



## **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](mailto:inquiries@azgs.az.gov)

The following file is part of the

Arizona Department of Mines and Mineral Resources Mining Collection

## **ACCESS STATEMENT**

These digitized collections are accessible for purposes of education and research. We have indicated what we know about copyright and rights of privacy, publicity, or trademark. Due to the nature of archival collections, we are not always able to identify this information. We are eager to hear from any rights owners, so that we may obtain accurate information. Upon request, we will remove material from public view while we address a rights issue.

## **CONSTRAINTS STATEMENT**

The Arizona Geological Survey does not claim to control all rights for all materials in its collection. These rights include, but are not limited to: copyright, privacy rights, and cultural protection rights. The User hereby assumes all responsibility for obtaining any rights to use the material in excess of "fair use."

The Survey makes no intellectual property claims to the products created by individual authors in the manuscript collections, except when the author deeded those rights to the Survey or when those authors were employed by the State of Arizona and created intellectual products as a function of their official duties. The Survey does maintain property rights to the physical and digital representations of the works.

## **QUALITY STATEMENT**

The Arizona Geological Survey is not responsible for the accuracy of the records, information, or opinions that may be contained in the files. The Survey collects, catalogs, and archives data on mineral properties regardless of its views of the veracity or accuracy of those data.

08/20/86

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: STUMP MINE

ALTERNATE NAMES:

NEW HOPE  
GRAND MOGUL GROUP

PIMA COUNTY MILS NUMBER: 553

LOCATION: TOWNSHIP 11 S RANGE 8 E SECTION 21 QUARTER NW  
LATITUDE: N 32DEG 27MIN 24SEC LONGITUDE: W 111DEG 31MIN 55SEC  
TOPO MAP NAME: VACA HILLS - 15 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:

LEAD  
VANADIUM  
COPPER

BIBLIOGRAPHY:

RFC B-387  
USBM FILE NO. 464.2/1900 ?  
ADMMR STUMP MINE FILE  
BOOK V-VI A.L. FLAGG, VANADIUM REPORTS  
ADMMR JUMBO GROUP FILE

STATE OF ARIZONA  
DEPARTMENT OF MINES AND MINERAL RESOURCES

Mineral Building, Fairgrounds, Phoenix, Arizona 85007 • (602) 255-3791

GRAND MOGUL MINE

AKA: Stump, New Hope

MILS NEW HOPE

Book V-IV - AL Flagg Vanadium reports

Geology Report- Geoexplorers International Vol 1 p. 46

PIMA COUNTY  
SILVERBELL DIST.  
T11S, R8E, Sec 21



STUMP MINE

PIMA COUNTY

HM WR 3/4/88: Visited the Stump Mine (Grand Mogul) Pima County. The MILS data location is incorrect. The proper location is  $W\frac{1}{2}$  (center) Sec 16, T11S R8E. The patented claim is now the site of a ranch headquarters. No mining activity was noted.

-----

NJN VIS 8/3/93 Bill Elliot reported that he has both the patented mining claims <sup>that</sup> comprise this property. His address is 14478 Cholla Canyon drive, Phoenix, AZ 85044, Phone 759-3948. The mine remains flooded. He was told by the prior owners that a exploration company looking for gold pumped water for a day and a half without significant progress. No other results were known. He confirms the location as being in section 16 as reported above.

RH

March 6, 1943

Mr. James N. Corbett  
90 North Church Street  
Tucson, Arizona

Dear Mr. Corbett:

Subject: Stump Mine - Albert Beck

In reply to your letter of February 24, I beg to advise you that the application for an RFC loan on the Stump Mine was applied for by the Artesia Development Company by Mr. Albert Beck in which he stated that he had a purchase agreement. This loan was granted on November 15, 1942.

I would appreciate being informed as to any action that results in the Pima County Superior Court to quiet title to the mine as to Albert Beck and others.

Very truly yours,

J. S. Coupal, Director

JSC:kk

JAMES N. CORBETT  
LAWYER  
90 NORTH CHURCH STREET  
TUCSON, ARIZONA

February  
24  
1943

DEPT. MINERAL RESOURCES  
RECEIVED  
FEB 25 1943  
PHOENIX ARIZONA

Department of Mineral Resources,  
State of Arizona,  
413 Home Builders Bldg.,  
Phoenix, Arizona.

Subject: Stump mines - Albert Beck.

Gentlemen:

I understand that Mr. Albert Beck, of 4501 West 16th Place, has made application for a Resonstruction Finance Corporation Loan on the Stump Mines. As one of the attorneys for Mr. Robert H. Schops, of Van Nuys, California, I am writing to try to obtain some information with referance to said loan.

Mr. Schops had given Mr. Beck an option to purchase the Stump Mines in question; but Mr. Beck had not lived up to the agree- ment incorporated in the option, and Mr. Schops began an action in the Pima County Superior Court to quiet title to the mines as to Albert Beck and others.

Did Mr. Beck apply for the loan as the owner of the Stump Mines, or as an optionee.

Thanking you for your cooperation, and for what information you can furnish me at this time, I am

Very truly yours,

*James N. Corbett*

*Stump Development Co.  
Arizona Development  
1400 ...*

JAMES N. CORBETT  
Lawyer

90 North Church Street

Tucson, Arizona

February

24

1943

Department of Mineral Resources,  
State of Arizona,  
413 Home Builders Bldg.,  
Phoenix, Arizona.

Subject: Stump mines - Albert Beck.

Gentlemen:

I understand that Mr. Albert Beck, of 4501 West 16th Place, has made application for a Reconstruction Finance Corporation Loan on the Stump Mines. As one of the attorneys for Mr. Robert H. Schops, of Van Nuys, California, I am writing to try to obtain some information with reference to said loan.

Mr. Schops had given Mr. Beck an option to purchase the Stump Mines in question; but Mr. Beck had not lived up to the agreement incorporated in the option, and Mr. Schops began an action in the Pima County Superior Court to quiet title to the mines as to Albert Beck and others.

Did Mr. Beck apply for the loan as the owner of the Stump Mines, or as an optionee.

Thanking you for your cooperation, and for what information you can furnish me at this time, I am

Very truly yours,

(Signed) JAMES N. CORBETT

Stump mine

October 22, 1942

✓  
1 Albert Beck  
1 Artesia Investment Company  
4501 West 16th Place  
Los Angeles, California

Dear Mr. Beck:

This will acknowledge your letter of October 19 and receipt of the Articles of Incorporation of the Artesia Investment Company. We are adding these to your docket.

Before forwarding your application to the RFC Mine Loan Division we think it would be wise if you outlined the sequence of the work to be performed with this money. Such jobs as cementing the collar of the shaft or any other permanent improvements should be subordinated to the barest requirements of making accessible the workings for examination.

It is suggested that in a letter to us you emphasize the fact your main objective is to do sufficient work that the anticipated ores may be exposed, and their values definitely determined; and that such funds as are in excess of the above requirements would then be outlined in preparing the mine for production. In other words, the Reconstruction Finance Corporation would not look favorably upon permanent improvements being made prior to the time that it was determined that commercial ores existed, warranting such improvements.

Immediately on receipt of this letter we will forward your docket to the Reconstruction Finance Corporation, together with our recommendations.

