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PRINTED: 05/30/2002

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: PIONEER

ALTERNATE NAMES:
WHITE METAL MINING CO CLAIMS
DEVINE PROPERTY
GREAT REPUBLIC PATENT MS 370
PIONEER SOUTH PATENT MS 374
HOWARD SHAFT

GILA COUNTY MILS NUMBER: 57

LOCATION: TOWNSHIP 2 S RANGE 15 E SECTION 29 QUARTER N2
LATITUDE: N 33DEG 14MIN 05SEC LONGITUDE: W 110DEG 50MIN 10SEC
TOPO MAP NAME: EL CAPITAN MTN - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
SILVER
LEAD
ZINC
COPPER

BIBLIOGRAPHY:
USGS EL CAPITAN MTN QUAD
AZ MINING JOURNAL NOV 1919 P 48
WEED W H THE MINES HANDBOOK VOL 15 1922 P 434
1931 P 467
BLM MINING DISTRICT SHEET 672
ADMMR PIONEER MINE FILE
ADMMR "U" FILE AG 6
AZ MNG JRNL JUN 15 1922 P 30, 31, 36 & 37

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES

INFORMATION FROM MINE CARDS IN MUSEUM

Arizona, Gila County
Pioneer mine MILS #57

MM M 525 Galena

5-AKA's

Pioneer mine file

CONCENTRATES

(Continued from Page 13)

commission to sell 100,000 shares of treasury stock at par to "colored people." The company asking right to sell stock only to negroes is composed entirely of negroes, and has incorporated with a capital stock of $5,000,000 divided into 5,000,000 shares at $1 a share. The property is located in the Comobabi mining district.

PINAL

Discovery of a new vein of rich silver ore, running 100 ounces or better on the surface, and paralleling the famous Pioneer vein, is an outstanding development of recent operations at the White Metal Mining Company's property at Pioneer. The new vein, which adds the third major vein to the property, is reported to be from twelve to fourteen feet wide, and is to be tapped as soon as possible by a tunnel, work on which has been started.

YAVAPAI

Thirty men were laid off November 30 at the United Verde Extension. President Douglas states that the company will not reduce its force any further, and that important construction work is contemplated, among which will be the concreting of the Edith shaft from collar to bottom.

It is reported that Superintendent Engelder and R. E. Moore of the Shea mine are in Boston arranging for finances necessary for the further development of the property, and are also having the stock listed on the Boston exchange. Present plans at the mine call for a continuation of the cross cut on the tunnel level to the north line of the property, for the sinking of the shaft an additional several hundred feet, and for drifting on the ledge cut by the crosscut and which carries considerable values in silver and tetrahedrite.

A whole mountain of mineral paint is said to have been discovered on the Verde river, about sixteen miles north of Jerome, by James Hubbard and W. T. Steineman. Three claims have been staked out and the men are now completing their location work.

The Inspiration Consolidated Copper Company reduced its working force at the mine by 104 men during the week of November 27. Forty-four men were laid off on the day shift and 30 men each on the afternoon and night shifts. The majority of the men laid off were Mexicans, with a few Americans carried as extra men.

M. N. Andrews of the Paloma Verde Mines Company, reports that a force of men and a number of supplies have been sent to the property of the company, and that operations are to be resumed at once.

Two tunnels are being driven and a shaft sunk at the Verde Central. The shaft is started from the No. 1 tunnel, right on the vein. It is now twenty feet below the tunnel level and in ledge matter all the way. The total depth from the surface is about 120 feet. No trouble is being experienced with the compressor or any of the other machinery. Sixteen or seventeen men are on the payroll. There is a possibility that a second shift will be put to work soon.

George Donner of Crown ... of the Gold King mine, rep... erations at present consist ... face work, shaping up, and ... tion of a wagon road from ... the railroad.

The Tip Top, Joker and K... claims in the Tip Top distr... Heath, Kates, Deering and ... claims in the Silver Mount... were recently bought in at ... by Frank L. Carlisle, acting ... and as trustee for H. C. De... H. W. McIntosh.

The Big Muddie Mining C... cently inocrporated under the ... state, has taken over a gro... claims near Pine Flat in ... Creek district. The propert... merly held under lease by M... Scholey and Johnson. The n... will steadily pursue devevolpm... 50-foot shaft.

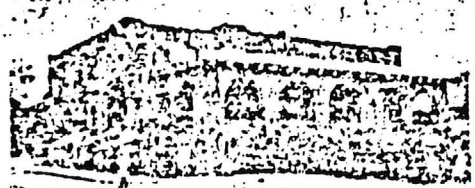
Lester Jackson, one of the ... the War Eagle-Gladiator gro... that this property was recently ... under permanent lease by the ... Mining Company, and that ... agreed upon is 25 per cent ... Philadelphia people have a fou... foot tunnel on the Nelson veir... this tunnel a cross cut can be ... 600 feet to open the ores o... Eagle vein. This will cut the ... vein at a perpendicular depth ... 1,250 feet, and in the center ... shoot which was demonstrated ... on the surface.

The Shannon Mining Compa... tinuing to drift at the 900 le... small force at the Yeager Ca... The drift is now in over 700 f...

...ore, under 100 ounces, goes directly ...the mill.

The work in the mine is such that is is ...ssible to classify this ore largely under-...ound and mine the different classes sep-...rately, thus permitting of a considerably ...reater production in silver than can ...me from the mill alone, for the higher ...rade ores are everywhere encountered ...hile mill ore is being extracted, and it ...s anticipated that, even with the 50-ton ...ill it will be possible to handle a gross ...roduct of $25,000 a month, this figure ...eing based upon he work that was done ...st prior to shutting down and during ...he 30 days that the mill was in opera-...tion.

The starting of the work at this time ...s the advantage of the increasing price ...f silver as well as the large demand for ...ilver and the shortage of the metal. ...While silver is protected in price for a ...imited amount under the Pittman act, ...t is believed by those that are following ...he silver market that it will be a great ...many years before the amount authorized ...under the Pittman act will ever be pur-...chased by the government, as it is likely ...that the price on silver will be greater ...than that offered by the government, ...$1.00 per ounce.



Smelter Y. M. C. A.

The condition of the silver market at the present time makes the interest in silver mining greater, for it is felt that, throughout the world, silver must be used as a metal reserve, there not being enough gold for that purpose. Probably two-thirds of the silver comes as a by-product of copper, lead, zinc and other base metals, and with the decline in production of these metals there has been a consequent decline in the amount of silver available. The price of silver sloughed off in 1920 from $1.37 to about 65 cents an ounce, largely due to the fact that normal coinage was neglected during that time, but this condition is righting itself with a consequent rise in the price of that metal and with a complete righting of the situation it will not be surprising to see a price higher than $1.00 for the metal.

Early day Arizona was known for its silver mining, and the history of the state revolves about the Pioneer, the Silver King, the Old Dominion, the United Verde, El Capitan and others, but the development of the big copper mines has rather obscured the possibilities of silver and it is believed that the revival of production in some of these old-time silver bonanza mines will again cause an interest in the white metal. The White Metals Mining Company is about the only one of the old silver mines that is again ready to produce, and it is believed that its regular production will do much to stimulate that interest.

ARIZONA HERCULES PREPARES RESUME PRODUCTION SOON

(Continued from page 28)

The equipment at the mine includes a double drum, electrically driven Nordberg hoist, capacity 300 tons per hour, and an Ingersoll Rand Class P. R. E., 2 electrically driven compressors. The coarse crushing plant which is at the No. 1 shaft consists of one No. 8 gyratory and one set of Traylor rolls. The ore is handled here through the sampling mill and into a 5000-ton capacity ore bin. The crushing plant has a capacity of 1200 tons in eight hours. The ore is then transported 5½ miles to the mill at Belgravia, being handled to a 2000-ton bin.

The mill as originally constructed contained 3 Marcy mills, 3 Hardinge mills, 15 Diester Overstrom tables, 42 Callow Flotation Cells, 9 Dorr Classifiers, 3 Oliver Filters and 2 Connersville Blowers. The remodeling of the mill involve the removing of the Callow cells and replacing them with the Hercules type cells. Experiments during the latter part of the operation of the mill showed that an increased capacity could be obtained with a greater saving, all by changing the flow sheet in the flotation section.

The Ray Hercules has been a producing mine for a short time. During its first year of operation, with numerous handicaps, shutdowns, etc., it produced about 5,000,000 pounds of copper, the last month producing 800,000 pounds. With the improved plans for an additional capacity it should be in position to produce around 2,000,000 pounds a month.

The figures made relative to ore reserves, recovery, and costs were made by a conservative engineer, and it looks now — from the activity at the Ray Hercules property — as if those figures were soon to be realized in practice and the enterprise be safely and profitably under way to take advantage of the wave of prosperity in the copper industry when it comes.

WHITE METALS COMPANY READY FOR LARGE PRODUCTION

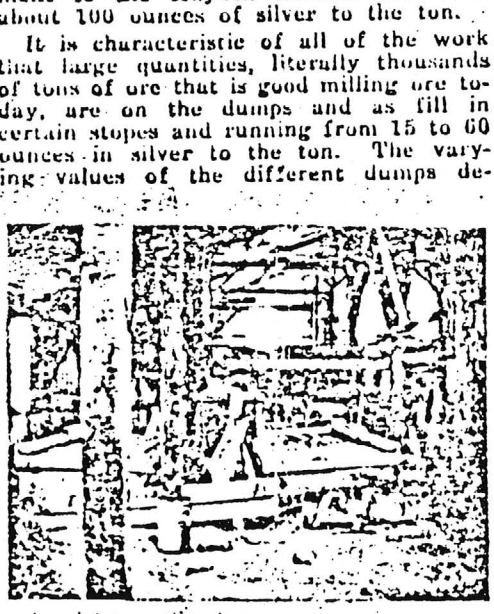
(Continued from page 30)

The width of the Pioneer vein that can be worked for commercial ore is about 20 feet above the tunnel level, although from 2 to 3 feet has already been extracted to the surface along the high-grade streak. Both of the veins have been extensively developed by two cross-cut tunnels about 250 feet apart, each of them cutting across the veins with a large amount of drifting on the veins. Considerable length of stoping ground is now ready, with chutes installed, for stoping operations.

In addition to the tunnel development, there are a considerable number of shafts on the property, none of which are open, however, except as they have been raised from the tunnels in order to form chutes for handling the ore from the upper workings to the tunnel levels and thence to the mill.

A feature of the workings on the old Pioneer and Howard properties is the extensive silver-bearing dumps, the results of the old-time development along the veins in the development of the high-grade ore and the results of cobbing the high-grade and making it ready for shipping. A cobbing dump was recently uncovered, having been covered for many years by a wind-blown sand, and this dump has been rough sorted and a considerable quantity is now ready for shipment to the Hayden smelter and runs about 100 ounces of silver to the ton.

It is characteristic of all of the work that large quantities, literally thousands of tons of ore that is good milling ore today, are on the dumps and as fill in certain stopes and running from 15 to 60 ounces in silver to the ton. The varying values of the different dumps de-

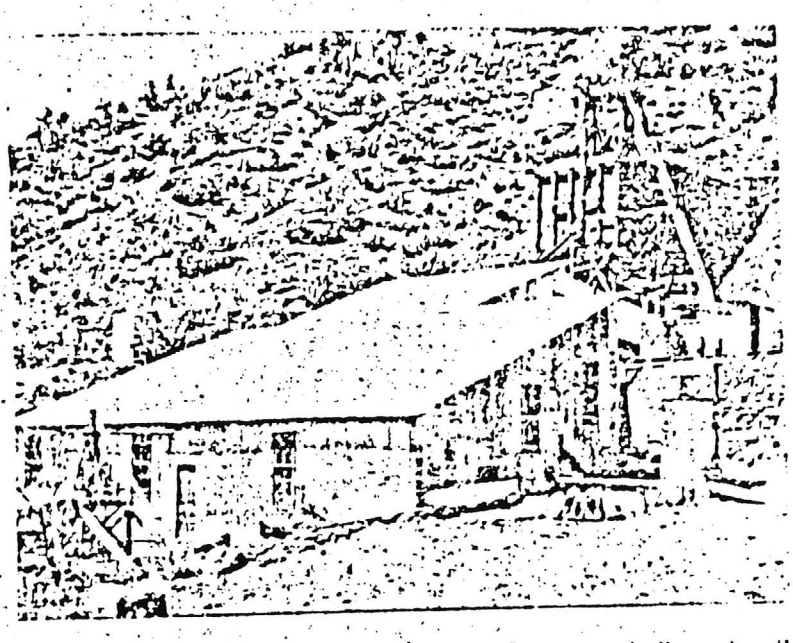


Interior of White Metals Mining Company mill

ponds largely upon the care with which the ore was put upon the dump and the intermixing with waste coming from the cross-cutting to the veins.

As further evidence of the values that were left behind from the work of the early-day miners, the tailings dump from an old milling plant of many years ago showed a value of 29 ounces of silver. It is not known just when the plant was operated or the character of the plant, as nothing but the tailings dumps and the remnants of the foundations of the machinery remain to tell the story of 29 ounce tailings.

However, the fact that thousands of tons of mill ore lay on the dumps and that blocks of 600x170x7 in the Howard vein and 600x100x20 in the Pioneer vein led to the construction of a small milling plant just before the period of financial and mining depression and this mill was completed and run for about thirty days on tests prior to stopping the work on the closing of the mining industry of the southwest and the stopping of the smelters.



New 50-ton mill at White Metals Mining Company, built to handle the silver sulphide ores of the historic Pioneer mine

While the mill is designed primarily to handle and save the sulphide values, there are some little chloride values present; however, it was found that close to 80 per cent extraction could be obtained. The mill has a capacity of 50 tons daily, and was so built that the capacity could be easily doubled. It was designed primarily to handle the dumps and the ore that could be extracted above the tunnel workings and from the proceeds of the mill to develop at greater depth and ascertain from the deeper development the plant changes that might be necessary to handle the ores of a lower horizon. The large quantities of ores that were already available assured the mill of continuous operation for a long while.

