



## **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)

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December 9, 1942

I wrote Broadgate in detail regarding your case and I believe that if you can show that the proposed drift tunnel is on the vein and in ore, even though it may not be pay ore, and that the shallow shaft shows a continuation of the mineralization, and present this data showing the width in values of the mineralization so encountered, it will be possible to have the case reopened and have consideration given to the "B" loan of the Mount Union.

This may call for the expenditure of a little money and time, but I do think the favorable reply to your application hinges on your being able to provide this particular information, even though the property was examined by a Reconstruction Finance Corporation engineer previously.

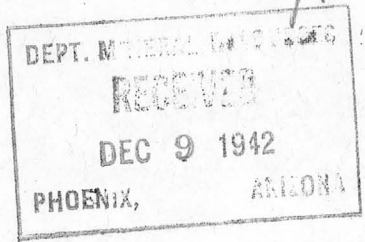
There is one thing we must bear in mind, Mr. Airheart, and that is that the Reconstruction Finance Corporation is limited by technical points which they have to consider. Your case seems to be one of these where technically they cannot grant a "B" loan to examine your property and they have indicated the way in which you can comply with this particular phase of the rulings.

Very truly yours,

J. S. Coupal  
Director

JSC:kk

Washington, D.C.  
Dec. 5, 1942



SUBJECT: Mine Loans, Class B  
Bocket B-ND-4311  
Mount Union  
Airheart

This application was delayed due to one of the Engineers leaving for South America and tucking it away where it was only just discovered and it will go to the Board in a few days. Just an accident.

Confidentially, this is slated for turndown.

I talked to the man who is handling it and he stated that he would be pleased to reopen the case if there is a showing as stated in the Coupal memo, and on the basis that the man has started the drift on his own.

What will be needed is a sketch showing the vein and the shaft, ~~check~~ the 10 ft shaft mentioned and the drift, in proper relation to each other, and assays from samples taken by our engineer showing that the new workings are in ore and that ore shows in the shallow shaft, ~~which~~ a report somewhat along the line of Coupal's memo.

Evidently in the original application (the file was not available so I did not see it) there was no indication of ore where the drift was to be started, and as you know, under the development rules, the work must be in ore.

With the new information as outlined above, Airheart can send in and request that the case be reopened.

Understand that no formal action of the Board has been taken so that my statement is entirely unofficial.

I can readily see why the tunnel will be the best way rather than a C loan to get into the old workings, and I think the Examiner will be of the same mind if he can technically approve the deal because of having a face of ore to work on, or good showings.

Bill Broadgate

December 3, 1942

*H*

MEMORANDUM

SUBJECT: Class "B" Loan  
Docket B-ND-4311  
Mount Union Mine  
Ralph A. Airheart  
(correspondent)  
315 North Coronado Street  
Los Angeles, California

TO: W. C. Broadgate

FROM: J. S. Coupal

Mr. Airheart called at the request of Grace Sparkes to talk this loan over with Mr. Willis and myself.

The property was examined on September 5 and no reply has been had since then.

This is an interesting case, as from the data submitted on the "B" application, copy of which Mr. Airheart showed me, it was self-evident that the underground workings of this mine could not be examined due to water and cave condition of the workings. On the strength of the data presented, however, the Washington office authorized an examination even though it was carefully pointed out that the workings were inaccessible. The application is for a loan to drive a 650 foot drift tunnel in on the vein and cut the shaft of the lode workings at a low point. This drifting tunnel has been started and is only in 10 or 20 feet. Evidence shows, however, that the mineralization in the vein occurs at the portal of the proposed 650 foot drift tunnel. Further evidence of the continued mineralization in this vein is shown by a 10 foot shaft on the vein about 100 feet up the hill from the portal of the proposed tunnel and at a distance of 400 to 500 feet from the old mine workings.

If the examination of the data presented warranted authorizing a field examination, in view of the fact that it was stated that a field examination would find the workings inaccessible, it then seems as though a decision could be made on this loan without the delay since the examination of September 5.

This may be a case where the 5-d-2 Amendment to the RFC Act could be employed. I imagine this particular loan must have been held up in the Legal Department, as it evidently does not fit all of the requirements of a "B" application. If that is the case, then I think a decision should be considered in light of the 5-d-2 Amendment.



W. C. Broadgate

-2-

December 3, 1942

You are probably well acquainted with the Mount Union Mine. It has had production and it presents enough data to indicate that a sizeable production could be obtained and also that under the conditions, it would not be economically sound to attempt to reopen this mine in any other way than to put in a drift tunnel as suggested.

Mr. Airheart also stated that when and if the mine is opened up, it will call for an "A" loan to equip with a mill.

I would appreciate your looking into this particular application.

# YAVAPAI COUNTY COUNCIL

## ARIZONA SMALL MINE OPERATORS ASSOCIATION

THE SMALL MINE OF TODAY IS THE PRODUCER OF TOMORROW

### EXECUTIVE COMMITTEE

#### ACTIVE MEMBERS

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FRED GIBBS  
ALBERT H. MACKENZIE  
H. F. MILLS  
H. C. MITCHELL  
O. E. SIMMONS  
GRACE M. SPARKES  
HARRIE B. STEWART  
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HON. JOHN R. MURDOCK  
HON. THOMAS E. CAMPBELL

Prescott, Arizona

November 28, 1942

HEADQUARTERS: GROUND FLOOR  
OF THE COURTHOUSE, PRESCOTT,  
ARIZONA.

