
Total daily	49.3
Per ton	1.7

Operating time

Total Possible Hours	720
Hours operated	428
58 % possible time	

Mill Report Continued.

Summary

Ore treated	813.1 tons
Average Head	3.48 % Copper
" Concentrate	25.51 % Copper
" Tail	0.39 % Copper
" Recovery	90.3 % Copper
Concentrate produced	103.2 tons
Running Time	58.0 %
Total Lime Used	2499.7 lbs.
Total oil used	113.84 lbs.
Total Balls to Mill	1380. lbs.
Dry Concentrate produced	103.2 tons
Dry Concentrate Shipped	105.8 tons
Concentrate in Stock June 1st	7.46 tons
" " " July 1st	5.86 tons

Month's Comparative Results

	March	April	May	June
Ore Treated	1353.3	970.8	437.8	813.1
% Cu Head	1.66	3.18	3.37	3.48
% Cu Conc.	25.7	22.79	20.48	23.51
% Cu Tail	0.24	0.27	0.31	0.39
% Recovery	86.3	92.6	92.2	90.3
Conc Produced	72.0	119.6	63.1	103.1
Running Time	90.3	75.5	26.7	58.0

Low recovery for month due poor operation on first part of month. Loss of time due changing flow sheet and lowering pump in Ten Spot Shaft.

Geo. A. Kiebrich
Supt.

#12

MAGMA COPPER COMPANY

SUPERIOR, ARIZONA

Settlement No. 545

Smelter Lot 465

DATE July 31st, 1928

Shipper Lot H-145

BOUGHT OF Elford H. J. Baltor,

ADDRESS Prescott, Arizona, (concentrates)

CAR		WET WEIGHT			Moisture	DRY WEIGHT	N. Y. QUOTATIONS
Initial	Number	Gross	Tare	Net	%		
AT	46497	104460	40260	64200 32.1	10.8	57266 28.633	Date <u>July 18th, 1928</u> Copper (per lb.) <u>.14551</u> Less <u>.025</u> Silver (per oz.) <u>.55875</u> Gold (per oz.) <u>19.50</u>

ASSAY and ANALYSIS	PAYMENTS PER TON		DEBITS	CREDITS
Copper <u>10.15</u> Pct.	<u>363</u> lbs. per ton, less	<u>157 - 348</u> lbs at <u>.12031</u> Per lb.		<u>41.5676</u>
Gold <u>.15</u> oz.	<u>.15</u> oz. per ton	oz. at <u>19.50</u> Per oz.		<u>2.8350</u>
Silver <u>10.80</u> oz.	<u>10.80</u> oz. per ton less	<u>5% - 10.07</u> oz. at <u>.55875</u> Per oz.		<u>5.9387</u>
Insoluble <u>10.6</u> Pct.	units at	Per unit.		
Silica <u>2.5</u> "	units at	Per unit.		
Alumina <u>29.0</u> "	units at	Per unit.		
Iron <u>3.5</u> "	units at	Per unit.		
Lime <u>30.2</u> "	units at	Per unit.		
Sulphur	units at	Per unit.		
Arsenic	units at	Per unit.		
Antimony	units at	Per unit.		
Bismuth	units at	Per unit.		
Manganese	units at	Per unit.		
	Treatment Charge	<u>3.00</u>	<u>4.00</u>	
	TOTALS		<u>4.00</u>	<u>50.3316</u>
	Net Value Per Ton			<u>46.3316</u>

Total Value of <u>28.633</u> Dry Tons at \$ <u>46.3316</u>	Value <u>1326.61</u>
Less Freight <u>32.1</u> Tons at \$ <u>4.15</u>	<u>135.82</u>
Sampling <u>Additional treatment charge 15% Royalty on 1326.61 - 135.82 = 1193.39. Paid to H. J. O'Brien, Ltd., Ottawa, Canada, c/o G. H. Sylvester, Prescott, Arizona. Voucher No. H-515</u>	<u>179.01</u>
TOTALS <u>614.83</u>	<u>1326.61</u>
Amount Due Shipper—Voucher No. <u>3165</u>	<u>1014.50</u>

OK. as to terms & royalty.
S.H.C.