Very truly yours,

Earl F. Hastings  
Assistant Director  
& Projects Engineer

EFH:BA

DEPARTMENT OF MINERAL RESOURCES  
State of Arizona  
Mineral Building, Fairgrounds  
PHOENIX, ARIZONA

PHOENIX  
AZ  
6  
75



REASON CHECKED  
Unclaimed..... Refused.....  
Unknown.....  
Insufficient address.....  
Moved, Left no address.....  
No such office in state.....  
Do not remove from this envelope

Mr. Albert Beck  
Artesia Investment Company  
4501 West 16th Place  
Los Angeles, California

*not here*  
*try 11413 S. Van Hampshire*

*Grand irregular mine file*

*Granted*

STUMP

October 31, 1942

Silver Bell

Earl F. Hastings

Reconstruction Finance Corporation  
Preliminary Development Loan

Docket No.  
Date Application Received  
Date of Report

C-ND-PHX 74  
October 21, 1942  
October 31, 1942

1. Name and address of applicant (correspondent):  
Albert Beck, Secretary, Artesia Development Co. 4501 W. 16th Place, Los Angeles, California.
2. Character of project and estimated cost thereof:  
Dewater and repair shaft and lateral workings to and including 220 foot level to make accessible silver, lead, vanadium and copper ore, \$5000.00.
3. Location of property:  
Silver Bell Mining District, 18 miles west of Red Rock, Pima County, Arizona.
4. Applicant's interest in or ownership of property:  
Applicant has purchase agreement on a 10% royalty basis with \$100.00 per month minimum, minimum in effect following first shipment.
5. Loan requested:  
\$5000.00.
6. Loan recommended:  
\$3000.00.
7. Comments:  
(A) Added to the docket is correspondence with the applicant and a copy of a report by H. Kelly McLauren, E. M.  
  
(B) There is no original data accompanying the application, all reports are copies. Conditions at the property are such that further information cannot be obtained, even in sufficient amount to be used as a partial check. The following comments must necessarily be based upon the assumption of authenticity of the reports.  
  
(C) The Woodburn report indicates a 24 foot vein of which 4 feet assays 35.1% lead, 5.15% copper, 16.2 ozs. silver, and 0.14 ozs. gold, the balance of 20 feet averaging 4.0% lead, 4.0 ozs. silver and 0.075 gold. The high grade shoot is stated to be 60 feet long on the 50 foot level. If so, an ore body yielding 80 tons per foot of depth and assaying 9.2% lead, 6.05 silver, .086 gold and (assuming the 20 foot width is barren of copper since no assay for it is given) 0.86% copper is evident.

October 31, 1942

The McLauren report quotes W. X. Osburn, E. M., as stating the ore on the 100 foot level "appears" of better grade than at the 50 foot level. Assuming the shoot extends from the surface to the 200 foot level there is 16,000 tons of ore available, which is approximately 1 digit short of the Woodburn estimate. Tonnage cannot be accurately calculated however, as the high grade 4 foot streak is stated to be 60 feet long and the 20 foot low grade, paralleling it, is not given a measured length, while the shaft is reported in ore and the 100 foot level south drift face in ore 100 feet from the shaft. No mention is made of ore occurrence north of the shaft although the lateral workings are more extensive in this direction.

(D) The vanadium content of the ore referred to cannot be too seriously considered in the light of the recent U. S. Vanadium survey in which it was found that accurate assaying altered the complexion of every property visited. Applying their experience record would result in an 80% to 90% reduction of vanadium content claimed, even though these claims were made in good faith.

(E) While many points of the supporting evidence must be discounted there appears sufficient fragmentary evidence, coupled with a favorable geological location, to indicate that the 50 and 100 foot levels should be unwatered and examined. The calculations in paragraph 1, Comment "C", warrant our recommendation that a \$3,000.00 loan be granted for this purpose, this amount being in our opinion sufficient to make the workings safely accessible for examination to and including the 100 foot level and possibly to the 200 foot level. The 100 foot level should be examined immediately upon being opened, and further work ceased if assays are found at variance with previously reported values.

ARIZONA DEPARTMENT OF MINERAL RESOURCES

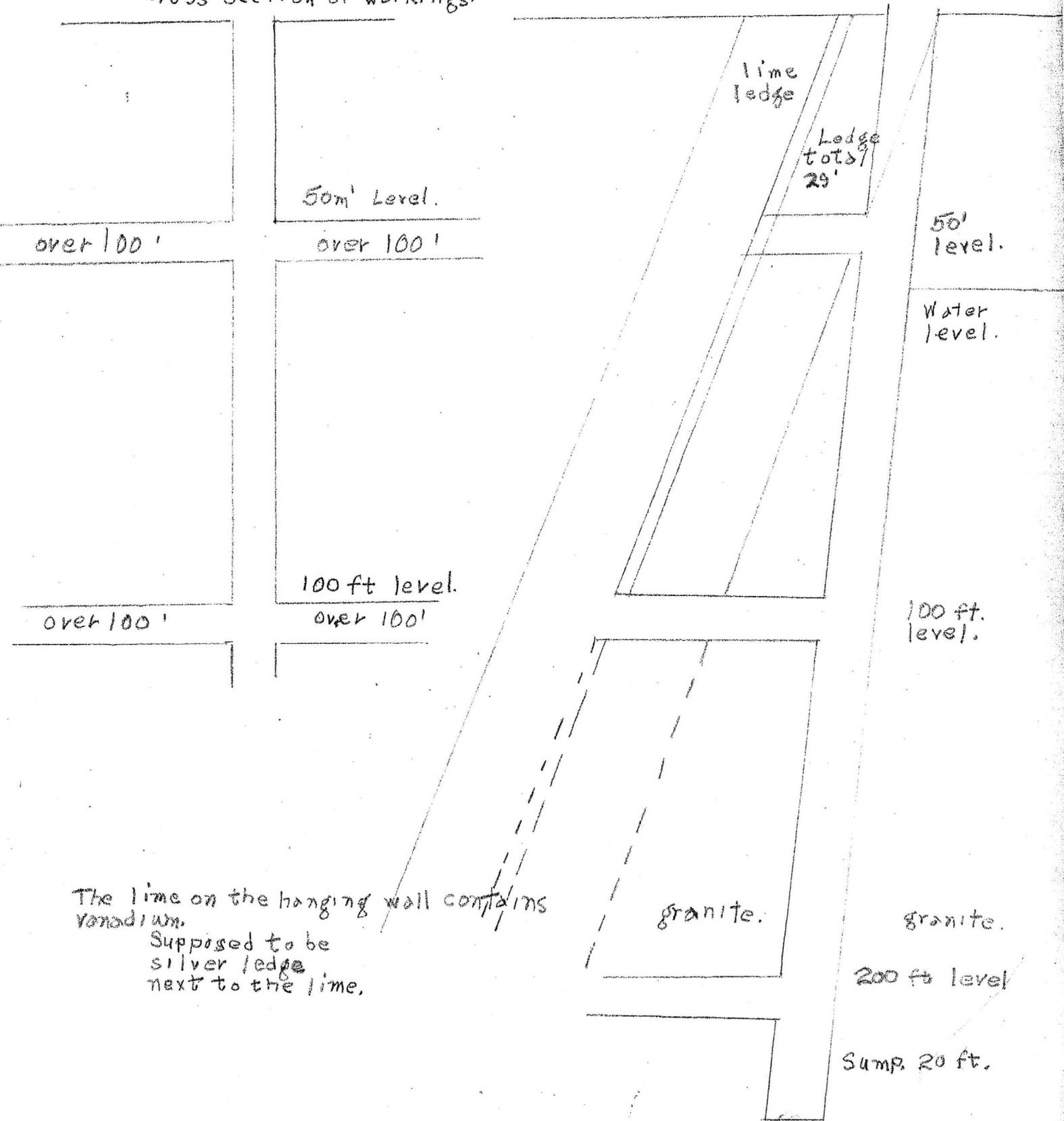
Earl F. Hastings  
Assistant Director &  
Projects, Engineer

EPH

Stump Mine.