The testing for the mill was done by the Southwestern Engineering Company of Los Angeles and the construction of the plant was by Kennard & Bierce of Los Angeles. The milling plant consists of a coarse crushing plant from which the ore goes to a bin. This ore is fed by belt conveyor to a six-foot Hardinge mill, which operates in closed circuit with a simplex Dorr Classifier, the overflow going to a K. and K. Rougher flotation machine, followed by a K. and K. cleaner machine, and then by two Plato-Deister tables. The dewatering is done in a Dorr thickener. The mill building is frame and covered with galvanized iron, and all floors and foundations are concrete. An electric lighting plant furnished the illumination for the night operation. Power for the plant is supplied by a 20 H. P. Western engine running the crusher and a 60 H. P. Western engine running the balance of the plant and the generator. The milling plant is simple and efficient, well designed and capable of satisfactorily and adequately handling its part of th work.

The whole plant of the White Meta Company is well equipped to handle the work. A main shaft is proposed to b sunk vertical to a depth of 500 fee This shaft is now down about 100 fee and it is planned to resume operation on the shaft with the resumption of wor The shaft has a concrete collar and well timbered throughout. It is locate between the Pioneer and Howard vei and drifting will be done to and on veins when a depth is reached below t that can be reached through the two t nels. The surface equipment on the sh consists of a 40 H. P. Western hoist 120 H. P. duplex Western engine attac to a 600 cubic foot Laidlaw Dunn Gor compressor. Ingersoll Rand drills used throughout the property. In a tion, all of the necessary shops grouped around the shaft, which eventually be the main operating base

The camp is well equipped in ev manner and is capable of comforta accommodating fifty men, the houses employees are well built and the c is most conveniently arranged for m mum comfort. An excellent supply water for both domestic and mill purpo is at hand. Transportation is taken c of by two 2½-ton trucks and one 3- truck.

The White Metals Mining Company about to get on to a producing basis the time when the post-war financial pression came on, and this, combi with the stopping of the smelters, low price of silver and other fac stopped their work, which is now al to be resumed. The resumption of work at this time is under the most picious circumstances, as the whole p is "ready to go," the mill completed, ple ore already mined to last until a time as the new shaft can take of all of the needs of the mill.

They use and A, B, C and D classifi tion of ore. The A ore runs over ounces and is to be shipped direct to smelter. The B ore runs from 200 600 ounces in silver and is sorted shipped to the smelter, the sortings g to the mill. The C ore runs from 10 200 ounces and is mined closely so with the cobbings going to the mill

graphic features consisting of pointed mountains, one side being a gentle slope along the bedding of the limestones and quartzites and the other side being sharp cliffs where the blocks have slipped below probable 300 feet and started another gentle slope and another hill pointing to the north.

Underlaying the sedimentaries is a sill of diabase, this being capped by Troy quartzite, then Martin and Tornado limestones. The saddle between these hills consists of the diabase, which ordinarily overlaps to some extent the lowered blocks of sedimentaries as they again start their up slopes.

Cutting across these sedimentaries on the fifteen claims of the White Metals Company are two approximately parallel veins, these veins cutting all of the formations and running about 300 to 350 feet apart. In the early-day mining it was thought that these veins did not extend into the diabase but were cut off at that horizon, but recent work has disproven that theory and the veins have been found to extend into the diabase, which makes them promising for considerable depths. They are both strong leads, extending for a known distance across the country of about a mile, and both how the same characteristics in so far as their mineral-bearing proclivities are concerned. In the area between the two major veins are numerous smaller mineralized veins, evidently sympathetic in nature and of little value commercially. These veins, however, are persistent and extend for considerable lengths, but their width does not permit of economical mining.

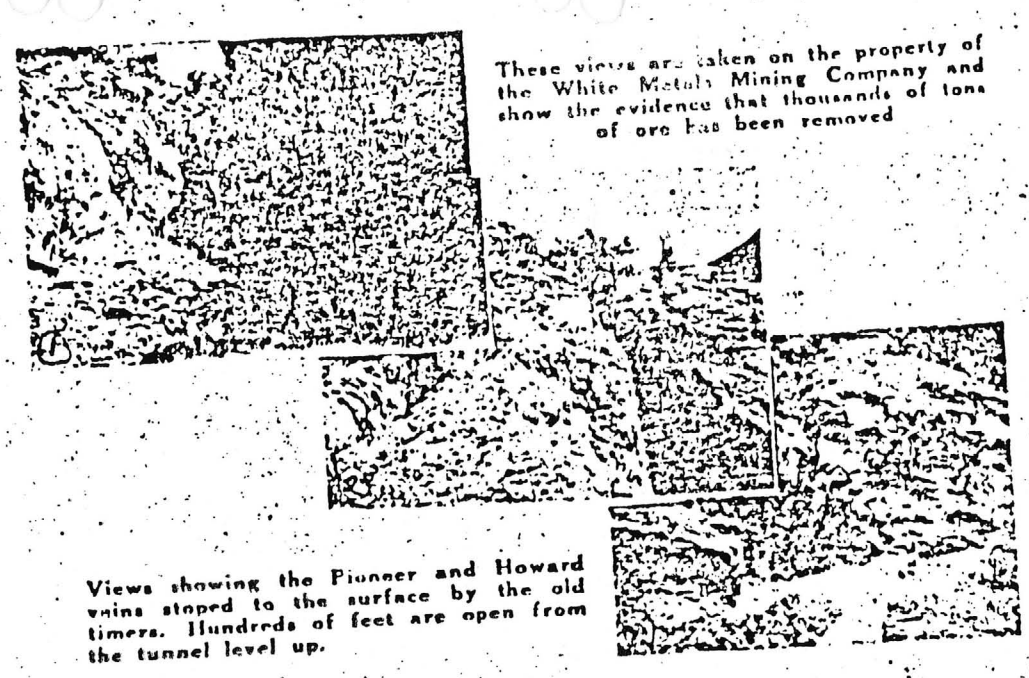
The two veins were both worked extensively during the early days and are known as the Pioneer and Howard veins, the former having been worked in the seventies and eighties by the Pioneer Mining Company and the latter by the Howard Mining Company. They are similar in every way, in mineralization and in all essential characteristics except that the Pioneer vein shows a considerably greater width of ore. Both veins show the same type of high-grade paystreak with about the same widths and values.

The veins themselves are quartz veins, porous or honeycombed to a considerable extent, and contain the sulphides, chlorides and bromides of silver, the sulphides predominating. Some lead is in evidence; also a little zinc, but no copper. The mineralization extends into the bedding planes of the quartzite, where the veins pass through that rock and thus produce a greater width of mineralization at that place.

The high-grade portions of the vein, from which large quantities of ore have been removed above the tunnel levels, generally stick close to the footwall and are continuous over all of the vein that has as yet been worked, although it varies greatly in width, sometimes being workable to a width of two feet and sometimes reducing to only a knife blade width, but always present. However, for the greater part of the 600-foot length that both of the veins have been worked, the high-grade pay streak has been of sufficient width to be profitably handled.

The Howard vein has been opened for a length of 600 feet and a depth of 170 feet, or from the tunnel level to the surface, all of which has been worked for high-grade shipping ore during the early days and all of which contains large quantities of milling ore above the tunnel level, to say nothing of the possibilities of high-grade ore that lay beneath the level at which the work has been stopped. The Pioneer vein is lower down on the hill, and has, therefore, a less stoping height above the level of the tunnels. It also is opened for a length of about 600 feet and for a vertical height of about 100 feet.

(Continued on page 36)



These views are taken on the property of the White Metals Mining Company and show the evidence that thousands of tons of ore has been removed

Views showing the Pioneer and Howard veins stoped to the surface by the old timers. Hundreds of feet are open from the tunnel level up.

New shafts are shown in the foreground and the new mill is on the right. Employees' houses are directly in front

WHITE METALS CO. READY FOR SILVER PRODUCTION

One of the oldest mines in the state and one of the pioneer producers of silver is now ready to handle property on a substantial scale.

One does not have to be long around the old-timers on the south slope of the Pinal mountains to hear plenty of tales of long ago, when, between Indian attacks and in the midst of untold difficulties, they searched for and found veins of high grade silver running from 1000 to 1500 ounces to the ton, and every story in that section centers around the old Pioneer mine, for that was one of the very first ones; was on the old stage road from Globe; and was, in itself, a very large producer of high-grade silver sulphides, chlorides and bromides. The fact that the old Pioneer mine was one of the oldest and one of the largest producers in that section led to that camp being the place from which the activity radiated and the point from which the silver ore and bullion was shipped.

While the early records on the Pioneer mine, covering the production during the latter part of the seventies and the early eighties, is not complete, it is known that considerably over a million dollars' worth of the high-grade ore has been shipped from shallow workings, and the evidence is still on the property which shows the amount of ground that was stoped by the early-day miners in getting out that value. But they were only after very high-grade material. They could not use rock that ran only a hundred ounces, or even more, for it would not pay the cost of wagon transportation to Yuma and shipment to Wales for treatment. So that it was necessary in the early-day work to cob the ore closely, with the result that thousands of tons of ore running from 15 to 100 ounces per ton was left for future generations and improved metallurgical processes to handle.

While today the high-grade streaks are just as much in evidence in the old Pioneer mine as they ever were, it is possible to handle all of the ore; for anything above 12 ounces can be handled at a profit. It was not unusual in the old work to find a vein running 20 to 25 feet wide and the stope from which the high-grade ore was extracted just wide enough to work in, and leaving large quantities of ore broken down on one side and ready to strip, ore that should now pay a good profit but which would pay no profit forty years ago.

Stope after stope is open to the surface, two to four feet wide, all of them above the level that could be worked by an adit tunnel and in each and every one of the stopes there is still the high-grade yellowish seam that the miners of two decades ago were working but still with thousands and thousands of dollars' worth of what is today high-grade ore laying on the walls ready to be extracted and milled.

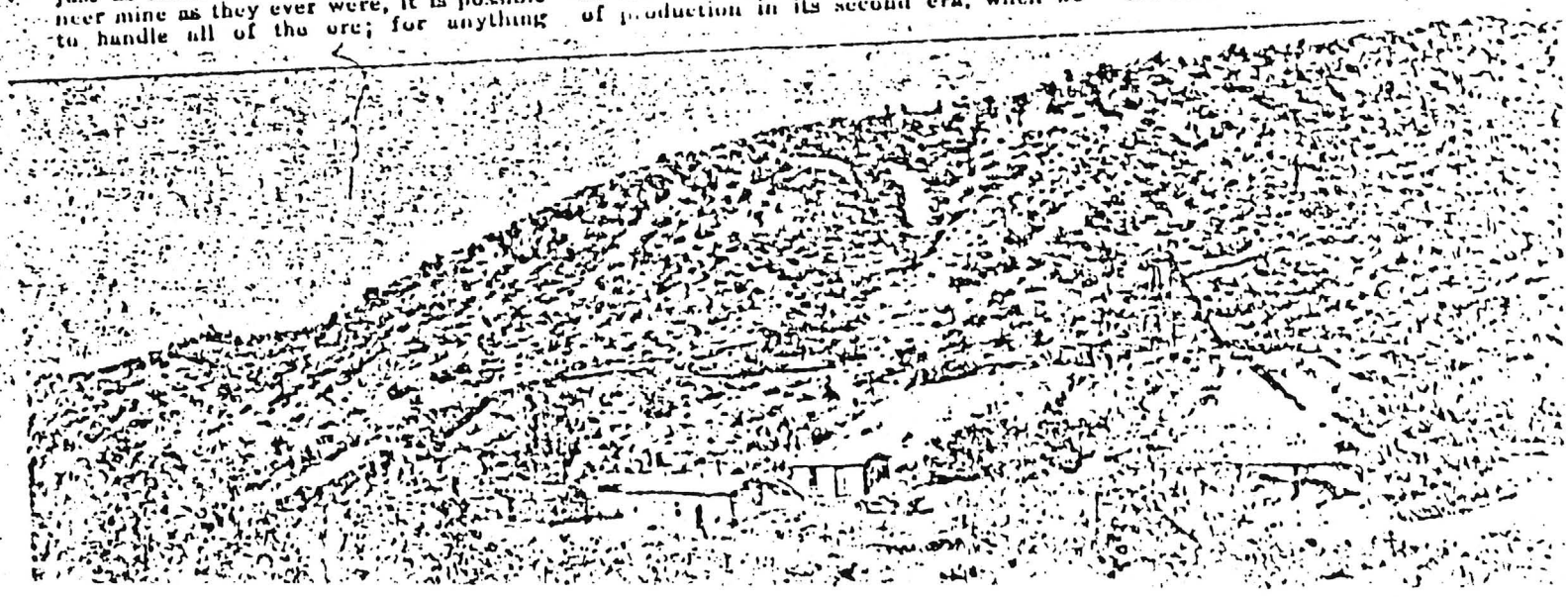
It was twenty years ago, even when this section of the country was still in an isolated state and when the advancement of the science of mining and milling had not yet reached the state where the cobbings of the old days could be handled profitably, that J. C. Devine first examined the property and determined that some day he would be the one to take hold of that old mine and realize on the ore that the early-day miners left behind, as well as to continue the work on the high-grade at a depth which they, with their lack of machinery, could not handle.

It was not until 1917, however, that the White Metals Mining Company was organized by J. C. Devine and associates for the purpose of handling the old Pioneer mine, the large producer of Arizona Indian days, and today the White Metals Mining Company is on the eve of production in its second era, when 50 and 100-ounce silver ore will yield pr tically as great a profit as did the hi grade ore of the early eighties.