CALCULATIONS RE STORM CLOUD SHIPMENTS TO CLARKDALE

September 25, 1942

Assumed grade of ore: Au. 0.06 oz.
 Ag. 2.50 oz.
 Cu. 3.50 % = 70#

0.05
 2.00
 1.61
 1.05
 4.70
 3.00
 11.36
 3.50
 7.86

Payments per ton:

Smelter will pay for all gold @ \$32.20 per oz.	\$1.93
" " " " silver less 0.5 oz. @ 0.70	1.40
" " " " copper less 10# @ 9.5¢	5.70
Metals Reserve Company will pay 5¢ bonus on 60# copper	3.00
Total payments	\$12.03

Charges to be paid by shipper

Smelter treatment charge (may be reduced)	\$3.50
Trucking to Prescott (estimated)	1.00
Railway freight to Clarkdale (30 ton minimum car)	1.38
Royalty to owner	0.62
	<u>3.50</u>

Total charge	\$6.50	6.50
Net return to shipper		\$5.53

Mining and overhead costs (estimated)	\$2.53
--	---------------

Net profit to shipper	\$3.00
------------------------------	---------------

Rate on \$10.00 ore is \$1.06 and on ore with value of \$10.00 to \$15.00 rate is \$1.38. Value of this ore will probably be taken as \$12.03 per ton.

NOTE RE STORM CLOUD - - SIMIS LEASE

7/15/43

Shipment of about 40 tons or less made by Simis and Milner to Clarkdale from new shoot at north end of Galena Vein (?) ran as follows:

Cu	2.84%	}	2.71 @ 21.5 =	11.65	} <i>Simis</i>
Ag	0.21 Oz.		9.43 @ 71 =	6.70	
Au	0.008 oz.		0.08 @ 35 =	2.80	
				<u>21.15</u>	

~~Will barely pay trucking and smelter charges.~~

7/19

Sample regid for this shipment brought down by Simis & assayed by Leitch. ran

Cu = 0.05	had at Cu. 9.12
Ag = 6.2	Ag. 6.23
Cu = 2.70	Am. 2.56
	<u>17.91</u>
	7.51
	<u>10.40 B</u>
	Ins. 3.50
	Ins. 3.00
	Byggs 1.00
	<u>7.50</u>

By 10.00 to suff. of mining etc

STORM CLOUD MINE
MILL OPERATING REPORT, DECEMBER, 1928

Dry Tons Ore Treated

Truck estimate	241
Mill weight	261
Ore in bin Dec. 1st	20
Ore in bin Jan. 1st 1929	none

Assays for month simple average of assays & calc. recovery:

	<u>% Copper</u>		Recovery	Concentrate
Head	Concentrate	Tail	%	Tons Calc.
2.36	21.87	0.21	91.8	25.42

Substituting average grade of concentrate shipped for average percent copper, or 19.0 %:

$$\frac{2.36 - 0.21 \times 19.0}{19.0 - 0.21 \times 2.36} = 92.2 \% \text{ Recovery}$$

Concentrate produced by assay formula:

261 tons ore, 2.36 % Cu, 92.2 % Recovery, 19.0 % grade conc.

$$\frac{261 \times 2.36 \times 92.2}{19.0} = 29.8 \text{ tons}$$

Ratio of concentration, 8.7 tons of ore per ton concentrate.

Recovery gold and silver by assay formula from monthly composite samples:

	Oz Gold	Oz Silver	
Head	0.04	2.6	
Conc.	0.18	13.8	
Tail	0.001	0.3	
% Recovery	98.0	90.4	

Copper recovery from average months assays	92.2 %
Copper recovery from monthly composite samples	92.6 %

Reagent Consumption

Total lbs. oil	76.09	Lbs. lime	1893
Total daily	5.44	Lbs. daily	135
Lbs. per ton	0.29	Lbs per ton	7.2

Grinding Ball Consumption

Total lbs.	1200
Lbs daily	85.7
Lbs. per ton	4.6

Running Time

Total possible hours	744
Hours operated	130
Percent	17.4

MONTHLY MINE REPORT

STORM CLOUD MINE

DECEMBER, 1928.

Work was greatly curtailed this month on account of the flu epidemic which incapacitated the major portion of the operating crew. The mill operation was entirely suspended for over a week. The general lay-off for the holidays also cut the regular production.

The mine was worked with only a few men repairing track and timbering the south extension of 203 stope. A few machine shifts were worked in the 204 stope and a few rounds were broken in the 206 drift. The 350 foot level was unwatered for inspection by an examining engineer. No other work was done on the lower levels.

Total estimated tonnage ore produced	314.4
Less waste sorted at bins	<u>56.8</u>
Mill ore produced	257.6

Produced from-

(203 Stope	164 tons
Plus waste (204 Stope	143.2 tons
(206 Drift	81.6 tons

Ore storage estimated, 204 stope, 3200 tons
84 cars waste from 206 drift.

206 drift now running at right angles to normal strike of vein with about 8 feet of pyritic ore of no commercial value.

Geo. A. Kirkbride, Mgr.