ADDRESS . . . P. O. BOX 346  
TELEPHONES . . . 180, 775

#### OFFICERS

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W. C. BROADGATE  
VICE CHAIRMAN  
HOMER R. WOOD  
SECRETARY-TREASURER  
GRACE M. SPARKES

Mr. Sam Coupal, Director  
Arizona Department of Mineral Resources  
413 Home Builders Building  
Phoenix, Arizona

Dear Mr. Coupal:

This will serve to introduce Mr. Ralph A. Airheart whose permanent address is 315 North Coronado Street, Los Angeles, California. Mr. Airheart, as I told you over the telephone today, is interested in the development of the Mount Union properties owned by Mr. Frank Wilson. He has arranged for a "B" Loan and his property is docketed as B-ND-4311. He will explain in detail to you the program that he expects to make. It seemed to both Mr. Nebeker and myself, that it was logical for him to meet you inasmuch as he had all of his papers, reports, and RFC correspondence with him. It is possible that final decision has not been reached upon the application, pending the outcome of some of the newer types of loans, which you and Charlie outlined that are in the offing. It is also possible that perhaps he should have started with a preliminary loan first, but in any event, because the matter has reached the stage where the examination has been completed by the RFC Engineer and apparently only final action is necessary, we both felt it would be best for him to confer with you personally and then to ask that you request Bill Broadgate to check the matter in Washington.

Will you kindly make a point to see that Mr. Airheart meets Charles Willis? Mr. Airheart has come to us very highly recommended by Senator W. E. Patterson. We are all most anxious to see some mining action take place in the Senator district and this would be the means, if Mr. Airheart's loan is approved, of really starting something in this very worthwhile district.

Thanking you for any courtesy and help that you may be able to render to Mr. Airheart and with kindest wishes, we are

Sincerely,

YAVAPAI COUNTY COUNCIL ASMOA

Grace M. Sparkes, Secretary

GMS:ec  
An Organization interested in the problems of those who operate mining properties in Arizona.

Yavapai County has a mineral production record of \$551,630,685 from 1880 to 1939 according to records compiled by the United States Geological Survey.

*(Mt. Union Mine)*

*Handled Repl. 5  
Chas E. Patton  
Admstrator C. M.  
Baldwin  
L. J. Miller*

**DEPARTMENT OF MINERAL RESOURCES**  
**STATE OF ARIZONA**  
**FIELD ENGINEERS REPORT**

Mine      Mount Union

Date      March 4, 1952

District    Hassayampa

Engineer    Mark Gemmill

Subject:    Present Activity

OWNERSHIP

The property consisting group of Patented and unpatented claims is owned by Frank Wilson and W. E. Patterson, Prescott. Is now under lease and sale contract to Reorganized Silver King Mining Co. Harry V. Snell, Pres. Nolan Deasy, Supt. Prescott, Ariz.

HISTORY

It was first worked in the 90s. A shaft was sunk 600 ft. on the vein and levels run at 100 ft. intervals. A stamp mill was built and considerable ore was stoped and milled. There is no available record of production but operations ceased about 1905.

Present OPERATIONS

Present operators commencing in 1951 drove a drift tunnel about 1200 ft. which tapped the old workings 15 ft. below the 500 ft. level. Not much of the old shaft and drifts are accessible. The 600 ft. level has not been unwatered. A new raise has been driven from the new tunnel level to the 4th. level and it is planned to extend this raise to the 200' level where it will connect with an adit tunnel. This will improve ventilation and afford another entry to the mine.

ORE DEVELOPMENT

The main orebody which was on both sides of the old shaft appears to be stoped out. Drifts are being extended both ways on the new tunnel level and to the south on the 400 ft level. The drifting to the south is on an off-shoot vein and leaves the main tunnel a short distance from the old shaft. These faces show from one to three ft. of what the operators call mill ore. The ground is loose and all workings are closely timbered. No tonnage estimate was given by the operators of what is now developed.

PRODUCTION

One lot of about 100 tons of ore taken from development was sent to the Hillside Mill for test work. Assay values were not given but the operators state that the mill test was satisfactory. The ore contains gold, silver, copper, lead and zinc.

EQUIPMENT

The property is well equipped for present operations, with Diesel driven compressor, muching machine, good drilling equipment, good cars and rails. It has a storehouse and change room. All of the work has been well done. About 2 miles of good new road was built taking off to the east from the Senator Hiway just above Venezia, to the Tunnel site. The total distance to Prescott is about 20 miles.

COMMENTS

The success of this venture will depend on the grade and amount of ore that can be found. The operators seem to be well financed and plan extensive exploration of the property. 8 men are employed at present.



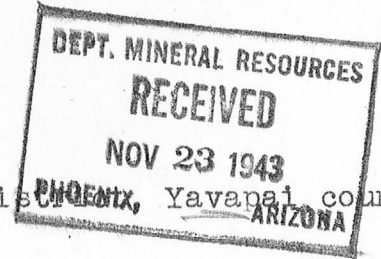
November 21, 1943

MEMORANDUM

To: J. S. Coupal

From: B. W. Brown-Field

Subject: Mt. Union Mine, Hassayampa Mining District, Yavapai county, Ariz.



In response to your recent request for an estimate on the proposed "rawhiding" of the Franklin tunnel of the Mt. Union to connect with the Mt Union main shaft.

You undoubtedly have a map on file showing this proposed connection and, if you have the same map that is now before me, you will note that the proposed tunnel is to connect with the 600 foot level. I was informed by Mr. Frank Wilson that the part of this map which shows the lower tunnel is a subsequent addition and is based only on an estimate of what is believed to be the picture. Such must indeed be the case. Without making a survey and basing my estimate only on rough barometric and Brunton work I believe that an extension of the lower tunnel on water grade would contact the main shaft somewhere between the 450 and 500 foot levels with a good chance of breaking into the old stope shown and with all of the implied dangers. If an accurate and checked survey shows this condition to be true, I would not recommend that the tunnel be extended at all but that a new tunnel site be selected at an elevation which will establish a good water grade connection with the 500 foot level workings. I am assuming that the purpose of this tunnel is to make a mine out of the Mt. Union in the most economical way and at the same time affording adequate haulage and drainage facilities and also leaving the door open for future development. I believe that a suitable tunnel site can be chosen without adding too much to the tunnel length.