Cross section of workings.

Shaft.



The lime on the hanging wall contains Vanadium. Supposed to be silver ledge next to the lime.

granite.

granite.

200 ft level

Sump 20 ft.

over 100'

50m' Level.

over 100'

100 ft level.

over 100'

over 100'

50' level.

Water level.

100 ft. level.

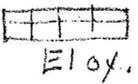
lime ledge

Ledge totals 29'



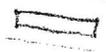
Casa Grande.

Southern Pacific railroad.



Eloy.

High-way.



Depot.

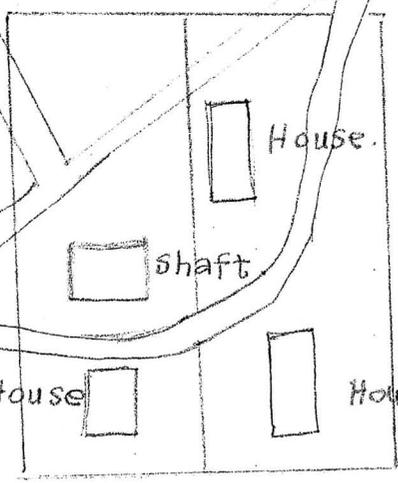
Red Rock.



Map showing wagon roads

Tucson road.

- Stump Mine.
- Patented claims.
- Grand Mogul.
- Grand Mogul No 5.



Silver bell.

Silver Time

## Report on the Stump Mine

- - - -

The Stump Mine is a local name applied to the Grand Mogul Group of mining claims, seven in number, described as Grand Mogul and Grand Mogul Nos. 2, 3, 4, 5, 6 and 7, mining claims situated in the Silverbell Mining District, Pima County, Arizona, 140 acres recorded.

The Silver Mining District, in general, is a copper District. There are several producing mines in the vicinity of the Stump Mine. The ore bodies in these usually contain considerable lead, gold and silver ore in the upper levels, but as depth is gained the copper values increase until it becomes the principal metal. I am told that in the case of the Silverbell claim, from which the district takes its name, several hundreds of thousands of dollars were taken out of the upper levels in the form of high grade silver ore.

The Grand Mogul group of claims is situated about four miles North of the town of Silverbell and about forty miles north west of Tucson, on the County road. This road is in good condition and runs through the property about 200 feet from the main workings. The Southern Arizona R. R. from Red Rock to Silverbell passes about 3000 feet from the main workings, and, as the ground is level, a siding can easily be put in at a minimum cost. There is now a siding about  $1\frac{1}{2}$  miles from the property from which the ore from this property was shipped.

### LOCATION:

The location is an ideal one, the surface being level, on a good road, and near a railroad, and has plenty of water, at a depth of fifty feet. The climate is splendid and permits working every month in the year. Good buildings on the property, and plenty of labor obtainable in the nearby towns.

### GEOLOGY:

The geology is very favorable, although on account of the immediate country being flat and covered with alluvial deposit generally, the geological features are difficult to learn by superficial examination. However, a careful study of the surrounding country and the splendid showings on the property, make it possible to say that there is an exceptional surface showing of lead, silver and gold ore.

The claims cover 4500 feet in length of a contact replacement fissure running in a northerly and southerly direction dipping about 70 degrees to the west.

The foot wall is an old coarse grained granite; the hanging wall is lime. This intrusion apparently shattered and altered the older granite along the contact, creating a channel favorable for subsequent circulating mineralized solutions which evidently replaced the altered granite with galena, fluorite, calcite and quartz, carrying silver and gold, all of which is greatly leached on the surface.

The ledge is exposed on the surface for about 1500 feet, and has been proven by several shafts and pits 10 to 25 feet deep, all showing ore of similar character.

The main shaft is 130 feet deep and well timbered, inside measurements 5' X 7' manway 3' and skipway 4' and is sunk on the foot-wall side. A connection was made at a depth of 50 feet, it being apparently the intention of the operators to continue the shaft to a depth of 300 feet before again tapping the ledge and developing it. The shaft is not perpendicular, but is evidently paralleling the ledge in the granite foot wall, dipping about 70 degrees west. The work in the shaft demonstrated that the water is not in the granite but is in the ledge and that it will not prove expensive to control. At the 50 foot level the ledge was 24 feet wide and the values had increased somewhat and were less leached than at the surface.

The various pits and shafts along the surface of the ledge showed an average of over 4% lead, and a little over 4 ozs. in silver and about \$1.50 in gold.

Mr. Herbert C. Shotwell, E. M. in 1916, made an examination of this property and his sample test was made using surface samples from six different places along the ledge. His concentration test gave the following results:

Heads: Lead 17.10%, Silver 3.8 ozs., Gold .04 ozs.  
Pulverized to 80 mesh.  
Concentrated by panning 5 into 1.  
Recovery 65%.

Value of concentrates per ton:

<u>Lead</u>	<u>Silver</u>	<u>Gold</u>
63.2%	10.7ozs.	.06 ozs.

The test was made to ascertain whether or not the values could be saved by concentrating and oil flotation, and the result was very favorable showing a recovery of practically all the lead and about 85% of the silver. The silver is in the form of a sulphide and can be recovered by the flotation process.

The ledge at the depth of 50 feet is 24 feet wide, the first 4 feet next to the footwall is a galena ore and from a strip about 60 feet long a sample shipment of two carloads was made to the El Paso Smelter which gave the following results:

Lead 35.10% Silver 16.20 ozs. copper 5.15% and  
Gold \$2.80 per ton.

The remaining 20 feet of the ledge has a quartz- calcite- fluorite gangue with spots here and there of barite and galena disseminated throughout. The remaining 20 feet averages 4% lead; 4 ozs. silver and \$1.50 in gold.

Assuming the price of metals to be as follows; Gold, \$20.67 per oz; Silver \$1.01½ per oz; Lead 6¢ per lb; and copper 12¢ per lb; the gross values for the 4 feet would be about \$73.00 per ton, and for the remaining 20 feet about \$11.00 per ton or an average of \$21.00 per ton. The net returns after deducting smelter charges etc., would be about as follows :

For the 4 feet mentioned;

35% lead would realize	\$23.10 per ton.
16.20 ozs. silver	15.00 " "
5.15% copper	10.00 " "
Gold	2.80 " "
	<hr/>
	\$50.80 " "

For the remaining 20 feet:

4% lead would realize	\$2.62 per ton
4.2 ozs. silver	4.00 " "
Gold	1.50 " "
	<hr/>
	\$8.12 " "

or an average for the entire 24 feet of \$15.25 per ton after deducting smelter charges.