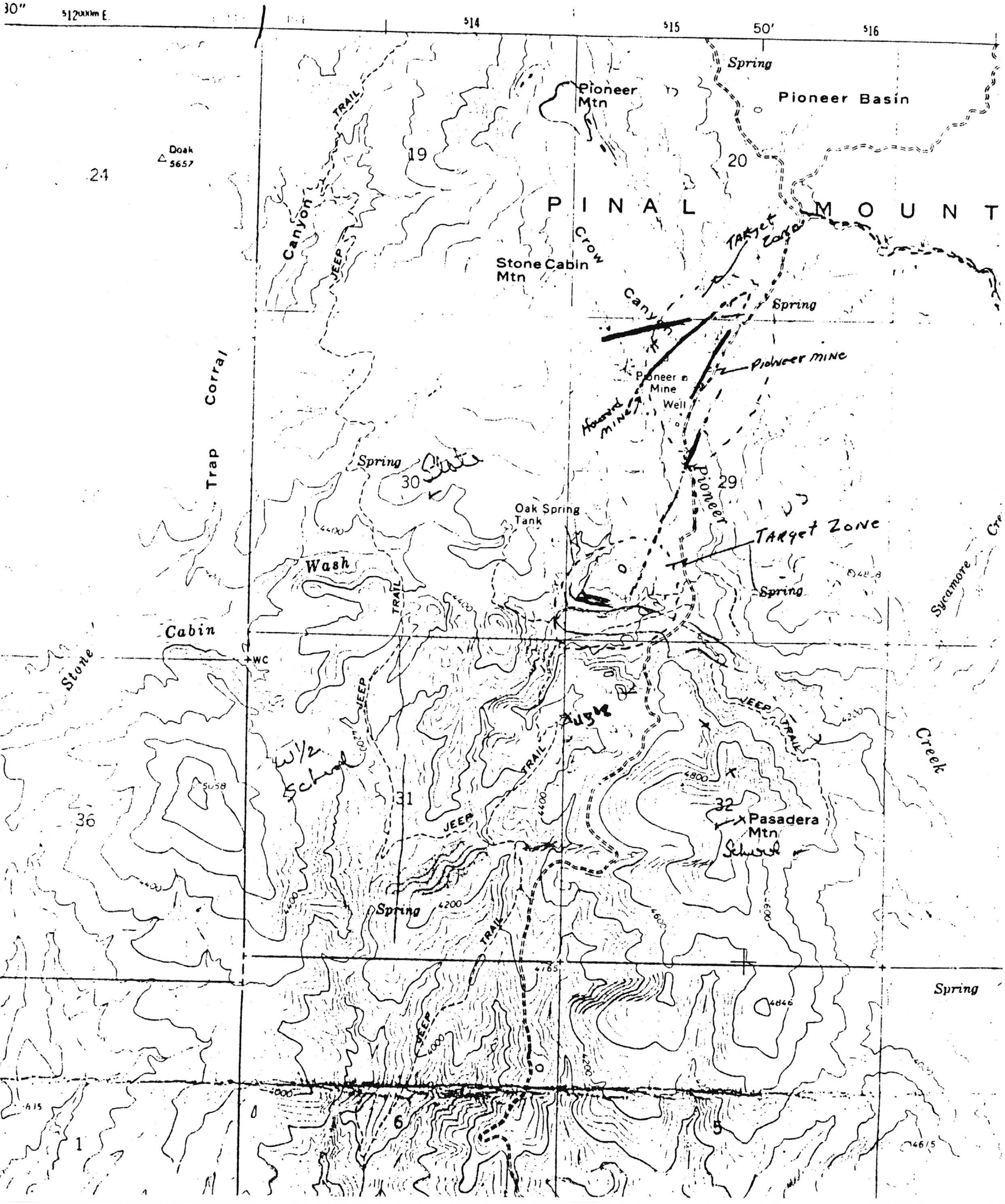
The property of the White Metals M ing Company is situated directly at old stage camp on the Pioneer highw from Globe to the south, and, until a few years ago, was the only method going south from Globe. It is about miles from Kelvin and a slightly les distance from Christmas, either of wh points may be used for rail connection While it is probably less in mileage f Globe, this requires the crossing of Pinal range or the connection with El Capitan highway, thus the outlet the south is an economic preference new road is being built, however, that off about five miles to Kelvin and pr eases the grades necessary to get f the mine at 4500 feet elevation to railroad at about 2000 feet.

Probably one of the greatest factor delaying this second era of produc the old Pioneer mine has been its cessibility, although today, due to provements in metallurgical processes is possible to profitably work ore could not be handled even ten years so that it is now possible to handl greater amount of ore that can mak profit than could have been handle the property had been more access Today, however, with motor truck t portation and improved roads, the $2 a ton hauling charge to the railroad been reduced to about $4.00 a ton h handled by one of the White Metals or 5-ton trucks.

Geologically, the property of the W Metals Mining Company is situated i midst of the uptilted sedimentaries o southern slope of the Pinal mount the structure forming characteristic



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



PIONEER GILA COUNTY

RRB WR 5/27/88: Rene Steensma (card) President, Miami Testing Inc., 1303 Brown Dr., Socorro, NM 87801, (505) 835-3082 and 1960 W. Keating #613, Mesa, AZ 85202, (505) 839-4552 reports that he has many years experience with refractory manganiferous ores and that he now has a pilot plant in Fountain Hills. If they can prove enough ore at the Pioneer Mine (file) Gila County they intend to put it into operation.

PIONEER MINE

GILA COUNTY
PINAL PEAK DISTRICT

According to Kaempf, Lynn Sheppard and his mother of Globe own the Pioneer mine, that consists of 15 lode claims. Part of the ground is patented and is under homestead. The property lies 3 miles south of Kaempf's So & So claims. The mine is reported to have produced about $1,300,000 in silver. (see file)

10-21-64 - Memo - LAS - conference with August Kamepf at Superior.

Stopped at the old Pioneer Silver Mine which belongs to Mr Sheppard. GWI WR 2/26/76

KAP WR 1-4-80: Traveled to Pioneer Mine, Pioneer Mining District, Gila County. (A separate report will be written.)

KAP WR 5/29/81: John Challinor reported he is sampling at the Pioneer Mine, Pinal Mountains, (Pioneer District), Gila County.

KAP WR 7/31/81: John Challinor explained that he has been involved in a sampling and evaluation project on the Pioneer Mine, Pinal Mountains District, Gila County. He went on to explain that he is agent and project manager on the property for Silver Ana Incorporated. The mine is owned by Lynn Sheppard, leased to White Metal(Tom Clary etal) which in turn has assigned the lease to Silver Ana.

NJN WR 12/2/83: Floyd Bleak, 4142 Winfield Scott Plaza, Scottsdale, visisted and reported that he has the Pioneer Mine in Gila County and will be dloing some open pit mining there soon.

KAP WR 12/23/83: Fred Johnson, P.O. Box 2162, Durango, Colorado 81301, Ph: (303) 247-0118, a consultant, reported that one of this clients has been solicited by a group reportedly involving Tom Cleary to invest $3,000,000 in an on-going silver mining operation at the Pioneer Mine, Pinal Mountain District, Gila County. Mr. Johnson reported his client had been told the mine was currently producing '00 ounces of silver daily. Although he didn't mention a group by name, I uspect it is Pioneer Mining Limited, Partnership.

To: John H. Jett, Director
From: Ken A. Phillips, Mineral Resources Engineer
Subject: Pioneer (also known as Devine) Mine, Gila County
Date: January 2, 1980

Reference Information

Copies of pertinent data from our Pioneer Mine, Gila County, mine file for Mrs. Chesley are attached. Also included are copies of a 1948 letter from a Mr. Roy Hicks, describing some of the ore and conditions at the mine. Mr. Hicks was at one time superintendent at the mine. The notes of an 1920 interview with Mr. Herman Sidow, a employee at the mine in 1882, are also included.

Past Production and Values

Past production has been estimated by Mr. J. S. Coupal to total around $1,300,000 in silver and gold prior to 1927. Records of later production, if any, have not been located. Mr. Coupal states that his estimate is from old records. Unfortunately he makes no reference to ore grades.

In Mr. Roy Hicks' 1948 letter to Mr. Devine, he states remembering "... the assay run from 24 to 30% zinc and 10 to 12% lead. I don't remember the exact on silver but quite a few ounces."

A Mr. Herman Sidow was interviewed by W. S. Crowe in 1920. Mr. Sidow stated he worked at the mine in 1882. The interview contains two statements as to ore values. "... on the 200 and 300 levels the ores carried something like 35 ozs in silver and heavy in zinc and sulphur." and

> "I leased on this ground after the shut down (likely sometime in the 1880's. KAP) and was well paid for all the work I done on this ground. My ores averaged about 135 ozs per ton and my highest shipment carried 550 ozs silver."

No record of production is given in Arizona Bureau of Mines Bulletin 140, Arizona Metal Production for the Pioneer Mine. Neither is there any mention of gold values.

Geology

Mr. J. S. Coupal briefly describes the geology of the area schists intruded by diorite porphyry dike. He feels the veins parallel the dikes and occur as quartz fissure fillings. The silver occurs as sulfides associated with varying amounts of lead, zinc and copper sulfides. In the past, the main value was from silver with a small amount of gold.

Recommendations

A visit should be made with the property owners and additional information they have should be reviewed. At the same time a field visit should be made to the property to ascertain conditions of shafts and tunnels, extent of dumps and tailings and the general surface geology, vein structure and mineralization. Some samples should be taken at that time.

The need for future field visits to map surface geology, survey dumps, take systematic samples, and map and sample underground workings should be determined after the initial field visit.

KAP:mw

Enclosure

Pioneers

1. Pioneer Mine
2. Gila County, Arizona
3. Mr. Gene Devine
4. W. R. Jones
5. Visited June 17, 1948
6. Veins consist of quartz with minor amounts of galena, sphalerite, and supposedly some silver mineral.
7. Veins will probably go into shale at depth of 400 feet plus or minus. Mine is entirely too small for a company operation. Of no interest - revisit to check opinion.
8. _____

* * * * *

THE EAGLE-PICHER MINING & SMELTING COMPANY
MIAMI, OKLAHOMA

INTRA-COMPANY CORRESPONDENCE

TO Grover Duff - Tucson Office DATE April 6, 1951

FROM John W. Chandler - Miami Office

SUBJECT: Exploration Work

Dear Grover:

We are presently compiling a record of all the mines and prospects which we have examined for the Company during the past 10 years.

Starting with 1940, and listing the work done by years, such as 1940, 1941, 1942, etc., we would like to have the following information tabulated:

1. Name of property
2. Location - (State and County)
3. Who it was submitted by
4. Who made the examination
5. Time spent on the examination
6. Metals involved
7. General conclusions drawn from examination
8. Remarks - Under this heading could be shown whether we have done drilling or any other work in addition to the examination. Give brief outline. If the property subsequently became a mine unit and was operated so state.

We do not have a complete file in this office on all properties examined by the Company and we will combine your report with the one being made up from our files to make the final report complete. I would appreciate it if you could put someone on this work until it is completed, sending me three copies of your tabulation.

Best regards,

Jack.

John W. Chandler.

JWC/jm

4-25-51 - Mr. Chandler will send us a list of the properties on which they have reports in their files, and we will then send him the information on the others.

GJD

Manganese

PIONEER MINE FILE GILA CO.

STATE MINE INSPECTOR

SEP 19 1983

Office of State Mine Inspector

705 West Wing, Capitol Building
Phoenix, Arizona 85007
602-255-5971

NOTICE TO ARIZONA STATE MINE INSPECTOR

In compliance with Arizona Revised Statute Section 27-303*, we are submitting this written notice to the Arizona State Mine Inspector (705 West Wing, Capitol Building, Phoenix, Arizona 85007) of our intent to (start)/stop (please circle one) a mining operation.

COMPANY NAME PIONEER MINING LIMITED PARTNERSHIP ✓

CHIEF OFFICER FLOYD R. BLEAK and

COMPANY ADDRESS 4241 WINFIELD SCOTT PLAZA, SCOTTSDALE

COMPANY TELEPHONE NUMBER (602) 949-9870

MINE OR PLANT NAME PIONEER MINE

MINE OR PLANT LOCATION (including county and nearest town, as well as directions for locating by vehicle)

IN GILA COUNTY ABOUT 7 MILES NORTH OF DIVIDING SPRINGS. IT IS SHOWN ON THE QUADRANGLE OF THE AREA.

TYPE OF OPERATION open pit MINING PRINCIPAL PRODUCT SILVER

STARTING DATE 7-8-83 CLOSING DATE INDEFINITE

DURATION OF OPERATION INDEFINITE

PERSON SENDING THIS NOTICE HOWARD ECKERSLEY

TITLE OF PERSON SENDING THIS NOTICE PARTNER

DATE NOTICE SENT TO STATE MINE INSPECTOR _____

*A.R.S. Section 27-303 NOTIFICATION TO INSPECTOR OF BEGINNING OR SUSPENDING OPERATIONS: When mining operations are commenced in any mine or when operations therein are permanently suspended, the operator shall give written notice to the inspector at his office prior to commencement or suspension of operations.

HICKS MOTOR COMPANY

527 Main Street

Safford 2, Arizona

April 9, 1948

Mr. Gene Devine
1228 N. 4th St.
Tucson, Arizona

Dear Mr. Devine:

In regards to our telephone conversation about what we found when I was Superintendent for Mr. John Devine, your father, at Pioneer Mine, when we got the shaft unwatered to 200 ft. we cleaned the old tunnels out and found they had been stolped out we started to tunnel to the Howard shaft and the same time started to unwater to the 400 ft. level. We reached the 300, we found everything in good shape and found plenty of ore but run so high in Zinc that was worthless to us then as we were already having trouble with too much Zinc in our concentrates.

