CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
1520 West Adams St.
Phoenix, AZ 85007
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov

The following file is part of the

Arizona Department of Mines and Mineral Resources Mining Collection

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01/19/90

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: BLACK QUEEN

ALTERNATE NAMES:
TOM THUMB MS 3886
INDIAN CLAIM MS 3886
BLACK QUEEN CLAIM MS 3886
MOTHER HUBBARD CLAIM MS 3886
GOLDFIELD CLAIM MS 3886
YOUNG MINES CLAIM MS 3886

MARICOPA COUNTY MILS NUMBER: 404B

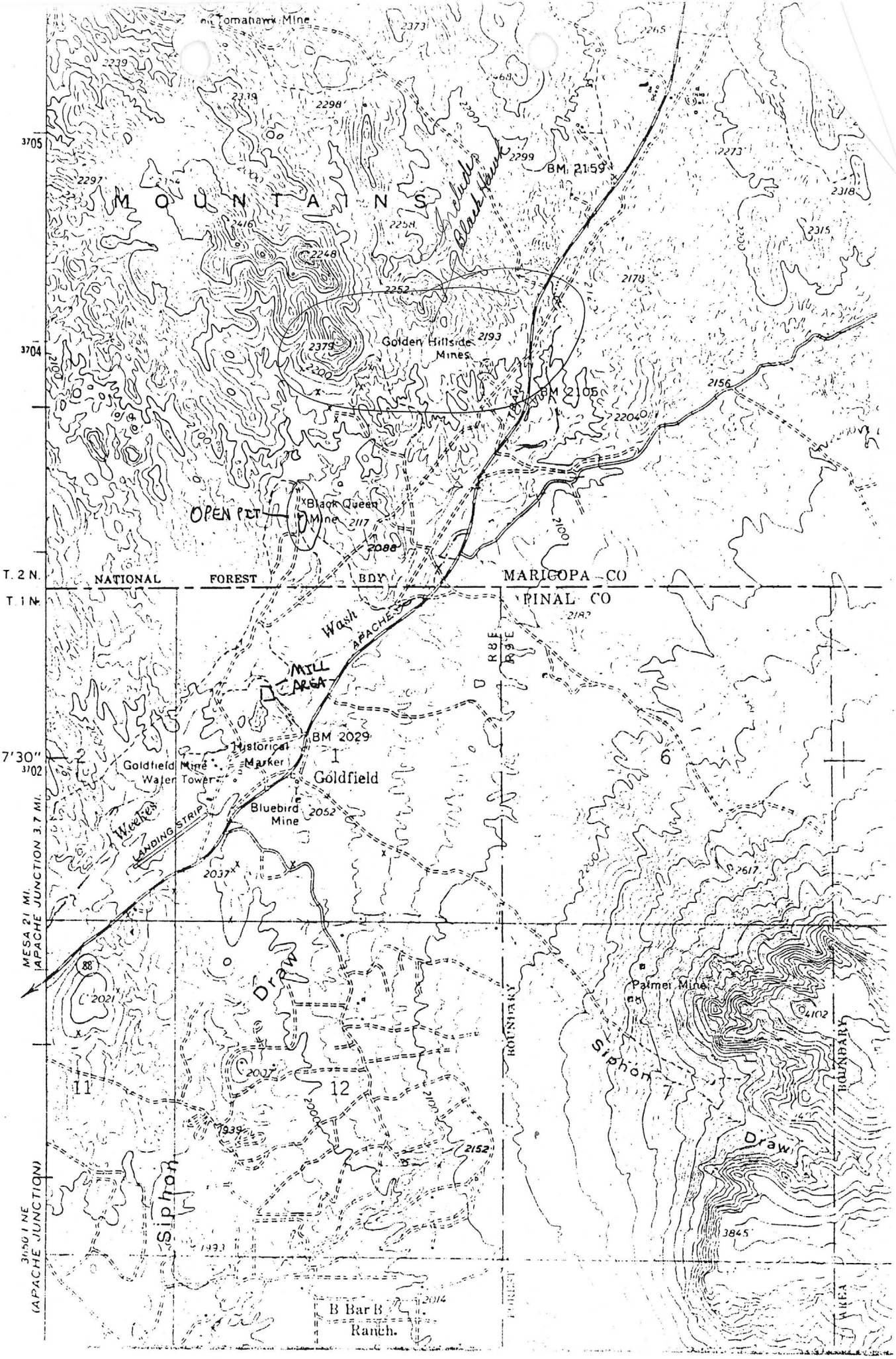
LOCATION: TOWNSHIP 2 N RANGE 8 E SECTION 36 QUARTER C
LATITUDE: N 33DEG 28MIN 07SEC LONGITUDE: W 111DEG 29MIN 13SEC
TOPO MAP NAME: GOLDFIELD - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
GOLD

BIBLIOGRAPHY:
ADMMR BLACK QUEEN FILE
GOLDFIELD MINE FLAT MAPS (21 MAPS)
ADMMR GOLDFIELD MINE FILE
BLM MINING DISTRICT SHEETS - MS 3886

GOLD FIELD QUAD



ARIZONA DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX, ARIZONA

~~December 10, 1957~~

February 5, 1958

To the Owner or Operator of the Arizona Mining Property named below:

BLACK QUEEN (Property) GOLD (ore)

We have an old listing of the above property which we would like to have brought up to date.

Please fill out the enclosed Mine Owner's Report form with as complete detail as possible and attach copies of reports, maps, assay returns, shipment returns or other data which you have not sent us before and which might interest a prospective buyer in looking at the property.

EPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
Mineral Bldg., Fairgrounds
PHOENIX, ARIZONA

HT,

PHOENIX FEB 5 9:30PM 1958 ARIZ.

RETURN TO WRITER

PHOENIX FEB 7 3-AM 1958 ARIZ.

Mr. G. C. Hartin
19 W. Jefferson
Phoenix, Arizona

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

Date April 3, 1941

Mine Black Queen

Location Goldfield

Mining District & County - Superstition Dist.
Pinal County

Former Name

Owner - Shumway Bros.

Address - 19 W. Jefferson
Phoenix, Arizona

Operator - G. E. Hartin

Address - 805 S. Central Avenue
Phoenix, Arizona

President, Owning Co.

President, Operating Co.

Gen. Mgr.

Principal Minerals - Gold

Mine Supt.

Production Rate

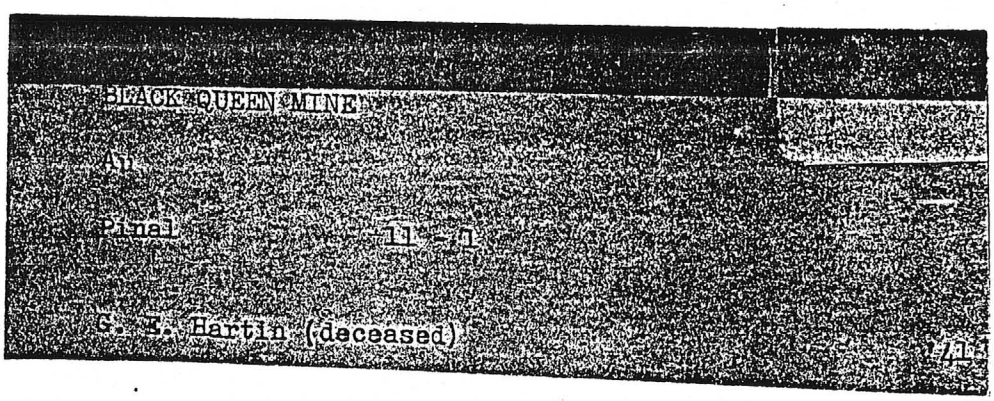
Mill Supt.

Mill: Type & Cap.

Men Employed - 3

Power: Amt. & Type

Operations: Present



Operations: Planned

Number Claims, Title, etc.

Description: Topography & Geography

Mine Workings: Amt. & Condition

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

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Mill: Type & Cap.

Men Employed - 3

Power: Amt. & Type

Operations: Present

Operations: Planned

Number Claims, Title, etc.

Description: Topography & Geography

Mine Workings: Amt. & Condition

Geology & Mineralization - No report

Ore; Positive & Probable; Ore Dumps, Tailings - 12 inch vein at 20 ft. Assayed $16.50 to $36

Dimensions and Value of Ore body - Unknown

Mine, Mill Equipment & Flow-Sheet - Have compressor, hoist, etc. installed. Have truck for hauling ore and all equipment necessary.

Road Conditions, Route - Via Apache Junction 4 miles east.

Water Supply

Brief History

Special Problems, Reports Filed

Remarks - Have spent about $300 getting started on account of weather. Have shipped 13 wet tons, grossed $192.72

If property for sale: Price, terms and address to negotiate - Need partner with about $250 to $300 and will split with him on all profits. He can work is he wishes or be silent partner. About $150 cash required but in no case over $250 to $300.

(SIGNED) G. E. Hartin

805 S. Central Avenue
Phoenix, Arizona

COPY FROM·
MINES HAND BOOK. 1926 Page 417.

Youngs Mines Co. Ltd.
Incorportated 1910 in Arizona. Capital $1.500.000. $1.00 per share 20.000 outstanding.
Permit to sell stock was granted March 1925.

Property 94 claims. 35 patented.. About 1.600 acres, in Superstition District. 20 miles east of Mesa, Maricopa Co.

Contains a large disseminated low grade ore body said to carry sufficient Gold for mining on a large scale by Steam-Shovel or caving.

Development includes 100 H.P. Hoist. 900 cu.ft. compressor and buildings to accomodation of 100 men.

Reported that the entire equipment including Concentrators of the defunct Ray-Boston Copper Co was purchased in 1922.

Development . A shaft 1000 feet deep. etc, etc,

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES

VERBAL INFORMATION SUMMARY

1. Information from: Clay Worst

   Company:

   Address: 5289 E. Apache Trail

   Apache Junction, AZ 85219

2. Phone: 982-2671

3. Mine:

4. ADMMR Mine File: BLACK QUEEN

5. County: Maricopa/Pinal

6. Summary of information received, comments, etc.:

Mr. Worst reports the Mammoth is now in dispute between Marshal Ott and Darrel Hand (c). Although the courts have often given Mr. Hand title recognition the sheriff refuses to intercede and so the violence and shooting continues. It has been suggested that the court take control of the property, sell it to a uninvolved mining company and split the proceeds among the litigants. This is probably the only way a reasonable land position with clear title could be assembled.

Date: September 27, 1988

Nyal J. Niemuth, Mining Engineer

STATE OF ARIZONA
DEPARTMENT OF MINES AND MINERAL RESOURCES
Mineral Building • State Fairgrounds • Phoenix, Arizona 85007
(602) 255-3791

THE FOLLOWING TWO FILES WERE STOLEN FROM THE DEPARTMENT DURING THE MONTH OF MARCH, 1989. WE HAVE ATTEMPTED TO DUPLICATE THE INFORMATION IN THE FILES FROM VARIOUS SOURCES.

BLACK QUEEN, MARICOPA COUNTY
&
GOLDEN HILLSIDE, MARICOPA COUNTY

IF YOU HAVE ADDITIONAL INFORMATION NOT CONTAINED IN THIS DUPLICATE FILE, AND WOULD LET US MAKE A COPY, WE WOULD GREATLY APPRECIATE IT.

THANK YOU

MAY, 1989

416 W. Congress • Suite 190 • Tucson, Arizona 85701 • (602) 628-5399

THE MAMMOTH MINE AT YOUNGSBERG

In the Superstition Mining District, Pinal County, Arizona

This is a Story of Accomplishment in a District that is Rich in Romance, Where the Novelist Could Easily Find Themes for Many An Inspiring Novel

By EVERETT TILLER
Business Manager Arizona Magazine

The property of the Young Mines Company, Ltd., consists of eighty-five claims or seventeen hundred acres, located thirty-six and one half miles east of Phoenix, on the Roosevelt highway, in the Superstition Mining District, in the extreme northeast corner of Pinal County, Arizona. Superstition mountain is undoubtedly one of the best named mountains in existance, and the mining district takes its name from this mountain. Why and how this mountain was named Superstition, has been interpreted in many ways, but the best interpretation appears to be the one originating in years agone, from a clash between the Apache and Pima indians in this section, in which the Pimas, always the friend of the white man, appears to have worsted a large body of Apaches, the enemies of the Pimas from time immemorial.

This district is rich in romance and legends of lost mines of fabulous wealth. Among the many old mines of romance is the famous Lost Dutchman Mine. It is said to be somewhere in this section of country, and men of more than ordinary intelligence have spent fortunes in the search for it, and today the zest is just as strong in this continued search as it ever was. That such a mine is not wholly fiction is proven by the many documents now in existance as to its one time reality. Since 1866 different parties have made repeated searches trying to locate this famous mine. There are seven legends or stories among white men and Indians as to its one time known location, and according to Miss Sharlott Hall, former Arizona Territorial Historian, than whom no one is better informed in the ancient lore of Arizona than Miss Hall, these seven stories all dovetail into this property now owned and being operated by the Young Mines Company, Ltd. This fact has also been noted by one or two old-time miners who have accompanied every expedition of note since 1866 in search for the Lost Dutchman mine in this section of the country.

This property, now the property of the Young Mines Company, Ltd. has been known for years as the Goldfield, or Mammoth Mine. It was purchased from the original locators in the early 90s by Charles Hall, a noted operator in that day in mining circles of Leadville. By him it was slightly developed, and experimented upon, and from which he recovered nearly a million dollars in gold bullion in, it appears, about fourteen months. Mr. Hall had two or three partners, and after purchasing the interest of his partners, he arranged for extensive development of the property, for like all experienced gold operators, in working what is called a desert proposition, he considered it at first a deposit of rich kidneys of ore.

After his work upon the property, it would appear that he became obsessed with the idea that at greater depth there were greater riches, and after securing all of the property for himself, he had completed all arrangements for deep work when the entire plan was abandoned on account of his death. On his deathbed, he told his two daughters not to take less than $1,000,000 upon the bond and lease plan, or $500,000 cash, for the property. The property in the meantime, laid idle for practically twenty years, there being no other property in the district as a guide to go by, and while many liked the appearance, geologically and otherwise, yet feared to make the venture in taking over the property, until 1909, when Geo. U. Young, at that time Secretary of Arizona, and Acting Governor, secured an option and bond on the property. At that time the property consisted of ten claims, all under approved, patent survey, and since that time, he has, by purchase and denouncement added to the property, bringing it up to its present dimensions.

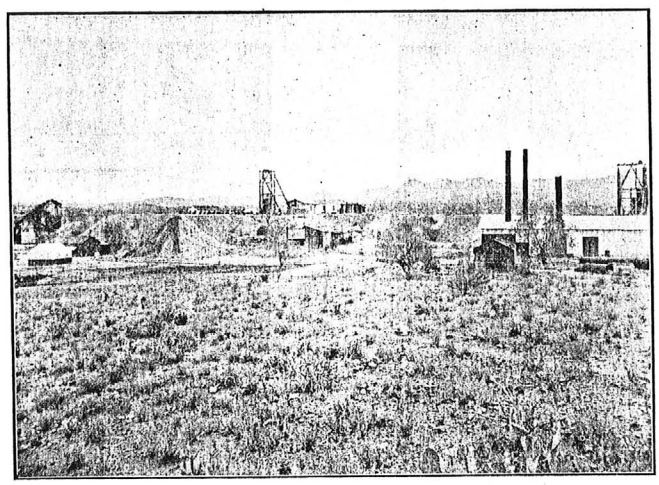
This is a property that can be worked from two or three different angles. Taken from a large manufacturing standpoint, which will require the investment of a large sum of money —say probably one half milion, or maybe less, and installing a process by which low grade gold ore, averaging $2.00 or $2.50 per ton up, could be worked at a profit, there is sufficient ore now in sight and blocked out to warrant a mill of anywhere from 5,000 to 10,000 tons per day. There is sufficient tonnage in sight of higher values by which a goodly sized mill can be installed and successfully operated.

To both propositions there is but one handicap, and that is, the lack of water and elevations. On the largest scale ,it would require the installation of a mill at some other point where there is plenty of water and the construction of a railroad connecting the mine and the mill, with all the accessories that go with a huge

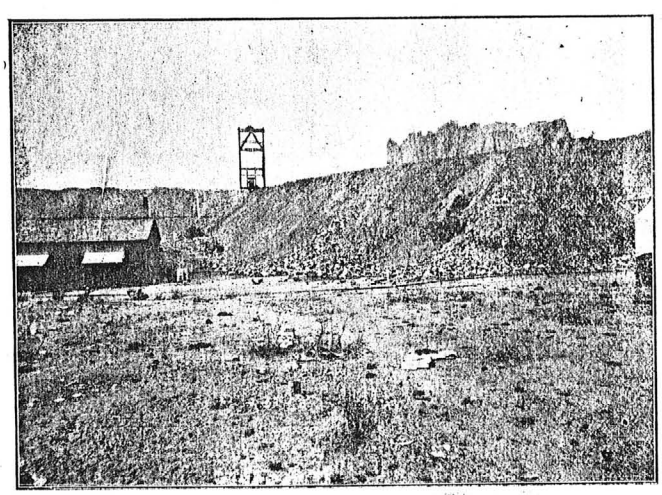
NOTE** "ARIZONA" is pleased to present this mine as a community proposition. Let it be said right here, this article is occasioned by a visit of the writer, personally, to this property. It has been secured by his tenacious solicitation, and in no wise by solicitation on the part of the management of the Young Mines Company, Ltd., Mr. George U. Young, to have it written up. Mr. Young has more than a local reputation of not being a "limelight seeker" and his efforts in bringing this property to the condition it is now in without publicity, and against the adversities with which he has had to contend; by no means least among them, to have the abnormal conditions for the past severnal years, to do anything in the way of pioneer construction, and especially, to overcome the great difficulties surrounding the production of gold, has been something that ordinary men cannot do.

Any one conversant with mining can see at a glance that this property presented a most beautiful subject upon which to "stock job" and "thinble-ring" finance. Long ago Mr. Young could have been sitting on "easy street", which is too often done in mining promotions, letting the other fellow take care of himself. This he has not done, and it has not been with th thought in mind of how much money he could make out of it, but rather the vindication of a principle in which he believed, that has been his impelling motive, and that is why "ARIZONA" consideres this one of the leading meritorious community interests in and surrounding the Salt River Valley. A fact which can be verified by any honest and intelligent visitor to the property.