The cost of mining should not exceed \$5.00 per ton and the cost of transportation to the smelter will be about \$3.00 per ton. Allowing 10% for overhead will bring the cost of mining and shipping to smelter to about \$8.80 per ton, leaving a profit of \$6.45 per ton. The present equipment can produce 30 tons daily. If a small concentrating plant were installed and the present plant increased to supply the concentrating plant to a capacity of 150 to 200 tons daily, this ore can easily be concentrated 5 to 1 and the concentration delivered to the smelter at a cost of about \$40.00 per ton of concentrates yielding about \$75.00 per ton in gross values, giving a net profit of about \$25.00 per ton concentrates.

If the values and ore body are proven at the bottom of the present shaft to be similar to the values and ore body at the 50 foot level, and it is fair to assume such will be the case, then the possible ore can be estimated at about 150,000 tons which would justify increasing the mining equipment and erecting a mill and concentrating plant and I strongly recommend that the present shaft be continued to a depth of 320 feet and development commenced at 300 feet and continued in both directions along the ledge. However, if financial arrangements cannot be made at this time for this work, then I would suggest commencing a tunnel about 10 feet above the bottom of the present shaft in a westerly direction to cut through the ledge to the hanging wall side and drift along the ledge north and south as far as possible thereby proving same at a depth of slightly more than 100 feet.

EQUIPMENT:

There is a complete equipment on the property for this work consisting of:

- 1 - 32 H. P. Fairbanks-Morse Compressor Gasoline Engine.
- 1 - 10" X 12" Sullivan Air Compressor.
- 1 - 12 H. P. Hoist, Fairbanks-Morse.
- 1 - No. 5 Cameron Pump connected in the shaft.
- 1 - 3" Station Pump, Fairbanks-Morse.
- 1 - Air Receiver.
- 6 - Galvanized water tanks, 300 to 15,000 gals. capacity.
- 1 - 40 H. P. Boiler.
- 2 - Sullivan Machine Drills, complete with 50 ft. of hose each.
- 1 - Water Line Machine Tank.
- 65- Machine Drills, all sizes.

EQUIPMENT Cont'd.

1 - Dynamo. 115 volts.  
Complete Blacksmith outfit, Buffalo Blower, tools etc. also  
4 - Ore Buckets, 1400 lbs. capacity, rails, wheelbarrows,  
picks, shovels etc., all in good condition.

The entire equipment is well housed, galvanized iron building, cement floor, ready for immediate use.

A Store and boarding house, 3 good dwellings, all frame, and some shacks.

The water is suitable for domestic use, and there is sufficient for milling purposes. A small still might be used for distilling the water for domestic purposes, but is not absolutely necessary.

CONCLUSION:

Considering the surface conditions of the Camp-site and mill-site and its location as to transportation, wood and water, I would say that its equal is difficult to find, while the present ore showing both as to size and value and the possibilities of a very large tonnage of future ore together with the small, but complete, equipment now on the property ready for use, complete in my opinion the most attractive beginning of a large and valuable mine for many years.

Submitted by me this 20th day of September 1920, at the Santa Rita Hotel, Tucson, Arizona.

Walter M. Woodburn, M. E.

## Report on Grand Mogul Mine

(Locally known as Stump)

Consists of a group of 7 claims: Grand Mogul, Grand Mogul Nos. 2, 3, 4, 5, 6 & 7. The group was surveyed for patent, U. S. Mineral Survey No. 3887. The Grand Mogul and the Grand Mogul No. 5 were patented. Located in the Silverbell Mining District, 45 miles northwest from Tucson, Pima County, Arizona, 18 miles west from Red Rock, the shipping point, on the Southern Pacific railroad. Good Country roads traverse the property.

The mine is located on level ground and is ideal for campsite. Trained labor is plentiful and cheap. The climate conditions permit operations continuously for the entire year. Sufficient water for all uses, including, with conservation and impounding, and settling tanks, a 100 ton mill. This water is obtained in the shaft, and is at present at the 90 foot level. It was discovered in operation, that the water was in the ledge matter, and was easily controlled and was not a menace to the workings.

The District is classified, generally, as a copper District. There are and were several operating mines in the vicinity of the Grand Mogul, especially to the south from the Grand Mogul, to and including the American Smelting and Refining Company's Silverbell, from which the District derives its name. The ledge containing the ore, runs in a line from the Grand Mogul to the Silverbell, as evidenced from shafts and excavations along the ledge; the ore bodies being characteristically the same on the surface levels, all containing considerable values in gold, silver and lead. At a greater depth the values change to copper. The Silverbell is credited with production of several hundred thousand dollars in high grade silver and gold and galena in the upper levels.

Alluvial deposits on the property prevent a superficial examination. However, in the shafts and excavations, and surrounding country, determination was exceptional values in gold, silver and lead. A contract replacement fissure traverses the entire length of the property at 4500 feet, striking N - 16' E, dipping west approximately 70'.

The shaft is well timbered, inside measurements 5' X 7', to a depth of 220 feet (W. S. Mineral Survey # 3887); has all necessary air and water pipes and ladders; follows foot wall entire depth, and was sunk in ore in its entirety. The foot wall is coarse granite. The hanging wall is an intrusive fine grained andesite. This intrusion undoubtedly shattered and altered the granite on the contact, thereby allowing a circulation of later mineralized solutions, replacing the shattered and broken granite with galena, calcite, silica and barite, and this has been leached at the surface to considerable extent.

On the 50 foot level, the ledge is 25 feet wide, cross-cut in two places, the values increased at this point, and it was recently found that vanadium was in the ore, to a percent that was valuable. And early sample by H. S. Shotwell, described the ledge as 24 feet wide; gold .02 @ \$20.67, silver @ \$1.01 oz. lead 6%

sample 12e 1b. the first four feet from the foot wall

copper 12c lb., the first four feet from the foot wass would realize \$73.00 per ton, the remaining 21 feet would realize \$11.00 per ton. This sample did not include vanadium, which is the content at this point of most value. A 5 foot drift along the foot wall from the shaft to a point 100 feet discloses head and foot ore containing high grade 30% galena and 2.7% vanadium, \$5.50 gold, 4.2 oz. silver; on the hanging wall for a width of 5 feet shows gold and silver at the point of contact to be 21 oz. silver, \$35.00 gold; remaining 15 feet of ledge shows gold and silver \$5.80, 1.5% vanadium and 4.3% lead.

Water on the 100 foot level prevented an examination of the ledge. Quoting Mr. W. X. Osburn, of Tucson, consulting Engineer; who was on that level, said that water had caused cave-in and he could not see the width of the ledge, but he did see galena and vanadium more valuable than on the 50 foot level.