As I remember the Essay run from 24 to 30% Zinc and 10 to 12% lead. I don't remember the exact on silver but quite a few ounces. I think the reason you have never found any of these Essay sheets was because Mr. Devine didn't want the officials to know the mine was so heavy in Zinc which was not desired at that time. We brought some high grade ore to the surface from the 300. Mr. John Devine ordered us to burry it in the dump, and not to go any further with the unwatering. In the meantime we were taking out some high grade and milling ore from No. 1 tunnel on the Howard Vein and we discovered we could get in the Howard shaft from No. 1 tunnel and went down what we figured was the 200 level and found plenty of ore and it also run in to too much Zinc and Mr. Devine ordered me to stop the tunnel on the 200 ft. main shaft that was going to the Howard as he said there would still be too much Zinc at this depth.

Gene, I feel sure that if we would have had the flow sheets in 26 that we have now, that would be a big mine in Arizona today.

I think your father was one of the smartest mining men that this state ever had because he was sincere in his belief and he really believed he had a bigger mine at Pioneer than they have in Superior, Arizona. For the way the veins were laying they were bound to all come together and there is where your copper would begin.

If there is any way I can help in explaining I will be glad to do it as you can't appraise this mine too highly.

Gene, if you will take and unwater to 300 you can start your mill on high grade zinc, lead and silver ore you could start it from th. Howard on Zinc, lead & silver ore but it would be cheaper to unwater to the 300 and finish your tunnel on the 200 to the Howard shaft and bring your ore out from the Howard that way.

I am sorry I can't remember exactly how far you would have to go to finish the tunnel to the Howard, but I know it is not very far, for I know there was one set of steel made up for a feeler 15 ft. long just in case the Howard shaft still had water in it at that level. I don't believe they were ever used.

Yours very truly,

By (Signed) Roy Hicks

Roy Hicks

RH:ma

NEWSPAPER ARTICLE
RAY--ARIZONA MINING JOURNAL--HAYDEN, Dated June 15, 1922.

WHITE METALS CO. READY FOR SILVER PRODUCTION-One of the oldest mines in the state and one of the pioneer producers of silver is now ready to handle property on a substantial scale.

One does not have to be long around the old-timers on the south slope of the Pinal Mountains to hear plenty of tales of long ago, when, between Indian attacks and in the midst of untold difficulties, they searched for and found veins of high-grade silver running from 1000 to 1500 ounces to the ton, and every story in that section centers around the old Pioneer mine, for that was one of the very first ones; was on the old stage road from Globe; and was, in itself, a very large producer of high-grade silver sulphides, chlorides and bromides. The fact that the old Pioneer mine was one of the oldest and one of the largest producers in that section led to that camp being the place from which the activity radiated and the point from which the silver ore and bullion was shipped.

While the early records on the Pioneer mine, covering the production during the latter part of the seventies and the early eighties, is not complete, it is known that considerably over a million dollars' worth of the high-grade ore has been shipped from shallow workings, and the evidence is still on the property which shows the amount of ground that was stoped by the early-day miners in getting out that value. But they were only after very high-grade material. They could not use rock that ran only a hundred ounces, or even more, for it would not pay the cost of wagon transportation to Yuma and shipment to Wales for treatment. So that it was necessary in the early-day work to cob the ore closely, with the result that thousands of tons of ore running from 15 to 100 ounces per ton was left for future generations and improved metallurgical processes to handle.

While today the high-grade streaks are just as much in evidence in the old Pioneer mine as they ever were, it is possible to handle all of the ore; for anything above 12 ounces can be handled at a profit. It was not unusual in the old work to find a vein running 20 to 25 feet wide and the stope from which the high-grade ore was extracted just wide enough to work in, and leaving large quantities of ore broken down on one side and ready to strip, ore that should now pay a good profit but which would pay no profit forty years ago.

Stope after stope is open to the surface, two to four feet wide, all of them above the level that could be worked by an adit tunnel and in each and every one of the stopes there is still the high-grade yellowish seam that the miners of two decades ago were working but still with thousands and thousands of dollars' worth of what is today high-grade ore laying on the walls ready to be extracted and milled. (1922)

It was twenty years ago, even when this section of the country was still in an isolated state and when the advancement of the science

of mining and milling had not yet reached the state where the cobbings of the old days could be handled profitably, that J. C. Devine first examined the property and determined that some day he would be the one to take hold of that old mine and realize on the ore that the "early-day miners" left behind, as well as to continue the work on the high-grade at a depth which they, with their lack of machinery, coult not handle.

It was not until 1917, however, that the White Metals Mining Company was organized by J. C. Devine and associates for the purpose of handling the old Pioneer mine, the large producer of Arizona Indian days, and today the White Metals Mining Company is on the eve of production in its second era, when 50 and 100 ounce silver ore will yield practically as great a profit as did the high-grade ore of the early "eighties."

The property of the White Metals Mining Company is situated directly at the old stage camp on the Pioneer highway from Globe to the south, and, until but a few years ago, was the only method of going south from Globe. It is about 20 miles from Kelvin and a slightly lessor distance from Christmas, either of which points may be used for rail connections. While it is probably less in mileage from Globe, this requires the crossing of the Pinal range or the connection with the El Capitan highway, thus the outlet to the south is an economic preference. A new road is being built, however, that cuts off about five miles to Kelvin and greatly cases the grades necessary to get from the mine at 4500 feet elevation to the railroad at about 2000 feet.

Probably one of the greatest factors in delaying this second era of production of the old Pioneer mine has been its inaccessibility, although today, due to improvements in metallurgical processes, it is possible to profitably work ore that could not be handled even ten years ago so that it is now possible to handle a greater amount of ore that can make a profit than could have been handled if the property had been more accessible. Today, however, with motor truck transportation and improved roads, the $20.00 a ton hauling charge to the railroad has been reduced to about $4.00 a ton when handled by one of the White Metals 2-1/2 or 3-ton trucks. (Re-June 1922)

Geologically, the property of the White Metals Mining Company is situated in the midst of the uptilted sedimentaries of the southern slope of the Pinal mountains, the structure forming characteristic topographic features consisting of pointed mountains, one side being a gentle slope along the bedding of the limestones and quartzites and the other side being sharp cliffs where the blocks have slipped below probably 300 feet and started another gentle slope and another hill pointing to the north.

Underlaying the sedimentaries is a sill of diabase, this being capped by Troy quartzite, then Martin and Tornado limestones. The

saddle between these hills consists of the diabase, which ordinarily overlaps to some extent the lowered blocks of sedimentaries as they again start their up slopes.

Cutting across these sedimentaries on the fifteen claims of the White Metals Company are two approximately parallel veins, these veins cutting all of the formations and running about 300 to 350 feet apart. In the early-day mining it was thought that these veins did not extend into the diabase but were cut off at that horizon, but recent work has disproven that theory and the veins have been found to extend into the diabase, which makes them promising for considerable depths. They are both strong leads, extending for a known distance across the country of about a mile, and both show the same characteristics in so far as their mineral-bearing proclivites are concerned. In the area between the two major veins are numerous smaller mineralized veins evidently sympathetic in nature and of little value commercially. These veins, however, are persistent and extend for considerable lengths, but their width does not permit of economical mining.

The two veins were both worked extensively during the early days and are known as the Pioneer and Howard veins, the former having been worked in the seventies and eighties by the Pioneer Mining Company and the latter by the Howard Mining Company. They are similar in every way, in mineralization and in all essential characteristics except that the Pioneer vein shows a considerably greater width of ore. Both veins show the same type of high-grade paystreak with about the same widths and values.

The veins themselves are quartz veins, porous or honeycombed to a considerable extent, and contain the sulphides, chlorides, and bromides of silver, the sulphides predominating. Some lead is in evidence; also a little zinc, but no copper. The mineralization extends into the bedding planes of the quartzite, where the veins pass through that rock and thus produce a greater width of mineralization at that place.

The high-grade portions of the vein, from which large quantities of ore have been removed above the tunnel levels, generally stick close to the footwall and are continuous over all of the vein that has as yet been worked, although it varies greatly in widths sometimes being workable to a width of two feet and sometimes reducing to only a knife blade width, but always present. However, for the greater part of the 600-foot length that both of the veins have been worked, the high-grade pay streak has been of sufficient width to be profitably handled.

The Howard vein has been opened for a length of 600 feet and a depth of 170 feet, or from the tunnel level to the surface, all of which has been worked for high-grade shipping ore during the early days and all of which contains large quantities of milling ore above the tunnel level, to say nothing of the possibilities of high-grade ore that lay beneath the level at which the work has been stopped. The Pioneer vein is lower down on the hill, and has,

therefore, a less stoping height above the level of the tunnels. It also is opened for a length of about 600 feet and for a vertical height of about 100 feet.

The width of the Pioneer vein that can be worked for commercial ore is about 20 feet above the tunnel level, although from 2 to 3 feet has already been extracted to the surface along the high-grade streak. Both of the veins have been extensively developed by two cross-cut tunnels about 250 feet apart, each of them cutting across the veins with a large amount of drifting on the veins. Considerable length of stoping ground is now ready, with chutes installed for stoping operations.

In addition to the tunnel development, there are a considerable number of shafts on the property, none of which are open, however, except as they have been raised from the tunnels in order to form chutes for handling the ore from the upper workings to the tunnel levels and thence to the mill.

A feature of the workings on the old Pioneer and Howard properties is the extensive silver-bearing dumps, the results of the old-time development along the veins in the development of the high-grade ore and the results of cobbing the high-grade and making it ready for shipping. A cobbing dump was recently uncovered, having been covered for many years by a wind-blown sand, and this dump has been rough sorted and a considerable quantity is now ready for shipment to the Hayden smelter and runs about 100 ounces of silver to the ton.

It is characteristic of all of the work that large quantities, literally thousands of tons of ore that is good milling ore today, are on the dumps and as fill in certain stopes and running from 15 to 60 ounces in silver to the ton. The varying values of the different dumps depends largely upon the care with which the ore was put upon the dump and the intermixing with waste coming from the cross-cutting to the veins.

As further evidence of the values that were left behind from the work of the early-day miners, the tailings dump from an old milling plant of many years ago showed a value of 29 ounces of silver. It is not known just when the plant was operated or the character of the plant, as nothing but the tailings dumps and the remnants of the foundations of the machinery remain to tell the story of 29 ounce tailings.

However, the fact that thousands of tons of mill ore lay on the dumps and that blocks of 600x170x7 in the Howard vein and 600x 100x20 in the Pioneer vein led to the construction of a small milling plant just before the period of financial and mining depression and this mill was completed and run for about thirty days on tests prior to stopping the work on the closing of the mining industry of the southwest and the stopping of the smelters.

While the mill is designed primarily to handle and save the sulphide values, there are some little chloride values present; however, it was found that close to 80 per cent extraction could be obtained. The mill has a capacity of 50 tons daily, and was so built that the capacity could be easily doubled. It was designed primarily to handle the dumps and the ore that could be extracted above the tunnel workings and from the proceeds of the mill to develop at greater depth and ascertain from the deeper development the plant changes that might be necessary to handle the ores of a lower horizon. The large quantities of ores that were already available assured the mill of continuous operation for a long while.

The testing for the mill was done by the Southwestern Engineering Company of Los Angeles and the construction of the plant was by Kennard & Bierce of Los Angeles. The milling plant consists of a coarse crushing plant from which the ore goes to a bin. This ore is fed by belt conveyor to a six-foot Hardinge mill, which operates in closed circuit with a simplex Dorr Classifier, the overflow going to a K. and K. Rougher flotation machine, followed by a K. and K. cleaner machine, and then by two Plato-Deister tables. The dewatering is done in a Dorr thickener. The mill building is frame and covered with galvanized iron, and all floors and foundations are concrete. An electric lighting plant furnished the illumination for the night operation. Power for the plant is supplied by a 20 H.P. Western engine running the crusher and a 60 H.P. Western engine running the balance of the plant and the generator. The milling plant is simple and efficient, well designed and capable of satisfactorily and adequately handling its part of the work.

The whole plant of the White Metals Company is well equipped to handle their work. A main shaft is proposed to be sunk vertical to a depth of 500 feet. This shaft is now down about 100 feet, and it is planned to resume operations on the shaft with the resumption of work. The shaft has a concrete collar and is well timbered throughout. It is located between the Pioneer and Howard veins and drifting will be done to and on the veins when a depth is reached below that that can be reached through the two tunnels. The surface equipment on the shaft consists of a 40 H.P. Western hoist, a 120 H.P. duplex Western engine attached to a 600 cubic foot Laidlaw Dunn Gordon compressor. Ingersoll Rand drills are used throughout the property. In addition, all of the necessary shops are grouped around the shaft, which will eventually be the main operating base.

The camp is well equipped in every manner and is capable of comfortably accommodating fifty men, the houses for employees are well built and the camp is most conveniently arranged for maximum comfort. An excellent supply of water for both domestic and mill purposes is at hand. Transportation is taken care of by two $2\frac{1}{2}$-ton trucks and one 3-ton truck.

The White Metals Mining Company was about to get on to a producing basis at the time when the post-war financial depression came on, and this, combined with the stopping of the smelters, the low price of silver and other factors, stopped their work, which is now about to be resumed. The resumption of the work at this time is under the most auspicious circimstances, as the whole plant is "ready to go," the mill completed, ample ore already mined to last until such a time as the new shaft can take care of all the needs of the mill.

They use and A, B, C and D classification of ore. The A ore runs over 600 ounces and is to be shipped direct to the smelter. The B ore runs from 200 to 600 ounces in silver and is sorted and shipped to the mill. The C ore runs from 100 to 200 ounces and is more closely sorted with the cobbings going to the mill and the balance direct to the smelter, while the D ore, under 100 ounces, goes directly to the mill.

The work in the mine is such that it is possible to classify this ore largely underground and mine the different classes separately, thus permitting of a considerably greater production in silver than can come from the mill alone, for the higher grade ores are everywhere encountered while mill ore is being extracted, and it is anticipated that, even with the 50-ton mill it will be possible to handle a gross product of $25,000 a month, this figure being based upon the work that was done just prior to shutting down and during the 30 days that the mill was in operation.