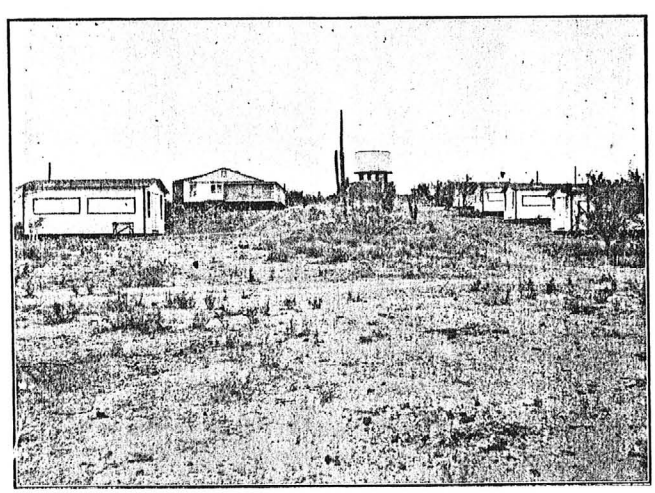
People riding along the Roosevelt highway, not conversent, have no idea of the vast amount of underground workings, the immense tonnage of ore blocked out, the completeness and thoroughness of the plant installed and the equipment thereon, as all this was a surprise to the writer, as thoroughly conversant as he claims to be with surrounding industrial propositions and conditions.



Looking Northeast Showing Boiler House, Assay Office and part of Main Dumps. . Headframes Main and South Shafts

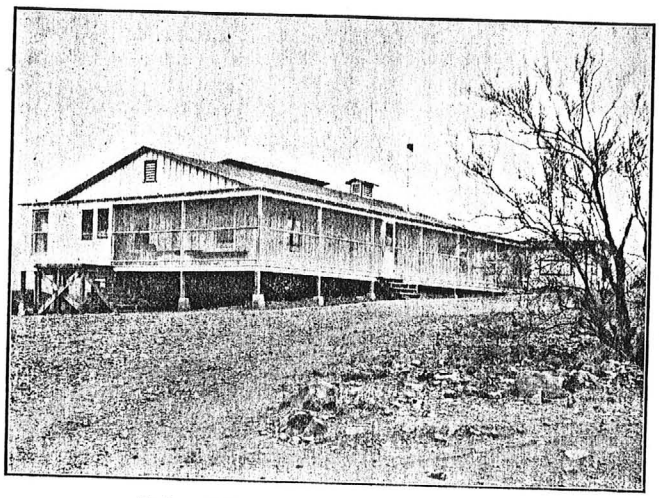


Portion of Dump. Headframe of Main Shaft. Superstition Mountain In Back Ground



Post Office. Store. Dining Hall and Camp Cottages. Water Tank In Back Ground

Arizona" Vol. XII No. 3 October 1921



Dining Hall. Ice and Cold Storage Plant

proposition like this. The management has gone on the theory that to men of modern means, the biggest deposit upon which they can draw without danger of exhaustion is Time, with the result that the management has been spending the last year, or better, in mining more for water than for ore, and this problem, it would appear, is near solution.

Much time has been taken the past five or six years in experimentation, and testing out different reduction processes, and this has now been settled with the exception of just what kind of mill to put in to do the crushing. Much money has been spent in different experiments, and much time used, but in going over the changes that have been made since it was first thought this question was settled, and the conditions things are now found to be in, it is now, not only proven that a huge saving has been made in the initial cost of installation, but the saving that will be made after operation of the mill has commenced, shows that changes between the average actual operating cost of milling, and what it will be in operating by the form of reduction now intended is almost unbelieveable.

To do these things has required patience, head work and a tendacity with which few are blessed, and the management should be congratulated by every one having a dollar invested in the enterprise.

The three remaining essentials to be finished, as outlined by the management are—

First, the sinking of the main shaft three hundred feet deeper. This is a three-compartment shaft, and is now at a depth of 850 feet, and it is a safe assertion there is not a prettier shaft in the country. The idea of putting this shaft this extra depth is the attempt to reach water level. Again, the first indication of the primary formation was found at a depth of 840 feet. It was almost a crime to stop the shaft at this point, but financial changes over the country required that every caution be exercised until the general financial situation clarified.

The next essential is, to install the power from the Roosevelt power line. Estimates are all made up and completed for this part of the work.

The third essential is, the installation of the mill and, as before stated, this proposition is now practically settled. The mill will be installed as a first unit of 400 tons per day capacity. The crushing part, as before stated, is not yet exactly settled. The MacDonald System will be used for the amalgamation and concentration. These do away with the many multifarious devices found in the average mill, and by the use of these, all tables and other paraphanalia used in the usual combination amalgamation and concentration mill can be dispensed with, and a large saving made, not only in the installation, but in the operation after reduction is commenced.

The property is now equipped with a steam plant of 450 horsepower capacity, complete in every detail and not one cent's indebtedness against it. Surface improvements consist of nice, neat bunk houses, either arranged for use of families, or rooms well equipped and furnished for use of men. The boarding house and kitchen are models of their kind, and found in few camps. A complete ice and refrigerating system is installed, and the camp has been installed in that way that it receives the unsolicited commendation of every insurance examiner who has inspected the same, with the result that while the insurance companies reject the average small mining camp, they gladly assume this risk, and at a very low rate.

The camp is protected by a thoroughly installed water system of pipe lines connected with a hundred and fifteen thousand gallon supply tank and the tank supply is connected with powerful pumps which can be started at a moment's notice.

Among the many strong features in connection with this enterprise it is a pleasure to specify the following:

First, it is a safe assertion, taking into consideration the time that has been used in this proposition, the adversities against which such propositions have had to contend the past several years, that it is rare indeed that a property the dimensions of this can be found under an original capitalization of a million and a half, in which no increase has been made before the property presents as complete a condition as this property.

Another great fact is there remains a treasury reserve sufficiently strong to put the proposition into almost any further condition desired.

Another fact is, the money received has gone into the work, and not been dissipated in commissions, and by other dishonest and wasteful methods.

Another fact which is of great credit to the management is, that while Mr. Young has been offered as high as two millions of dollars on the bond and lease plan, in the past for this property, yet, in making his transfer to the company, he has taken this burden from the company. In the financing of this, he has not availed himself of either the moral rights as established by the usages of the day, nor has availed himself of the legal rights given him by the law to retain commissions and other expenses which, in most cases, are retained by those promoting a deal of this kind.

This proposition may be considered one that is settled and certified to. It is now, so to speak, "over the hill," and the money that will be required to finish the initial plans, worked to from the first, to commence production on a good-sized scale, is nothing compared to the resources back of proposition.

The property, counting work done, and in equipment, shows an investment,—not considering what Mr. Young has invested personally upon the property—of nearly one-half million of dollars. He has jealously guarded this proposition from the start, and no liabilities have been allowed to accrue against the company. Where liabilities have had to be contracted, if they could not be engendered in his personal name, he has done without.

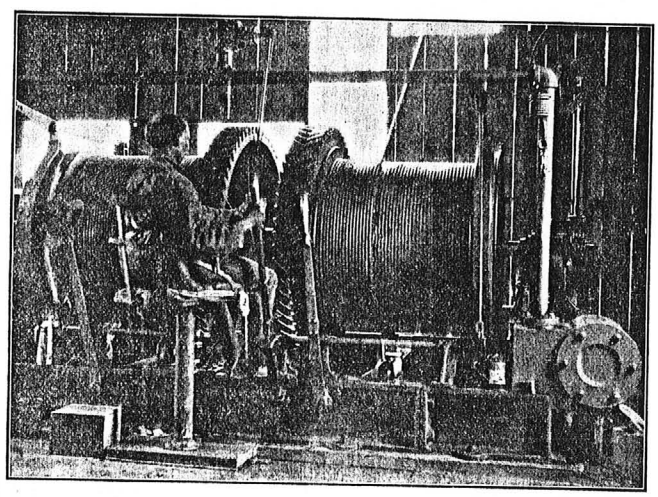
Referring to the last annual statement, it shows there came into the towns of Mesa and Phoenix, for the fiscal year ending June 15th, pay checks amounting to practically $55,000. Merchandise purchased, over twice that amount—not mentioning the many thousands of dollars for incidental expense such as insurance, freight and other liabilities.

From a mining standpoint, it has been one of the two propositions which has continued steady work in this immediate section, and is now going ahead in a conservative and cautious way, and in conversation with the management, there appears to be no cause in sight that will make a change in the present plans. Waiting upon money subscribed, and otherwise contending with the so-called financial panic over the country, is only deferring the finishing of the three essentials above mentioned, and when these are finished, the property is in the producing class.

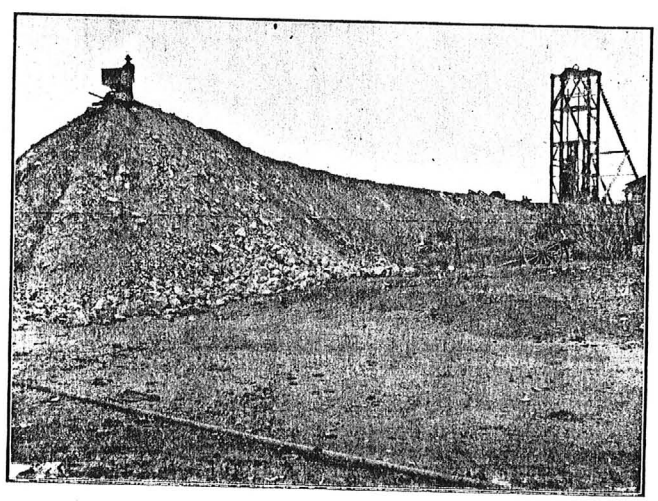
As a philosopher and political economist, those conversant with Mr. Young know that he has few equals, and no superiors. He knows how to do things with a dollar the average man cannot approach. He has appreciated the political evils in our government for the past twenty-five years, and he has more than a local reputation of being a man that cannot be handled. His political record is a strong one, and there is not a blot on his escutcheon. The evil of the overhead cost of government has been more apparent to him than to most men, and he has seen conditions coming that are now present for many years past, which is proven by his many manuscripts written upon these subjects, and the present condition of the Young Mines Company now reflects the correctness of his vision.

Therefore, reiterating—"ARIZONA" considers it not only a pleasure, but a privilege to present these few facts among the many which might be said regarding this proposition, because the editor considers it one of the cleanest, most legitimate, and one of the coming most profitable businesses in the community.

We know that Mr. Young has been solicited more times than one to have this proposition written up, and to clarify the mind read this, we will say that "ARIZONA" is not receiving one cent for this write-up, as the motive back of this article was, and is, we stopped



Double Drum Hoist, Main Shaft



View Portion of Dump and Headframe Main Shaft

and made our own inspection of this property, by and through the courtesy of the superintendent in charge, and we solicited this news article because we believed in the justness of it to the man in charge and the benefit to the community in general. It is because it is one proposition we have so thoroughly investigated, that we speak with authority, when we say we know no stench can be created by examination, and the usual odor arising from the average proposition like it because of over-capitalization, dishonest promotion, and otherwise betrayal of the people who put their money into such propositions with the hope that some day some return will come from it. We fully believe that in this instance, those who have placed confidence in this proposition by putting their money in it, will, if they consider it takes time to do big things, in the end find they have no cause for regret.

—o—

ONE FARM OUT OF THREE IN U. S. HAS MOTOR CAR

Nearly every third farm in the United States had at least one automobile on the first day of last year. Of the 6,448,366 farms in the United States, 1,979,564, or 30.7 per cent reported having automobiles to the number of 2146,512. Although Iowa led all other states in the number of automobiles on farms, having 177,558, Nebraska, with 104,453, showed the highest percentage in relation to the number of farms, heading the list with 75.6 per cent.

Motor trucks were reported on 131,551 farms in 1920, or about 2 farms out of every 100 in the United States as a whole. The number of motor trucks on these farms was 139,169. The states leading in the number of motor trucks on farms are: Pennsylvania, with 9,372; New York, with 9,259; Iowa, with 8,910; Ohio, with 7,319; Nebraska, with 6,548; California, with 6,416; and Illinois, with 6,154.

Three and six-tenths per cent of the farms in the country were reported as having tratcors on January 1, 1920. This is about 1 farm out of every 28. The 229,334 farms thus represented had a total of 2246,139 tractors.

Telephones were reported on 2,508,002 farms, or 38.9 per cent of all farms in the United States, in 1910. More than one-half of the farms in the following states had telephones: Iowa Kansas Nebraska Illinois, Indiana, Missouri, Ohio, Minnesota, South Dakota, Wisconsin, Vermont, Connecticut, Massachusetts and Oregon. Iowa, with 183,852, showed the largest number.

Farms reporting water piped into the house in 1920 numbered 644,088, or about 1 farm out of every 10. The percentage was highest in the New England states and in California. The states leading in numbers were as follows: California, 65,928; Pennsylvania, 46,402; New York, 45,487; Ohio, 41,531; and Texas, 38,580. Gas or electric light was reported on 452,809 farms, or 7 per cent of all farms in the United States.

These figures, gathered by the Bureau of the Census, are being studied by the United States Department of Agriculture in connection with its work along these lines.

THE INGLESIDE CLUB

Arizona's balmy winter days, bright star-lit nights, invigorating atmosphere and congenial environment, offers an impelling invitation to the tourist who seeks the ultimate in personal comfort and mental enjoyment. That every convenience of modern civilization may be added to those so lavishly provided by Nature, Ingleside Club, a few miles northeast of Phoenix, furnishes accomodation. In selecting the location for this Club, rare judgment and foresight was exercised. Surrounded by citrus groves, it is within sight of the desert; while in the irrigated district, mountains are only a few miles distant, and its appointments are such that the advantages of both city and country life are enjoyed without the inconveniences of either.

—o—

STOCK BREEDERS INTERESTED IN STATISTICS ON PUREBREDS

On account of the great interest which the United States Department of Agriculture finds has been shown in census figures of purebred live stock in 10 representative farm states, the Bureau of the Census is proceeding with plans to complete the tabulation for the remaining states. This work is receiving the hearty co operation of the United States Department of Agriculture. Live stock specialists of the department regard such figures as very valuable as fatcors in production problems, and an indicating developments in the improvement of domestic animals in this country.

It is understood that the final census figures pertaining to purebred live stock on farms will be available at the same time the general live stock figures are furnished. It is thought that this will be some time during the coming summer.

—o—

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912

Of The Arizona Magazine published monthly at Phoenix, Arizona for October 1921. State of Arizona.

County of Maricopa—ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Everett Tiller, who, having been duly sworn according to law, deposes and says that he is the Business Manager of the The Arizona Magazine and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation) etc., of the aforesaid publication for the date shown in the above caption required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulatons, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:
Publisher, W. W. P. McConnell.
Editor, W. W. P. McConnell.
Managing Editor, W. W. P. McConnell.
Business Manager, Everett Tiller.

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock). W. W. P. McConnell.

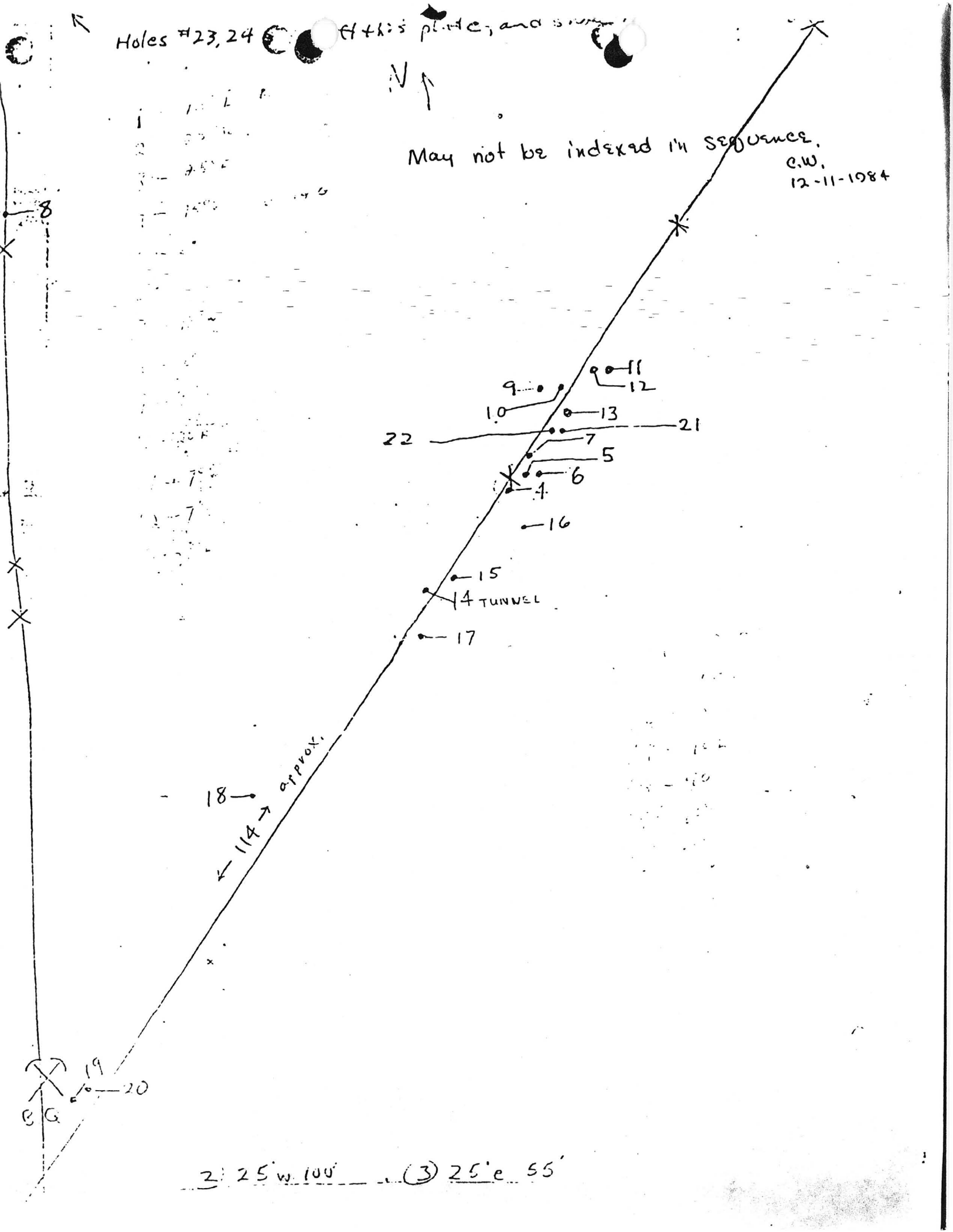
3. That the known bondholders, mortgages, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state). None.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is ..... (This information is required from daily publications only.)

EVERETT TILLER,
Business Manager.

Sworn to and subscribed before me this 13th day of October, 1921.

BETTY MAELEAU,
(Seal) Notary Public
(My commission expires June 1, 1925).