U. S. Survey #3847 states development on this level to be North of shaft, drift is 150 feet in length, and South of shaft, drift is 100 feet in length. An assay from South end drift by Mr. E. Eisenhauer shows lead 16.4% Silver .60 oz. gold \$2.45, vanadium 2.92%, and diminishing gold and silver values. There is no available data on the 200 foot level; U. S. Survey #3887 shows 250 foot drift north of shaft and 100 foot drift south of shaft.

Information from an operative, formerly and recently, discloses vein on 100 foot level to be 22 feet wide, and on 200 foot level to be 20 feet wide. There are 5,000 tons of good ore on dump ready for milling, at small expense, and 10,000 tons more of lesser values that can be milled at a good profit. All the work in the mine has been done in the ledge and the entire dump is ore, separated as to values.

The mine equipment consists of:

- 1 - 12 H. P. Fairbanks-Morse Gasoline motor; 250 Ft.  $\frac{1}{2}$ " cable.
- 1 - 32 H. P. " " belted to 10 X 12 Sullivan Compressor.
- 1 - 3 X 12 Air Reservoir made of steam boiler.
- 2 - 28 X 36 Iron buckets, 1200 lbs. capacity.
- 1 - 1 ton mine dump car.
- 1 - #40 Ingersoll-Rand Jack Hammer.
- 1 - #32 D. F. Sullivan Jack Hammer, both hammers have been recently overhauled and new parts installed.
- 2 - Mine dollies, considerable new track, machine steel, new water and air hoses, new water reservoir for hammers in drift; complete blacksmith shop, tools and vises, change room and shower head installed; all under good, substantial corrugated iron buildings.
- 1 - 3" Fairbanks-Morse air motored water pump in place in shaft with all connections;
- 2 - water tanks on surface, all piped and valved for supply.
- 4 - Corrugated iron buildings for housing purposes, 1 tent house.
- 1 - 5 ton White truck, lately overhauled with excellent tires.

A mill test by E. Eisenhauer of Los Angeles shows recovery of 95% of all values in the ore. This was accomplished by grinding to minus 70 mesh, with Ball mill, concentrating table. And flotation; it is necessary for flotation, in separation, specifically for vanadium, he reports the ore is amenable easily to separation and a 15% to 18% vanadium recovery was the result, and could be increased to 20 to 25% recovery. There is a great demand at the present time for vanadium and a 20% content would probably realize \$2.00 to \$2.50 per lb.

The mill on the property recently completed, was designed and constructed before the vanadium values were discovered, and it consists of:

- 1 - 24" 150 ton Gyrotory crusher.
- 1 - 24 X 28 Roller Mill (Denver Mills) 75 ton capacity.
- 1 - 18 X 24 " " " " "
- 2 - 2 ton Deister Plato concentrating tables.
- 1 - 6 H. P. Generator (disconnected).
- 1 - 12 ft. steel spider trommel.
- 1 - 120 H. P. Western, semi-Deisel motor using #4 tops-consuming 7 gals. per hour. Steel belt elevators, shafting, pulleys, conveyors. flumes and gutters, all complete. All machines erected on concrete bases and bolted down. A Jig in operation is for its purpose complete.

Equipment necessary for the concentration, 1 - 50 ton Ball Mill, 1 Deister table, 6 flotation cells, 1 sand pump of size necessary for conservation and impounding water in settling tanks, 3 large tanks in addition to the tanks in places; lumber, bolts and incidentals, with these necessary additions, 70 tons daily of 24 hours operation can be obtained, with a net valuation of ore milled, at \$15.00 per ton, requiring for improvements, pay rolls and incidentals to be in operation within 30 days, the sum of Ten Thousand Dollars.

Considering location, accessibility, volume and quality of ore, estimating 200,000 tons visible from development in the mine, the ore on the dump, the inevitable intersection of ore by a ring fissures, the continued unbroken line of ledge to the Silverbell, its great depth at the Silverbell, and the possible great depth at the Grand Mogul, its large tonnage possibilities, together with the complete equipment, I will not hesitate to say that it is the most attractive, and unexcelled proposition I have ever seen in mine operations.

H. Kelly McLauren.  
H. Kelly McLauren, E.M.

October 1935.

*Grand Mogul mine file*

*Granted*

STUMP

October 31, 1942

Silver Bell

Earl F. Hastings

Reconstruction Finance Corporation  
Preliminary Development Loan

Docket No.

C-ND-PHX 74

Date Application Received

October 21, 1942

Date of Report

October 31, 1942

1. Name and address of applicant (correspondent):  
Albert Beck, Secretary, Artesia Development Co. 4501 W. 16th Place, Los Angeles, California.

2. Character of project and estimated cost thereof:  
Dewater and repair shaft and lateral workings to and including 220 foot level to make accessible silver, lead, vanadium and copper ore, \$5000.00.

3. Location of property:  
Silver Bell Mining District, 18 miles west of Red Rock, Pima County, Arizona.

4. Applicant's interest in or ownership of property:  
Applicant has purchase agreement on a 10% royalty basis with \$100.00 per month minimum, minimum in effect following first shipment.

5. Loan requested:  
\$5000.00.

6. Loan recommended:  
\$3000.00.

7. Comments:  
(A) Added to the docket is correspondence with the applicant and a copy of a report by H. Kelly McLauren, E. M.  
(B) There is no original data accompanying the application, all reports are copies. Conditions at the property are such that further information cannot be obtained, even in sufficient amount to be used as a partial check. The following comments must necessarily be based upon the assumption of authenticity of the reports.

(C) The Woodburn report indicates a 24 foot vein of which 4 feet assays 35.1% lead, 5.15% copper, 16.2 ozs. silver, and 0.14 ozs. gold, the balance of 20 feet averaging 4.0% lead, 4.0 ozs. silver and 0.075 gold. The high grade shoot is stated to be 60 feet long on the 50 foot level. If so, an ore body yielding 80 tons per foot of depth and assaying 9.2% lead, 6.05 silver, .086 gold and 0.86% copper is evident.

The McLauren report quotes W. X. Osburn, E. M., as stating the ore on the 100 foot level "appears" of better grade than at the 50 foot level. Assuming the shoot extends from the surface to the 200 foot level there is 16,000 tons of ore available, which is approximately 1 digit short of the Woodburn estimate. Tonnage cannot be accurately calculated however, as the high grade 4 foot streak is stated to be 60 feet long and the 20 foot low grade, paralleling it, is not given a measured length, while the shaft is reported in ore and the 100 foot level south drift face in ore 100 feet from the shaft. No mention is made of ore occurrence north of the shaft although the lateral workings are more extensive in this direction.

(D) The vanadium content of the ore referred to cannot be too seriously considered in the light of the recent U. S. Vanadium survey in which it was found that accurate assaying altered the complexion of every property visited. Applying their experience record would result in an 80% to 90% reduction of vanadium content claimed, even though these claims were made in good faith.

(E) While many points of the supporting evidence must be discounted there appears sufficient fragmentary evidence, coupled with a favorable geological location, to indicate that the 50 and 100 foot levels should be unwatered and examined. The calculations in paragraph 1, Comment "C", warrant our recommendation that a \$3,000.00 loan be granted for this purpose, this amount being in our opinion sufficient to make the workings safely accessible for examination to and including the 100 foot level and possibly to the 200 foot level. The 100 foot level should be examined immediately upon being opened, and further work ceased if assays are found at variance with previously reported values.