The starting of the work at this time has the advantage of the increasing price of silver as well as the large demand for silver and the shortage of the metal. While silver is protected in price for a limited amount under the Pittman act, it is believed by those that are following the silver market that it will be a great many years before the amount authorized under the Pittman act will ever be purchased by the government, as it is likely that the price on silver will be greater than that offered by the government, $1.00 per ounce.

The condition of the silver market at the present time makes the interest in silver mining greater, for it is felt that, throughout the world, silver must be used as a metal reserve, there not being enough gold for that purpose. Probably two-thirds of the silver comes as a by-product of copper, lead, zinc and other base metals, and with the decline in production of these metals there has been a consequent decline in the amount of silver available. The price of silver sloughed off in 1920 from $1.37 to about 65 cents an ounce, largely due to the fact that normal coinage was neglected during that time, but this condition is righting itself with a consequent rise in the price of that metal and with a complete righting of the situation it will not be surprising to see a price higher than $1.00 for the metal.

Early day Arizona was known for its silver mining, and the history of the state revolves about the Pioneer, the Silver King, the Old Dominion, the United Verde, El Capitan and others, but the development of the big copper mines has rather obscured the possibilities of silver and it is believed that the revival of production in some of these old-time silver bonanza mines will again cause an interest in the white metal. The White Metals Mining Company is about the only one of the old silver mines that is again ready to produce, and it is believed that its regular production will do much to stimulate that interest.

OSO EXPLORATION SERVICES LTD.

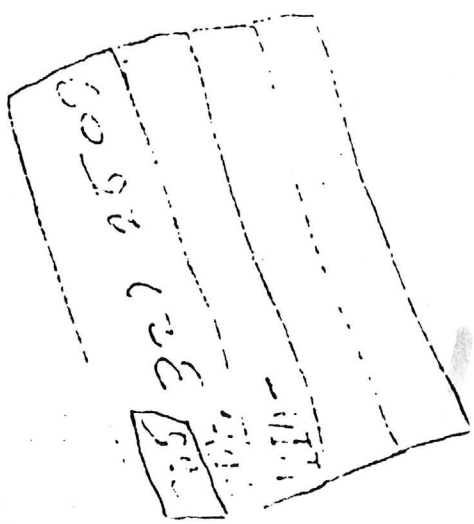
REPORT ON

THE PIONEER SILVER PROPERTY

Globe, Arizona

By
R. G. Hawley

Aug. 1, 1968



OSO EXPLORATION SERVICES LTD.

The Pioneer Silver Property, Globe, Arizona

CONCLUSIONS

1 - A tonnage on the Howard and Pioneer veins between the 200' and 450' levels of about 250,000 tons grading 25 oz. in silver with values in copper zinc, lead, and gold can reasonably be expected. Salvage ore from old stopes and ore from below the 450' level should add to this.

2 - Smaller veins between the Howard and the Pioneer have only partially been mined and should return considerable tonnage.

3 - The East Pioneer vein showed little high grade at surface and was thus ignored for the Howard and Pioneer which were more clearly defined, were more easily mined, and had high grade at or near surface. The East Pioneer however, shows much more alteration and much more potential for greater widths of ore along a greater strike length of nearly 6,000 ft.

4 - The dissemminated sulphides in the underlying monzonite indicate the possibility of a large low grade body of porphyry copper to depth, possibly amenable to open pit mining. Inspiration's interest in the adjoining ground makes this supposition stronger.

RECOMMENDATIONS

1 - An IP survey (induced potential) of at least 20 line miles should be carried out along the 6,000 ft. of the alteration zone to search for disseminated sulphide bodies.

2 - An EM survey (Electromagnetic) with the Ronka EM 16 instrument could be conducted to trace the high grade vein ores.

3 - Any target anomalies should be further tested after the surveys by diamond drilling, as well as testing below the present workings for ore to depth there. At least 10,000 ft. would probably be required.

4 - The surveys may indicate open pit mining, in which case underground development would be unnecessary. If underground mining is contemplated then the old workings should be cleaned out, dewatered, put in safe condition and mapped and sampled to determine the best place to begin mining the remnant ore.

5 - The East Pioneer vein should be explored with drilling and open cuts and/or adits to determine its value near surface.

Submitted by -

R. G. Hawley
For Oso Exploration Services Ltd.

INTRODUCTION

The Pioneer silver property consists of 17 unpatented and one patented mining claim, located 12 miles south of Globe, Arizona. The area around Globe and that south of the property are noted for extensive large scale mining. One of the major mining companies, Inspiration, has claimed the ground along the south, east, and west of the Pioneer group, has cut drill sites and begun drilling, (reportedly on the basis of IP (induced potential) and other surveys.

Due to the fact of Inspiration's interest and the fact that many of the old mines are becoming productive again because of modern mining methods and higher metal prices, this mine was examined to decide its potential in silver ore and also the possibility of an economic underlying porphyry copper deposit.

Information in this report is based on several trips to the property by the writer and on a report by J. S. Compal dated September, 1927.

LOCATION AND ACCESS

The Pioneer property, consisting of 18 claims, covering about 370 acres, is located about 12 miles south of Globe, Arizona, on the south slope of the Pinal mountains, in Section 29, Range 15 East, Pioneer Mining District, Gila County.

Access is gained by a secondary road which connects with highway 77 about 14 miles to the southeast and with Globe about the same distance to the North.

About three miles of new road to the East would connect the property to State Highway 77 between Globe and Tucson.

CLIMATE AND TOPOGRAPHY

The Pioneer mine is at an elevation of about 4500 ft. above sea level, the valleys surrounded by steep ridges with a relief of several hundred feet. The slopes are covered in most places with brush, with frequent timber in the valleys.

Water is sufficiently available from springs, streams and flooded workings for drilling, milling and domestic use. The climate is good with mild winters and cool summers.

HISTORY

The district was opened in the early 1870's when the high grade ores near surface were mined and hauled by wagon to the Gulf of California, over 300 miles, then shipped to the smelter at San Francisco. Later stamp mills were installed to treat the high grade oxides down to water level.

The production was estimated at $1,000,000.00 from old company operations and an additional $300,000.00 from various lessors working the high grade veins up to 1927.

With the methods in use at that time recovery of values dropped when sulphides were met at depth. Lowering of the price of silver apparently suspended operations after 1927.

PROPERTY - CLAIM STATUS

The property consists of 17 unpatented claims known as the Fairview, Quartet, Jewel, West Republic, Delinquent, Challenge, East Pioneer, Junior Republic, California, Lucky Boy, Rough Neck, Ringneck, Quail, Argenta, Silverado, West Republic #2, and Florence; and one patented claim known as the Great Republic.

These claims adjoin, forming a compact group covering 4800 ft. along the strike of the major veins and 2600 ft. in width, covering the 3 parallel veins.

The claims are held in good standing by Lynn Sheppard of Globe, Arizona, presently under option to Lebern Cox of Tucson.

GEOLOGY - GENERAL

The Pinal Mountains are essentially a highly metamorphosed sedimentary unit called the Pinal Salient, consisting in this area mainly of quartzite and quartz pebble conglomerate of the Dripping Springs formation. The sediments have been altered by the intrusion of granite, diorite (or monzonite), and diabase.

The main intrusive mass is the coarse diorite or granite porphyry covering most of the area to the north. At the mine and closely associated with the mineralized veins is an underlying monzonite stock. At the south end of the property a large mass of diabase intrudes along the east side of the hydrothermal alteration zone of the East Pioneer vein.

ECONOMIC GEOLOGY AND MINERALIZATION

There are three major veins on these claims, the Howard vein, the Pioneer (or Challenge) vein, and the East Pioneer. These veins, particularly the East Pioneer, follow generally a zone of strong shearing which probably represents a main fault zone through the area, striking N20° E and dipping 60° to 80° to the West. The zone is indicated at surface along the strike of the East Pioneer by strongly sheared and weathered rock, and at the south end shows very strong hydrothermal alteration with limonite boxwork. Values are usually very low in the leached out surface material along the East Pioneer though silver values of up to 20 oz.'s have been reported from several points.

This East Pioneer zone, which seems to be the most persistent, was traced by altered surface outcrops for over 6,000 ft. At the South end it appears to be over 150 ft. in width, narrowing to about 50 ft. where it crosses the ridge to the north and disappears in overburden. Where the altered zone appears again to the North, east of the Pioneer shaft it widens to over 150 ft. again. Much of the length of this zone is covered by gravels where it follows the river bottom.

This appears to be the main zone of faulting or shearing through this area. There has been practically no development along it except for a few open cuts and short adits which indicated an 8' to 10' width of ore in a vein lying within the alteration zone near the main camp. The fact that little or no high grade ore was found in the highly altered surface accounts for its lack of development.

The Howard and the Pioneer veins to the NW were the most developed. Here the vein filling is mainly quartz with silver sulphides associated with varying amounts of lead, zinc and copper. The main value is in silver with sizeable gold values.

These veins vary from 3' to 10' in width and are clearly defined. They have both been traced for about 500' NE of the Pioneer and the Howard shafts to where they meet the East Pioneer zone. Some development work has indicated their extension beyond this point. They have apparently never been traced far SW of the shafts. Several narrow high grade veins are said to occur between the Howard and the Pioneer.

The quartzite and conglomerate is usually barren between the veins. However, at depth in the crosscuts, the underlying monzonite shows disseminated sulphides and gives assays for considerable widths between the veins of from 1/2 oz. to several ounces per ton.

EAGLE PICHER CONFID FILE

COPY

HICKS MOTOR COMPANY
527 Main Street
Safford 2, Arizona

April 9, 1948

Mr. Gene Devine
1228 N. 4th St.
Tucson, Arizona

Dear Mr. Devine:

In regards to our telephone conversation about what we found when I was Superintendent for Mr. John Devine, your father, at Pioneer Mine, when we got the shaft unwatered to 200 ft. we cleaned the old tunnels out and found they had been stolped out we started to tunnel to the Howard shaft and the same time started to unwater to the 400 ft. level. We reached the 300, we found everything in good shape and found plenty of ore but run so high in Zinc that was worthless to us then as we were already having trouble with too much Zinc in our concentrates.

As I remember the Essay run from 24 to 30% Zinc and 10 to 12% lead. I don't remember the exact on silver but quite a few ounces. I think the reason you have never found any of these Essay sheets was because Mr. Devine didn't want the officials to know the mine was so heavy in Zinc which was not desired at that time. We brought some high grade ore to the surface from the 300. Mr. John Devine ordered us to burry it in the dump, and not to go any further with the unwatering. In the meantime we were taking out some high grade and milling ore from No. 1 tunnel on the Howard Vein and we discovered we could get in the Howard shaft from No. 1 tunnel and went down what we figured was the 200 level and found plenty of ore and it also run in to too much Zinc and Mr. Devine ordered me to stop the tunnel on the 200 ft. main shaft that was going to the Howard as he said there would still be too much Zinc at this depth.

Gene, I feel sure that if we would have had the flow sheets in 26 that we have now, that would be a big mine in Arizona today.

I think your father was one of the smartest mining men that this state ever had because he was sincere in his belief and he really believed he had a bigger mine at Pioneer than they have in Superior, Arizona. For the way the veins were laying they were bound to all come together and there is where your copper would begin.

If there is any way I can help in explaining I will be glad to do it as you can't appraise this mine too highly.

Gene, if you will take and unwater to 300 you can start your mill on high grade Zinc, lead and silver ore you could start it from the Howarddon Zinc, lead & silver ore but it would be cheaper to unwater to the 300 and finish your tunnel on the 200 to the Howard shaft and bring your ore out from the Howard that way.

I am sorry I can't remember exactly how far you would have to go to finish the tunnel to the Howard, but I know it is not very far, for I know there was one set of steel made up for a feeler 15 ft. long just in case the Howard shaft still had water in it at that level. I don't believe they were ever used.

Yours very truly,

By (Signed) Roy Hicks

Roy Hicks

RH:ma

Report on White Metal Mining Company property at Pioneer (Pioneer Mine) Gila County
by J. S. Coupal - Mining Engineer September 1927

PROPERTY

The property of the White Metal Mining Company consists of 15 mining claims, two of which are patented. The total area is approximately 370 acres. The claims all adjoin and form a compact group, coverning 4800 feet in length along the strike of the major veins and 2600 feet in width, which covers the three more or less parallel vein systems.

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LOCATION & PHYSICAL CONDITIONS

The property is located on the south slope of the Pinal Mountains, about 12 miles in a air line south of Globe. It is reached by a mountain road, about 14 miles in length, which connects with the branch road of the Arizona Eastern Railroad at Christmas. The recently built state hiway from Globe to Winkleman passes within 3 miles of the property. A road has been surveyed from Pioneer to connect with the Globe Highway which when made will greatly facilitate hauling to and from the mine.

The camp and mine is at an elevation of about 4500 feet above sea level. This gives a fine working climate, as the nights are cool, in the heat of the summer and the winters very mild. Climate conditions are most favorable for year round operations.

There are several mountain springs on the claims which furnish abundant water, year round, both for domestic purposes and for supply for mill use. Water is piped from two of the springs to supply tanks and the supply is sufficient for all needs. Additional water can be developed and stored as needed for increased operations.

The surrounding mountains are heavly timbered, the property being right at the edge of the Crook National Forest reserve. This timber is available for general mine use, as stulls etc., and at very low cost. As fuel for domestic use the claims furnish sufficient scrub growth as supply for many years.

The location and living conditions at the camp are exceptionally good. Sufficient buildings are available for housing all the workmen needed. Telephone connections are maintained with the main telephone exchange at Ray. Supplies can be hauled in daily, if needed, either on the Globe road or from Winkleman by automobile or truck. These features make it easy to keep a good class of men on the job, contented and comfortable which is an item of importance in operations of this size.