Holes #23, 24
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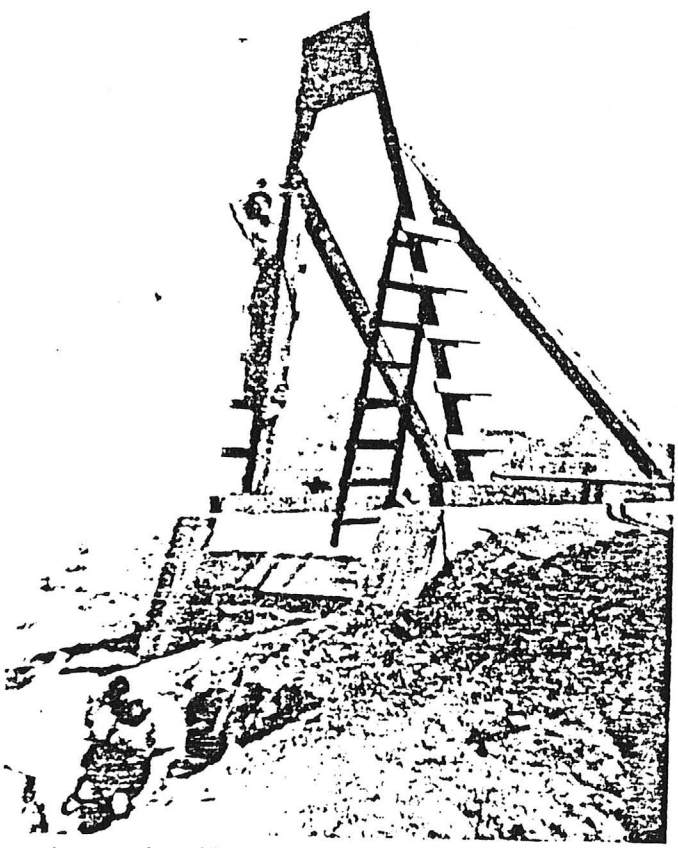
THE MINES OF GOLDFIELD

The following stories about the various mines in the Goldfield Area come to us through the courtesy of John D. Wilburn. John has written extensively on the area and his many publications are still available for sale in the local book stores.

LAZY DOC PROPERTY

Long time resident and author on Dutchman lore, Ludwig (Doc) Rosecrans holds 2½ claims he staked in 1946 after arriving in the Government Wells area. Sample pannings he took from the surface were so rich with fine gold he decided to stay, convinced the property would develop into a gold mine. In 1952, with a financial partner who agreed to dig 200 feet, Doc sunk a shaft 60 feet on a steeply dipping fault slickenside. At 60 feet they drifted 140 feet to the south and extracted a small body of gold in altered granite that amounted to 16 tons. One assay ran 19½ ounces in gold. Five other small shafts in the shear zone composed of altered granite also pan fine gold.



A new headframe goes up on the Lazy Doc Claim to hoist up the gold in 1952.

An old claim that is patented and dates back to the days of Hall, the Treasure Vault property is found a mile north of the Mammoth on a fault contact between granite on the east and conglomerates on the west. The claim was held since 1939 by Roy Galbraith, deceased, until 1971. Roy was content at the age of 90 to single-jack by hand in his spare time; he sank 5 shafts no more that 30 feet each and he is reported to have shipped 5 tons of gold bearing quartz that yielded a check for $1,000. Other ore shipped netted nearly $1,000. The gold here is seldom seen, but further development may reveal high grade ore. Only 2 shafts remain open.

GOLDEN HILLSIDE MINE

This mine is located high on the slopes of a long ridge of hills one mile north of the Mammoth. Early mining began in the 1890's and assays ran 10 ounces in gold per ton. The ore consisted of altered granite and stringers and veins of quartz lace throughout the mine that lies within a steeply dipping fault that trends northward the same as all mineralized faults in the Goldfield basin. The Hillside produced some gold in the early years, but production is unknown. The mine is developed by 147 feet of shaft and 261 feet of drift on the 70 foot level. The mine is owned by Bob Dirkens.

BLACK QUEEN MINE

This is the second largest producer next to the Mammoth, but production figures cannot be found as all of the ore was hauled to the mill at Goldfield. The mine operated out of two shafts, the main shaft on the west end of the vein went to the 150 foot level. Three levels were developed in the mine, on the 50 foot, 100 and 150, and the drifts were not more than 100 feet in length with most development on the 50 foot level. Ore was extracted in paying quantities and pockets of very rich ore occur throughout the mine. The ore is brecciated quartz for 300 feet along a fault contact between arkose on the east and basalt on the west. A zone of quartz veins occurs as wide as 10 feet. The richest ore occurs with black manganiferous quartz and the gold is all free milling. Currently the mine operations and development is being conducted by the Clark-Oliver Mining Company.

ACTIVITY AT MAMMOTH MINE

Mesa Merchants Already Feeling Effect of It.

The first real signs of actual work on the Mammoth mine in the Goldfield district, twenty-one miles east of Mesa on the Roosevelt road, became apparent when a large lot of supplies were ordered out to the camp which is being established. Not only have the Mesa merchants already begun to feel the effects of what the opening up of the old mine will do for them, but it is understood that an additional load of supplies was also started out of Phoenix.

It has been pretty well understood in a general way as to the plans in mind by George U. Young, who has the property bonded and is the man behind the present operations, but the first definite information was given out yesterday morning by W. M. Neagle, who is in direct charge of the work.

Mr. Neagle left here during the afternoon with four boilermakers in the Kimball automobile and they will immediately proceed to get the machinery in shape for work. According to Mr. Neagle, no less than ten or twelve men will be put on by the last of this week or the first of next. In other words, men will be put on just as fast as there will be a place for them to work. There are a good many details that have to be arranged before a large force can be put on, but there will unquestionably be a large camp at Goldfield by early summer.

As has been intimated before, the new operators do not propose to use the old shaft at all on account of the fact that it is considered in an unsafe condition and would require the expense of retimbering and constant pumping in order to get out the water. It is a well known fact that the overabundance of water has always been a problem for the operators in the Goldfield district to solve.

TEMPE LACKS CASH FOR RUNNING CITY

Appearing before the state tax commission to ascertain the necessary steps to obtain permission to increase the tax levy more than 10 per cent over the amount levied a year ago, Dudley Windes, city attorney of Tempe, intimated that the south side city was in need of additional funds to carry on its city government. That Tempe is short of funds because of its heavy overhead expense was information given out by Mr. Windes. The increase in overhead is largely due to city paving, he said.

The commission informed Mr. Windes that under house bill 90, the cities will not be allowed to exceed 10 per cent more than the amount levied a year ago unless an emergency exists. The commission must pass on all increases granted.

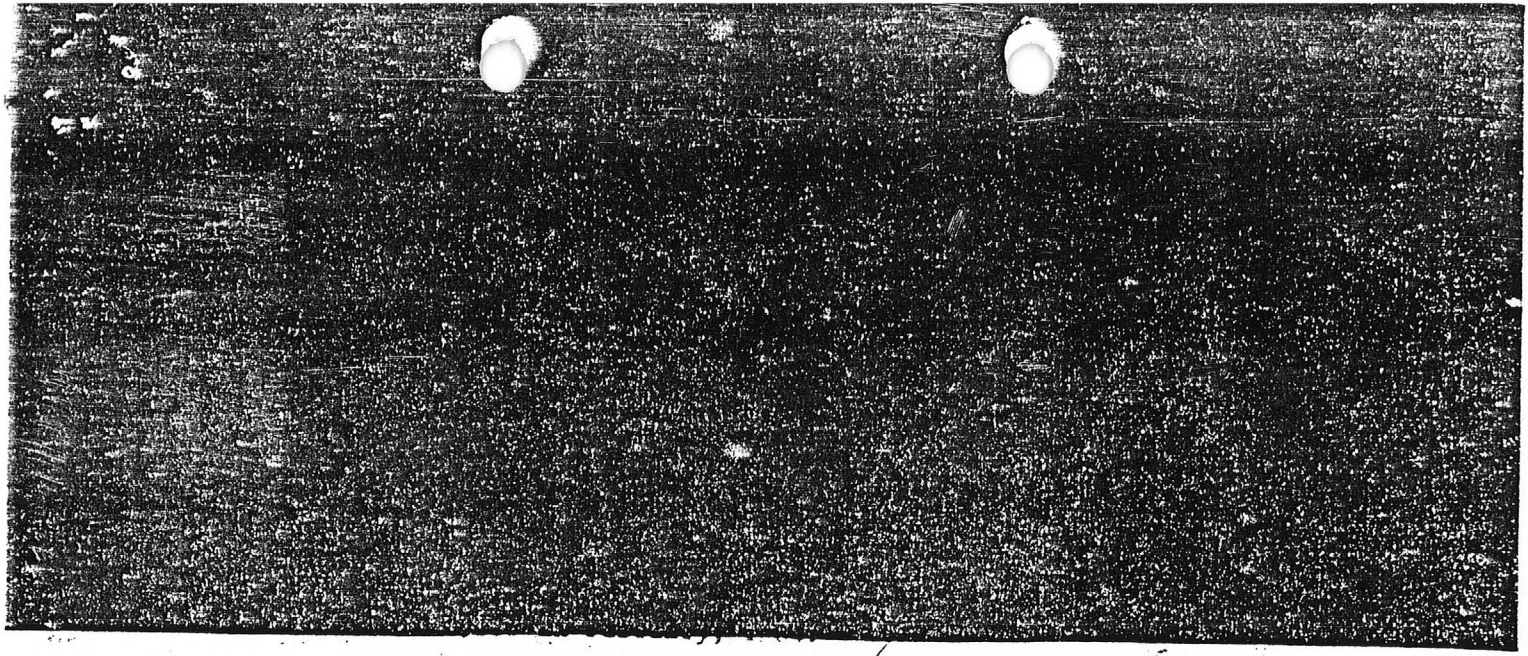
The commission yesterday called attention of boards of supervisors of the different counties of the state to the new law. They were asked by the commission whether there is a deficit from the previous year's operation, and if there is, has informed the supervisors they are entitled to "clear it up" under the new law.

ENTERTAIN O. E. S. AT GOLDFIELD MINE

Queen Esther Chapter No. 22, O. E. S., and their friends were given a party royal Saturday night and Sunday by Mr. and Mrs. Geo. U. Young at their Goldfield mine. A delicious supper was served, after which the guests danced until the "wee sma' hours" of the morning. The music was furnished by Pixley's orchestra.

The guests inspected the new buildings and equipment of the mine, which is modern and up-to-date in every respect. Since the recent disastrous fire, the new dining room, kitchen equipment, new furniture and bedding and a new refrigerator plant have been installed and everything is provided for the comfort and convenience of the employes.

After breakfast the party motored back to Phoenix all loud in their acclaim of the royal hospitality afforded by the Youngs.



BRACE RESOURCES LTD. (BCE-V)

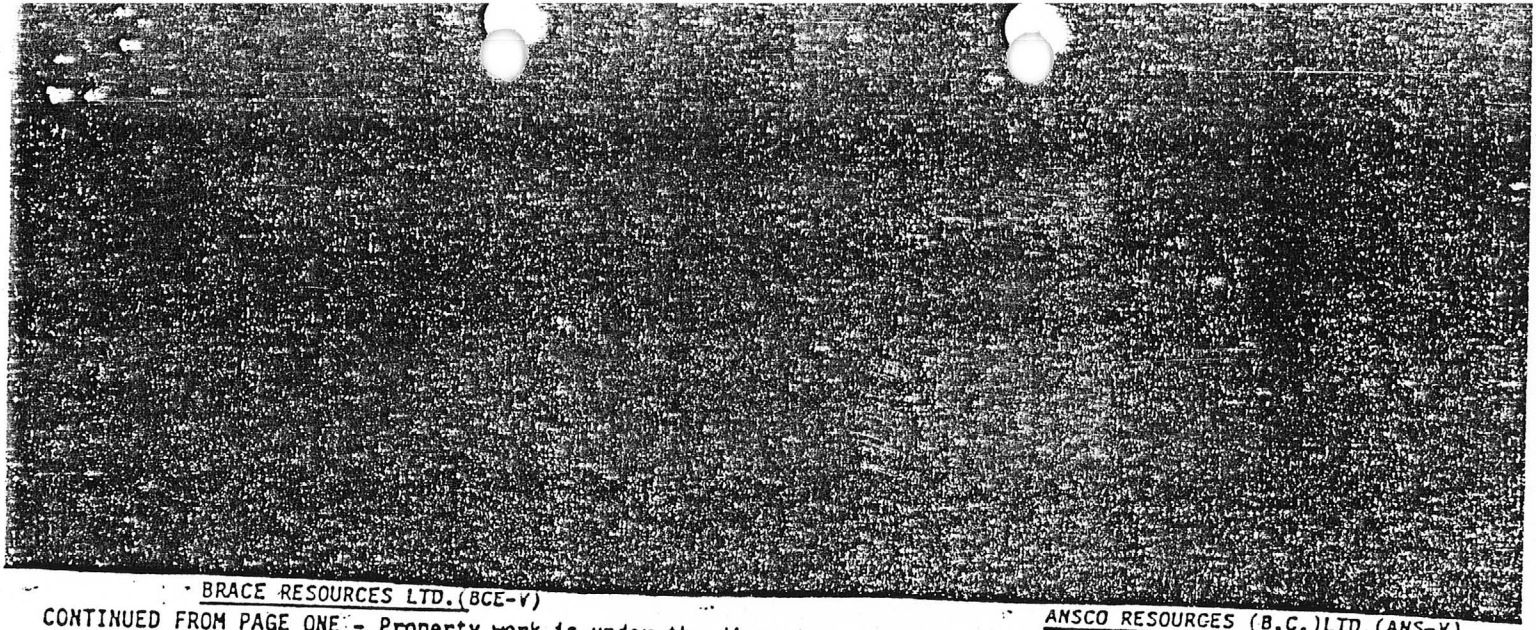
Hole No	Interval	Length	Oz.Gold/T	Oz.Silver/T
DDH6	50 - 54	4.0 Ft.	.038	.44
	54 - 55.5	1.5	2.76	1.36
	55.5- 60.0	4.5	.024	.70
	50 - 60	10.0	.44	.698
	95 - 102	7.0	1.952	1.18
DDH7	84 - 86.5	2.5	0.154	7.21
R-10	165 - 170	5.0	.082	.14
	170 - 175	5.0	.852	.77
	175 - 180	5.0	.604	.46
	165 - 180	15.0	.512	.45
R-19	140 - 150	10.0	.494	0.25
	150 - 155	5.0	.460	0.1
	140 - 155	15.0	.482	0.20
R-20	165 - 170	5.0	.238	2.38
	170 - 175	5.0	.102	1.84
	175 - 180	5.0	.366	0.48
	180 - 185	5.0	.130	0.51
	165 - 185	20.0	.204	1.30
R-22	105 - 110	5.0	.238	2.70

ANSCO RESOURCES (B.C.) LTD. (ANS-V)

FORTY HOLES DRILLED TO DATE ON HIGH POTENTIAL PHOENIX GOLD PROJECT

Steve Radvak, P.ENG., mining engineer, and president of Brace Resources Ltd. and Ansco Resources (B.C.) Ltd. has been prospecting, and exploring, in Arizona for more than ten years. He has worked on gold, copper silver and uranium. He has raised the money through a variety of companies and with a variety of partners. Several properties he has worked on have developed ore and several have got to limited production. The Mammoth gold property, which he now has in Brace and Ansco, has, at worst, a small tonnage of low grade for a large tonnage operation.

The 30-claim, 980-acre Mammoth property is located 10 miles north of Apache Junction at the foot of the Superstition Mountains 30 miles east of Phoenix, Arizona. Brace has to 60% and Ansco as to 40% hold an option to acquire the property from Goldfield Mines Inc. and Triple S Mining Company. Payments were $150,000 by Feb.10,1984 then $20,000 March 10,1984, and $20,000 per month or 9% of production until $500,000 has been paid then reducing to 7% and later to 5% of production until the full end price of $50,000,000 has been paid. Each of Brace and Ansco have recently completed public financing. Brace has a free working capital of approximately $700,000 with 3,697,971 shares issued and Ansco has a free working capital of approximately $480,000 and 2,748,001 shares issued. One of the claims is subject of a court case and no work is being done there now. -CONTINUED ON PAGE TWO -



BRACE RESOURCES LTD.(BCE-V) ANSCO RESOURCES (B.C.)LTD.(ANS-V)

CONTINUED FROM PAGE ONE - Property work is under the direction of David R.Morgan, consultant, Bob Wagner,P.Eng., geologist who has worked on various of Mr.Radvak's projects for the past ten years and Steve Radvak,Jr., a recent U.B.C. graduate mining engineer.

The history of high grade gold production from the property goes back to 1890. There are three shafts, 1,100 ft.deep, 400, and 300 ft., plus over two miles of flooded workings. On surface there is a series of exposures, trench and pits where high grade gold samples are readily found. Brace and Ansco have been mapping, sampling, cleaning out some of the old workings and drilling. To date ,27 percussion drill holes and 13 diamond drill holes have been completed. Of the over 8,000 feet of hole drilled ,assays are back on about 3,000feet. At one point ,with two rotary rigs and one diamond drill machine working ,the logging and sampling got away ahead of the samplers and geologists. The work is pretty well caught up now with the two rotary rigs shut down pending assay returns.The diamond drill is now drilling No.14 hole to duplicate the No.19 rotary hole in an effort to obtain a corelation between rotary and diamond drill assays.Mr.Wagner pointed out that the company has been having some trouble with rotary hole assays. Some of the holes show good gold in the pan but none in the assays or little in the pan and good assays. The company is working with the assayer and sampler to improve the results. The twinning of the rotary hole should help considerably. The companies have been using H(NQ) 2 1/4 inch core but have increased to PQ 3 3/4 inch core for a larger more accurate sample.

The native gold occurs in quartz veins which strike north-south and dip to the west. They are associated with a major fault contact between granite and volcanics which has been traced over several miles. The main target is the Mammoth vein which was mined in the Mormon pit, now 30-40 feet wide, 100 feet long and about 40 feet deep and water filled. Off the south end of this pit the structure has been drilled to return good grade values. The zone is 50 to 6 feet wide and contains a series of quartz veins with very high grade gold. The drilling is almost to the stage where tonnage estimates can be made for this open pit potential. The property set up is such that with the warehouse, garag machine shop and considerable useable equipment on hand ,an operation could get underway cheaply and quickly to open three veins for bulk sampling and to generate a cash flow. There are several other targets on the property where mapping, sampling, geochemical surveying, geophysical surveys are to be completed prior to starting drill testing.

Representatives of a number of major companies have been on the property with one of these companies negotiating toward an exploration agreement.

Assay results to date include a series of surface samples across 1.2 feet which ran 0.88; 3.60 and 19.0 oz.gold per ton and the No.4 rotary hole which returned from 180 to 190 ft a 10 foot section assaying 0.88 oz.gold/t; from 1 to 200 ft. a 10 ft.section assaying 0.755 oz.gold per ton. The most encouraging hole to date is No.7 in the Mammoth zone which returned from surface to 100 ft. 0.2 oz.gold per ton, including 54 to 55 1/2 ft., a 1 1/2 foot section assaying 2.76 oz.gold/t and then 7.5 ft. at 92.5 to 100 ft. assaying 1.96 oz.gold/t.

Some of the old reports on the property are interesting, particularly one by Dr.Allan P.Fawley,P.Eng., dated Jan.1978 for Loredi Resources Ltd. wherein he says that old reports show reserves of 3,000,000 tons grading 0.191 oz.gold/t.He also stated that the possibility of developing an economic open pit mine is excellent.