Connecting with the 500 will shorten the tunnel measurably and take advantage of nearly 800 feet of existing development work. It is not believed economical to lower the tunnel site further to connect with the 600 level as this might possibly increase the tunnel length another 1,000 feet. Of course you understand that to effect such a connection there would have to be an extant survey on the 500 tied to a permanent surface reference in which confidence may be placed.

Briefly, this is distinctly not a rawhiding proposition. However, once the work is lined out from an engineering standpoint, then considerable rawhiding may be done in the actual accomplishment. For instance; it will be reasonable to assume easy driving as far as drilling is concerned, it is, also, reasonable to believe that not much powder will be necessary to pull a round. Offsetting this economy, the tunnel will have to be timbered all of the way. There is sufficient timber standing to do this.

It will probably be necessary to clean up 200 feet of drift



before contacting the shaft. The shaft will eventually have to be reclaimed to comply with law and ventilate the mine. I am not including this work in the picture, however.

The tunnel will have to be ventilated with a booster fan and that means power. Power means machinery, and machinery spells road. There is no way of getting around it, a road to the portal of the proposed tunnel will be necessary for economic work. There are two possibilities for a road. One is to come down from above, extending the Mt. Union access road. This would be by far the shorter and cheaper construction. The other would be to come up from Venezia with a differential elevation of about 575 feet with about a mile to a mile and a quarter of new road construction which might possibly be built with county participation at a total cost to the mine ~~at~~ in the neighborhood of \$2,000. I would recommend that the latter road be favored for the following reasons; future use, and accessibility of timber.

I do not know what equipment the mine might have other than 4 or 5 hundred feet of anchored 8# trackage. I am figuring as if the operation were from scratch. I am also estimating on the basis of only 1,000 feet to make the connection and it may in reality be several hundred feet more.

Labor ( drifting, timbering, installing, but not cutting timber, ties or raising rails )	.....\$ 6, 340
Explosives	..... 500
Equipment ( compressor, drifter, hose, fan, tubing )	..... 1, 250
Pipe, track, cars, tools etc.	..... 425
Power and fuel	..... 800
Timber ( laid at the portal )	..... 600
Engineering, insurance, contingencies	..... 1, 000
Management	..... 800
	<u>\$11, 715</u>

This is really cutting it pretty thin. This is a possible estimate contingent on a road, a certain amount of rawhiding, and a 1,000 foot length, and not too much cleaning up or reclaiming to be done in the drift.

As I believe the length will be found too short, and the south drift on the 500 in not too good condition, I would rather say that it will probably cost the mine a total of \$15,000 ( fifteen thousand dollars ) to realize this purpose ( to have an adit tunnel on water grade connecting with the main shaft at the 500 level ). This figure is to include the construction of a road with county participation of half.

*B. W. Brown*  
B. W. Brown FIELD

EDGERTON WYKOFF & CO.  
618 S. Spring Street  
Los Angeles 14, Cal.  
TRinity 1694

May 15, 1952

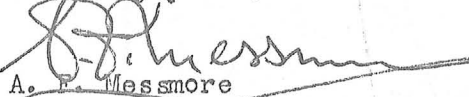
To our Clients holding Reorganized  
Silver King Divide Mining Company:

Attached is a copy of a report on the Company's Mt. Union property recently prepared by John Daniell, E.M. Mr. Daniell, you may recall, is the Mining Engineer who made the original analysis of the property before Silver King undertook the operation in the fall of 1950.

According to Mr. Daniell the property is now ready for volume production and he recommends immediate construction of a mill to handle the ore. His estimate of \$1,282,250.00, value of already developed ore after dilution, mining and delivery-to-mill costs, would certainly appear to justify such a step. His expectancy of a \$1,500 per day operating profit with a 100-ton mill in operation is most encouraging. Such a performance would produce earnings per share on the Company's stock that would be quite impressive in relation to its current selling price.

We have been informed that the Directors of the Company intend to follow the Daniell recommendation, and immediately take steps towards construction of the mill.

Sincerely yours,

  
A. F. Messmore

This is not intended to be an offer to sell or a solicitation of an offer to buy securities. Any statement, opinions or interpretations with reference to securities are based on information obtained from recognized independent statistical organizations and other sources, which, though not guaranteed by us as to authenticity, accuracy, completeness or soundness, are believed to be reliable.

## Progress Report

Mount Union Mine

Yavapai County, Arizona.

John Daniell, E.M.

May 9, 1952.

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The writer examined the Mount Union Mine in 1950 before the Reorganized Silver King Co. began its operation and development of the mine after it had been idle for many years.

At that time the workings were practically all inaccessible.

The geological conditions as exposed on surface were in strong evidence and indicated what has since been borne out by development and underground workings, that a strong vein system was on the property and that the same was well mineralized in many places, and in addition, that a long ore shoot carrying good commercial values was on the property, which shoot (600'+) had been formerly worked in the mine and had yielded a very creditable production. (Recent work has shown the ore shoot 200' longer and continuing).

The type of ore, past production, ore tonnage left in the mine, broken and unbroken, as shown by reports of reputable engineers all tended to make a very favorable impression so that, no other than a favorable report could, in justice to the mine and property be made, purely on the merits involved.

Such an opinion was expressed and given.

Changed economic conditions and advanced prices of the contained minerals, since formerly worked, for gold, silver, lead, zinc and copper emphasized the fact that the ore in the mine had become an unusually good commercial grade of ore which warranted re-production from the mine.