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Later stamps mills were installed and the high grade oxidized ores, down to water level, were mined and treated by amalgamation, crushing and settling.

The production has been estimated from what records are available at about $1,000,000 from the old company operations and an additional $300,000 from the various leasors who have worked on the narrow high grade veins.

The treatment of the ores became difficult and the recovery of values dropped when the sulphide ore were met in depth. At about the same time, a new mill was destroyed by fire and a drop in the price of silver suspended all operations.

Three of the major ore showings were held by different individuals and litigation resulted from conflicting claims as to limits of the ore being mined. The claims were finally consolidated into one group and a new flotation mill erected, which can more effectively handle the sulphide and low grade ores.

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The vein filling is mainly quartz with the silver occuring as sulphides associated with varying amounts of lead, zinc and copper sulphides. The main value is in silver, with a small amount of gold. The veins follow the porphyry dikes, either on the foot or hanging. The veins vary from 3 to 10 feet in width and are clearly defined. The walls are firm and solid and hold with little or no timbering outside of occassional stulls.

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The property is fully equipped and ready for immediate operation. Recommendations for additions and certain changes will follow.

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The mill is in first class operating condition and was in operation, during my visit to the property on ore which had accummulated during certain development work.

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The mill is so erected that another 100 tons unit can be added to it at small cost. The recovery made is from 90 to 95% of the values.

RECOMMENDATIONS

The present mill was erected and installed to operate on the ore from the old workings. No new ore was developed and the deeper workings were not unwatered. The ore in the upper workings and the stope fills were all oxidized ores on which a fair saving was made but not a large a percentage of recovery as can be made on fresh ore. The workings from which this ore was obtained were scattered and isolated and as a result maximum capacity was not obtained.

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The Pioneer shaft is down to a depth of 450 feet. The old shaft timbers are in bad condition below the 100 foot level and will have to be replaced and the shaft retimbered, before active mining can be safely carried on. The shaft has been unwatered to the 300 foot level and good ore is now in the breast of the drift at that point.

From the 200 foot level on the Pioneer vein a cross cut and raise should be driven to connect with the 75 foot shaft sunk on an intermediate vein. This new prospecting shaft has been sunk on ore and from it most of the crude ore shipped during the past year was mined.

These three developments will open up three proven ore shoots from which a tonnage of at least 100 tons per day can be had and maintained.

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Levels in the 100 and 200 foot level from the East Pioneer vein could be started and mining of ore carried on from the shaft until the connection is made. The development shaft would have to be driven in order to provide an emergency exit and an air connection in order to comply with Arizona Mining Laws, even though the ore was first opened up by a cross cut tunnel; so that it is most advisable to sink first and stay with the ore until sufficient depth is obtained before cross cutting.

The development work outlined and retimbering of the shaft would take from 5 to 6 months to complete.

It would probably be possible to start milling on a 100 ton basis within 4 months time. The development work should then continue and as for separate and distinct ore bodies will be under development, the pro perty should be able to supply at least 200 tons per day, within a years time, when the milling capacity should be increased.

The present road is rough and has many steep grades in it. The up keep on the road is high and hauling is difficult and expensive. As the new Globe highway is completed it is most advisable to make the 3 mile connection with it. The county will aid to almost one half the expense in the new road. This road should be started and completed as early as possible.

The present power consists of several independent oil and gasoline engines. The fuel cost is high and the hauling in of fuel on the present road expensive. New power will have to be added to bring up the mill capacity to 100 tons.

The present equipment is sufficient, however, to handle the development work. Provision should be made to install a central power plant, with motor driven equipment at the various workings. A substantial saving both in fuel cost and in attendance and maintenance of the equipment will be made if a full diesel oil engine with generator and motor drives is installed.

SUMMARY

The work as outlined will cost from $75,000 to $100,000 and will take from 5 to 6 months to complete and put in full operation. The property will then be in position to mine and mill a tonnage of 100 tons per day. The two major veins have produced a large tonnage of high grade ore from above the 200 foot levels and the ore has been cut and proven at

at depths of 350 feet on the Howard and 450 feet on the Pioneer. From the old records and the returns from ore already mined and milled an average of ore 25 ounces per ton in silver can be reasonably expected.

By the addition of one or two new flotation cells, to the present mill flow sheet, a selective flotation of the zinc and lead can be made. In depth with lead and zinc are coming in stronger than in the upper levels. The spearation of the two metals can be made and a substantial profit made on the zinc and lead, in addition to the silver values.

I recommend that development work be started with the present equipment, that the road connection with the Globe highway be completed at an early date and as soon as the road is in that provision be made to step the mill up to 100 tons capacity and install the central power plant.

Sufficient ore should be available within a year to a year and a half to warrant a 200 ton daily capacity.

Respectfully submitted

(orginial signed by)

J. S. Coupal

SILK PITCHER CONFID. F.

P
Y

Personal interview by W. S. Crowe - June 17th, 1920.

Mr. Herman Sidow of Globe, Arizona, when interviewed with reference to the Pioneer Group of Mines stated as follows:

"I worked for the Pioneer Mining Company in 1882 in the shaft that they were sinking and continued in their employ until the shaft was put down to the 300 ft. level. The claim upon which this Co. operated is now called the California. I think the first drift was driven out at the 150 level and one at 100 ft. deeper. After I quit the shaft was sunk down I think to the 400 ft. level and a crosscut run to the vein, but I do not know what ore showings were there, but I do know that there was good ore showings on the two levels above. The last named work was done just a short time before the shutdown and there could not have been much work done on the lower level. There was three different companies operating there at the time on the claims now owned by the White Metal Mining Co. - The Pioneer Mining Co., The South Pioneer Mining Co., and The Howard Mining Co., but all three companies were under one management. A man by the name of Hellings was the manager of all three companies. The Pioneer Co. was working the claim on an option but paid out the property shortly before the close down. There was also a small strip of ground between the South Pioneer and the Pioneer property which was owned by the original owners of the Pioneer property. This ground is now known as the Delinquent claim and has never been explored.

All pumping for the three companies was done at the South Pioneer - that is that company's workings drained all the ground so the others could work without being hampered with water. A 4 inch water column kept the mines unwatered which I think was only used a part of the time, that is it was necessary to pump but a part of the time. There was several causes for the mines being closed down, silver had been demonitized and down to near its lowest point, it was 90 miles to Casa Grande the nearest RR point and the roads would be considered impassable today, that is, they followed along the gulches and sand washes, dynamite cost sixty cents per pound and everything else in proportion, the formation, or ground at the mines was very hard and machine drills was unknown in those days, all work was necessarily very very expensive, but probably the greatest cause was the sudden death of Maj Baldwin in San Francisco a capitalist who had looked after the financial end of things. His death left financial matters up in the air. When once the mines were closed down they soon got in such shape that reopening them meant the expenditure of a large sum of money, that is, the workings caved and filled with water, besides leasers gutted everything above water level afterwards, filling up most of the openings. I think the Howard Co. had the Great Republic surveyed and patented after the shutdown. Leasers got in on the ground after the close down and all made big money even at the low price of silver. They could only work down about 50 feet to the water level as the workings were full of water at this time. They worked on the California and the north extension of the Great Republic. Their ores were hauled by wagon to Casa Grande and shipped to San Francisco and Socoro N. M. where a large smelter was in operation at that time.

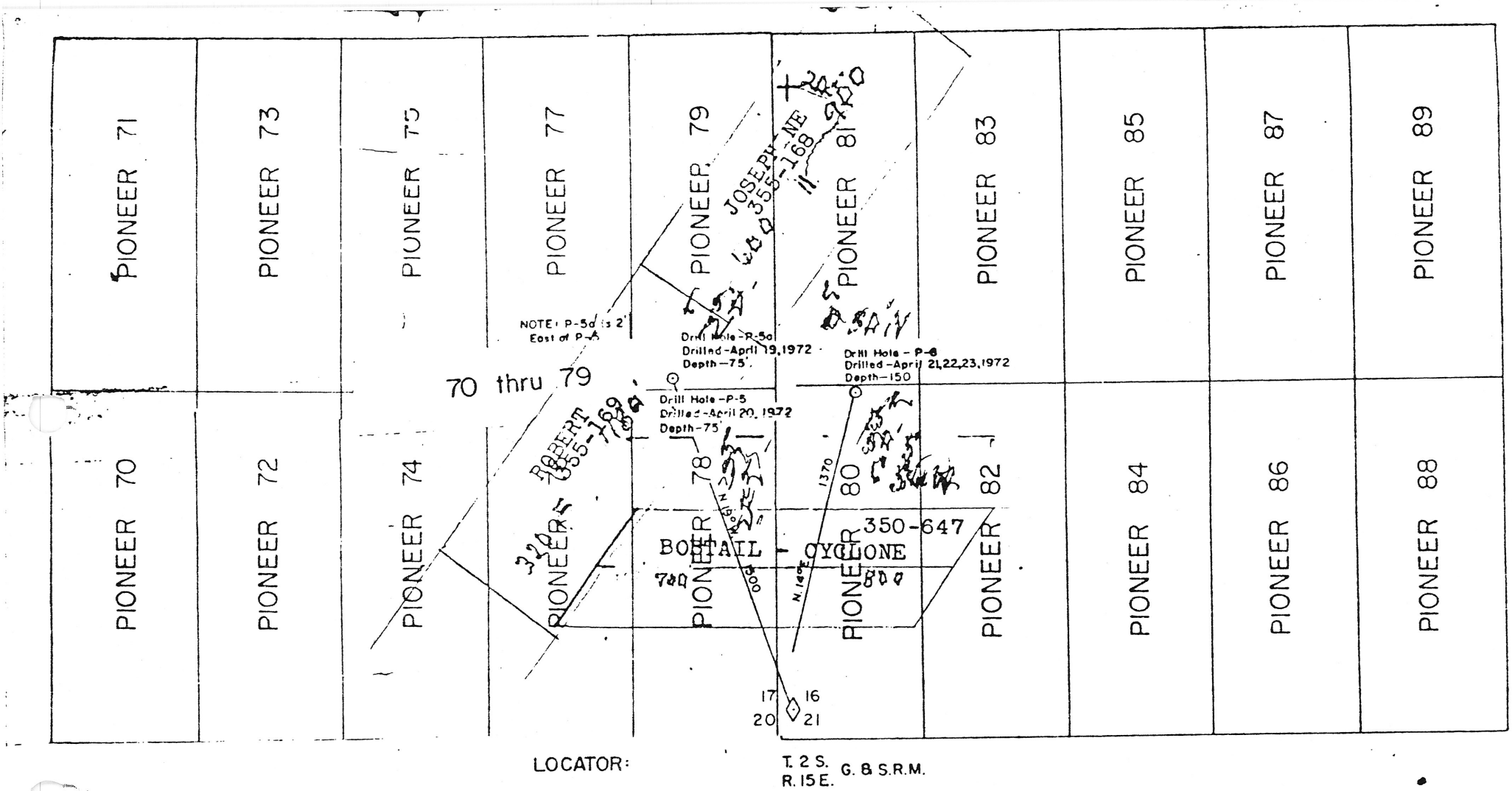
A great amount of ore was taken out by these leasers on the property in the gulch between the Pioneer and South Pioneer Companies. This ore was richer than the common run of the ores, some of it showing native wire silver.

When asked if he had worked in the South Pioneer Mine, Mr. Sidow stated that he had not and all he knew about that mine was from what he had learned from statements of men working there at the time. From what I was able to learn from men working in this claim, the ores showing on the surface of the California extend southward beyond the South Pioneer shaft, but are deeper and trend downward toward the south, or southwest. But southwest of the shaft the ores were said to be very base, that is, they carried a great amount of sulphur and zinc and were said to be such ores as could not be worked in those days, as very little was known of treating ores except by amalgamation with quicksilver and this process would not extract the values from sulphide ores.

I think drifts were run to the southwest on the 200 and the 300 levels and the ores carried something like 35 ozs. silver and heavy in zinc and sulphur.

These mines have never been explored and even the ores that could not be handled in 1882 should be handled profitably today with cheaper methods of working and better methods of extracting the values. Everybody that ever worked in these claims agree that there is a mine there and all that is needed is to properly develop the claims.

I leased on this ground after the shutdown and was well paid for all the work I done on the ground. My ores averaged about 135 ozs. per ton and my highest shipment carried 550 ozs. silver."



LOCATOR: T. 2 S. R. 15 E. G. & S.R.M.

INSPIRATION CONSOLICATED COPPER COMPANY

MAP OF PIONEER CLAIMS

80 thru 89

PIONEER MINING DISTRICT, GILA COUNTY, ARIZONA

OVERLAY OF OUR CLAIMS SHOULD BE SHIFTED NORTHEASERLY ABOUT 300'

SCALE 1" = 600'

APRIL, 1972

Drafted by J.W. Sheerley

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Respectfully submitted

(orginial signed by)

J. S. Coupal

1. Pioneer Mine
2. Gila County, Arizona
3. Mr. Gene Devine
4. W. H. Jones
5. Visited June 17, 1948
6. Veins consist of quartz with minor amounts of galena, sphalerite, and supposedly some silver mineral.
7. Veins will probably go into shale at depth of 400 feet plus or minus. Mine is entirely too small for a company operation. Of no interest - revisit to check opinion.
8. ———

[redacted]

[redacted]

PIONEER MINE

Ag, Pb, Zn, Cu

Gila 4 - 4 T2 S, R 15 E

White Metal Mng. Co., ~~Pioneer~~ 127

. MINING JOURNAL - 1-15-42 P.17

Pioneer Mine - Southern Gila Co
Southern Pinal Mtns.