Black Queen (ft) Maricopa Co

6/11/86

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 STAR ROCK INC.

CHIEF OFFICER GREG CLARK

COMPANY ADDRESS 5254 APACHE TRAIL

COMPANY TELEPHONE NUMBER 602 982-0968

MINE OR PLANT NAME BLACK QUEEN

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

MARICOPA COUNTY APACHE JUNCTION
HWY 88 WEST APOX 8 mi TO TONTO NAT FOREST.
SIGN TURN R & LEFT APOX 2 mi. TO SITE.

TYPE OF OPERATION GOLD MINE PRINCIPAL PRODUCT GOLD

STARTING DATE 7-28-86 CLOSING DATE

DURATION OF OPERATION

PERSON SENDING THIS NOTICE KERRY BILYEU

TITLE OF PERSON SENDING THIS NOTICE SUPT.

DATE NOTICE SENT TO STATE MINE INSPECTOR 7-23-86

*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.

A SHORT HISTORY OF THE YOUNG MINES.

In the early 70ties, this property was located and worked by a Mr. Hall in conjunction with Dennis Sullivan of Denver. Colo. The Engineer and Assayer for Hall was a Mr. Kennedy.

The following information was given me by Kennedy some 18 years ago.

The discovery pit called the "Morman Chamber" opened up high grade ore. This ore was so rich in gold that Kennedy was obliged to stop the mill once and sometimes twice a day to take off the amalgum from the plates as they could not hold any more gold.

When I examined the property I found this pit which was caved in, size at this time was some 30 to 40 feet in diamiter and about 15 feet deep. Kennedy said ~~this pit was sunk about~~ 150 feet, ~~and~~ ore taken out to that depth ~~when this pit caved in~~. Hall tried to come under this pit with a shallow shaft and drift, but the ground was too heavy to hold and he was obliged to give it up. Going to Denver, he consulted with Sullivan regarding ~~trying to~~ open up this rich ore again, There he died and the property laid idle.

x gave production of over 1,000,000 before the pit caved in.

Hall

Young later got an option on the mine from Hall's daughters and he also tried to get under this ore body. He not being able to hold ~~the~~ drift's, gave up that project and drifted south on a lower grade ore, keeping his mill running on ore extracted from this south drift.

The pit mentioned and called the Mormon Chamber and the gold extracted by Hall amounted ~~to~~ over $1.000.000. according to Mr. Kennedy's statement. Reports on this property, mentions that it is a steam shovel proposition. Width of the fault some 600feet wide, total width carrying low grade gold values, ~~low grade~~.

In 1914 or 1915 I received a letter from the late Senator Wm. Flinn of Pittsburgh, asking me if I knew of a large body of low grade ore, as his mine The Pittsburgh-Silver Pick. located at Blair. Nev. was about bottomed and he wanted to move his mill to another property. I mentioned the Young mine, and received a telegram from Flinn to go and make a preliminary examination of the property. I trenched across the fault in several places and also sampled the caved in pit. My samples across the fault. some 600 feet in width gave an average value of over 3.25 gold per ton, The caved in material at the pit assayed over $15.00 gold per ton

On reporting to Senator Flinn the results I obtained. Flinn had Mr Wm. Bradley, his Engineer at the Pittsburgh-Silver Pick mine go and examine the property and recheck mybvalues . Bradleys sampling was slightly higher than what I got. On his report to Flinn. I received a wire saying to bring Young on to Pittsburgh to figure on a deal for the mine.

The meeting in Pittsburgh was held with the following gentlemen being present. Senator Oliver. of the Oliver Iron Works
Senator Williams Flinn.
Senator Weller.
Mr Crump and Mr Miner

The following offer was made to Mr Young.

If, after drilling 40 holes 400 feet deep over ground 500 feet in width by 1.000 feet in length, and the ore body should assay betweenn $2.50 and under $2.75, the price to be $250.000.
If between $2.75 and under $3.00 Price of property $300.000.
" " $3.00 " " $3.25 " " " $400.000.
Over $3.25 per ton, price to be $500.000.
Payments to be 6% of gross returns, and not less than $50.000 per year guaranteed.

Young said price was satisfactoy, but he demanded a large cash payment which was refused by Senator Flinn. and the daal wasdeclared off.

Young returned to Arizona and later put down a new shaft some 600 feet south of his old shaft. This new shaft he put down to a depth of 1.000 feet and drifted south some 1.000 feet where he encountered very good grade of ore.

At the time this work was finished and before he could start extraction he was taken sick and died. As he had borrowed quite a sum of money from the Bank to complete this work, giving a mortgage for the same. the bank later forclosed and forced a sale. This money as I understand was secured from the officer of the Bank who was also a stockholder in Young's mine also an officer in the same. This gentlemen bought in the mine and by doing so Mrs. Young started suit claiming fraud. This defence was allowed by the Supreme Court, and the sale set aside.

The maps and workings of this last work done by Young will give an idea of location of shaft and drifts, also values on an assay may of this 1.000foot level, all maps and data are attached to this statement.

New Mork June 20 -1931

The following PARTIAL tonnage and bullion statement is herewith given for the purpose of giving any legitimate inquirer absolute and accurate information:-

MILLING TIME.	TONS.	BULLION.
Oct. 21 - Oct. 27, 1913	30	$176.27
Nov. 3 - Nov. 19, 1913	169	640.58
Nov. 25 - Dec. 10, "	213	1,235.76
Dec. 10 - Dec. 27, "	252	1,120.87
Dec. 27 - Jan. 15, 1914	154	1,219.26
Jan. 23 - Feb. 2, "	152	617.22
Feb. 6 - Feb. 16, "	163	2,159.84
Feb. 17 - Mar. 3, "	224	1,311.61
Mar. 4 - Mar. 19, "	228	1,963.03
Mar. 19 - Mar. 28, "	168	1,623.70
Apr. 1 - Apr. 19, "	213	1,620.50
Apr. 22 - May. 2, "	153	604.50
May 3 - May 31, "	353	820.80
Jne 1 - Jne 17, "	180	335.50
Jne 18 - Jly 1, "	165	1,896.60
Jly 2 - Jly 15, "	118	5,175.71
Jly 16 - Aug. 1, "	242	5,033.87
Aug 2 - Aug. 15, "	145	2,718.22
Aug. 18 - Aug. 29, "	114	1,260.03
Sept. 1 - Sept. 15, "	199	920.08
Sept. 16 - Sept. 29, "	249	3,749.90
Oct. 1 - Oct. 13, "	132	1,971.29
Oct. 19 - Oct. 31, "	179	825.00
	$4,195	$39,000.07

Total Bullion - - - - - - - - $39,000.07
Total Tonnage - - - - - - - - 4,195 tons
Average Saving per ton - - $ 9,296.00

BLACK QUEEN MINE MARICOPA COUNTY

NJN WR 4/24/87: Darrel Hand (card) visited and reported that a Superior Court judge order has given him title to the Black Queen (file) and Mammoth (Goldfield Mine - file) Maricopa, Pinal County and other claims listed on the order. A copy has been placed in the file. Mr. Hand has the title, but reports that he has still not gotten Mr. Sanstead (card) off of the Mammoth claim. Work over the last 2 years on the Black Queen has consisted of a mill building. Mr. Hand feels the drilling Dick Hewitt did on the Black Queen and that Brace /Ansco Resources did on the Mammoth has defined reserves sufficient to begin operations. He hopes to begin mining soon.

NJN WR 5/6/88: Tom Kilby, 1651 South Dobson, #207, Mesa, Arizona 85202, 730-9551 reported that after finishing his mater's thesis at ASU on the geology and structure of Goldfield Mining District he was employed by Dick Hewlett (card) for the summer of '86 through spring of '87. During this time he supervised drilling of 5,000 feet of water holes and 4,400 feet of rotary holes around the edge of the Black Queen pit (file) Maricopa County. Although some interesting results were obtained, work on the property has been suspended as the title to the property has once again been clouded. Currently, Mr. Hewlett is suing Darrell Hand (card) for control of the Mammoth (file) Pinal County. Mr. Kilby promised he would bring us a copy of his thesis to copy the next time he visits our office.

NJN WR 6/3/88: Tom Kilby reported that Dick Hewlett continues to operate on a small basis at the Black Queen (file) Maricopa County. A small amount of ore is produced from an underground mucking operation and treated at a gravity plant.

BLACK QUEEN MINE

MARICOPA COUNTY

RRB WR 2/15/85: Visted the Mammoth Mine, Goldfield District. Jerry Sandstead reports that the Black Queen is still tied up in litigation which is delaying development of the property.

NJN WR 1/10/86: Michael Sheridan PhD geology professor at Arizona State University called seeking information on mining activities in the Goldfield Mining district. Mr. Sheridan believes there is a group shipping from the wedge south of the Mammoth Group (Black Queen Mine - file) to the Inspiration Smelter. He is mapping in the area to lead a field trip on the Arizona Geological Society sponsored spring 1986 symposium. He speculated that the Gold in the district may be remobilized from placer in the areas red beds by Tertiary volcanic driven hydrothermal circulation into faults and reactive rock units. Although he observes only small narrow veins and pocket deposits in the area he believes there is potential for a large deposit.

NJN WR 7/13/86: John Challinor (c) reports that Dick Hewlett (c) is with a group drilling at the Black Queen (f) Goldfield District, Maricopa County. They are due to begin drilling 6-23-86.

MG WR 6/27/86: Mr. K. A. Massey of Paso Robles, Calif. reports that Messr. Dick Hewlett and Frank Murphy are selling interests, at about $5,000 each, in their "Lost Dutchman Project" near Apache Junction, Az. The property is said to have 0.1-ounce gold.

NJN WR 8/15/86: John Challinor (c) reports that Dick Hewlett (c) and Daryl Hand (c) have been active at the Black Queen (file) Maricopa County. Bernie Howard has been running some telephone boiler room operations for the exploration. They had 2 drill rigs on the property for awhile and did some exploration drilling and completed one water well.

NJN WR 11/28/86: Answered questions fro Sharon Fox of Attorney General, Securities Division, about obtaining expert witnesses for a hearing on an offering by Dick Hewitt (c), at the Black Queen (f) Maricopa County.

BLACK QUEEN MINE

PINAL COUNTY
GOLDFIELD DISTRICT

NJN WR 1/27/84: Jack Quay reported the Sanstead's are still mining and operating their "special mill" at the Black Queen Mine, Pinal County.

RRB WR 3/10/84: Visited Brace Resources, Inc ANSCO Resources, Ltd, Mammoth Project at Goldfield. Gate was locked and no one was there but there was considerable heavy equipment on the property.

NJN WR 3/9/84: It was reported that Brace Resources announced drill results of .2 oz/ton gold over 100' at their Mammoth Project, (Black Queen)

NJN WR 3/9/84: Jeff Wall called from Dallas, Texas, Ph: 214-823-5203, ext. 25 seeking data on the Goldfield area. He reported he had received information indicating Brace Resources and Ansco Resources had 27 men working there on 3 rotary rigs and one core rig at the Black Queen, Maricopa Co., The companies bought some part of the property from someone who retains a 9% royalty interest.

KAP WR 6/1/84: John Challinor reported Brace Resources is planning to sink a 400 foot inclined shaft at the Black Queen Mine (file) Goldfield District. The shaft is to be 6" X 9" to explore the probable ore body and obtain bulk samples. Work is to be done by a Canadian contractor, but Brace is looking to hire a mining engineer locally to spervise the project. John Challinor explained he has been doing some work for Brace. They are considering a pilot gravity mill for treating the material from the shaft sinking-sampling project.

(NOTE DATE OUT OF SEQUENCE)
NJN WR 4/20/84: David Spatz with Rio Algom, 14142 Denver West Parkway, Building 51, Suite 290, Golden, Colorado 80401 reported they have received a submittal from Brace Resources (c) on their activities at the Black Queen (file) Mammoth Property, Maricopa County. Mr. Spatz will be visiting the property next week.

BLACK QUEEN MINE [redacted]

PINAL COUNTY
Goldfield District

NJN WR 10/29/82: Jerry Sanstead reported that Mr. Broroughs had refused their monthy lease payment on the Mammoth and Black Queen Claims in Pinal County. Mr. Boroughs also is just a leasor of the property, however, he apparently defrauded another group who remain unnamed, by selling them the property when he is not even the owner. Mr. Boroughs is now being sued by other groups.

BLACK QUEEN MINE [redacted] PINAL COUNTY

MG WR 4/30/82: Visited Sunchief Mines, P.O. Box 2819, Globe, AZ 85501; phone 425-3156. Mr. John Murphy is in charge. The company office and mill are across U.S. Highway 70 from the Jaquays mill. I spoke to Murphy's brother, Bob. Although the mill is not complete, it was tabling some gold ore reportedly from the Black Queen mine, Maricopa County. A new ball mill is installed with a capacity of about 250 TPD. The geologist for Sunchief Mines is Mr. K. C. Delice, 9043 Harmony Grove Dr., Escondido, California 92025; phone (714) 743-8921.

BLACK QUEEN MINE

Do Not Reproduce

Pinal County
Goldfield District

KAP WR 3/21/80: Bob Judd reported that the Black Queen Mine, Goldfield District, Pinal County, is operating and are recovering very fine gold from their mill.

KAP WR 11/14/80: While at the Iron King Assay Office, Jack Hamilton, Tonto Mining and Milling, was making flotation tests on gold ores from Black Queen and Mammoth Mines, Goldfield District, Pinal County. J. Keller, along with Dick Powell and Earl Millian have acquired an interest in the mine. He reported that they have done considerable additional drilling and have bought out Sandy Sandsted's portion of the mine. They are hopeful that the Tonto Mill will be capable of processing the ore after it is mined. Their present plans are to purchase the mill and retain Jack Hamilton as consultant in the mill operation. The mill will be operating at its present location with the ore being hauled from Apache Junction to Pumpkin Center.

KAP WR 4/10/81: A company known as Pro-Met of Arizona, Inc. P.O. Box 275, Tonto Basin, Arizona 85553, phone (602) 479-2256, is reported to be operating the Tonto Mill, which was previously operated by the Tonto Mining & Milling Company. Mike McCarty is Geologist and "Ore Finder" for the company. The operation is owned by Ed Wagner, Bob Carroll, and Jack Keller. They are currently looking for a source of custom ore for the mill. They are trying ore fromOx Bow Mine, Green Valley District, Gila County, and Mammoth and Black Queen Mine, Goldfield District, Pinal County.

NJN WR 1/15/82: Vern Doyle with the Department of Water Resources called. He reported Daryl Hand is requesting three well permits from his agency to obtain water for a gold mining operation at the Goldfield Mine, Maricopa-Pinal Counties. The rate requested is 1000 gallons/ton ore. It is not known whether this will be for mining, processing, both or for what number of tons it will be required.

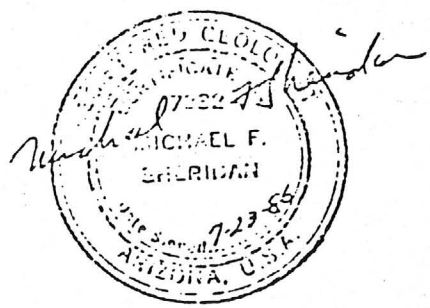
NJN WR 2/5/82: Visited the Black Queen MIne, Maricopa County. A hoist has been set up at the open cut which reaches down about 40' to just infront of the first level. The S.W. end of the open cut has been made into a ramp to enter the first level.

Equipment present included a diesel generator, compressor, Eimco Lhd., Backhoe, Payloader, and a couple of small house trailers. The generator was operating, a pan had some mice quartz-gold samples in it, but anyone present must have geen underground. Since I was without lights, no attempt was made to go underground.

RECOMMENDATION FOR EXPLORATION

BLACK QUEEN MINE

GOLDFIELD, ARIZONA



Michael F. Sheridan

Consulting Geologist

July, 24, 1986

Recommendation for M eral Exploration on Blac Queen Property

This recommendation is based on the known mineral occurrences in the Goldfield Mining District and preliminary field mapping in detail on the Black Queen claim and adjacent areas. The present report could be used as a preliminary guide for exploration subject to modification. Additional mapping, sample assays, and drilling will provide new information that should be used to adjust the model for prospecting as more information becomes available.

From north to south the areas that have produced gold in the past include the Black Queen, Mammoth, and Old Wasp mines. In the northern two mines (Black Queen and Mammoth) the gold mineralization was concentrated in thin quartz veins with a northerly trend. In the southern mine (Old Wasp) the gold was associated with sulfides in a highly altered zone in the headwall of a north-trending fault.

At the Black Queen mine the quartz stringers are concentrated near a north-trending fault with granite on both faces. No mineralized volcanic rocks are exposed in the area that has been mined. The gold mineralization in the Mammoth mine is concentrated in quartz veins within Tertiary volcanic units and arkose. The Precambrian granite here also contains some mineralization, but it is much weaker than in the Tertiary units.

In contrast, the main gold occurence at the Old Wasp mine is in an alteration zone in the hanging wall of a north-trending fault. Disseminated mineralization extends westward into the volcanic rocks of the hanging wall. The granite in the foot wall contains very little gold. There is a rhyolite or latite dike in the granite along the footwall, but the relationship of the dike to mineralization is unclear.

Mapping during the last four years has revealed that all three of these mines are controlled by the same fault, here named the Mammoth fault because the greatest production of gold to date has been from the Mammoth Mine alone this fault. The Mammoth fault can be traced in surface exposures from the south end of the Old Wasp Claim, through the Mammoth claim and up to the north end of the Black Queen Claim. It seems obvious that this fault is the key to mineralization in this area. Therefore new exploration would be most profitable in highly-altered Tertiary rocks along the headwall of this fault, especially the lower part of the sequence (Whitetail Conglomerate, lower basalts, and interbedded rhyolites). Additional sources of gold could be in quartz veins within the granite near the footwall of the Mammooth fault. The role of latite and rhyolite dikes in the gold mineralization is as yet unknown. They may be the source for some of the hydrothermal fluids in the area.

The Mammoth fault is considered to be related to the main caldera-bounding faults of the Goldfield Caldera, a 16 m.y. old structure located to the northwest. These caldera faults have a

northeasterly trend in the Goldfield District. It is possible that geothermal fluids related to the caldera moved up along this fault to localize the epithermal gold deposits of the Goldfield district near the paleosurface. An alternative hypothesis is that the gold is associated with the rhyolite and latite dikes and the ore fluids formed the gold deposits before the caldera collapsed. The Goldfield fault in that case could have displaced the ore bodies. At this time the former hypothesis is strongly favored because of the clear association of gold in fault gauge and alteration associated with the Mammoth fault.

The implications of the above hypothesis with respect to the Black Queen property are startling because the Mammoth fault has not been explored in this area, other than a few prospect trenches. The gold in this area has actually been mined from a system of gash fractures filled with quartz veins in the footwall of a second fault that runs parallel to the Mammoth fault. This second falut lies to the east entirely within the Precambrian granite. Because the old Black Queen shaft is essentially located on this structure this fault is here named the Black Queen fault. The strongest mineralization associated with the Black Queen fault is at its northern end near its truncation by an ENE trending fault (that may also cut off the northern extension of the Mammoth Fault to the west).