A development plan was approved for the driving of a 1300 ft. adit at an altitude which would cut the old workings at about the 515 ft. level and also drain the workings above that point. This work has been accomplished. Two other cross-breaks or veins were cut in this work showing encouraging values. Also a New Vein, named No. 2, was cut on the 515 lv., which is very encouraging. Also a Raise was made up to the 400' lv. and cut the edge of the old stope, the broken ore therefrom showing very good values. The drift on the 400' lv. has been extended 160', which shows excellent ore, some of very high value.

The No. 2 vein has been drifted on for 102' and all in above-average grade ore. This find is most encouraging and adds to the potential value of the mine.

Another opportunity to examine the mine was made with the object of checking on the work done, suggests points in the mine for raises, also for a raise for a second exit and provide better ventilation and means to enable the ores in the old stopes to be available for milling when advisable. Also to advise if a mill was needed and if production could be sustained.

It now appears from an inspection of the mine that the old workings were contacted at one point and that additional development work has been done on the 515' lv., on the 400' lv. and on No. 2 vein and a raise up to the 400' lv.

On the 400' lv., the drift has been extended actually 192', but about 32' at least through a faulted zone which separates the old ore shoot from what seems the new one. Indicated values from assays on file and apparently taken regularly and consistently, average close to \$46.00 per ton except in the broken up zone. Good ore still shows in the breast of the drift.

Work on the 515' lv. was suspended to explore the No. 2 vein. To date, 102' of work has been done and the breast is still in good ore. The width of vein varies, but averages over 3'. Contained values are good and the assays taken show values over the 102' of \$45.66 per ton at the new lead price.



Samples from broken ore cut in the raise to the 400' lv. yielded \$29.42 per ton which largely confirms the reports of past engineers as to the values in the ores left in the old stopes and broken.

Since commencement of operations re-development work done, has been:

1300	ft.	in haulage adit.
192	"	on 400' lv.
102	"	on New No. 2 vein on 515' lv.
115	"	raise, 515' lv. to 400' lv.
50	"	raise & crosscut to cut No. 2 vein above 400' lv.
1759	"	new development work accomplished.
3900	"	indicated old workings.
5659	"	= total old and new workings in the mine.

It is very doubtful if this over-a-mile of workings could be duplicated at the present time for less than \$300,000.00.

The intersection, resulting in the finding of vein No. 2 is most significant.

The surface and associated geology had made its finding a pronounced expectation, but finding it with high mineral content and values bespeaks for substantial ore tonnage increase in the mine.

Its strike varies somewhat, but averages about N. 35° W.

Its dip also varies from S. 75° E. to N. 85° W. and in places it is vertical. In the intersection zone on the 400' lv. where it cuts the main vein or vice versa, as it is not fully demonstrated which vein cuts the other, the ground is very disturbed and shattered for some 60'.

The new raise-crosscut combination from the 400' lv. should soon cut the vein and give a definite determination of its trend and dip.

The two veins are quite alike in structure and mineralization although the main vein dip, 45°, is much flatter although it too shows some variation.

Sampling: No attempt was made to sample the whole workings as the company has made it a policy of assaying constantly even in low-grade ores. A few samples were taken as a means of comparison at about same place. They are:

Number	Gold oz.	Silver oz.	%Lead	%Zinc	Value	Comparison \$
400 - S-B	0.22	0.66	0.55	1.45	\$14.90	\$ 9.88
400 - S-165	0.04	0.14	0.60	1.70	9.34	6.02
400 - S-204	2.72	3.38	6.05	10.10	152.76	106.18
515 - B-B	0.24	1.11	3.45	5.92	41.20	43.72
515 - B-25	0.52	0.63	1.94	4.35	41.37	40.75
515 - B-75	0.18	0.00	1.64	2.25	19.30	33.50
Averages of writer and company. Reasonably close.					\$46.44	\$40.01

400 - S-B	= Breast at South drift 400' lv.	
400 - S-165	= 165' from raise.	
400 - S-204	= South of raise at station 204.	Widths average 40" except
515 - B-B	= At breast of Branch Vein (No. 2)	400-S-204 which is 18" on hanging.
515 - B-25	= Back 25' from breast.	
515 - B-75	= Back 75' from breast.	

The sampling indicates that the general sampling throughout the mine is conscientiously done. The average of 102 samples taken is \$28.90 (arithmetical) and 10 of which are under \$2.00.

The Situation: The present situation obtaining is that the company now has a nice plant installed for development work and housed. Work has been thoroughly done and the equipment on hand is sufficient to carry on development. There is a change house, warehouse and work house, a 2½ ton truck, 6 mine cars and compressor, several drilling machines and a full complement of tools. All seemingly in nice condition.



The main haulage tunnel has reached its objective and the mine is drained to the 515' level. New Development work has extended the ore shoot at the 400' lv. and No. 2 vein has proven over 100', so far of very fine ore. This find is most significant and greatly increases the potentiality of the mine.

Roads have been built and improved. Work to reopen old stopes and workings has not been done too aggressively, but it is imperative to do so.

Power from Colorado River is within a short distance of the mine. Preliminary discussions for its extension to the mine have taken place. A tentative cost of from \$2,500-\$3,000. has been indicated.

The prevailing high prices for contained values in the ore more than justify production activities. A mine with more than a mile of workings cannot be considered a small mine, particularly where good tonnages of good grade ore exist. And especially where extensions of ore on the two veins is very probable and where greater depth can be expected because of associated geology and type of mineralization. Other nearby mines are considerably deeper.

Ore Tonnages: Reports by competent engineers familiar with the mine when worked state that the old stopes in the mine contain 9000 tons of broken ore. This ore, per Brooks and Peach and others, might easily run to \$27.00 per ton combined gold, silver, lead and zinc values. This value might be conservatively placed at \$20.00 per ton and delivered at the mill for \$3.50 per ton.