STANDARD ORES CORPORATION

STORM CLOUD OPERATION

MONTHLY MILL REPORT

MAY, 1929

Dry Tons Treated 806.8
Truck Weight 806.8

Assays for month, simple average of assays:

C O P P E R				Concentrates
Head	Conc.	Tail	% Recovery	Calculated Tons
2.41	17.77	0.36	86.6	94.76

Method of calculation:

$$\frac{2.41 - 0.36 \times 17.77}{17.77 - 0.36 \times 2.41} = 86.6 \text{ Recovery}$$

Concentrate, assay formula:

806.8 tons ore 2.41 % Cu 86.6 % Recovery 17.77 % Cu Conc.

$$\frac{806.8 \times 2.41 \times 86.6}{17.7} = 94.76 \text{ tons produced}$$

Ratio of concentration, 8.5 tons ore to 1 ton concentrate.

Month's Shipments

Total lbs. copper shipped 33,253
Dry tons conc. shipped 86.88
Ounces gold shipped 16.96
Ounces silver shipped 853.53

Copper paid for at average price of \$ 0.1473 lb.
Silver 0.539 oz.
Gold 19.50 oz.

Complete Assays for Month

	Au	Ag	Cu	Fe	Insoluble
Head	0.06	1.8	2.39	19.0	53.4
Conc.	0.24	10.6	18.52	31.4	12.2
Tail	0.03	0.7	0.37	14.0	65.4
Composite of Thickener	0.22	9.4	18.31	31.3	

Mill Report, May 1929

Reagent Consumption

Total lbs oil	313.64	Total lbs. lime	4385
Lbs. per ton	0.38	Lbs per ton	5.43

Grinding Ball Consumption

Total lbs.	4340
Lbs. per ton	5.3

Larger per ton ratio due to recharging mill.

Running Time

Total possible hours	720
Hours operated	443
Percent	60.1

SUMMARY MILL

Ore treated	806.8 tons
Average head	2.41 % Cu
Average Conc.	17.77 % Cu
Average tail	0.36 % Cu
Calculated recovery	86.6 %
Running time	60.1 %
Flotation oil used	313.64 lbs
Total lime	4340 lbs
Dry conc. shipped	86.88 tons
Lbs copper shipped	33,253
Ounces gold	16.96
" silver	853.53

Operation confined to ore from 203 and 204 stopes considerably oxidized causing slightly lower recovery for the month.

Manager

STANDARD ORES CORP.
STORM CLOUD OPERATION

MONTHLY MILL REPORT

APRIL, 1929.

Dry Tons Ore Treated 1150.1
Truck Weight 1150.1

Assays for month, simple average of assays:-

C O P P E R				Calculated Tons
Head	Conc.	Tail	% Recovery	Concentrate
2.41	20.23	0.24	91.1	124.9

Method of Calculation

$$\frac{2.41 - 0.24 \times 20.23}{20.23 - 0.24 \times 2.41} = 91.1 \% \text{ Recovery}$$

Concentrate produced, assay formula:-

1150.1 tons ore, 2.41 % Cu, 91.1 % Rec., 20.23 % Cu Concentrate

$$\frac{1150.1 \times 2.41 \times 91.1}{20.23} = 124.9 \text{ tons produced}$$

Ratio of concentration, 9.1 tons ore to 1 ton concentrate.

Month's Shipments

Total pounds copper shipped	-	35,027.48
Dry Tons concentrate shipped	-	90.45
Ounces gold shipped		20.8666
Ounces silver shipped		908.022

Copper paid for at average price of 0.176834	¢	per lb.
Silver " " " " " "	"	0.5534 ¢ per 1K. Oz
Gold " " " " " "	\$	19.50 per Oz

Composite Assays For Month

	Au	Ag	Cu	Fe	Insoluble
Head	0.06	1.7	2.43	18.01	53.0
Conc.	0.24	11.5	20.41	30.10	10.4
Tail	0.03	0.6	0.26	15.1	61.5

Composite of Thickener Conc. Assay

Au	Ag	Cu	Fe	Insoluble
0.23	10.0	19.20	29.0	11.0

Reagent Consumption

Total lbs oil	314.46	Total lbs lime	7141
Lbs daily	10.84	Lbs daily	246
Lbs per ton	0.273	Lbs per ton	6.2

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AMERICAN SMELTING & REFINING COMPANY

HAYDEN PLANT

Hayden, Arizona, April 3rd, 1929

Bought of Bluford H. J. Balter,

Shipping Point Prescott, Arizona

Smelter Lot 268

Classification Concentrates

Shipper's Lot 9

CAR		WEIGHT IN POUNDS					N. Y. QUOTATIONS	
Number	Initial	Gross	Tare	Net	H ² O	Dry Weight	Date	
35023	AT	113260	40800	72460	10.8	64634	3-28-29	
							Silver	.563125
							E. & M. J.	3-23-29
								.23475
							Copper	:0186875
							Less	:2160675
							Net	.025
			TONS	36.230		32.317		.1910675