The primary target for exploration in the Black Queen property should be along the trace of the Mammoth fault, which has essentially been overlooked to date. To this end I have recommended that a bore hole for water be drilled into the basalt directly west of the Mammoth fault. This hole should intersect the fault at approximately 250 to 450 feet depth. The first cuttings from granite will come from the footwall of the fault. The cuttings from this hole should provide a good clue the the degree of mineralization along the northern segment of the Mammoth fault. If these cuttings yield high values of gold, drilling should be continued just to the west of the Mammoth fault in a southward pattern toward the Mammoth mine.

A second line of exploration could follow the trace of the quartz veins in the footwall of the Black Queen fault. I believe at this point that the Mammoth fault will ultimately prove to be much more fruitful.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Black Queen Mine
Goldfield Mine

Date April 6, 1982

District Goldfield, Pinal/Maricopa County

Engineer Nyal J. Niemuth
Mineral Resources Specialist

Subject: Visit to Goldfield Mine

At the Goldfield Mine I met with Jack Sanstead and his brother Jerry. Their father Harlow "Sandy" Sanstead is the principle person of Sanstead Mining, P.O. Box 1404, Apache Junction, Arizona 85220, Ph: 892-8817. Jack Sanstead provided the information contained in this report.

Sanstead Mining currently has a 10% NSR lease with purchase option from Goldfield Mines Inc. on the Goldfield (Mammoth-Black Queen, etc.) property. Sanstead Mining has ALMICO, a California company, as a joint venture partner in the project. ALMICO has supplied a mill called the "Disintegrator" while Sanstead does the mining and milling.

On the Mammoth claim a large concrete pad has been completed and two buildings erected thereon. One is used for storage and the other larger building (40' x 60') houses the mill. The mill, a "disintegrator", which works by a "secret process" crushes the ore to little "balls" from which a gravity concentrate is made on shaker tables. The mill unit, which occupies about ¼ the building, is being operated 24 hours per day handling 6 - 12 ton per day. The concentrate is treated to remove quartz and other gangue, melted, and a dore bar poured.

Ore for the mill is coming from the open pit on the Black Queen Claim. The pit is being extended to the southwest. After a blast, the material is loaded selectively to get quartz vein material which contains most of the values. This is especially important given the small capacity of the mill. Equipment present at the open pit includes generator set, compressor, 2 Payloaders, tractor with bucket, 2 trailers, 2 trucks, jaw crusher and a conveyor.

Mr. Sanstead reported that some drilling had been done on the Mammoth claim but did not disclose the amount drilled or results obtained.

cc: Tucson Office

A SHORT HISTORY OF THE YOUNG MINES

In the early 70's, this property was located and worked by a Mr. Hall in conjunction with Dennis Sullivan of Denver, Colo. The Engineer and Assayer for Hall was a Mr. Kennedy.

The following information was given me by Kennedy some 18 years ago.

The discovery pit called the "Mormen Chamber" opened up high grade ore. This ore was so rich in gold that Kennedy was obliged to stop the mill once and sometimes twice a day to take off the amalgum from the plates as they could not hold any more gold.

When I examined the property I found this pit which was caved in, size at this time was some 30 to 40 feet in diameter and about 15 feet deep. Kennedy said this pit was sunk about 150 feet, ore taken out to that depth and gave a production of over $1,000,000. before the pit caved in. Hall tried to come under this pit with a shallow shaft and drift, but the ground was too heavy to hold and he was obliged to give it up. Going to Denver, he consulted with Sullivan regarding opening up this rich ore again. There Hall died and the property laid idle.

Young later got an option on the mine from Hall's daughters and he also tried to get under this ore body. He not being able to hold his drift, gave up that project and drifted south on a lower grade ore, keeping his mill running on ore extracted from this south drift.

The pit mentioned and called the Mormon Chamber and the gold extracted by Hall amounted to over $1,000.000. according to Mr. Kennedy's statement. Reports on this property, mentions that it is a steam shovel proposition. Width of the fault some 600 feet wide, total width carrying low grade gold values.

In 1914 or 1915 I received a letter from the late Senator Wm. Flinn of Pittsburgh, asking me if I knew of a large body of low grade ore, as his mine The Pittsburgh-Silver Pick, located at Blair, Nev. was about bottomed and he wanted to move his mill to anotner property. I mentioned the Young mine, and received a telegram from Flinn to go and make a preliminary examination of the property. I trenched across the fault in several places and also sampled the caved in pit. My samples across the fault, some 600 feet in width gave an average value of over $3.25 gold per ton. The caved in material at the pit assayed over $15.00 gold per ton.

On reporting to Senator Flinn the results I obtained, Flinn had Mr. Wm. Bradley, his engineer at the Pittsburgh & Silver Pick mine go and examine the property and recheck my values. Bradley's sampling was slightly higher than what I got. On his report to Flinn, I received a wire saying to bring Young on to Pittsburgh to figure on a deal for the mine.

The meeting in Pittsburgh was held with the following gentlemen being present:

Senator Oliver, of the Oliver Iron Works
Senator William Flinn
Senator Weller
Mr. Crump and Mr. Miner

The following offer was made to Mr. Young:

If after drilling 40 holes 400 feet deep over ground 500 feet in width by 1,000 feet in length, and the ore body should assay between $2,50 and under $2.75
the price to be ..... $ 250,000.

If between $2.75 and under $3.00
Price of property ..... $ 300,000.

If between $3.00 and under $3.25
Price of property ..... $ 400,000.

Over $3.25 per ton, price to be. $ 500,000.

Payments to be 6% of gross returns, and not less than $50,000. per year guaranteed.

Young said price was satisfactory, but he demanded a large cash payment which was refused by Senator Flinn, and the deal was declared off.

Young returned to Arizona and later put down a new shaft some 600 feet south of his old shart. This new shart he put down to a depth of 1,000 feet and drifted south some 1,000 feet where he encountered very good grade of ore.

At the time this work was finished and before he could start extraction he was taken sick and died. As he had borrowed quite a sum of money from the Bank to complete this work, giving a mortgage for the same, the Bank later foreclosed and forced a sale. This money as I understand was secured from the Officer of the Bank who was also a stockholder in Young's mine and also an Officer in the same. This gentleman bought in the mine and by doing so, Mrs. Young started suit claiming fraud. This defense was allowed by the Supreme Court, and the sale set aside.

The maps and workings of this last work done by Young will give an idea of location of shaft and drifts, also values on an assay map of this 1,000 foot level, all maps and data are attached to this statement.

J. S. Williams Esq

New York, July 6, 1931

N ...O REFINING AND METALS ...RP.
Everything We Touch Turns To Fine Metals
1200 S. POST OAK. SUITE 316
HOUSTON. TEXAS 77056
(713) 965-9762

PRODUCTION RECOMMENDATIONS FOR THE BLACK QUEEN MINERAL CLAIM Located in MARACOPA COUNTY STATE OF ARIZONA

Prepared by:
Edgar M. Chambers

Prepared for

David Sweeney
Jim Walker
April 1981

N VAJO REFINING AND METALS ORP.
Everything We Touch Turns to Precious Metals
200 APOLLO BOULEVARD
MONTROSE, COLORADO 81401
(303) 249-1104

circulate

Black Queen Mine

May 2, 1981

Mr. Don Hardage
2408 Oak Manor
Arlington, Texas 76012

Dear Don:

Navajo Refining and Metals Corporation has evaluated and assayed certain specific ore and concentrate samples delivered to us by Mr. Dick Powell of Apache Junction, Arizona. These samples were reportedly taken from ore veins and milled ore from a mine known as the Black Queen located near Apache Junction.

Ore samples must be ground totally and several assays taken to ensure an average assay of samples evaluated due to the extremely high value of certain portions of the sample.

The concentrates evaluated showed a more homogenious nature in gold content. None of the samples evaluated were assayed for any base metals or platinum families. There are indications that some platinum family metals are present in the ore.

One specific hand picked sample of the high grade ore had a gold content of 1,146 troy ounces per ton and silver content of 358 troy ounces per ton.

Pulverized and blended samples of high grade ore averaged 631 troy ounces of gold and 428 troy ounces of silver per ton.

Concentrates from reportedly lower grade ore had a gold content of 382 troy ounces and 672 ounces of silver per ton.

Engineers from Navajo Refining and Metals Corporation evaluated the Black Queen mine and one hand picked specimen sample assayed 914 troy ounces of gold and 112 troy ounces of silver per ton. This one sample was taken for the purpose of specimen only and was not intended to represent an average ore.

I hope this information will be of value to you.

Sincerely,

Jerry Pinkston
Lab Supervisor
Navajo Refining and Metals Corporation

JP/dv

INTRODUCTION

The report is prepared at the request of David Sweeney, and Jim Walker, and will cover a portion of the Goldfield Mining District, that consist of 36 unpatented claims. The claims cover an area of 720 acres.

The claims are as follows: Black Queen, Black King, Mother Hubbard, Mother Hubbard #2, Indian #4, #5, #6, Clark-Oliver #4, #7, #10, #11, #12, #13, #14, #15, #16, #17, #18, #19, #21, #22, #23, #24, #25, #26, #27, #28, #29, #30, #31, #38, #39, #40, and #43.

On claim the Black Queen has been in production, in one form or another, since 1891.

LOCATION

The Goldfield Mining District is located approximately 35 miles east of Phoenix, Arizona, and is accessible through Highway 60 and Highway 86, which cuts through the properties.

HISTORY

The Black Queen mine is located 3,000 feet north of the Mammoth Mine in the center of a mineralized zone that extends North and South for approximately 7,000 feet in length, beginning at the Mammoth 3,000 feet south, through the Black Queen, and Black King, into the Golden Hillside claims 4,000 feet to the North. Prior to the 1900's a shaft was sunk to a depth of 150 feet. Three levels were explored at the 50, 100, and 150 feet. The exploration and production accured in narrow quartz veins 3 to 5 inches in width that carried values from 2 to 3,000 ounces of gold per ton.

As the gold that was recovered was done so by means of amnlgomation and by hand separation, very little production records are available. Recent leasees have made an open pit approximately 70 yards in length and some 40-50 yards in width, and about 75 feet deep. This recent operation has exposed 23 quartz veins. This

pit is about 50 fe[illegible]ast of the old shaft. The v[illegible] run north and south and dip from the east to the west at an angle of 60 degrees. Through various trenches and cuts and surface samplings the ore body or mineralized zone is at least 1,000 feet in width with no known depth. The Mammoth Mine 3,000 feet to the south has had a shaft sunk to eleven hundred feet and was still in ore, and the Golden Hillside 4,000 feet to the north, has been drilled to a depth of 600 feet and is still in the ore body.

GEOLOGY

The character of the ore body is that of a shattered vein type with gold occurring free in streamers and in the rocks. Gold shows in cuts that area in the side of the form in matted like masses and much find gold can be seen in many of the rocks that are found in the area. This appears to be a large deposit which has been altered greatly and the resulted minerals being primarily of gold with some silver. Previous geological reports have shown the gold is associated in most areas and on most claims. There appears to be a deep strip approximately two to three hundred feet wide and more than 7,000 feet long judging from samples that were taken from the properties. This does not include numerous outcrops and mineralized showings outside of the area that had previously been worked in the 1950's. From all appearances the ore body is possibly scattered throughout the entire area perhaps as much as 1,000 feet wide and in places at least a mile long. A great deal of attention has been given to the ore deposits that were in the old Mammoth Mine and the workings thereof. These working and vein material has been described in detail, however, little attention has been paid to the territory ore of the existing deposit.

The Cenzoic ore when ore products were established during the tertiary climate and produced the uplift of the Sierra Nevada resulted in the erosion of the Mother Load gold veins and deposition of Californian and Peruvian gold plassers. There are important gold veins of tertiary age at Cripple creek, Colorado, and Gold Field, Nevada. Tertiary igneous intrusions are current for a large portion of mineral wealth of the Rocky Mountains and Latin America. Silver deposits at Park City, Utah, and of the Comstock Load, Virginia City, Nevada, and in Mexico and Bolivia date from the tertiary period. The huge copper mines of Bingham Canyon, Utah, and similar copper mines throughout the Western Hemisphere are also of tertiary deposits. The assemblage of fossils recording major oscilations of land and sea is now the criteria for dating tertiary rocks, except for a short interval during which the oceans reached the interior by the way of the Mississippi Valley and made a brief stand in the Dakotas of North America.

Hence, tracing the c[illegible]ng patterns of land and sea [illegible] vital to the study of past eras is not applicable to the study of Cenozoic geology. Instead the events of the Cenozoic era are best summarized by discussing them from the standpoint of the major physical subdivisions developed during this era. The Gulf Coast Plane from Florida to Yucatan was occupied by the sea in a broad curving band which extended inland at the Mississippi Valley nearly to St. Louis. The river and its tributaries imposed a swampy typography upon much of the Soughern coastal region of the United States. As the Mississippi Delta grew seaward to its present position, the body of the Gulf of Mexico subsided rapidly under its heavy load of sediment creating a troft referred to as the Gulf Coast Geosyncline which parallels the shore line of Louisiana and Mississippi. Pugs of rock salt forced upward into the overlying strata and distinctive features of Gulf Coast structure being now known as salt domes. The Colorado plateau region lies in the American Southwest in Arizona, Utah, New Mexico, and Colorado. The repeated uplift during thd Conzoic era arched the mesozoic rocks of this region into a broad dome several thousand feet above sea level. As erosion stripped away a considerable portion of these comparatively horizontal formations, a spectacular series of step like cliffs was formed as a result of the alternation of hard and soft beds that characterizes the sequence. Continued uplift rejuvenated the rivers which proceed to incise canyons of profound depth. One of these is the Grand Canyon, carved by the Colorado River, and over a mile deep. The basin and range province occupies the central part of the Mid Cordilleran region of the United States. Its north trimming mountains are tilted fault blocks of tertiary origin. They are surrounded by wide flat bottom desert valleys filled with sediments, which have piled to such an extent that some of the isolated mountains are fairly well burried in their own debris.

It is at this point that the tertiary area becomes applicable to the ore deposit in question. Considering the valley floor and the location of the property a tertiary river of ancient river has been located running from north to south. This tertiary river carries in a form of free gold content. Free gold being developed from various geological activity in relation to other geological occurrences are shown in this report. Due to the physical condition in the various salts and magma intrustions which preceded the

tertiary area, a great deal of gold has been assimil in many, many deposits throughout this property area. The quarts, feldspar, and ferromagnesian silicates are also contributors to the disposition of the gold and gold on surface including in vein like material. This occurrence as in relation to the intrusive masses crystallizing out of pegmatite and the pegmatite accession and the fault plains. The pegmatites between intrustions is highly crushed in addition to metamorphism. Footwall country rocks are also crushed. Faultings have shown favorable samples and the brecciation along all faults is well developed and the pegmatite between walls is in a high state of metamorphism. The contact metamorphism shows high mineralization and excellent gold distribution. In conclusion, there appears to be major mineralization throughout the deposit in as many as three different geological occurrences, making this deposit a major mineralized deposit and potentially a very major gold producing property.

GEOLOGICAL HISTORY

In Archean time the country rock was primarily an undisturbed granitic batholith, and this formation probably constituted the earth's lithosphere for the early part of the period. Pre Cambrian faulting resulted in a plane of low resistance traversing the batholith. Probably contemporaneous, or as a close sequence thereto, was the injection along this rupture of an intrusive mass crystallizing out as pegmatite. The pegmatite ascended along the fault plane, and nearing the Pre Cambrian surface, the horizontal and lateral resistance of the older wall rocks was less stable as against the super-pressure exerted by the magmatic pegmatite with the consequence that the walls of the primary were forced apart by the intruding mass to an extent consistent with the proportionate degree of resistance exerted by the wall rocks. . The resultant mass solidifying between the displaced walls formed a pegmatite chonolith. Radiating along fracture planes in the older wall rocks are many injected veindikes of pegmatite magma.

The pegmatite probably extended to the Pre Cambrian surface but, owing to its structure, pegmatite resists weathering and erosion to a lesser degree than the more compact granite serving as its wall rocks. Early Paleozoic (Cambrian) weathering disintegrated the pegmatite and apparently the chonolith was eroded to a depth of 400 feet, and perhaps deeper to the East, however, movement along the master fault planes resulted in an upthrust of the footwall rocks to the extent that the Cambrian erosion elements became more quescent; probably due to segmental uplifts in the older rocks, forming barriers that precluded the intense erosive action of previous torrents. With more quiescent conditions the process became on of deposition with silicification where favorable. This deposition in the form of a fluviatile piedmont plane was made up of quartz and other fragments, both transported and local, which when consolidated formed quartzite, or graywacke, conglomerate as the bonding constituents permitted. Following this was a period of slow, long-enduring, disintegration of the conglomerate effecting for the most part the conglomerate predominently graywacke, as owing to the silicious bond in the quartzite that rock was more stable.

Toward the end of the Paleozoic era (Permian) this disintegration ceased, and the process of recementation of the residual products took place in a

relatively short p[illegible]of time. This is indicate[illegible]he fact that the residual recementation is an arkose-graywacke continental conglomerate. The arkose is especially predominent along the basal contact of the conglomerate against the Pre Cambrian pegmatite. Few quartzite pebbles are noted in the later conglomerate, and on the surface an unconformity is observed between the remnant Cambrian Quartzite and the recemented arkose-graywacke.

Since Permian time no great change is evidenced locally with the exception of a very considerable movement *having taken place along the fault planes. The hanging* wall fault, owing to its great length and depth, is amenable to the reactions of adjustment in the igneous rocks within an extensive area of the earth's lithosphere. Regionally there have been extrustions of volcanic lavas, probably late Cretaceous, such as basalt, thyolity, trachyte, and adnesite, however none of these have any relation to the problem under consideration. A basaltic flow traverses the property and fragments of the other lavas are to be found in the unconsolidated alluvium overlying the Permian and older conglomerates.

Considerable movement along the master fault planes since their primary shear is evidenced, not only by pegmatite fragments in the breccia, but by vertical displacements of the wall rocks. That these events have been accompanied by ascending vapors is evidenced by the silicification of the Cambrian conglomerate superimposing the Archean fault zones. Along fault planes in the conglomerate silicification was extensive, and enrichments of gold ores deposited forming the surface ores. This condition should obtain equally as rich in the conglomerate superimposing the footwall fault.

CHARACTER OF THE ORE BODY

The ore body is apparently that of a shattered vein type with gold appearing free in stringers and rocks, which is enclosed in a mineralized zone of rholite combined ferromanganese. From previous reports written over the last hundred years, an ore body has been established that runs from north to south for a distance of approximately 7,000 feet with a width at least 1,000 feet. From the exploration down on the Mammoth properties, the depth of the ore body is known to be at least 1,000 feet, and there is no reason

to doubt that the de[illegible] may extend at least anothe[illegible]0 feet.