Also, 10,000 tons of unbroken ore in the stopes as per reports and data with a value approximating \$45.00 per ton judging from past milling operations, since which time there has been large increases in the prices of gold, lead and zinc. This ore, with attending costs and dilution, should be delivered to the mill at a very conservative value of \$30.00 per ton.

Between the 500' and 600' levels there is a solid block of ore with known expectations of 600' long X 100' high X 3' wide. This should provide ore of at least 12,500 tons aside from the No. 2 vein. This too should be delivered to the mill for \$30.00 per ton. (An allotted cost of \$15.00 per ton which includes mining, dilution and moving it to the mill even if the mill is placed beyond the mouth of the tunnel). This tonnage figure does not take into consideration ore from No. 2 vein which, to date, averages \$46.50 per ton, nor the seemingly new ore shoot developed on the 400' lv. which also shows values of over \$46.00 per ton.

These occurrences are of great potentiality.

While 20,000 tons of ore might readily be found associated with vein 2 and new ore shoot showing on the 400' lv., it would be more conservative to allow 10,000 tons of \$46.50 ore and to be delivered to mill at a \$35.00 value rating.

The shaft dump probably contains 20,000 tons of discarded ore, assays indicating up to \$9.50 per ton. There should be 10,000 tons delivered to the mill for \$3.00 per ton. There are 3,500 tons on the tunnel dump, some of which is known to run high, but should average in excess of \$15.00 per ton. This should be handled to mill for \$2.00 per ton.

There is then - at least very probable:

	<u>Gross</u>
9,000 tons Broken stope filling delivered to mill, value \$16.50, or	\$148,500.00
10,000 " Stope ores, \$30.00 delivered to mill, or	300,000.00
12,500 " Between 500' & 600' levels at \$30.00 delivered to mill, or	375,000.00
10,000 " No. 2 & 400' lv. new ore shoots \$46.00 " " " at \$35.	350,000.00
10,000 " Shaft dump, discounted 50%, mill delivered at \$9.50, or	65,000.00
3,500 " Tunnel Dump, \$15.00 ore, mill delivery \$2.00, or \$12.50	<u>43,750.00</u>
	55,000 tons delivered to mill with gross value of \$1,282,250.00
	Average value delivered to mill \$23.35 per ton
	Value, eliminating shaft dump 27.09 " "

Dilution, mining and delivery to mill costs are included in above figures and deductions made.

Milling: This operation, on the type of ore in the mine should be rather simple. The ore is not hard to grind. The lead and gold values should be mostly saved

by tabling after grinding and classifying to about 40 mesh. The balance should be reground to 100-150 mesh and handled by selective flotation. Assays show gold-silver values are associated with the lead. Should much free gold be found, amalgamation plates or Denver jigs could be used. The ore carries a small amount of copper as a whole, hardly sufficient to be of commercial value up to the present. What there is might be saved through selective flotation. In the mine, an increase of copper content with depth might be expected as other nearby mines with greater depth are reported to carry better copper values.

In milling, a recovery of 90% can be anticipated which on general "run of mine" ores should result in recovery of values of \$24.38 per ton. This is contingent somewhat at the start in some selectivity in mining and in proper efficiency in milling operation. If iron sulphide is eliminated in concentration, the ratio of concentration would be about 1 : 10.

In addition to mining, dilution, delivery to mill, other costs would probably be as follows:

Labor	\$125.00	per	day.
Supplies	62.50	"	" (incl. power).
Overhead	36.00	"	"
Replacements	25.00	"	"
Acct. Delays	20.00	"	"
	<u>268.50</u>	=	approximate milling outlay per day.

Some reduction might be effected if crushing could all be done on Day Shift, using a larger crusher and bins.

Depreciation, Depletion, Insurance, Social Security, Legal and Taxes are so dependent upon other things that an estimation must necessarily involve some assumption. The following is submitted as an approximation per ton basis (on a 100 ton basis):

Depletion	\$0.50	per	ton
Depreciation	0.50	"	"
Insurance	0.05	"	"
Social Security	0.05	"	"
Legal, Engineering, Executive	0.25	"	"
Taxes	1.00	"	"
Emergencies, Extras	<u>1.00</u>	"	"
	\$3.35	"	"

It is probable that the Federal Government will forego taxes until investment costs are repaid. Application for this preferential treatment should be made.

Milling costs should approx.	\$2.68	per	ton
General " " "	<u>3.35</u>	"	"
	\$6.03	"	"

This does not include so-called mining costs.

So many factors are involved in estimating mining costs that it is necessary to consider each level ore separately as some ore is already broken in the stopes, some ore is available for breakage in old stopes, some will require raising and some sinking operations, some further development. The dump ores require only loading and trucking. The same applies to dilution. An attempt to be practical and conservative was made in such estimates which ranged up to as high as \$15.00 per ton. Such estimates were taken from the assays and values in the particular area which was thought better because of varied conditions obtaining. Cost figures are reduced to the following:

Average ore value per ton after mining, etc. deductions	\$24.38
Milling and general costs	<u>6.03</u>
Indicated Profit	\$18.35

Allotment for additional safety account of development programs, geological changes, price changes, smelting and trucking, per crude ore basis per ton	\$ 3.35
Expectant Profit Per Tcn	\$15.00

It is only fair to the mine to say that excessive allotments to costs and other



deductions have been made as for mining, taxes, depreciation, extras, emergencies, etc., and net profits might be appreciably higher after an efficiency standard has been reached. Operating on a 100-ton basis, a daily profit of \$1,500.00 should be expected.

Development: Before a production operation can be started, a second exit from the mine must be made or provided and it is proposed to raise to intersect the 200' level tunnel which has an outlet to surface. There has been completed a raise to the 400' lv. An old raise from the 300' lv. to the 200' lv. exists and it is now proposed to raise 100' and connect it with the old raise. This would provide an exit from the main tunnel up to the 200' lv. which would provide the second exit. It would greatly help ventilation also. These raises should have direct connection without offsets. The raise should be two-compartment, one for ore, the other for ladder, pipe, timber, etc. In case of accident, exit would be far easier for the injured without offsets. Any offsets in the raises would greatly interfere with flow of ore and involve rehandling, so it should prove very advantageous to have direct connections. A 7 ft. winze or raise should be large enough. The ventilation would tend to keep the mine dryer.