ARIZONA DEPARTMENT OF MINERAL RESOURCES

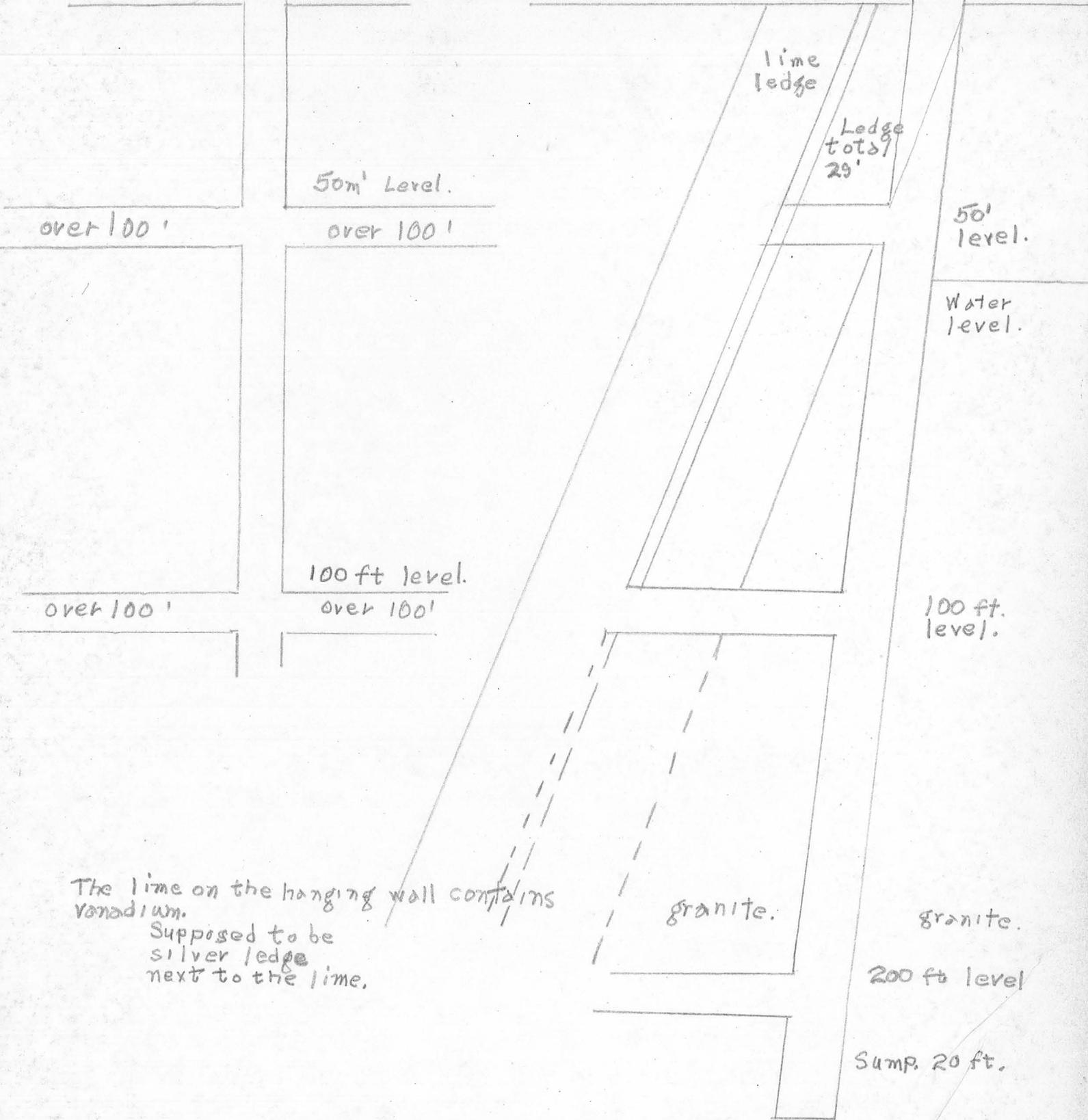
Earl F. Hastings  
Assistant Director &  
Projects, Engineer

RPH

Stump Mine.

Cross section of workings.

Shaft.



lime ledge

Ledge total 29'

50m' Level.

over 100'

over 100'

50' level.

Water level.

100 ft level.

over 100'

over 100'

100 ft. level.

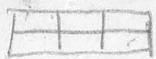
granite.

granite.

200 ft level

Sump. 20 ft.

The lime on the hanging wall contains Vanadium. Supposed to be silver ledge next to the lime.



casa Grande.

Southern Pacific railroad.



Eloy.

High-way



Depot.

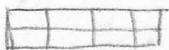
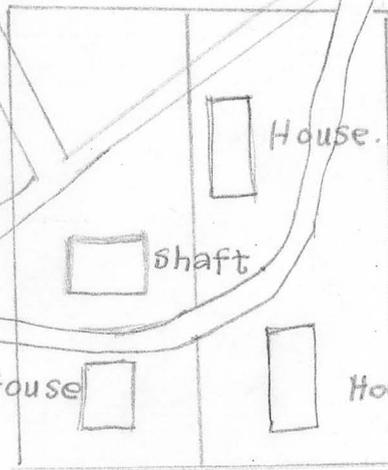
Red Rock.



Map showing wagon roads

Tucson  
Road,

- Stump Mine.
- Patented claims.
- Grand Mogul.
- Grand Mogul No 5.



Silverbell.

Silver  
Time

## Report on the Stump Mine

- - - -

The Stump Mine is a local name applied to the Grand Mogul Group of mining claims, seven in number, described as Grand Mogul and Grand Mogul Nos. 2, 3, 4, 5, 6 and 7, mining claims situated in the Silverbell Mining District, Pima County, Arizona, 140 acres recorded.

The Silver Mining District, in general, is a copper District. There are several producing mines in the vicinity of the Stump Mine. The ore bodies in these usually contain considerable lead, gold and silver ore in the upper levels, but as depth is gained the copper values increase until it becomes the principal metal. I am told that in the case of the Silverbell claim, from which the district takes its name, several hundreds of thousands of dollars were taken out of the upper levels in the form of high grade silver ore.

The Grand Mogul group of claims is situated about four miles North of the town of Silverbell and about forty miles north west of Tucson, on the County road. This road is in good condition and runs through the property about 200 feet from the main workings. The Southern Arizona R. R. from Red Rock to Silverbell passes about 3000 feet from the main workings, and, as the ground is level, a siding can easily be put in at a minimum cost. There is now a siding about  $1\frac{1}{2}$  miles from the property from which the ore from this property was shipped.

### LOCATION:

The location is an ideal one, the surface being level, on a good road, and near a railroad, and has plenty of water, at a depth of fifty feet. The climate is splendid and permits working every month in the year. Good buildings on the property, and plenty of labor obtainable in the nearby towns.

### GEOLOGY:

The geology is very favorable, although on account of the immediate country being flat and covered with alluvial deposit generally, the geological features are difficult to learn by superficial examination. However, a careful study of the surrounding country and the splendid showings on the property, make it possible to say that there is an exceptional surface showing of lead, silver and gold ore.