This does not include numbered outcrops and mineralized showings outside the area that have been previously worked.

CONCLUSIONS AND RECOMMENDATIONS

As the limits as to the depth and width of the ore body has yet to be determined, a vast drilling and sampling process is recommended to establish the reserves of the property.

In order to augment these costs it is my recommendation that a small pilot mill, approximately 5 tons per day, be established on the Black Queen property, where extremely high values exist. The property should be stripped of the existing ore piles, so that expansion of the pit can begin.

EXPLORATION

A laboratory should be built with all the latest equipment in order to assay and stock pile all material.

The property should be surveyed and fenced. Aerial and satellite maps should be ordered and surface mapping should begin at once. Trenching should begin across the entire width of the claims in order to expose vein structure, and to determine the extent of the mineralized zone in preparation of a drilling program that will be conducted by an independent engineering firm so that the reserves may be certified.

A file for pilot mill should be constructed that would treat the high grade material th t will come from the Black Queen. It is my opinion that by hand selection and separation, the mill head can be maintained at 200 ounces of gold per ton at $500 per ounce this would yield 1,000 ounces per day with a market value of $500,000 per day. The ore gross 15 cubic feet per ton, therefore would require only s ightly over 3 cubic yards per day to operate at 200 ounces of gold per ton.

During the construction of the mill, separation and stockpiling of 200 ounces of material should begin, so that by completion of the mill, 200-300 tons of this high grade material would already be stockpiled. This would insure production for the mill of 100-150 days.

.CIPATED BUDGET PRIOR TO PRO .ION

A.	Surveying 36 claims, 20 days	15,000	
B.	Fencing outer perimeter with 36 chain bobwire, 30 days	25,000	
C.	Aerial mapping, satellite maps, surface mapping, magnatometer	30,000	
D.	Clearing Black Queen, relocating stock pile, 20 days	20,000	
E.	Laboratory construction, 30 days	100,000	
F.	Mill site preparation, 30 days	20,000	
G.	Water wells, electricity, water reservoir, 45 days	30,000	
H.	Installation and construction of 5 ton mill, 90 days	200,000	
I.	Increasing pit size, 150 yards in length, 100 yards in width to 75 foot depth, hand selection separating ore, stock piling (labor, equipment, supervision), 45 days @ 2,500 a day	112,500	
J.	Trenching, cross cuts, sampling (labor, equipment, sampling, mapping, supervision), 90 days @ 1,500	135,000	
		687,500	
K.	15% contingency	103,125	
			790,625

MINING EQUIPMENT

A.	Picks, shovels, hammers, etc.	3,000	
B.	Separation table	1,000	
**C.	2 back holes, 1½ and 3 yard bucket used	380,000	
**D.	2 case front end loader, 2 yard bucket, rubber tired	150,000	
**E.	2 600 compressors, 2 crawler drills	100,000	
F.	1 six yard dump truck, used	25,000	
G.	1 nine yard dump truck, used	45,000	
H.	1 maintenance truck, used	30,000	
I.	6-10 pickups, 4 wheel drive vehicles	80,000	
J.	5,000 gallon diesel tank	3,500	
K.	5,000 gallon gas tank	3,500	
L.	Maintenance truck w/tool/grease guns, etc.	6,000	
M.	Gas, diesel, grease, oil	15,000	
N.	2 stand drills	8,000	
O.	Powder, Powder House, 90 days	10,000	
		860,000	
P.	15% contingency	129,000	
			989,000

**Items C, D, and E totaling 630,000 could be purchased on a rental purchase agreement with the first five to nine months rental applying to purchase and would amount to approximately 30,000 a month or $1,000 a day. $1,000 was used in compiling budget in Item I & K of anticipated budget.

No consideration h[illegible]een given as to G.N.A., or a[illegible]nting, clerical, legal, workman's comp insurance or withholding tax, use of independent technical assistance, however, a figure of $40,000 a month or $120,000 for 90 days should cover any unexpected expenses.

90 DAY BREAKDOWN

I.	Administration and GNA	120,000
II.	Budget and contingency, 90 days	790,625
III.	Equipment cost - 630,000 O.E.F. + 129,000 contingency	
	860,000 - 630,000 D, E & F + 129,000 contingency	359,000
IV.	Rent purchase D, E, & F, 1,000 per day for 90 days	90,000
	TOTAL	1,359,625

1,359,625 ÷ 90 days = 15,100 per day average mining cost which includes $232,125 contingency or $2,579 a day contingency in total cost.

STOCKPILED ORE

Value 200 - 300 tons stockpiled before mill begins operation
200 tons x 200 ounces per ton x 500 ounce gold price = $20,000,000
300 tons x 200 ounces per ton x 500 ounce gold price = $30,000,000

Therefore we see that the value of mined ore will be somewhere between 20 and 30 million dollars before milling begins.

THE MILL

The mill will consist of a primary crusher and impact crusher, capable of crushing material up to -200 mesh, it will then be run through a amalgamation barrell to recover the free gold. Because of fineness of some of the gold the PH content of the water will have to be constantly watched so that none of the gold will float away. Because of the ferromanganese, that is distributed throughout the mineralized zone, an SO_2 treatment will be necessary before the material can be further treated. After the SO_2 treatment, the tailing less the manganese, the gold and silver may be recovered by tabling or recovered geo-chemically by means of electroplating. This decision should be made by the

Denver Equipment Company after testing.

A custom refinery should be retained, who would construct their refinery on site, which would convert the material to gold and silver bars of .9999 fines, that can be liquidated or held until in inventory. The charges of such a refinery should not exceed 20% of the product value.

CONCLUSIONS

After the construction and completion of the mill, an independent engineering firm should be retained to core-drill and block out the entire property. Because of the high value of gold, the drilling program becomes a very expensive program with as many as 20 cores per acre, however, as the reserves will be certified, any large scale milling operation that may be justified in the future will have to have full knowledge of the reserves.

If the mill is constructed properly and a very selective mining program is instituted, as proposed, to treat 200 ounce a ton material in a 5 ton a day operation, it is the writer's opinion that, after all cost, mining, milling, refining, exploration, and core drilling, the property would net at least $250,000 a day from the operation.

Edgar M. Chambers
President, Navajo Refining & Metals Corp.

Black Queen Mine

Pinal County

Clark-Oliver Mining Company, Incorporated
Gold-Silver Ore
Our Order No. 01-186232
March 8, 1978

Prepared For:

Clark-Oliver Mining Co., Inc.
6942 West Olive, Space 68
Peoria, Arizona 85345

Attention: Frank Clark

986-5621

DENVER EQUIPMENT DIVISION
ORE TESTING LABORATORY
Denver, Colorado

01-186232

ABSTRACT

We received a gold-silver ore for beneficiation tests to develop a flowsheet for the maximum recovery of the gold and silver.

Gravity concentration at a 35-mesh grind recovered 83.4 percent of the gold. Cyanidation of the table tailing increased the overall gold recovery to 97.4 percent.

Flotation tests at grinds of 35, 48 and 65-mesh showed gold recoveries of 90.9, 93.7 and 97.5 percent respectively. In Test No. 8 the gold recovery in a rougher concentrate was 99.1 percent. The cleaned concentrate in this test contained 95.3 percent of the total gold at a grade of 183.1 ounces per ton. Amalgamation of the cleaned concentrate recovered 85.6 percent of the gold in this product or 81.6 percent of the total gold. The amalgam residue and flotation cleaner tailing contained 17.5 percent of the total gold at a grade of 5.23 ounces per ton. This would represent an excellent product for shipment to a smelter or could be stock piled for reprocessing probably by cyanidation.

Amalgamation of the ore ground to 48-mesh recovered 78.9 percent of the gold, but this was increased to 90.4 percent at a 100-mesh grind.

Direct cyanidation of the ore for 72 hours showed an 83.6 percent gold recovery at a 35-mesh grind and a 92.6 percent recovery at a 48-mesh grind.

The tests show that a 48 to 65-mesh grind is needed for the maximum recovery of the gold values. The tests also show that either cyanidation or flotation will give gold recoveries of 90% or more.

The recommended flowsheet is based on Test No. 8, and consists of flotation at a 65-mesh grind followed by amalgamation of concentrates for the recovery of the free gold. The amalgam residue would be suitable for further processing or shipment to a smelter.

The recommended flowsheet is shown on Print No.A16136

Very truly yours,

JOY MANUFACTURING COMPANY
Denver Equipment Division

Henry C. Hurd
Laboratory Director

HCH/tlh

DENVER EQUIPMENT DIVISION
ORE TESTING LABORATORY
Denver, Colorado

01-186232

INTRODUCTION

Sample Identification

Four boxes of sample having a gross weight of 290 pounds was received at our laboratory on February 1, 1978. The shipment was assigned Sample Receiving Number 6269 for identification purposes.

Object of Tests

The purpose of the test work was to investigate the beneficiation characteristics of the submitted gold-silver ore by gravity concentration, amalgamation, flotation and cyanidation methods for the recovery of the gold and silver values. Recovery of the gold and silver in a bullion product is desired, if possible.

A plant having a capacity of 100 tons per 24 hours is contemplated for processing ore of the type submitted.

Sample Preparation

The sample consisted of minus one inch ore and was prepared for testing in the following manner. The entire sample was crushed to minus 1/4-inch mixed, quartered, and one-fourth of the entire sample crushed to minus 10-mesh. A head sample for assay was cut from the minus 10-mesh product.

Sample Description

The submitted sample represents a siliceous gangue gold-silver ore having a specific gravity of 2.6. An examination of the heavy mineral concentrate obtained by panning the minus 10-mesh ore showed free gold and some gold locked with quartz. A very small amount of sulphides was present in the panned concentrate.

Chemical and fire assays on the head sample provided the following data:

→	Gold	1.19 oz/ton
→	Silver	0.43 oz/ton
	Copper	0.02 %
→	Lead	0.20 %
→	Zinc	0.25 %

A sample of the minus 10-mesh ore ground to 35-mesh without reagents had a pH of 8.1.

Discussion of Tests

Details of the test procedures, conditions and results are shown on the attached data sheets numbered 1 to 17 inclusive. Pertinent features of the test are discussed below.

Test No. 1 — Gravity Concentration, Amalgamation and Cyanidation

A 2000 gram charge of the minus 10-mesh ore was concentrated in a Denver Mineral Jig to obtain a jig concentrate. The jig tailing was ground to 28-mesh, and then subjected to gravity table concentration to obtain a table concentrate, table sand tailing and table slime tailing. The gravity concentrate products were subjected to amalgamation to recover the gold as a bullion product. A portion of the combined table sand and table slime was subjected to a 48-hour cyanidation for the recovery of additional gold values.

Metallurgical results of this test are given on Data Sheets No. 1 through 4, and show that 69.9% of the total gold was recovered in the jig and table concentrates. Amalgamation of the concentrates recovered 94.7 percent of the gold contained in the concentrates, and 64.1 percent of the total gold contained in the head ore. Cyanidation of the table tailing for a 48-hour period recovered 65.7 percent of the gold contained in the table tailing, with 10.3 percent of the total gold still contained in the cyanide tailing product.

Test No. 2 — Gravity Table Concentration, Amalgamation and Cyanidation

A charge of the minus 10-mesh ore ground to 35-mesh was subjected to gravity table concentration to obtain a concentrate, sand and slime tailing. The table concentrate was amalgamated and a portion of the table tailing treated by 48-hour cyanidation. Details of this test are reported on Data Sheets No. 5 through 8 inclusive.

Gravity table concentration at a 35-mesh grind recovered 83.4 percent of the total gold in the gravity table concentrate. Amalgamation of this product recovered 91.0 percent of the gold as a bullion product or 75.9 percent of the gold in the head ore. Cyanidation of the gravity table tailing recovered 84 percent of the gold contained in the table tailing. The total recovery of gold by tabling and 24-hour cyanidation of the table tailing was 97.4 percent.

A comparison of Tests No. 1 and 2 shows that a 35-mesh grind will result in a higher gold recovery by gravity concentration followed by amalgamation of concentrates.

	10 mesh Test No. 1	35 mesh Test No. 2
Ounces Au Recovered by Amalgamation	0.71	0.85

Tests No. 3 and 4 — Amalgamation of Head Ore

Charges of the minus 10-mesh ore were ground to 48 and 100-mesh followed by amalgamation of the ground ore using mercury in a revolving jar mill. The mercury was separated from the pulp followed by retorting of the mercury and fire assaying the retort residue to determine the amount of gold and silver recovered by amalgamation. Details of these tests are reported on Data Sheets No. 9 and 10.

Following is a tabulation showing the ounces of gold obtained by amalgamation in Tests No. 1 to 4 inclusive.

Test No.	Grind	Oz Au/Ton Feed	% Recovery
1	20	0.71	64.1
2	35	0.85	75.9
3	48	0.90	78.9
4	100	1.03	90.4

These data show that a relatively fine grind is needed to free the gold so that it can be recovered by amalgamation procedures.

Tests No. 5, 6 and 7 — Flotation

Charges of the minus 10-mesh ore ground to 35, 48 and 65-mesh were treated by flotation to recover the gold in a froth concentrate product. In tests 6 and 7 the froth concentrate was cleaned by reflotation to obtain a cleaned concentrate and a cleaner tailing. Details of these tests are reported on Data Sheets No. 11 to 13 inclusive.

Following is a tabulation showing rougher concentrate grades and gold and silver recoveries.

	Mesh	Grade Oz/Ton		Recovery - %	
Test	Grind	Au	Ag	Au	Ag
5	35	53.94	46.46	90.9	69.4
6	48	33.63	16.74	93.7	54.0
7	65	29.50	17.60	97.5	58.1

The above results confirm the previous findings that a grind of about 65-mesh is needed for maximum liberation of the gold from the gangue.

DENVER EQUIPMENT COMPANY
ORE TESTING DIVISION
Denver, Colorado

Report No. 01-186232
Test No. 1

AMALGAMATION TEST DATA

SAMPLE IDENTIFICATION:

Jig and Table Concentrates

AGITATION:

Time, minutes	50
Percent solids	20

ASSAYS, ounces per ton

		Jig Conct	Table Conct
FEED			
	Gold	18.80	18.90
	Silver	--	--
TAILING			
	Gold	0.84	2.00
	Silver	--	--
AMALGAM recovered, calculated to ounces per ton of feed			
	Gold	17.96	16.90
	Silver	--	--

RECOVERY, percent:

Gold	95.5	89.4
Silver	--	--

NOTES: Each concentrate was ground in a pebble mill to approximately 150-mesh. The grinding media was removed and the pulp rolled for 50 minutes with an excess of double distilled mercury. The mercury was separated from the pulp by panning, followed by retorting, cupellation and parting procedures to determine the amount of gold amalgamated.

DENVER EQUIPMENT DIVISION **DENVER** ORE TESTING LABORATORY

Denver, Colorado

Report No. 01-186232
Test No. 1

CYANIDATION TEST DATA

SAMPLE IDENTIFICATION:

Table Tailing Test No. 1

GRINDING:

Test charge 1500 grams
Ground, minutes None
Classified, mesh None
Sands reground, minutes -
Percent solids -

AGITATION:

Time, hours 48
Percent solids 20

SOLUTION STRENGTH:

Pounds per ton of solution

NaCN 1.0
CaO 1.0

CHEMICAL CONSUMPTION:

Pounds per ton of heads

	24 Hr.	48 Hr.
NaCN	0.15	0.30
CaO	0.55	0.75

ASSAYS, ounces per ton

FEED: - Table Tailing

Gold	0.35	0.35
Silver	-	

SOLUTION:

Gold	0.140	0.23
Silver	-	

TAILING:

Gold	0.21	0.12
Silver	-	

RECOVERY, percent:

Gold	40.0	65.7
Silver	-	

SETTLING DATA:

F—4 to 1
R—7.5
D—1 to 1
A—0.67

F—Dilution ratio to start
R—Settling rate, ft./hr.
D—Discharge dilution ratio
A—Thickener area, sq. ft./ton/24 hours

Formula:

$$A = 1.33 \frac{F-D}{R}$$

NOTES: 1500 grams of the table tailing was subjected to 48-hour cyanidation with solution samples removed for assay at 24-hour periods.

SCREEN ANALYSIS OF TAILING:

See data Sheet No. 1

Test No. 8 — Flotation - Amalgamation

A charge of the minus 10-mesh ore was ground to 65-mesh and subjected to rougher and cleaner flotation as in Test No. 7. The cleaned flotation concentrate was agitated mildly with mercury for five minutes to simulate amalgamation of the concentrates in a continuous drum amalgamator or possibly amalgamation plates. Details of this test are given on Data Sheets No. 14 and 15.

The recovery of gold by rougher flotation in this test was 99.1 percent with a concentrate grade of 30.04 ounces gold and 7.78 ounces silver per ton. A single stage of cleaning increased the grade of concentrate to 183.1 ounces gold and 44.15 ounces silver per ton of concentrate.

Amalgamation of the cleaned concentrate recovered 85.6 percent of the gold and 95.1 percent of the silver and represents gold and silver recoveries as bullion product of 81.6 and 36.1 percent on the basis of head ore assays. It is possible that a more intensive amalgamation procedure or amalgamation of a rougher concentrate would increase the recovery of the gold and silver as a bullion product.

The amalgam residue would represent a high grade product suitable for shipment to a smelter or subjected to further processing, possibly by cyanidation. Cyanidation of the amalgam residue was not investigated due to the very small amounts available from the test work, but this could be investigated in an operating plant.

Tests No. 9 and 10 — Cyanidation of Head Ore

Tests No. 9 and 10 investigated 72-hour cyanidation of the head ore ground to 35 and 48-mesh. The tests were performed using a leaching solution containing 1.0 pounds of lime and cyanide per ton of solution. Details of these tests are given on Data Sheets 16 and 17.

Following are the gold recoveries obtained at 24, 48 and 72 hours.

		Time - Hours		
		24	48	72
Test - 9	35-Mesh Grind	72.7	81.8	83.6
Test -10	48-Mesh Grind	83.3	86.1	92.6

Engineering Data

Grinding times used in the preparation of the ore for flotation shows that the ore is a medium-hard to hard ore to grind to 65-mesh. A 6 foot diameter by five foot long ball mill is indicated to grind 100 tons per day of minus 3/4-inch ore to 65-mesh.

The flotation tailings as produced showed poor settling and clarification rates. The addition of aluminum sulfate to lower the pH from 8.0 to 7.1 produced a solids settling rate of 5.0 feet per hour and as overflow water suitable for recycling back to plant use. The addition of small quantities of Separan MGL in conjunction with alum increased the settling rates significantly.