To provide ample reserve of available ore for the time when the mill is ready, the old stopes above the 400' and 300' levels should be opened by raises which should start from the 515' lv. It should be started about 100' N. of the old shaft. This would hit the stopes above and permit the broken and to be broken ores to drop down by gravity to the main haulage level. These two raises are absolutely imperative and they should be consummated and made ready as soon as possible. Both will explore new areas or permit exploration and/or development. They would provide an outlet for over 20,000 tons of known ore. While there are several places in the mine where ore is available, it is of utmost importance to make this source of ore immediately available. Emergencies do happen in mines, often shutting off sources of ore, so to avert any possible trouble, these stopes must be opened. I would advise that no attempt to reopen the 600' lv. be made until milling operations be stabilized.

The Mill: A great deal of development work has been done in the mine and the mine has over a mile of workings, so it is ready to sustain milling operations. The mine supported a milling operation in its earlier days for some time and, with recent developments, it is in far better shape now. Ore developments have been very encouraging, in fact significantly important, and it is felt that after allowing heavy deductions, there is fully two years supply of ore for the mill. This tonnage could be increased easily and there should be little fear that sustained operation would be interfered with. There are very substantial potentialities in the mine and it would seem imprudent to delay erection of a mill any longer. The potentialities should be turned into profits while the economic situation is as it is, and this course is definitely advised and recommended and further delay avoided.

The Reorganized Silver King Co. has a mill at its property in Austin, Nevada. While essentially erected to recover gold, its equipment is quite well suited to handle the Mount Union ores, with possibly a few additions which would enable the mill at the mine to be built and re-erected at a cost of from \$40,000. to \$50,000. The crushing, grinding, tabling, flotation equipment could all be used although some supplementation might be necessary. Otherwise, if not used, cost of mill might be doubled. Much of the equipment now in use at the property has been taken from the Austin mine and it has been very suitable and given splendid service.

Conclusions: The Mount Union Mine possesses a very strong appeal as a profitable enterprise when production starts. The time for development work to demonstrate its worth has passed and the phase for production has arrived. There is a very substantial amount of good commercial ore (over 65,000 tons before applying deductions) available in the workings & dumps and much more of a prospective to semi proven character is well indicated and expected. After rather severe deductions in ore values shown by assays and in ore tonnages to be very conservative and in allowing costs which efficiency hardly warrants, there appears an expectancy of a daily operating profit of \$1,500. or better if a large proportion of mine ores is used rather than dump ores. Under the circumstances, it seems imprudent to further delay production and so the immediate erection of a 100-ton cap. mill is definitely advised and recommended and to be built with as little delay as possible.

The cost of shipping crude ore for milling and/or smelting with customary deductions and penalties is too excessive to warrant doing so and recourse to a milling operation at the mine is the only seemingly logical method to employ to obtain the highest returns from ores in the mine. Earnings from the mill will enable greater exploratory activities particularly at depths not attained as yet and thus insure added life to the mine and opportunities for an expanded operation. With continued good management the success of the Mount Union Mine is definitely assured and it should become a very substantial producer and a profitable enterprise.

Signed, John Daniell, E.M.

Mt. Union Group  
Hassayampa Mining District  
Yavapai County, Arizona.

The Mt. Union Area was visited September 13, 1949 in company with Mr. Leslie Taylor who holds the property under option from the owner, Mr. L. P. Wilson, of Prescott, Arizona.

Location:

The property is reached via the Senator Highway, a distance of about 18 miles southeast of Prescott. It lies on the slope of Mt. Union above Crook Canyon at an elevation from 6775 to 7650.

Development:

The major development is through a shaft on the Franklin Claim which is reported to be 635' deep on the dip of the vein. In addition, there are two tunnels driven on the vein from the canyon south of the shaft. The upper tunnel is inaccessible. The lower tunnel 1200 feet south of the shaft is driven about 150 feet and does not reach the ore zone. There are numerous shallow holes along the vein most of which are now caved or filled. The accompanying claim map shows the location of the major workings. North of the Mt. Union property on the Governor claim there is a shaft reported to be 101 feet deep and a tunnel 700 feet long driven from the canyon on the north slope, southerly, to or past the shaft.

History and Production:

The principal work in the Mt. Union Mine was done between 1902 and 1906, but the shallow oxidized vein material had been worked many years earlier. Beginning in 1902 the present shaft was started according to Mr. Wilson, and a mill erected. It is reported that the mill operated until the latter part of 1906. Apparently no work of importance has been done since. In recent years a government prospecting loan of \$5000.00 was secured to reopen the 635 ft. shaft. Funds were insufficient to complete the job and the enterprise was abandoned.

Lindgren estimates production at about \$200,000.00. Wilson believes it may have been as much as \$1,000,000.00.

Geology:

The Mt. Union area lies within the Bradshaw Granite formation. The Mt. Union vein is a fissure which strikes about N 14° E and dips 75° W. Wilson states that it follows a rhyolite dike, the dike varying from a few feet to as much as 30 feet wide. The vein material where observed was so severely altered that it was not recognizable as dike material. In the lower tunnel the vein was composed of gouge and silicious breccia which could very well be rhyolite. The west wall of the vein is granite at this point. The breccia material in the lower tunnel was about 10 feet wide where exposed by the drift but the footwall was not exposed. Elsewhere on the property where observed, the vein was composed of quartz with variable amounts of pyrite. In places, the pyrite had been leached, leaving vugs of hematite.