Arizona Copper Camp

Volume XI. RAY, ARIZONA SATURDAY, NOVEMBER 27, 1920. Number 32

DISCOVERY OF NEW RICH VEIN OF SILVER ORE AT WHITE METAL ADDS TO INTEREST IN PROPERTY ALREADY RICH IN ACHIEVEMENTS

Tuning Up Of Modern Milling Plant, And Attainment Of Maximum Production To Be Followed By Improved Transportation Facilities Of White Metal Mining Company At Pioneer

Discovery of a new vein of rich silver ore, running 100 ounces or better on the surface, and paralleling the famous Pioneer vein, is an outstanding development of the week's operations at the White Metal Mining company's property at Pioneer, a property already notable by reason of its activity in a period during which the mining industry throughout the west may be described as quiescent.

The new vein of high grade silver ore adds the third major vein to a property already known to be one of the richest of its kind in the southwest. It is from twelve to fourteen feet wide, and is to be tapped as soon as possible by a tunnel, work on which has already been started just across the creek from the new mill of the White Metal Mining company. From assays made it is believed that the new vein will prove fully as rich as the Pioneer and Howard veins, which constitute the main ore occurrences in a zone that is shot through with half a dozen cross-fractures and lateral veins of silver ore.

Unaccompanied by glaring prospectuses, in fact almost unheralded, White Metal has sprung into being as a fully equipped, modern silver producer, and one which gives every indication of being the most important addition in years to the active operating properties of this district. Publicity, insofar as the program of the White Metal company has been concerned, has been incidental, achievement of the goal set has been the sole aim of the company, and this goal, production in the most efficient manner possible, has now been reached, thanks to the co-operation of one another. The road leading from Ray Junction to Troy, and on to Pioneer, has been greatly improved since last spring, due to the co-operation and efficient work of the county highway commission and the management of the White Metal company. The steep grades which heretofore made hauling or trucking costs excessive, have been reduced to one-half or less their former gradients, and the roadbed widened and improved.

Arriving at Pioneer the visitor finds a modern mining camp, with not less than 30 buildings, including a completely equipped store, a splendid boarding house and well-built cottages. Here from forty to fifty men are at present employed, an efficient and energetic organization, whose spirit of hearty co-operation has made possible the accomplishment of a large program within a comparatively short time.

At the mine itself, a great deal has been accomplished beside the mere removal of tailing ore. The cement-collared shaft is now lined down to the 200-foot level and is of heavy modern construction. Work of hoisting ore from the 200-foot level is to begin within the next few weeks. Motor trucks are used to haul the concentrates to the nearest shipping point on the Arizona Eastern at Ernsana.

New Road To Cut Costs

In connection with the general program to reduce operating costs as far as possible, a survey has already been made and plans are under way for the construction of a road to connect with the Globe-Winkelman highway, three and a quarter miles distant. The mat-

THANKSGIVING SHOOT PROVES BIG FEATURE

The Ray Gun club staged a shoot Thanksgiving day, November 25th, a 100-bird handicap of four 25-target events, with a $2.50 optional pool on the 100. Three moneys, $50, $30 and $20. There were three trophies for the three high guns, and Jake Miller donated a beautiful cut-glass trophy for the lady who made high score in a 15-bird contest.

A perfect day brought a large number of fans, and a most delightful shoot was held. Sides were chosen and a team race for $1.00 to the man was held, the scores in the handicap counting in this contest.

Carl Smith took first money, and had first choice of three prizes. W. J. McDermott took second money, and second choice of three prizes. C. H. McGowan took third money, and third choice of prizes.

Other shooters, who were not in the race, however, were R. A. Boylette, who broke 43 out of 50 birds; Stanley Stretton from Hayden, who broke 42 out of 50, and L. H. Quinn, who broke 76 out of 100.

	Broke Out of 100 Birds	Handicap
Carl Smith	99	5
C. H. Gowan	94	4
W. O. Mullen	91	0
R. A. Cook	89	6
W. S. Boyd	88	5
W. Bunham	88	0
C. H. Hann	87	5
H. Carlisle	87	2
W. J. McDermott	86	13
Jake Miller	84	13
L. D. Hickerson	82	13
S. J. Chappelle, Jr.	77	15
Thos. R. McClure	76	13

MRS. LYLE NASH PASSES AWAY AT BREMERTON HOME

AEC 172-480 p. 51 AEC files

Ess: Eagle-Picher Confidential files "P"

~~PIONEER MINE MAP FILED IN MAP CABINET ON 1ST FLOOR.~~

3. LESSEE shall pay to OWNER each of the following advance royalty payments, the due date of which occurs prior to termination of this Agreement:

Payment Date	Amount
Initial payment (receipt of which is hereby acknowledged	$ 25,000.00
On the first anniversary of the date hereof	35,000.00
On the second anniversary of the date hereof	50,000.00
On the third anniversary of the date hereof	75,000.00
On the fourth anniversary of the date hereof	100,000.00
On the fifth anniversary of the date hereof and on each anniversary thereafter so long as this Agreement remains in effect	100,000.00

Each amount of advance royalty paid during any annual period shall be applied against and reduce payments of production royalty due for such annual period.

4. LESSEE shall pay to OWNER a production royalty of 5% of "net returns" received by LESSEE from the sale of ores, minerals and materials (hereinafter "Product") produced and sold by LESSEE from the Property. "Net returns" as used herein shall mean gross proceeds received by LESSEE from the sale of Product, f.o.b. the Property; if Product is sold to a third party mill, smelter or other treatment facility, "net returns" shall mean gross proceeds received by LESSEE from the sale of Product less smelting or other third party treatment charges and less transportation charges from the Property to such third party facility. OWNER and its authorized agents shall have the right to inspect the Property and the accounts and records used in calculation of production royalty paid to OWNER hereunder, which right may be exercised at any reasonable time as shall not unnecessarily hinder or interrupt the operations of LESSEE hereunder.

5. LESSEE shall conduct any work performed hereunder in a good and workmanlike manner and in conformity with valid and applicable local, state and federal statutes and regulations, and LESSEE shall pay all expenses incurred by it in its operations on the Property and shall allow no liens arising from any act of LESSEE to remain upon the Property. LESSEE shall indemnify OWNER against and hold OWNER harmless from any liability to third persons resulting from LESSEE's operations hereunder. LESSEE shall pay all taxes, assessments and other governmental charges imposed upon its equipment or operations on the Property while this Agreement is in

effect. LESSEE shall perform assessment work (unless excused, suspended or deferred) for the benefit of the Property for each assessment year during which this Agreement continues in effect beyond July 1.

6. In the event of default hereunder by LESSEE in making any payment or performing any other obligation hereunder, OWNER may give written notice to LESSEE of such default and if LESSEE has not tendered the required payment or performance within 30 days after receipt of such written notice, OWNER may terminate this Agreement by delivering to LESSEE written notice of such termination, subject to LESSEE's right to remove its property and equipment from the Property within 30 days of such notice of termination. The right of OWNER to terminate this Agreement shall be OWNER's sole remedy in the event of default for non-payment. LESSEE may terminate this Agreement at any time by giving written notice thereof to OWNER, and subject only to the assessment work requirements set forth in Paragraph 5 above, LESSEE shall have no further obligation upon such termination other than as to obligations, the due dates for the payment or performance of which precede such termination. Notices required or permitted hereunder shall be effective when personally delivered or when deposited, postage prepaid, certified or registered, in the United States mail, addressed to the parties as set forth in the first paragraph of this Agreement or to such other address as specified by notice given hereunder.

7. Any party hereto shall have the right to sell or assign, in whole or in part, its interest in this Agreement and the Property, and this Agreement shall inure to the benefit of and be binding upon the parties hereto and their respective heirs, personal representatives and assigns. This Agreement and the rights and obligations of the parties hereunder shall be governed by the laws of the State of Arizona. LESSEE and OWNER shall join in the execution of a memorandum or short recording counterpart of this Agreement in a form sufficient to constitute notice hereof to third parties under the laws of the State of Arizona.

IN WITNESS WHEREOF, this MINING LEASE has been executed effective as of the date first above set forth.

OWNER

Lynn M. Sheppard

Nancy Sheppard

LESSEE

OROTEX CORPORATION

By Robert O. Rose, Secretary

William H. Zulione, Jr.

WHITE METALS MINING COMPANY

By Thomas A. Thompson, President

John Dal Peterson

STATE OF ARIZONA)
(ss:
COUNTY OF GILA)

This instrument was acknowledged before me this 24th day of March, 1982 by LYNN M. SHEPPARD and NANCY SHEPPARD.

Rose-Marie Phillips
Notary Public

My Commission Expires:

June 15th, 1982

STATE OF Arizona)
) ss.
COUNTY OF Maricopa)

The foregoing instrument was acknowledged before me this 30 day of March, 1982, by Robert C. Rose, the Secretary of OROTEX CORPORATION, an Arizona corporation, on behalf of the corporation.

Pamela S. Hall
Notary Public

My Commission Expires:
April 26, 1985

STATE OF Illinois)
) ss.
COUNTY OF Coles)

The foregoing instrument was acknowledged before me this 8th day of April, 1982, by William H. ZuHone, Jr., a married man.

Nina M. Walker
Notary Public

My Commission Expires:
November 24, 1985

STATE OF Utah)
) ss.
COUNTY OF Kane)

The foregoing instrument was acknowledged before me this 14 day of April, 1982, by John Dal Peterson, a married man.

Susan Kelly
Notary Public

My Commission Expires:
3-1-85

STATE OF ARIZONA)
) ss.
COUNTY OF PINAL)

The foregoing instrument was acknowledged before me this 9th day of April, 1982, by Thomas A. Clary, the President of White Metals Mining Company, an Arizona corporation, on behalf of the corporation.

Notary Public

My Commission Expires:

August 22, 1982

EXHIBIT A

EXHIBIT A to MINING LEASE AGREEMENT (and Memorandum thereof) between LYNN M. SHEPPARD et ux. (as OWNER) and OROTEX CORPORATION et al. (as LESSEE), being a description of the "Property" as the term is used therein:

Patented Mining Claim

The Great Republic patented lode mining claim of United States Mineral Survey No. 307, situated within Section 29, T. 2 S., R. 15 E., G.& S.R.M., Gila County, Arizona, the United States Patent of which is of record in the office of the Recorder of Gila County, Arizona, the descriptions contained in which Patent are by this reference incorporated herein and made a part hereof;

Unpatented Mining Claims

The following described unpatented mining claims situated in the Pioneer Mining District, Gila County, Arizona, the location notices of which are of record in the office of the Recorder of Gila County, Arizona, and the BLM Serial Numbers of which, are as follows:

Name of Claim	Records of Mines Book	Page	Docket	Page	BLM Serial Number
Quartett	31	619			52614
California	8	447			52615
Fair View			228	575	52616
Lucky Boy			228	570	52617
Chalenge	8	544			52618
North Republic	8	446			52619
Junior Republic			228	574	52620
East Pioneer			228	567	52621
West Republic			228	572	52622
Ring Nick			228	568	64393
West Republic No. 2			228	571	64394
Argenta Lode			228	573	64395
Silverado			228	569	64396
Quail			228	576	64397
Delinquent	8	448			64398
Jewel	31	620			64399

SUBJECT TO:

1. Taxes and assessments, if any, which constitute a lien against the above-described property but which are not yet due and payable;

2. All roads, rights of way and easements existing or of record in the office of the Recorder of Gila County, Arizona;

3. All exceptions and reservations contained in the United States Patent thereof (patented claim); and

4. Paramount title of the United States (unpatented claims).

Report on White Metal Mining Company
Property at Pioneer - Gila County - Arizona
by J.S. Campbell - Mining Engineer.
Sept. 1927.

Pioneer Mill

Property

The property of the White Metal Mining Company consists of 15 mining claims, two of which are patented. The total area is approximately 370 acres. The claims all adjoin and form a compact group, coming 4800 feet in length along the strike of the main veins and 2600 feet in width, which cover the three main & two smaller vein systems.

The claims are located as shown on the attached plan and are known and recorded as follows:-

Great Republic Lode, Survey #370 (patented)
Pioneer South Lode, Survey 374 (patented).

Fairview
Quartet
Jewel
Next Republic
Next Republic No. 2.
Jewel Republic
North Republic
Eloquent
East Pioneer
Challenge
California
Lucky Boy
Right Next

Location & Physical Conditions

The property is located on the South slope of the Pinal Mountains, about 12 miles in an air line South of Globe. It is reached by a mountain road, about 14 miles in length, which connects with the branch road of the Arizona Eastern Railroad at Christmas. The recently built State Highway from Globe to Winkelman passes

within 3 miles of the property. A road has been surveyed from Persia to connect with the Globe Highway which when made will greatly facilitate hauling to and from the mine.

The camp & mine is at an elevation of about 4500 feet above Sea-level. This gives a fine working climate - as the nights are cool, ie the heat of the summer and the winters very mild. Climate conditions are most favorable for year round operations.

There are several mountain springs on the claims which furnish abundant water, year round, both for domestic purposes and for supply for mill use. Water is piped from two of the springs to supply tanks and the supply is sufficient for all needs. Additional water can be developed and stored as needed for increased operations.

The surrounding mountains are heavily timbered, the property being right at the edge of the Apache National Forest area. This timber is available for general mine use, as stulls etc, and at very low cost. As fuel for domestic use the claims furnish sufficient dead growth for a supply for many years.

The location and living conditions at the camp are exceptionally good. Sufficient buildings are available for housing all the workmen needed. Telephone connections are maintained with the main telephone exchange at Ray. Supplies can be hauled in daily, if needed, either on the Globe road or from Winkelman by automobile truck. These features make it easy to keep a good class of men on the job, contented and comfortable, which is an item of importance in operations of this size.

History

The district was opened up in the early seventies, when the high grade ores near the surface were mined and hauled by wagon to the Gulf of California, a distance of 300 miles and then shipped to the smelter at San Francisco.

Later stamps mills were installed and the high grade ~~ox~~ oxidized ores, down to water level, were mined & treated by amalgamation, ~~and~~ washing & settling.