Conclusions

Gravity concentration of the ore ground to 28-mesh recovered 69.9 percent of the total gold as jig and table concentrates. Amalgamation of these concentrates recovered 91.7 percent of the gold contained in the concentrates as a bullion product. Cyanidation of the table tailing for a 48-hour period recovered 65.7 percent of the gold contained in the tailing. The total gold recovery by gravity concentration and cyanidation at a 28-mesh grind was 89.7 percent. Gravity table concentration of the ore ground to 35-mesh recovered 83.4 percent of the total gold. Cyanidation of the table tailing for a 48-hour period recovered 14.0 percent of the total gold for an overall recovery of 97.4 percent.

Direct amalgamation of the ore ground to 48-mesh recovered 78.9 percent of the total gold. This recovery was increased to 90.4 percent at a 100-mesh grind.

Flotation tests conducted on the ore ground to 35, 48 and 65-mesh produced the following gold and silver recoveries as rougher concentrates.

		Grade Oz/Ton		Recoveries %	
Test	Grade	Au	Ag	Au	Ag
5	35	53.94	46.46	90.9	69.4
6	48	33.64	16.74	93.7	54.0
7	65	29.5	17.60	97.5	58.1

Rougher flotation of the ore ground to 65-mesh in Test No. 8 recovered 99.1 percent of the total gold at a grade of 30.0 ounces per ton. A single stage of cleaning increased the concentrate grade to 183.1 ounces of gold and 44.15 ounces silver per ton with a gold recovery of 95.3 percent. Amalgamation of the cleaned concentrate recovered 85.6 percent of the gold and 95.1 percent of the silver contained in the concentrate or 81.6 percent of the total gold.

Conclusions (Continued)

Direct cyanidation tests on the ore ground to 35 and 48-mesh recovered 83.6 and 92.6 percent of the gold, respectively, in 72 hours of agitation-leaching.

The tests show that a 48 to 65-mesh grind is needed for maximum recovery of the gold by flotation or cyanidation. Flotation at a 65-mesh grind gave the highest gold recovery and the recommended flowsheet is based on this procedure with amalgamation of the concentrate to recover the gold and silver as a bullion product. The amalgam residue containing gold values can be retained for additional treatment or shipped to a smelter.

DENVER EQUIPMENT COMPANY
ORE TESTING DIVISION
Denver, Colorado

Report No. 01-186232
Test No. 2

AMALGAMATION TEST DATA

SAMPLE IDENTIFICATION:

Table Concentrate

AGITATION:

Time, minutes	50
Percent solids	20

ASSAYS, ounces per ton

FEED Table Concentrate

Gold	37.44
Silver	--

TAILING

Gold	3.36
Silver	--

AMALGAM recovered, calculated to ounces per ton of feed

Gold	34.08
Silver	--

RECOVERY, percent:

Gold	91.0
Silver	--

NOTES: Same procedure as described for Test No. 1.

DENVER EQUIPMENT DIVISION **DENVER** ORE TESTING LABORATORY

Denver, Colorado

Report No. 01-186232
Test No. 2

CYANIDATION TEST DATA

SAMPLE IDENTIFICATION:

Table Tailing from Test No. 2

GRINDING:

Test charge 1500 grams
Ground, minutes
Classified, mesh
Sands reground, minutes
Percent solids

AGITATION:

Time, hours 48
Percent solids 20

SOLUTION STRENGTH:

Pounds per ton of solution

NaCN 1.0
CaO 1.0

CHEMICAL CONSUMPTION:

Pounds per ton of heads

	24	48
NaCN	0.15	0.15
CaO	0.50	0.50

ASSAYS, ounces per ton

FEED: Table Tailing
Gold 0.190
Silver ---

SOLUTION:

Gold	0.16	0.16
Silver		

TAILING:

Gold	0.03	0.03
Silver		

RECOVERY, percent:

Gold	84.0	84.0
Silver		

SETTLING DATA:

	Initial
F—	4 to 1
R—	7.5
D—	1 to 1
A—	0.67

F—Dilution ratio to start
R—Settling rate, ft./hr.
D—Discharge dilution ratio
A—Thickener area, sq. ft./ton/24 hours

Formula:

$$A = 1.33 \frac{F-D}{R}$$

NOTES: A 1500 gram sample of the table tailings was subjected to 48-hour cyanidation with solution samples removed at each 24-hour interval.

The test did not show a high chemical consumption.

No further extraction of gold was obtained in the second 24-hour period

SCREEN ANALYSIS OF TAILING:

Mesh	% Wgt.
35	TR
48	5.6
65	9.4
100	14.3
200	24.8
-200	45.9
TOTAL	100.0

SUMMARY OF RESULTS Test No. 2 — DENVER EQUIPMENT COMPANY — ORE TESTING DIVISION — DENVER, COLORADO

SAMPLE IDENTIFICATION: Head Ore Crushed to Minus 10-Mesh — REPORT NO. 01-186232

PRODUCT	Percent Weight	ASSAYS Oz/Ton Au	PERCENT RECOVERY Au
Assayed Head	--	1.19	
Calculated Head	100.0	1.12	100.0
Table Amalgam	--	0.852	75.9
Table Amal. Residue	2.5	3.36	7.5
24-Hour Cyanide Soln	--	0.13	14.0
24-Hour Cyanide Tail	97.5	0.03	2.6

REMARKS:

DENVER EQUIPMENT COMPANY
ORE TESTING DIVISION
Denver, Colorado

Report No. 01-186232
Test No. 3

AMALGAMATION TEST DATA

SAMPLE IDENTIFICATION:

500 Grams of Minus 10-Mesh Ore
Ground to 48-Mesh

AGITATION:

Time, minutes	50
Percent solids	20

ASSAYS, ounces per ton

FEED Calculated

Gold	1.14
Silver	0.73

TAILING

Gold	0.24
Silver	0.26

AMALGAM recovered, calculated to ounces per ton of feed

Gold	0.90
Silver	0.47

RECOVERY, percent:

Gold	78.9
Silver	64.3

Screen Analysis
Amalgam Residue

Mesh	% Wgt
48	0.7
65	3.0
100	8.5
200	32.5
-200	55.3
TOTAL	100.0

NOTES: The minus 10-mesh ore was ground to 48-mesh in an Abbe jar mill. The grinding media was removed, double distilled mercury added and the pulp rolled at a slow speed for 50 minutes. The mercury was separated from the pulp followed by retorting, cupellation and parting to determine the amount of gold and silver recovered by enforced amalgamation at a 48-mesh grind.

DENVER EQUIPMENT COMPANY
ORE TESTING DIVISION
Denver, Colorado

Report No. 01-186232
Test No. 4

AMALGAMATION TEST DATA

SAMPLE IDENTIFICATION:

500 Grams of Minus 10-Mesh Ore
Ground to 100-Mesh

AGITATION:

Time, minutes	50
Percent solids	20

ASSAYS, ounces per ton

FEED	Calculated	
	Gold	1.14
	Silver	0.78
TAILING		
	Gold	0.11
	Silver	0.26

AMALGAM recovered, calculated to ounces per ton of feed

Gold	1.03
Silver	0.52

RECOVERY, percent:

Gold	90.4
Silver	66.7

NOTES: Same procedure as Test No. 3 but on ore ground to 100-mesh.

Screen Analysis
Amalgam Residue

Mesh	% Wgt
65	TR
100	1.8
200	18.7
-200	79.5
TOTAL	100.0

DENVER EQUIPMENT COMPANY
ORE TESTING DIVISION
Denver, Colorado

Report No. 01-186232
Test No. 8

AMALGAMATION TEST DATA

SAMPLE IDENTIFICATION:

Cleaned Flotation
Concentrate - Test 8

AGITATION:

Time, minutes	5
Percent solids	-

ASSAYS, ounces per ton

FEED	Flot Conct
Gold	183.10
Silver	44.15

TAILING	
Gold	26.39
Silver	2.15

AMALGAM recovered, calculated to ounces per ton of feed

Gold	156.71
Silver	42.00

RECOVERY, percent:

Gold	85.6
Silver	95.1

NOTES: The flotation concentrate was agitated for 5 minutes in the presence of mercury to simulate treatment of the concentrate in a continuous drum amalgamator or by amalgamation plates.

Report No. 01-186232
Test No. 9

CYANIDATION TEST DATA

SAMPLE IDENTIFICATION:

Minus 10-Mesh Head Ore

GRINDING:

Test charge 2000 grams
Ground, minutes 10
Classified, mesh 35
Sands reground, minutes None
Percent solids 60

AGITATION:

Time, hours 72
Percent solids 20

SOLUTION STRENGTH:

Pounds per ton of solution

NaCN	1.0
CaO	1.0

CHEMICAL CONSUMPTION:

Pounds per ton of heads

	24	48	72
NaCN	0.40	0.50	0.60
CaO	2.0	2.8	3.0

ASSAYS, ounces per ton

FEED: Calculated

Gold	1.10
Silver	0.45

SOLUTION:	24	48	72
Gold	0.80	0.90	0.92
Silver	0.22	0.23	0.25
TAILING:			
Gold	0.30	0.20	0.18
Silver	0.23	0.22	0.20

RECOVERY, percent:

Gold	72.7	81.8	83.6
Silver	48.8	51.1	55.6

SETTLING DATA:

	Initial	Final	
F—	4 to 1	4 to 1	3 to 1
R—	10.0	2.0	1.0
D—	1 to 1	1 to 1	1 to 1
A—	0.50	2.50	3.3

F—Dilution ratio to start
R—Settling rate, ft./hr.
D—Discharge dilution ratio
A—Thickener area, sq. ft./ton/24 hours

Formula:

$$A = 1.33 \frac{F-D}{R}$$

NOTES: The cyanide solutions were assayed by the test lead-acid procedure. The solutions showed no significant concentration of cyanicides.

SCREEN ANALYSIS OF TAILING:

Mesh	% Wgt.
35	2.5
48	8.5
65	14.8
100	15.5
200	16.2
-200	42.5
TOTAL	100.0

DENVER EQUIPMENT DIVISION **DENVER** ORE TESTING LABORATORY

Denver, Colorado

METALLURGICAL RESULTS

REPORT NO. 01-186232 **TEST NO.** 1

TYPE OF TEST Gravity Concentration, Amalgamation, Cyanidation

SAMPLE IDENTIFICATION Head Ore Crushed to Minus 10-Mesh

TEST PROCEDURE: A 2000 gram charge of the minus 10-mesh ore was concentrated in a Denver Mineral Jig to obtain a concentrate and a tailing. The jig tailing was ground to 28-mesh followed by gravity table concentration to obtain a table concentrate, sand tailing and slime tailing. The gravity concentrates were subjected to amalgamation procedures for the recovery of the free gold. A portion of the combined table tailings was subjected to 48-hour cyanidation.

	PRODUCT	Percent Weight	ASSAYS Oz/Ton Au	PERCENT RECOVERY Au
	Assayed Head		1.19	--
	Calculated Head	100.0	1.11	100.0
1	Jig Amalgam	---	0.27	24.4
2	Jig Amalgam Residue	1.5	0.84	1.1
3	Table Amalgam	---	0.44	39.7
4	Table Amalgam Residue	2.6	2.00	4.7
5	Table Sand Tail	73.4	0.38	25.2
6	Table Slime Tail	22.5	0.24	4.9
7	Combine 5 and 6	95.9	0.347	30.1

REMARKS:

Table Feed

Mesh	% Wgt.
28	4.6
35	7.5
48	11.4
65	14.4
100	13.30
200	15.1
-200	33.7
TOTAL	100.0

DATA SHEET NO. 1

SUMMARY OF RESULTS Test No. 1 — DENVER EQUIPMENT COMPANY — ORE TESTING DIVISION — DENVER, COLORADO

SAMPLE IDENTIFICATION: Head Ore Crushed to Minus 10-Mesh — REPORT NO. 01-186232

PRODUCT	Percent Weight	ASSAYS Oz/Ton Au	PERCENT RECOVERY Au
Head Assay		1.19	--
Calculated Head	100.0	1.11	100.0
Jig Amalgam	---	0.27	24.4
Jig Amalgam Residue	1.5	0.84	1.1
Table Amalgam	---	0.44	39.7
Table Amal. Residue	2.6	2.00	4.7
48-Hour Cyanide Solu.	---	0.23	19.8
Cyanide Tailing	95.9	0.12	10.3

REMARKS:

DENVER EQUIPMENT DIVISION DENVER ORE TESTING LABORATORY

Denver, Colorado

METALLURGICAL RESULTS **REPORT NO.** 01-186232 **TEST NO.** 2

TYPE OF TEST Gravity table concentration, Amalgamation - Cyanidation

SAMPLE IDENTIFICATION Head Ore Crushed to Minus 10-Mesh

TEST PROCEDURE: A charge of minus 10-mesh ore was ground to 48-mesh followed by gravity table concentration to obtain a table concentrate, table sand tailing and table slime tailing. The table concentrate was amalgamated to recover the gold as a bullion product.

	PRODUCT	Percent Weight	ASSAYS Oz/Ton Au	PERCENT RECOVERY
	Head Sample	-	1.19	
	Calculated Head	100.0	1.12	100.0
1	Table Amalgam	-	0.852	75.9
2	Amalgam Residue	2.5	3.36	7.5
3	Table Sand	73.1	0.18	11.8
4	Table Slime	24.4	0.22	4.8
	Combine 3 and 4	97.5	0.19	16.6

REMARKS:

DENVER EQUIPMENT DIVISION — ORE TESTING LABORATORY — DENVER, COLORADO | REPORT NO. 01-186232

SAMPLE IDENTIFICATION Head Ore Crushed to Minus 10-mesh | TEST NO. 5

FLOTATION TEST PROCEDURE: A 2000 Gram charge of the minus 10-mesh head ore was ground to 35-mesh followed by rougher flotation to recover the gold and silver in a froth concentrate product. Details of this test are given below.

Grinding and Treatment				Reagents: Pounds per ton heads—(2)							Screen Analysis	
Operation	Time Min.	Percent Solids	pH	25	208	350	P.O				Flot Tail	
											Mesh	Percent Weight
Grinding (1)	10	67	8.0	0.07	0.07							
Rougher Flot	15	20	8.0			0.05	0.04				35	1.5
											48	7.5
											65	14.0
											100	15.5
											200	20.0
											-200	41.5
											TOTAL	100.0

Grinding (1)
Classification, mesh 35
Time, minutes 10
Sands reground, minutes None

(2) Reagent Symbols:
25=Aero Promotor 25
200=Aero Promotor 208
350=Aero Xanthate 350
P.O=Yarmor "F" Pine Oil

PRODUCT	Percent Weight	ASSAYS Oz/Ton		PERCENT RECOVERY	
		Au	Ag	Au	Ag
Assayed Head		1.19	0.43		
Calculated Head	100.0	1.19	1.34	100.0	100.0
Rougher Flot Conct	2.0	53.94	46.46	90.9	69.4
Rougher Tail	98.0	0.11	0.42	9.1	30.6

DENVER EQUIPMENT DIVISION — ORE TESTING LABORATORY — DENVER, COLORADO | REPORT NO. 01-186232

SAMPLE IDENTIFICATION Head Ore Crushed to Minus 10-Mesh | TEST NO. 6

FLOTATION TEST PROCEDURE: Sample procedure as Test No. 5 except on ore ground to 48-mesh and with a single stage of concentrate cleaning.

Grinding and Treatment				Reagents: Pounds per ton heads—(2)							Screen Analysis	
Operation	Time Min.	Percent Solids	pH	25	208	350	P.O				Flot Tail	
											Mesh	Percent Weight
Grinding (1)	15	67	8.0	0.07	0.07						48	1.3
Rougher Flot	15	20	8.0			0.05	0.04				65	6.8
Cleaner Flot	5	5	8.0								100	15.0
											200	25.7
											-200	51.2
											TOTAL	100.0

Grinding (1)
Classification, mesh 48
Time, minutes 15
Sands reground, minutes None

(2) Reagent Symbols:
25 = Aero Promoter 25
208 = Aero Promoter 208
350 = Aero Xanthate 350
P.O = Yarmor "F" Pine Oil

	PRODUCT	Percent Weight	Oz/Ton ASSAYS		PERCENT RECOVERY	
			Au	Ag	Au	Ag
	Assayed Head		1.19	0.43		
	Calculated Head	100.0	1.08	0.93	100.0	100.0
1	Cleaned Flot Conct	0.9	109.7	52.89	91.4	51.0
2	Cleaner Tailing	2.1	1.14	1.30	2.3	3.0
	Rougher Tailing	97.0	0.07	0.44	6.3	46.0
	Combine No. 1 and 2	3.0	33.63	16.74	93.7	54.0

DENVER EQUIPMENT DIVISION — ORE TESTING LABORATORY — DENVER, COLORADO | REPORT NO. 01-186232

SAMPLE IDENTIFICATION: Head Ore Crushed to Minus 10-Mesh | TEST NO. 7

FLOTATION TEST PROCEDURE: Same procedure as Test No. 6 but with the ore ground to 65-mesh.

Grinding and Treatment				Reagents: Pounds per ton heads—(2)				Screen Analysis	
Operation	Time Min.	Percent Solids	pH	25	208	350	P.O	Flot Tail Mesh	Percent Weight
Grinding (1)	20	67	8.0	0.07	0.07				
Rougher Flot	15	20	8.0			0.05	0.04	65	2.0
Cleaner Flot	5	5	8.0					100	9.0
								200	27.0
								-200	62.0
								TOTAL	100.0

Grinding (1)
Classification, mesh 65
Time, minutes 20
Sands reground, minutes None

(2) Reagent Symbols:
25 = Aero Promoter 25
208 = Aero Promoter 208
350 = Aero Xanthate 350
P.O = Pine Oil

	PRODUCT	Percent Weight	ASSAYS Oz/Ton Au	Ag	PERCENT RECOVERY Au	Ag
	Assayed Head	---	1.19	0.43	---	---
	Calculated Head	100.0	1.15	1.14	100.0	100.0
1	Cleaned Conct	0.7	145.4	65.2	88.5	39.7
2	Cleaner Tail	3.1	3.34	6.84	9.0	18.4
	Rougher Tail	96.2	0.03	0.50	2.5	41.9
	Combine 1 and 2	3.8	29.5	17.6	97.5	58.1

DENVER EQUIPMENT DIVISION — ORE TESTING LABORATORY — DENVER, COLORADO | REPORT NO. 01-186232

SAMPLE IDENTIFICATION: Head Ore Crushed to Minus 10-Mesh | TEST NO. 8

FLOTATION TEST PROCEDURE: A charge of the minus 10-mesh ore was ground to 61.7% minus 200-mesh followed by rougher and cleaner flotation. The cleaned flotation concentrate was transferred into a small container and agitated for 5-minutes with mercury. The mercury was separated from the solids and assayed for gold and silver.