PAYMENT FOR METALS										Value	
Elements	Assay Per Ton of 2000 Lbs.		% Deducted	Net Assay	Equiv. in Lbs.	% Paid For	Net Paid For		Rate	Amount per Ton	Total Amount
Gold	.18	oz.		.18		100	.18	oz.	19.50	3.51	
Silver	8.58	oz.	.50	8.08		100	8.08	oz.	.563125	4.55	
Lead		%						Lbs.			
Copper	15.70	%	15	14.95	299	100	299	Lbs.	.1910675	57.13	
Total Payment for Metals											65.19

Charges and Credits

BASE CHARGE F. O. B. HAYDEN PLANT	Debits	Credits
	2.50	

Analysis	Deduction	Net	Rate
Insoluble	%	%	@ Cts.
Silica	%	%	@ Cts.
Alumina	%	%	@ Cts.
Zinc	%	%	@ Cts.
Sulphur	%	%	@ Cts.
As Sb Bi	%	%	@ Cts.
Iron	%	%	@ Cts.
Lime	%	%	@ Cts.

Total Deductions		2.50
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Net Value per Ton		62.69
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	Debits	Credits
Total Value on 32.317 Dry Tons @ 62.69 per Ton		2025.95
Less Freight on 36.23 Wet Tons @ 4.55 per Ton	164.85	
Less Switching 15% Royalty to M.J. O'Brien, Ltd., Ottawa, Canada	279.17	
Less Sampling % G.M Colvocoresses, Humboldt, Arizona		
Less Umpire Charges		
Balance Due Shipper	1581.93	

alg. as to terms & royalty - G.M.C.

MADE BY **AWL** CHECKED **EWV** CORRECT APPROVED

#41

AMERICAN SMELTING & REFINING COMPANY

HAYDEN PLANT

Hayden, Arizona, September 30, 1929

Bought of Standard Ores Corp.

Shipping Point Frescott, Arizona.

Smelter Lot 924

Classification Concentrates

Shipper's Lot 19

CAR		WEIGHT IN POUNDS					N. Y. QUOTATIONS	
Number	Initial	Gross	Tare	Net	H ₂ O	Dry Weight	Date	
131670	A.F.	69760	44360	25400	24.7	19126	9-16-29	
							Silver	9-21-29
								.006625
							E. & M. J.	9-21-29
								.17650
							Copper	.004125
							Less	.172375
							Net	.025
								.147375
			TONS	12.7		9.563		

PAYMENT FOR METALS								Value	
Elements	Assay Per Ton of 2000 Lbs.	% Deducted	Net Assay	Equiv. in Lbs.	% Paid For	Net Paid For	Rate	Amount per Ton	Total Amount
Gold	.155 oz.		.155	100		.155 oz.	16.50	2.63	
Silver	10.85 oz.	5 %	10.3075	100		10.3075 oz.	.506625	5.21	
Lead	16.70 %	15 %	15.95	319	100	319	Lbs.		
Copper							Lbs.	147375	47.01
Total Payment for Metals									54.85

Charges and Credits							Debits	Credits
BASE CHARGE F. O. B. HAYDEN PLANT							2.50	
Analysis	Deduction	Net			Rate			
Insoluble	%		%		@ Cts.			
Silica	%		%		@ Cts.			
Alumina	%		%		@ Cts.			
Zinc	%		%		@ Cts.			
Sulphur	%		%		@ Cts.			
As Sb Bi	%		%		@ Cts.			
Iron	%		%		@ Cts.			
Lime	%		%		@ Cts.			
Total Deductions								2.50
Net Value per Ton								52.35

PAID

SEP 30 1930

AMERICAN S. & R. CO.
HAYDEN, ARIZ.

		Debits	Credits
Total Value on	9.563 Dry Tons @ 52.35 per Ton		500.32
Less Freight on	12.7 Wet Tons @ 3.75 per Ton		47.63
Less Switching	15% Royalty to H. J. O'Brien Ltd Ottawa Canada, % G. M. Calvo Coresos, Humboldt, Arizona.	112.50	
Less Sampling		50.22	
Less Umpire Charges			
Balance Due Shipper		329.90	

*Ch. as to terms & royalty
G. M. C.*

MADE BY

CHECKED

CORRECT

APPROVED

Shipments from Storm Cloud Mine made by Messrs. Grove & Son during 1925, 1926 and 1927.

Total, 1830 tons, average assay:

Gold: .065 oz; Silver: 4.50 oz; Copper: 8.50%.

Same can be verified by consulting settlement sheets of Southwest Metals Company at Humboldt and American Smelting & Refining Company, Hayden.