The upper oxidized portions of the vein were mined to shallow depth for the enriched gold content. The main ore shoot developed through the 635 foot shaft contained gold and lead. A few massive pieces of galena were noted on the dump, but nowhere in the vein was lead observed along the surface outcrops. According to



samples recorded by Mr. Wilson, Sr., the vein on the 500 and 600 levels averaged 3 ft. in width and carried an average value of \$20.00 per ton in gold, silver and lead as of date of sampling (1906).

The vein can be traced about 6000 feet. Widths of the quartz outcrop observed on the surface ranged from 2 to 5 ft. A spur vein branches off the main vein on the Pemberton Claim, striking about N 5 E. It is termed the "Small Vein" and has been mined for gold.

Remarks:

Wilson believes the pyritic quartz will carry sufficient gold to be mined and milled at a profit. If so, a considerable portion of the vein can be worked.

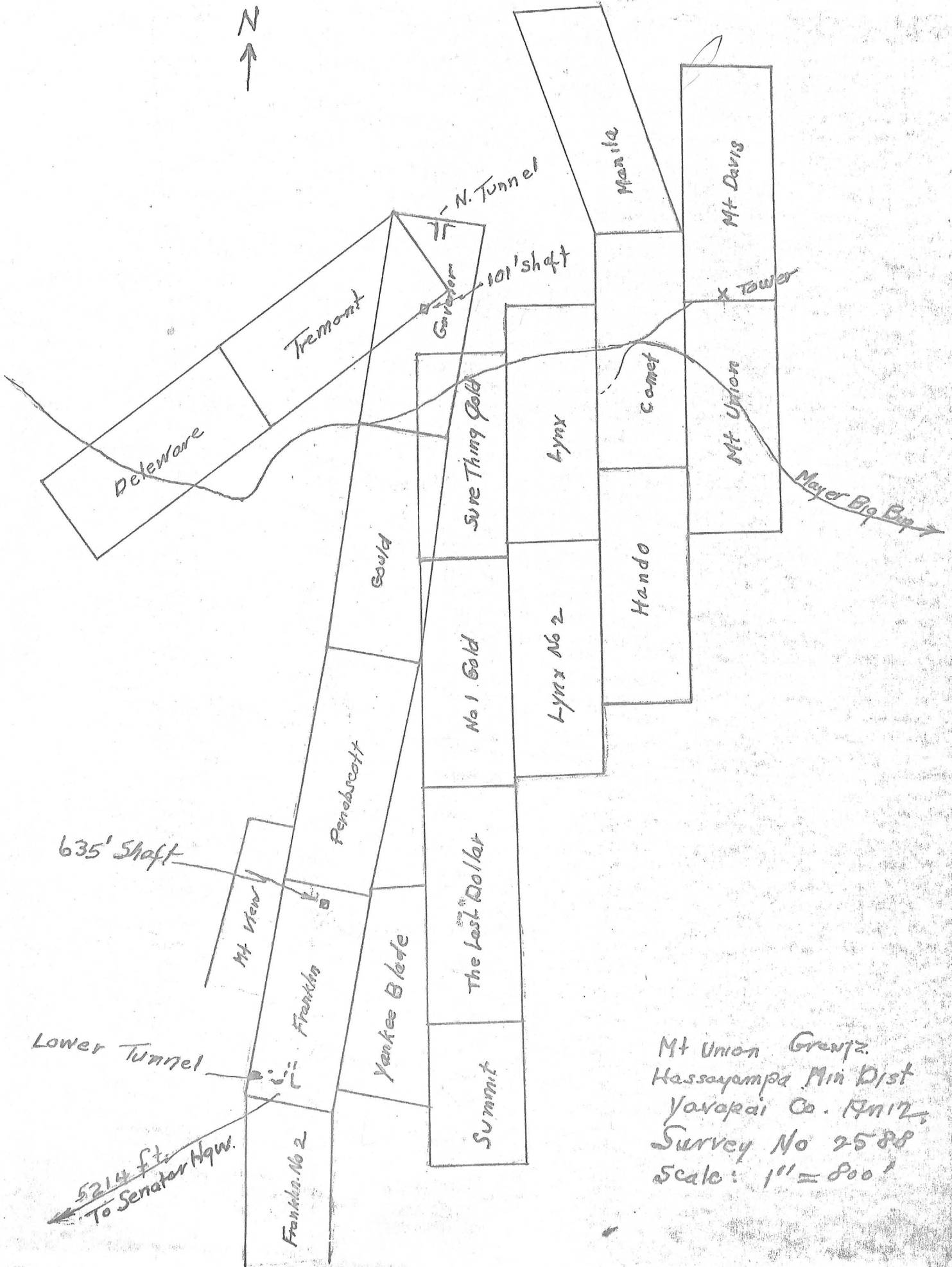
As far as can be determined from past operations, the best values in gold, and certainly the lead ore, were localized in the area near the 635 ft. shaft. This ore shoot is about 300 feet long, as indicated by the accompanying long section compiled by Mr. Wilson. There may be other ore shoots on this order, and this shoot may continue on down. There is no evidence that similar orebodies outcrop on the surface. If a profitable operation is dependent upon finding localized ore shoots of this type, the area does not appear attractive.

The chief interest lies in the possibility that the vein will carry gold values consistently, so that the major portion can be mined and milled at some profit. Local cartwrights will undoubtedly be found, which will be helpful.

There is no sample data on the vein. A dozen or so samples taken along the surface outcrop will determine the value of the vein as a whole, to a sufficient degree to evaluate the possibilities. Care should be taken not to salt these samples with enriched surface gossan. If surface samples indicate commercial values, then the vein could be readily sampled to greater depth, at very small cost, by diamond drill. At least, the few surface samples will have to be taken to fully appraise the property.

September 19, 1949.