The production has been estimated from what records are available at about $1,000,000 from the old company operations and an additional $300,000 from the various leasers who have worked on the narrow high grade veins.

F.P.K.?

The treatment of the ores became difficult & the ~~[illegible]~~ recovery of values dropped when the sulphide ore, were met in depth. At about the same time, a new mill was ~~[illegible]~~ destroyed by fire and a drop in ~~silver values~~ the price of silver — suspended all operations.

Three of the major ore showings were held by different individuals and litigation resulted from conflicting claims as to limits of the ore being mined. The claims were finally consolidated into one group and a new flotation mill erected, which can now effectively handle the sulphide & lower grade ores.

Geology.

The Rival Mountains are essentially a highly metamorphosed sedimentary called the Rival Schist which has been altered by an intrusion of diorite. In the Premier camp - the main intrusion is a ~~porphyry~~ diorite porphyry, which is closely associated with the ore veins & ore bodies.

The veins are roughly parallel with a strike of ~~from~~ about North 30° East. They dip from 70° to 85° to the West.

The vein filling is mainly quartz with the sulphides occuring as bulphides - associated with varying amounts of lead, zinc and copper sulphides. The main value is in silver, with a decided amount of gold.

The veins follow the porphyry dikes - either on the foot or hanging. The veins vary from 3 to 10 feet in width and are clearly defined. The walls are firm & solid and hold with little or no timbering, outside of occasional stulls.

Ore Development

There are three main veins on the claims, namely the Howard Vein, the Premier (or Challenge) Vein and the East Premier. In addition to these main veins there are several minor veins - which are narrow and high grade & from which most of the ore has been produced by leasers.

The main production has obtained from the Premier Vein. The shaft is down 400 feet. Across the gulley and to the south

the vein was opened up by an adit level which was extended to cut the Howard vein. Above this level most of the oxidized ores have been mined.
From the shaft drifts on the ore from the 200 and 300 foot levels were driven. Above the 200 foot level the ore has been stoped for a distance of 700 feet in length. Little or no stoping has been done on the lower levels or from the bottom of the shaft as the sulphides of lead & zinc made these ore difficult to treat.

The Howard Shaft is 350 feet deep. Drifts on the 100, 200, & 300 feet levels were driven. Most of the production came from above the 200 foot level. The ore shoot, showed a length of 750 feet as indicated by the stopes ~~cut~~ from the adit level.

The East Premier vein is practically all virgin ground. Open cuts show from 8 to 10 feet, in width of ore. There is little or no high grade on this vein which accounts for its lack of development. The vein is of commercial milling value however and warrants active development.

The various shafts were inaccessible at the time of my examination so that ~~its~~ was impossible to get at the deeper workings and make any estimate on ore actually in sight.

Equipment.

The property is fully equipped and ready for immediate operation. Recommendations for additions and certain changes will follow.

The Pioneer Shaft is equipped with a 40 H.P. Hoist and a 600 foot Compressor. There is a full equipment of ~~drills~~ machine drills, steel, small tools, Blacksmith Shop, tracks, mine cars etc, sufficient for a mine of from 30 x 50 men.

The Mill is in first class operating condition and was in operation during my visit & the property is one which has accumulated during certain development work.

The flow sheet of the mill is as follows:- Crude ore bin - to a 150 ton (capacity 24 hours) Telsmith crusher - to a 100 ton circular ore bin; Challenge ore feeder & belt conveyor for feeding ore to a 5½' Hardinge Ball Mill; 4'-6" x 14'-6" Dorr Classifier in close circuit with Ball Mill; sand flow from Classifier to a 12' x 12' K.&K. Flotation machine; froth from flotation machine to a 7' K.&K. Flotation machine - as finishing cell - in close circuit with the 12' roughing cell; under flow from the 12' K&K to 2 Plato - Concentrating tables; concentrates to a 10 foot Dorr Thickener, (also the finished flotation concentrate); a settling tank; filter & dryer; tailings from the Plato tables to waste.

The mill is driven by a 60 H.P. Molten Gas Engine & the crusher by a 20 H.P.

The mill is efficiently layed out & in first class operating condition. It has a daily capacity of from 50 & 60 tons per 24 hours. By the addition of a fine grinder, a ball mill or a pebble mill, to take the oversize from the classifier instead of returning the oversize to the Hardinge mill to be regrinded and by putting the classifier in close circuit with the fine grinding mill, the capacity can be brought up to 100 tons per day. The balance of the equipment in the mill has capacity to handle this additional tonnage.

The mill is so located that another 100 ton unit can be added to it at small cost. The recovery made is from 90 to 95% of the values.

Recommendations

The present mill has erected and installed to operate on the ore from the old workings. No new ore has developed and the deeper workings were not unwatered. The ore in the upper workings & the stope fills are all ridged ore on which a fair saving has made but not a large a percentage of recovery as can be made on fresh ore. The workings from which this ore was obtained were scattered & isolated and as a result maximum capacity was not obtained.

Before attempting to start milling again, new ore should be developed and the capacity of the mill stepped up to 100 tons per day.

The stope fills and ore remaining in the upper workings can be handled but the main supply should come from the newly opened up stopes.

There are two main developments advised: first, extending the cross cut on the 200 foot level of the Pioneer Shaft - West - a distance of 380 feet at which point it should cut the Howard Vein & Shaft - 350 feet below the Surface; second; the 300 foot level on the Pioneer Shaft should be driven South along the vein and the open up the downward extension of the main Pioneer Ore Shoot.

The Pioneer Shaft is down to a depth of 450 feet. The old shaft timbers are in bad condition below the 100 foot level & will have to be replaced & the shaft retimbered before active mining can be safely carried on. The shaft has been timbered to the 300 foot level and good ore is now in the breast of the drift at that point.

From the 200 foot level in the Pioneer Vein a cross cut & raise should be driven to connect with the 75 foot shaft sunk on an intermediate vein. This new prospecting shaft has been sunk on ore & from it most of the crude ore shipped during the past year was mined.

These three developments will open up three persons ore shoots from which a daily tonnage of at least 100 tons per day can be had & maintained.

The East Pioneer Vein should furnish a large tonnage of good mill ore: the surface shows a wide fine vein. Development

work can be best done by means of a ~~shaft~~ prospecting shaft from the surface. After a depth of 300 feet is made a crosscut can be driven from the Premier Shaft - a distance of 600 feet - to connect with the new mine on the East Premier Vein.

Levels on the 100 & 200 foot level from the East Premier Vein could be started and mining of ~~same~~ ore carried on from the shaft until the connection is made. The development shaft would have to be driven in order to provide an Emergency exit and air connection - ~~and after~~ in order to comply with Ontario Mining Laws - even though the ore was first opened up by a cross-cut tunnel; so that it is most advisable to sink first & stay with the ore, until sufficient depth is attained for crosscutting.

The development work ~~and returns~~ outlined & returning of the shaft would take from 5 & 6 months to complete.

It would probably be possible to start milling on a 100 tons basis within 4 months time. The development work should then continue and as four reposade & distinct ore bodies will be under development, the ~~plant~~ capacity should be able to supply at least 200 tons per day, within a years time, when the milling capacity should be increased.

The present road is rough and has many steep grades in it. ~~The winter~~ The up keep on the road is high and hauling is difficult

and expensive. As the new Globe highway is completed it is most advisable to make the 3 mile connection with it. The county will ~~to~~ assist aid to about one half the expense in the new road. This road should be started & completed as early as possible.

The present power consists of several independent oil & gasoline engines. The fuel cost is high and the hauling of fuel on the present road is expensive. New power will have to be added to bring up the mill capacity to 100 tons.

The present equipment is sufficient however, to handle the development work. Provision should be made & install a central power plant - with water driven equipment at the various workings. A substantial saving both in fuel cost and in attendance & maintenance of the Equipment will be made if a full Diesel oil engine with generator & water driven is installed.

Summary

The work as outlined will cost from $75,000 to $100,000 and will take from 5 & 6 months to complete and put in full operation.

The property will then be in position to have a tonnage of 100 tons per day.

The two main veins have produced a large tonnage of high grade ore from above the

200 foot levels and the ore has been cut & proven at depths of 350 feet in the Howard and 450 feet in the Pioneer. From the 4th levels and the returns from ore already mined and milled an average of not 25 ounces per ton in silver can be reasonably expected.

By the addition of one or two new flotation cells, & the present mill flow sheet, a selective flotation of the Zinc and lead can be made. As depth both lead & Zinc are coming in stronger than in the upper levels. The Separation of the two metals can be made and a substantial profit made on the Zinc & lead, in addition to the Silver value.

I recommend that development work be started with the present equipment; that the road connection with the Globe highway be completed at an early date and as soon as the road is in that provision be made to step the mill up to 200 tons capacity and install the central power plant.

Sufficient ore should be available within a year to a year and a half to warrant a 200 ton daily capacity.

Respectfully Submitted

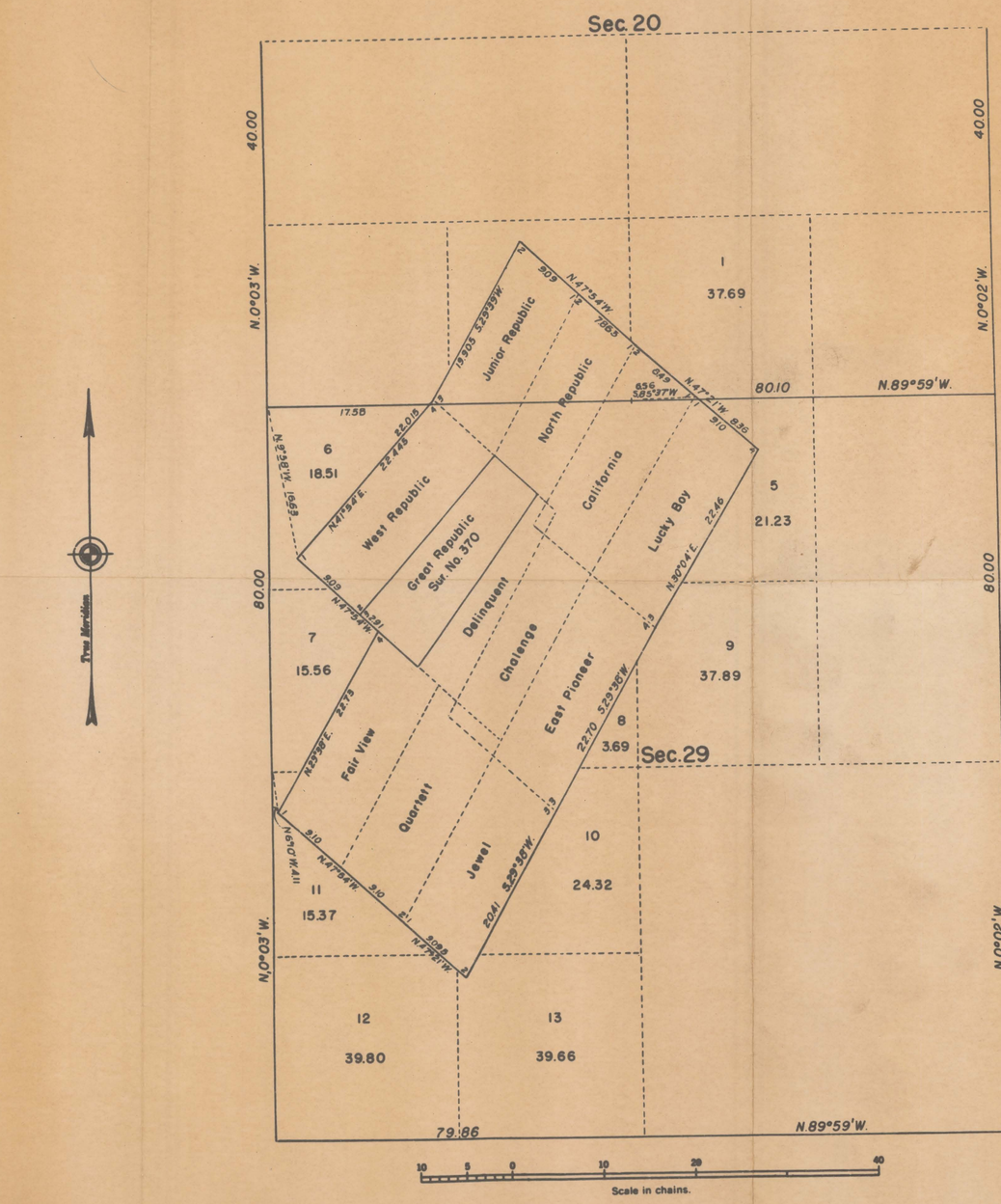
J. B. Campbell

ORIGINAL

TOWNSHIP No.2 SOUTH, RANGE No.15 EAST OF THE GILA AND SALT RIVER MERIDIAN, ARIZONA

1450

Plat showing Mineral Segregations in Sections 20 and 29



MEMORANDUM

This plat represents the survey by metes and bounds of land classified as mineral bearing, and connecting lines, deriving lottings of fractional areas of adjoining non-mineral land, to accommodate State Exchange Selection, List Phoenix 079031. The survey was executed by Dupree R. Averill and G. Marvin Litz, Cadastral Engineers, October 17 to 22, 1946, under supplemental special instructions for Group 233, dated August 21, 1943, authorized by General Land Office memorandum "E" dated April 28, 1943.

Boundaries of sections 20 and 29 surveyed by William B. Kimmel, Cadastral Engineer, in 1919, under Group 71, as shown upon the plat approved February 7, 1921.

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Denver, Colorado, March 10, 1947.

This plat is strictly conformable to the field notes of the survey which have been examined and approved.

Acting Chief Cadastral Engineer.

Washington, D. C., July 22, 1947

The survey represented by this plat, having been correctly executed in accordance with the requirements of law and the regulations of this office, is hereby accepted.

Assistant Director