Grinding and Treatment				Reagents: Pounds per ton heads—(2)							Screen Analysis	
Operation	Time Min.	Percent Solids	pH	25	208	350	P.O				Flot Tail Mesh	Percent Weight
Grinding (1)	20	60	8.0	0.07	0.07							
Rougher Flot	15	20	8.0			0.07	0.04				65	1.8
Cleaner Flot	5	5	8.0								100	8.2
											200	28.3
											-200	61.7
											TOTAL	100.0

Grinding (1)
Classification, mesh 65
Time, minutes 20
Sands reground, minutes None

(2) Reagent Symbols:
25 = Aero Promoter 25
208 = Aero Promoter 208
350 = Aero Xanthate 350
P.O = Yarmor "F" Pine Oil

	PRODUCT	Percent Weight	ASSAYS Oz/Ton Au	Ag	PERCENT RECOVERY Au	Ag
	Assayed Head	---	1.19	0.43		
	Calculated Head	100.0	1.15	0.70	100.0	100.0
1	Flotation - Amalgam	---	0.94	0.25	81.6	36.1
2	Flot - Amalgam Residue	0.6	26.39	2.15	13.7	1.8
3	Flot Cleaner Tail	3.2	1.36	0.94	3.8	4.3
	Rougher Tail	96.2	0.01	0.42	0.9	57.8
	Combine 1 and 2	0.6	183.1	44.15	95.3	37.9
	Combine 2 and 3	3.8	5.23	1.13	17.5	6.1

THE BLACK QUEEN MINE

Superstition Mining District, Arizona

for

GOLD CUP RESOURCES LTD.

ALLAN B. FARLEY NOVEMBER 1977

ALLAN B. FAWLEY, P.Eng.
CONSULTING MINING AND GEOLOGICAL ENGINEER
1947 WEST KING EDWARD AVENUE
VANCOUVER 9, BRITISH COLUMBIA

THE BLACK QUEEN MINE

Superstition Mining District, Arizona

of

GOLD CUP RESOURCES LTD.

by

Allan B. Fawley

Report written November 1977

Property Examination October 10 & 11th, 1977

D.K. Martin

THE BLACK QUEEN MINE, SUPERSTITION MOUNTAINS, [illegible], ARIZONA

for

GOLD CUP RESOURCES LTD.

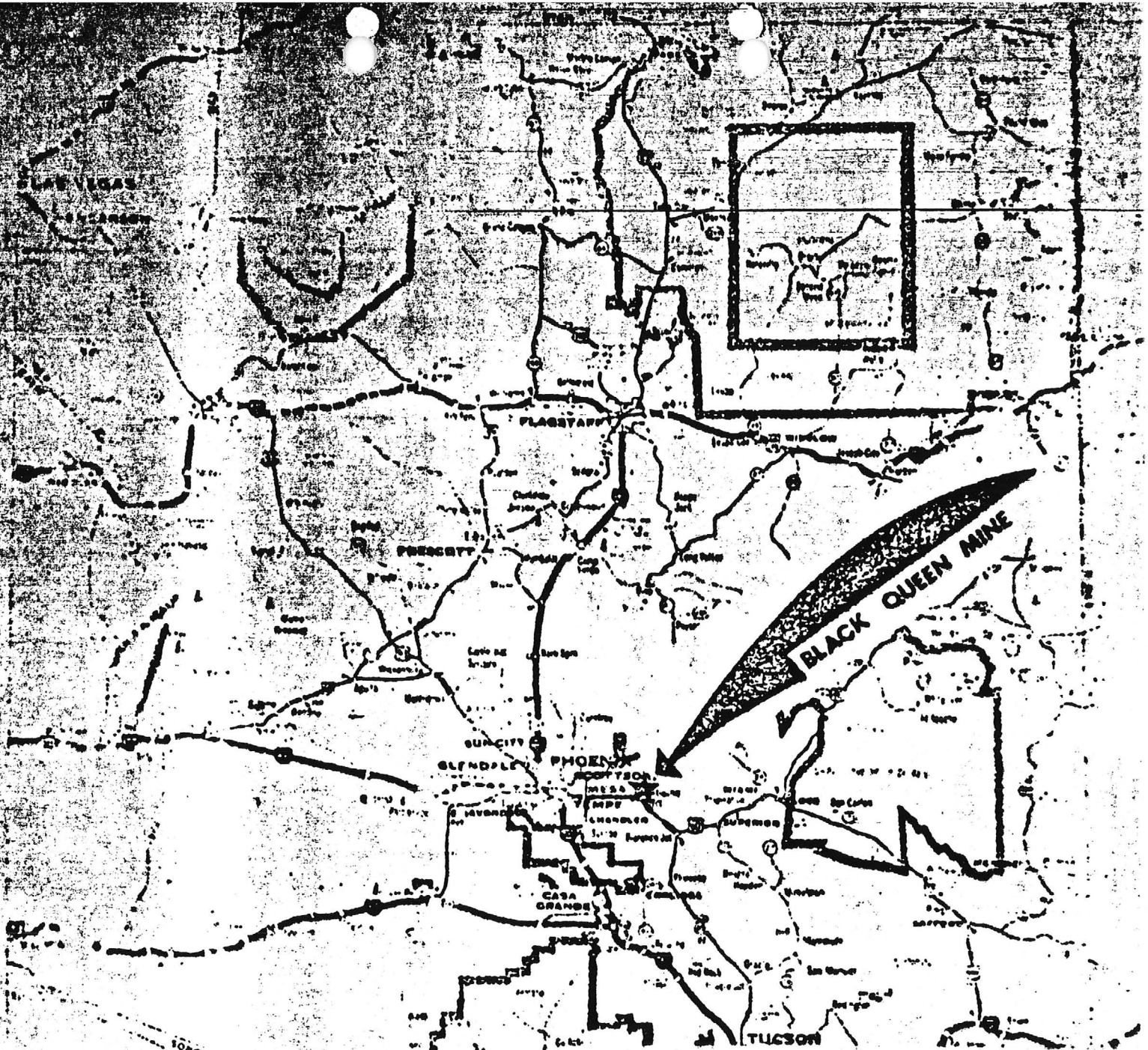
INTRODUCTION

The Black Queen is an old mining property 35 miles east of Phoenix, Arizona. About the turn of the century there were 1,500 people in the nearby "ghost" town of Goldfields, and there is considerable activity once again at the old gold mines in this area. When examined, mining was underway on a small scale at the Black Queen and treatment was in a small mill recently erected at the mine. Considering the present high price of gold, $165.00 U.S. vs. $20.66 per ounce until the 1930s, there is a reasonable chance that a small but profitable mine can be developed at the Black Queen, also large low-grade gold deposits that can be worked by open-pit mining and leaching may occur at the Black Queen and at some of the nearby prospects.

Information for this report has been obtained from private reports, from the Tectonic Map of North America by the United States Geological Survey (1969), from oral information and a brief report by John C. Wilburn (1977), and from a personal examination of the property on October 10th and 11th, 1977.

LOCATION AND ACCESS

The Black Queen Mine and the CC claims are in the Goldfield-Superstition Mountains area of Arizona, and can be reached from Phoenix by 45 miles of good roads via Mesa and Apache Junction. The claims are in rolling, almost barren desert country, approximately 2,700 feet above sea level.



GOLD CUP RESOURCES LTD

LOCATION MAP OF BLACK QUEEN MINE

NOVEMBER 1977

To accompany report by
R. Glen Hanley, P.Eng.
November 1977

PROPERTY

The property of Gold Cup Precursor Ltd. consists of 21 mining claims, the Black Jack group (twenty CC claims numbered CC No. 7 to CC No. 26. The claims which are 600 ft. x 1,500 feet in dimension are in Maricopa County, Superstition Mining District, Arizona. Negotiations are underway to acquire additional claims surrounding the Black Queen.

HISTORY

The Black Queen Property, is believed to have been kept in good standing since the 1900s. The early history is given by John D. Hilburn (1977) as "Early production records of the Superstition Mining District have eluded researchers, but it is common knowledge that the district's largest mine, the Mammoth, produced at least one million dollars from the "Mormon Stope" that was mined to a depth of 265 feet from the years 1893 to 1897. The Black Queen Mine is the district's second largest mine found only 3,000 ft. to the north of the Mammoth with depths of only 150 feet known, and drifts along the vein. Early production on the Black Queen is known to have been approximately a quarter million dollars. Later sporadic activity on the Mammoth Mine yielded a known production of $67,000 between 1917 and 1925. Some mining on the Black Queen Mine in the late 1920s and in 1930 was carried on, production is unknown. It is known that the mine was closed in this period due to high-grading and the property has remained idle since".

During 1977 some mining development has been undertaken and a small mill erected at the Black Queen.

GEOLOGY

The regional geology is comprised of a wide variety of rocks, mainly Precambrian granites, schists and volcanics; and Tertiary terrestrial volcanic rocks and non-marine sediments. Pronounced northeast-southeast and numerous minor faults intersect the area.

The aerodic valley of the Black Queen Mine is described by [illegible] (1922) as follows: "The Black Queen Mine occurs along a fault [illegible] between basalt on the east and breccia on the west. The quartz veins are found chiefly in the breccia and do not persist along the surface for more than a few feet, all of which carries free gold, on the whole very fine. Several veins along the contact dip easterly to the west and have produced a limited amount in the aggregate. Adjacent to the basalt is a band of kaolin a foot or so in width, next a one foot band of red crushed quartz a product of oxidized pyrites and post faulting, and several feet of quartz in brecciated arkose. The width of the vein varies along the strike from a foot to six feet. This breccia zone is traversed by many quartz veins from narrow seams to those more than a foot in thickness. Free gold occurs relatively large patches of yellow within the quartz. The richest ore occurs where there is an abundance of black manganese with the quartz usually, with iron products, [illegible], and oxidized pyrites are found sparingly scattered throughout the quartz. The intercalated breccias in the immediate vicinity of the ore is stained with manganese, and silicified where upon the fresh red color becomes white or slightly greenish. No sulphides occur with the ore, all is free milling.".

ORE POSSIBILITIES

The main vein-fault structure at the Black Queen Mine may extend across the entire Black Queen claim for a length of 1,500 feet, but todate only five hundred feet has been shown to contain a gold content of possible economic interest and the remainder requires further exploration. The depth of the mineralized zone is not known for although ore is said to have extended to a depth of 1,000 feet at the north, Mammoth Mine, the greatest depth explored at the Black Queen is believed to be 150 feet.

Some assay results of Black Queen samples taken in 1929 on the 150-foot level are given in the appendix, they show assays of up to 17.84 ozs. gold and 1.2 ozs. silver over a width of 7½ inches. The results of recent surface

[illegible] surface sampling taken by the writer, are also given in the appendix. Further exploration work on the Black Queen vein-fault structure should be undertaken by trenching, re-opening of one of the old shafts, or by percussion and/or diamond drilling.

Old gold mining areas are ideal localities to search for large low-grade gold deposits, as deposits of this type were not economic at the time the mines were in production, but a grade of 0.05 to 0.1 ozs. gold per ton may now be economic due to the high price of gold and to the effectiveness and low cost of the cyanide leaching method of gold extraction and recovery. A search for gold deposits of this type should be undertaken by geochemical prospecting, geological mapping, and drilling.

MILL, SAMPLES AND ASSAYS

The small mill constructed at the Black Queen consists of a jaw crusher, impact mill, cyclone, vibrating screen, rolls, two large shaking concentrating tables, and an amalgamation plate. After the crushed rock passes over the vibrating 20-mesh screen, the undersize goes directly to a concentrating table, and the oversize goes to a rolls and then to another concentrating table. A gold-bearing concentrate is formed on the tables, and the tailings pass over an amalgamation plate to catch additional gold and silver. (Note, the rolls are awaiting repairs on October 11th, the remainder of the mill was in good working order). A 600-gallon water storage tank has been installed near the mill, and is supplied from a water well that has been drilled and filled with a submersible pump to supply 12 gallons per minute.

As the vein contains free gold, large samples and very capable assaying is required to yield accurate results. Assays of samples taken by the writer of the mill feed and products for gold and silver are given in the appendix. The stockpile dump beside the mill assayed 0.[illegible] ozs. gold per ton, the plus 20-mesh product from the vibrating screen assayed 0.[illegible] ozs., and the minus 20-mesh product assayed 0.336 ozs. The concentrate produced on October 10th

assayed 7.846 ozs. and on October 11th it assayed 13.120 ozs. Accurate figures as to the tonnage fed to the mill and the pounds of concentrate recovered are not available. A rough figure supplied by the mill operators is that a small pail of concentrates (about 45 lbs.) is obtained from each ton treated which, along with the above assays, indicates that the recovery of gold by the mill is fairly good; however additional test work is required to determine the amount of grinding required to obtain the most satisfactory recovery, and also to determine the effectiveness of the shaking (concentrating) tables and the amalgam plate on this type of gold-bearing rock.

CONCLUSIONS AND RECOMMENDATIONS

Considering the present very high price of gold, the possibility of an economic gold deposit occurring on the Black Queen property is reasonably good. Also there are more than a dozen former mines and prospects within two miles of the Black Queen, and all of these mines and prospects should be examined for potential economic gold deposits, and optioned for detailed exploration if warranted. The greatest mine potential in this old Goldfield-Superstition mining area is that of large tonnage, low-grade gold deposits that can be mined by open-pit methods.

The mill at the Black Queen besides being used for the treatment of medium and high-grade ore would be of great advantage for crushing, screening and testing bulk samples from various nearby locations.

Exploration should be carried out as a two stage program. The first stage should consist of:

(a) further test work on the mill, including the keeping of accurate records of (i) the tonnage treated and where obtained; (ii) the weight and grade of the concentrate recovered; and (iii) the grade of the tailings;

(b) geological mapping and geochemical prospecting of the Black Queen and CO claims;

(c) trenching and preliminary drilling; and

(d) reconnaissance geological examinations in the surrounding areas, including geochemical prospecting.

Geochemical prospecting for gold has been successful in such widely separated areas as the Carlin gold deposit in Nevada and the Santa Clara in Zambia, and may be successful here although some experimenting will be necessary to delineate the best geochemical pathfinder to use.

The second stage will be mainly drilling programs, to be carried out, where warranted, on geochemical anomalies that are discovered, and in other areas where encouraging results are obtained during Stage I.

ESTIMATED EXPLORATION EXPENSES

The cost of a two stage exploration program as recommended for this property will be about as follows:

Stage I:

(a) To complete tests on the mill, about	$ 5,000.00
(b) For geological mapping and geochemical prospecting of the 24 mining claims, about	10,000.00
(c) For a preliminary 1,000 ft. percussion drilling program, at $7.50 per foot, including supervision assaying, etc. about	10,000.00
TOTAL	$ 25,000.00

Stage II:

The amount of exploration work required will be dependent on the results of Stage I. All geochemical anomalies and other favourable locations discovered should be trenched or drilled. The overall cost of a 5,000 ft. percussion drilling program, including surveying, sampling and assaying, engineering, supervision, etc., etc., will be approximately ..... $ 50,000.00

Respectfully submitted,

Vancouver, B.C.
November 15, 1977

Allan F. Fairley, B.A. Sc.,
M. Sc., Ph. D., P. Eng.

CERTIFICATE

I, ALLAN PRIEST FAWLEY, of the City of Vancouver, in the Province of British Columbia, HEREBY CERTIFY:

1. THAT I am a Consulting Mining Engineer and Geologist, and my address is 1947 West King Edward Avenue, Vancouver, B.C. V6J 2S7.

2. THAT I am a graduate of the University of British Columbia with the degree of B.A. Sc. (1937) in Mining Engineering, of Queen's University with the degree of M. Sc. (1946) in Geology, and of the University of California with the degree of Ph. D (1948) in Geology.

3. THAT I am a registered Professional Engineer in the Province of British Columbia and in the Yukon Territory and also a member of the Society of Economic Geologists, of the Canadian Institute of Mining and Metallurgy, and of the Geochemical Society.

4. THAT I have practised my profession as a Geologist for more than twenty-five years.

5. THAT I have no direct interest or indirect interest, nor do I expect to have any interest in the Black Queen property or in Gold Cup Resources Ltd.

6. THAT this Report on the Black Queen property is based on my personal examination on October 10th-11th, 1977.

DATED this 15th day of November, 1977.

Allan P. Fawley, PH.D.
Consulting Mining and
Geological Engineer.

No. 51 Ass

Phoenix, Arizona, Nov 6 29

CHAS. A. DIEHL

ARIZONA ASSAY OFFICE

Phone 4447 — 315 North First Street — P. O. Box 1148

This Certifies That the samples submitted for assay by Apache Trail Gold Mg. Co. contain as follows per ton of 2000 lbs. Avdp.

SAMPLE MARKED	SILVER OUNCES PER TON	VALUE AT 50¢ PER OZ.	GOLD OUNCES PER TON	VALUE AT $20 PER OZ.	PERCENTAGE
"Black Queen" 150' level					
1 5" width 14' N: of cross cut.	.5	$.25	.14	$2.80	
2 19" width 10½' N. of cross cut.	1.3	$.65	.91	$18.20	
3 Country rock hanging wall.	.7	$.35	.02	$.40	
4 Footwall Oxidized Granite	.7	$.35	1.08	$21.60	
5 7'-0" N. of cross cut 7½" wide.	1.2	$.60	12.84	$256.80	
6 Quartz & Altered Granite 3' N. crosscut.	1.5	$.75	1.26	$25.20	
7 18" Hanging Wall Country Rock 3'-0" North of crosscut.	1.0	$.50	.02	$.40	
8 10" Country Rock in Hanging & Footwall 7'-0" N. of crosscut.	1.0	$.50	.03	$.60	
9 Special	19.1	$9.55	43.58	$871.60	

Charges $ 11.25 Paid

Assayer Chas. A. Diehl

TO:
Inc. ,
1967 Kingsway Avenue East
Vancouver, B.C.
V5N 2W7

1001 E. PENDER ST., VANCOUVER, B.C., CANADA, V6A 1W2
PHONE 254-1617 TELEX 04-507/8 CABLE SUPERVISE

CERTIFICATE OF ASSAY

No. 77 0-1251 | DATE: Oct. 19/77

We hereby certify that the following are the results of assays on: Ltd.

MARKED	GOLD oz/ton	SILVER oz/ton	XXX	XXX	XXX	XXX	XXX	XXX
30401	0.102	0.18	CRUSHED ORE +20 MESH					
30402	0.336	1.20	CRUSHED ORE -20 MESH					
30403	7.846	2.92	CONCENTRATE FROM SHAKING TABLE OCT. 10/77					
30404	0.022	0.50	PERCUSSION DRILL HOLE, ABOUT 60 FT. DEEP					
30405	0.148	0.49	STOCK PILE FOR MILL FEED					
30406	13.120	5.14	CONCENTRATE FROM SHAKING TABLE OCT 11/77					
30407	0.100	-	6-FT CHANNEL SAMPLE AT INCLINE SHAFT					
30408	0.012	0.19	15-FT CHANNEL SAMPLE IN TRENCH SOUTH OF SHAFT					
30409	0.016	-	6-FT PIT IN OLD DUMP FROM VERTICAL SHAFT					
30410	0.005	-	30-FT CHANNEL, SOUTHERN TRENCH					

REJECTS RETAINED ONE MONTH. PULPS RETAINED THREE MONTHS ON REQUEST
PULPS AND REJECTS WILL BE STORED FOR A MAXIMUM OF ONE YEAR.

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