The claims cover 4500 feet in length of a contact replacement fissure running in a northerly and southerly direction dipping about 70 degrees to the west.

The foot wall is an old coarse grained granite; the hanging wall is lime. This intrusion apparently shattered and altered the older granite along the contact, creating a channel favorable for subsequent circulating mineralized solutions which evidently replaced the altered granite with galena, fluorite, calcite and quartz, carrying silver and gold, all of which is greatly leached on the surface.

The ledge is exposed on the surface for about 1500 feet, and has been proven by several shafts and pits 10 to 25 feet deep, all showing ore of similar character.

The main shaft is 130 feet deep and well timbered, inside measurements 5' X 7' manway 3' and skipway 4' and is sunk on the foot-wall side. A connection was made at a depth of 50 feet, it being apparently the intention of the operators to continue the shaft to a depth of 300 feet before again tapping the ledge and developing it. The shaft is not perpendicular, but is evidently paralleling the ledge in the granite foot wall, dipping about 70 degrees west. The work in the shaft demonstrated that the water is not in the granite but is in the ledge and that it will not prove expensive to control. At the 50 foot level the ledge was 24 feet wide and the values had increased somewhat and were less leached than at the surface.

The various pits and shafts along the surface of the ledge showed an average of over 4% lead, and a little over 4 ozs. in silver and about \$1.50 in gold.

Mr. Herbert C. Shotwell, E. M. in 1916, made an examination of this property and his sample test was made using surface samples from six different places along the ledge. His concentration test gave the following results:

Heads: Lead 17.10%, Silver 3.8 ozs., Gold .04 ozs.  
Pulverized to 80 mesh.  
Concentrated by panning 5 into 1.  
Recovery 65%.

Value of concentrates per ton:

<u>Lead</u>	<u>Silver</u>	<u>Gold</u>
63.2%	10.7ozs.	.06 ozs.

The test was made to ascertain whether or not the values could be saved by concentrating and oil flotation, and the result was very favorable showing a recovery of practically all the lead and about 85% of the silver. The silver is in the form of a sulphide and can be recovered by the flotation process.

The ledge at the depth of 50 feet is 24 feet wide, the first 4 feet next to the footwall is a galena ore and from a strip about 60 feet long a sample shipment of two carloads was made to the El Paso Smelter which gave the following results:

Lead 35.10% Silver 16.20 ozs. copper 5.15% and  
Gold \$2.80 per ton.

The remaining 20 feet of the ledge has a quartz- calcite- flourite gangue with spots here and there of barite and galena disseminated throughout. The remaining 20 feet averages 4% lead; 4 ozs. silver and \$1.50 in gold.

Assuming the price of metals to be as follows; Gold, \$20.67 per oz; Silver \$1.01½ per oz; Lead 6¢ per lb; and copper 12¢ per lb; the gross values for the 4 feet would be about \$73.00 per ton, and for the remaining 20 feet about \$11.00 per ton or an average of \$21.00 per ton. The net returns after deducting smelter charges etc., would be about as follows :

For the 4 feet mentioned;

35% lead would realize	\$23.10	per ton.
16.20 ozs. silver	15.00	" "
5.15% copper	10.00	" "
Gold	2.80	" "
	<hr/>	
	\$50.80	" "

For the remaining 20 feet;

4% lead would realize	\$2.62	per ton
4.2 ozs. silver	4.00	" "
Gold	1.50	" "
	<hr/>	
	\$8.12	" "

or an average for the entire 24 feet of \$15.25 per ton after deducting smelter charges.

The cost of mining should not exceed \$5.00 per ton and the cost of transportation to the smelter will be about \$3.00 per ton. Allowing 10% for overhead will bring the cost of mining and shipping to smelter to about \$8.80 per ton, leaving a profit of \$6.45 per ton. The present equipment can produce 30 tons daily. If a small concentrating plant were installed and the present plant increased to supply the concentrating plant to a capacity of 150 to 200 tons daily, this ore can easily be concentrated 5 to 1 and the concentration delivered to the smelter at a cost of about \$40.00 per ton of concentrates yielding about \$75.00 per ton in gross values, giving a net profit of about \$25.00 per ton concentrates.

If the values and ore body are proven at the bottom of the present shaft to be similar to the values and ore body at the 50 foot level, and it is fair to assume such will be the case, then the possible ore can be estimated at about 150,000 tons which would justify increasing the mining equipment and erecting a mill and concentrating plant and I strongly recommend that the present shaft be continued to a depth of 320 feet and development commenced at 300 feet and continued in both directions along the ledge. However, if financial arrangements cannot be made at this time for this work, then I would suggest commencing a tunnel about 10 feet above the bottom of the present shaft in a westerly direction to cut through the ledge to the hanging wall side and drift along the ledge north and south as far as possible thereby proving same at a depth of slightly more than 100 feet.

#### EQUIPMENT:

There is a complete equipment on the property for this work consisting of:

- 1 - 32 H. P. Fairbanks-Morse Compressor Gasoline Engine.
- 1 - 10" X 12" Sullivan Air Compressor.
- 1 - 12 H. P. Hoist, Fairbanks-Morse.
- 1 - No. 5 Cameron Pump connected in the shaft.
- 1 - 3" Station Pump, Fairbanks-Morse.
- 1 - Air Receiver.
- 6 - Galvanized water tanks, 300 to 15,000 gals. capacity.
- 1 - 40 H. P. Boiler.
- 2 - Sullivan Machine Drills, complete with 50 ft. of hose each.
- 1 - Water Line Machine Tank.
- 65- Machine Drills, all sizes.

EQUIPMENT Cont'd.

1 - Dynamo. 115 volts.  
Complete Blacksmith outfit, Buffalo Blower, tools etc. also  
4 - Ore Buckets, 1400 lbs. capacity, rails, wheelbarrows,  
picks, shovels etc., all in good condition.

The entire equipment is well housed, galvanized iron building, cement floor, ready for immediate use.

A Store and boarding house, 3 good dwellings, all frame, and some shacks.

The water is suitable for domestic use, and there is sufficient for milling purposes. A small still might be used for distilling the water for domestic purposes, but is not absolutely necessary.

CONCLUSION:

Considering the surface conditions of the Camp-site and mill-site and its location as to transportation, wood and water, I would say that its equal is difficult to find, while the present ore showing both as to size and value and the possibilities of a very large tonnage of future ore together with the small, but complete, equipment now on the property ready for use, complete in my opinion the most attractive beginning of a large and valuable mine for many years.

Submitted by me this 20th day of September 1920, at the Santa Rita Hotel, Tucson, Arizona.

Walter M. Woodburn, M. E.

## Report on Grand Mogul Mine

(Locally known as Stump)

- - -

Consists of a group of 7 claims: Grand Mogul, Grand Mogul Nos. 2, 3, 4, 5, 6 & 7. The group was surveyed for patent, U. S. Mineral Survey No. 3887. The Grand Mogul and the Grand Mogul No. 5 were patented. Located in the Silverbell Mining District, 45 miles northwest from Tucson, Pima County, Arizona, 18 miles west from Red Rock, the shipping point, on the Southern Pacific railroad. Good Country roads traverse the property.

The mine is located on level ground and is ideal for campsite. Trained labor is plentiful and cheap. The climate conditions permit operations continuously for the entire year. Sufficient water for all uses, including, with conservation and impounding, and settling tanks, a 100 ton mill. This water is obtained in the shaft, and is at present at the 90 foot level. It was discovered in operation, that the water was in the ledge matter, and was easily controlled and was not a menace to the workings.

The District is classified, generally, as a copper District. There are and were several operating mines in the vicinity of the Grand Mogul, especially to the south from the Grand Mogul, to and including the American Smelting and Refining Company's Silverbell, from which the District derives its name. The ledge containing the ore, runs in a line from the Grand Mogul to the Silverbell, as evidenced from shafts and excavations along the ledge, the ore bodies being characteristically the same on the surface levels, all containing considerable values in gold, silver and lead. At a greater depth the values change to copper. The Silverbell is credited with production of several hundred thousand dollars in high grade silver and gold and galena in the upper levels.

Alluvial deposits on the property prevent a superficial examination. However, in the shafts and excavations, and surrounding country, determination was exceptional values in gold, silver and lead. A contract replacement fissure traverses the entire length of the property at 4500 feet, striking N - 16' E, dipping west approximately 70'.

The shaft is well timbered, inside measurements 5' X 7', to a depth of 220 feet (W. S. Mineral Survey # 3887); has all necessary air and water pipes and ladders; follows foot wall entire depth, and was sunk in ore in its entirety. The foot wall is coarse granite. The hanging wall is an intrusive fine grained andesite. This intrusion undoubtedly shattered and altered the granite on the contact, thereby allowing a circulation of later mineralized solutions, replacing the shattered and broken granite with galena, calcite, silica and darite, and this has been leached at the surface to considerable extent.

On the 50 foot level, the ledge is 25 feet wide, cross-cut in two places, the values increased at this point, and it was recently found that vanadium was in the ore, to a percent that was valuable. And early sample by H. S. Shotwell, described the ledge as 24 feet wide; gold .02 @ \$20.67, silver @ \$1.01 oz. lead 6%

60 per lb., the first four feet from the foot wall

copper 12c lb., the first four feet from the foot wass would realize \$73.00 per ton, the remaining 21 feet would realize \$11.00 per ton. This sample did not include vanadium, which is the content at this point of most value. A 5 foot drift along the foot wall from the shaft to a point 100 feet discloses head and foot ore containing high grade 30% galena and 2.7% vanadium, \$5.50 gold, 4.2 oz. silver; on the hanging wall for a width of 5 feet shows gold and silver at the point of contact to be 21 oz. silver, \$350.00 gold; remaining 15 feet of ledge shows gold and silver \$5.80, 1.5% vanadium and 4.3% lead.

Water on the 100 foot level prevented an examination of the ledge. Quoting Mr. W. X. Osburn, of Tucson, consulting Engineer; who was on that level, said that water had caused cave-in and he could not see the width of the ledge, but he did see galena and vanadium more valuable than on the 50 foot level.

U. S. Survey #3847 states development on this level to be North of shaft, drift is 150 feet in length, and South of shaft, drift is 100 feet in length. An assay from South end drift by Mr. E. Eisenhauer shows lead 16.4% Silver .60 oz. gold \$2.45, vanadium 2.92%, and diminishing gold and silver values. There is no available data on the 200 foot level; U. S. Survey #3887 shows 250 foot drift north of shaft and 100 foot drift south of shaft.

Information from an operative, formerly and recently, discloses vein on 100 foot level to be 22 feet wide, and on 200 foot level to be 20 feet wide. There are 5,000 tons of good ore on dump ready for milling, at small expense, and 10,000 tons more of lesser values that can be milled at a good profit. All the work in the mine has been done in the ledge and the entire dump is ore, separated as to values.

The mine equipment consists of:

- 1 - 12 H. P. Fairbanks-Morse Gasoline motor; 250 Ft. 1/2" cable.
- 1 - 32 H. P. " " belted to 10 X 12 Sullivan Compressor.
- 1 - 3 X 12 Air Reservoir made of steam boiler.
- 2 - 28 X 36 Iron buckets, 1200 lbs. capacity.
- 1 - 1 ton mine dump car.
- 1 - #40 Ingersoll-Rand Jack Hammer.
- 1 - #32 D. F. Sullivan Jack Hammer, both hammers have been recently overhauled and new parts installed.
- 2 - Mine dollies, considerable new track, machine steel, new water and air hoses, new water reservoir for hammers in drift; complete blacksmith shop, tools and vises, change room and shower head installed; all under good, substantial corrugated iron buildings.
- 1 - 3" Fairbanks-Morse air motored water pump in place in shaft with all connections;
- 2 - water tanks on surface, all piped and valved for supply.
- 4 - Corrugated iron buildings for housing purposes, 1 tent house.
- 1 - 5 ton White truck, lately overhauled with excellent tires.

A mill test by E. Eisenhauer of Los Angeles shows recovery of 95% of all values in the ore. This was accomplished by grinding to minus 70 mesh, with Ball mill, concentrating table. And flotation; it is necessary for Flotation, in separation, specifically for vanadium, he reports the ore is amenable easily to separation and a 15% to 18% vanadium recovery was the result, and could be increased to 20 to 25% recovery. There is a great demand at the present time for vanadium and a 20% content would probably realize \$2.00 to \$2.50 per lb.

The mill on the property recently completed, was designed and constructed before the vanadium values were discovered, and it consists of:

- 1 - 24" 150 ton Gyrotory crusher.
- 1 - 24 X 28 Roller Mill (Denver Mills) 75 ton capacity.
- 1 - 18 X 24 " " " "
- 2 - 2 ton Deister Plato concentrating tables.
- 1 - 6 H. P. Generator (disconnected).
- 1 - 12 ft. steel spider trommel.
- 1 - 120 H. P. Western, semi-Deisel motor using #4 tops-consuming 7 gals. per hour. Steel belt elevators, shafting, pulleys, conveyors. flumes and gutters, all complete. All machines erected on concrete bases and bolted down. A Jig in operation is for its purpose complete.

Equipment necessary for the concentration, 1 - 50 ton Ball Mill, 1 Deister table, 6 flotation cells, 1 sand pump of size necessary for conservation and impounding water in settling tanks, 3 large tanks in addition to the tanks in places; lumber, bolts and incidentals, with these necessary additions, 70 tons daily of 24 hours operation can be obtained, with a net valuation of ore milled, at \$15.00 per ton, requiring for improvements, pay rolls and incidentals to be in operation within 30 days, the sum of Ten Thousand Dollars.

Considering location, accessibility, volume and quality of ore, estimating 200,000 tons visible from development in the mine, the ore on the dump, the inevitable intersection of ore by a ring fissures, the continued unbroken line of ledge to the Silverbell, its great depth at the Silverbell, and the possible great depth at the Grand Mogul, its large tonnage possibilities, together with the complete equipment, I will not hesitate to say that it is the most attractive, and unexcelled proposition I have ever seen in mine operations.

H. Kelly McLauren.  
H. Kelly McLauren, E.M.

October 1935.