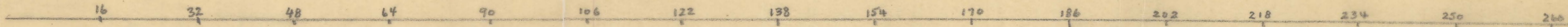
Edwin A. Stone



Mt Union Grant  
 Hassayampa Min Dist  
 Yavapai Co. Ariz.  
 Survey No 2588  
 Scale: 1" = 800'



OLD  
STOPE  
= 35 CAR  
SAMPLE  
BROKEN  
FILL  
\$ 29.42

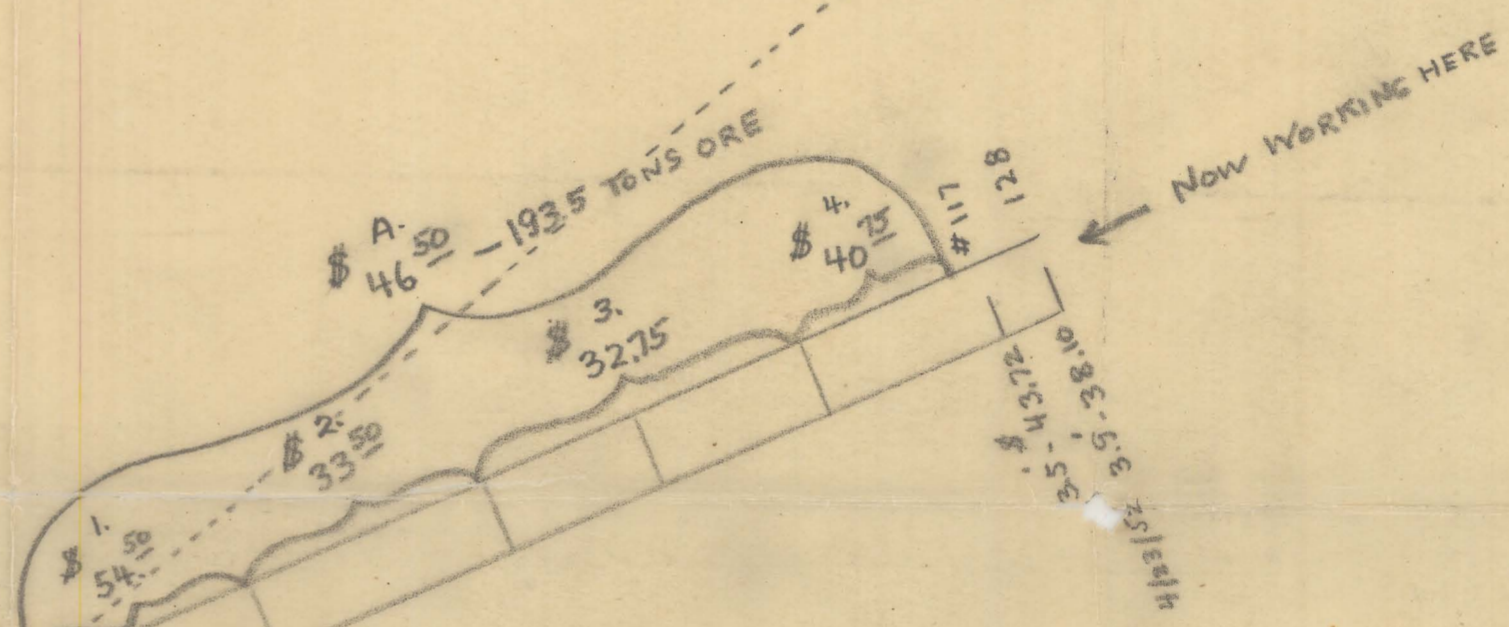


SAMPLE NUMBER  
↓  
# 73  
74  
75  
76  
78  
79  
83  
88  
88  
89  
90  
93  
95  
98  
100  
105  
107  
108  
109  
115  
116  
119  
120  
121  
124  
125  
126

ASSAY VALUE  
ORE WIDTH  
↓  
# 2'-7.05  
.5'-21.81  
1.5'-10.71  
2'-26.92  
2.4'-5.45  
2.5'-2.06  
3'-.97  
5.7'-7.05  
3.0'-18.56  
4.0'-2.59  
4.5'-6.02  
4.4'-7.10  
1.5'-4.06  
3.5'-3.57  
4.0'-13.95  
4.2'-28.40  
1.5'-10.618  
1.4'-45.24  
2.5'-33.39  
1.2'-62.69  
1.2'-54.46  
1.5'-69.33  
1.2'-50.48  
1.5'-38.75  
1.4'-46.19  
1.8'-24.60  
1.8'-9.88  
3.0'-54.88

Now WORKING HERE  
400 FT. LEVEL

# 30  
31  
32  
33  
26  
24  
21  
19  
16 + 17  
# 18.00  
99 TON ORE  
5.5-139.20  
5.5-27.5  
2.0'-35.84  
2.7'-14.41  
3.5'-16.64  
# 13.60  
140 TON ORE  
# 35.00  
3.7'-14.20  
2.0'-231  
2.1'-1.01  
2.3'-4.92  
2.5'-2.53  
1.5'-12.95



Now WORKING HERE

4/23/52

# 11, 12, 13  
14, 15

A - # 84, 91, 94, 101, 106, 110, 113, 118  
1 - 84, 91  
2 - 94, 101, 106  
3 - 110, 113  
4 - 118

ASSAY MAP - MT. UNION MINE  
REQ. SILVER, KING

Scale - 16' = 1 inch

A. J. Messmore  
4/20/52

NOTE: MONEY VALUE OF ALL SAMPLES ARE BASED ON GOLD - \$35.00, SILVER 90¢, LEAD 19¢, ZINC 19¢ LB. - SMELTER AND MILL DEDUCTIONS ON LEAD AND ZINC WILL REDUCE THE TOTALS BY A SUBSTANTIAL AMOUNT.

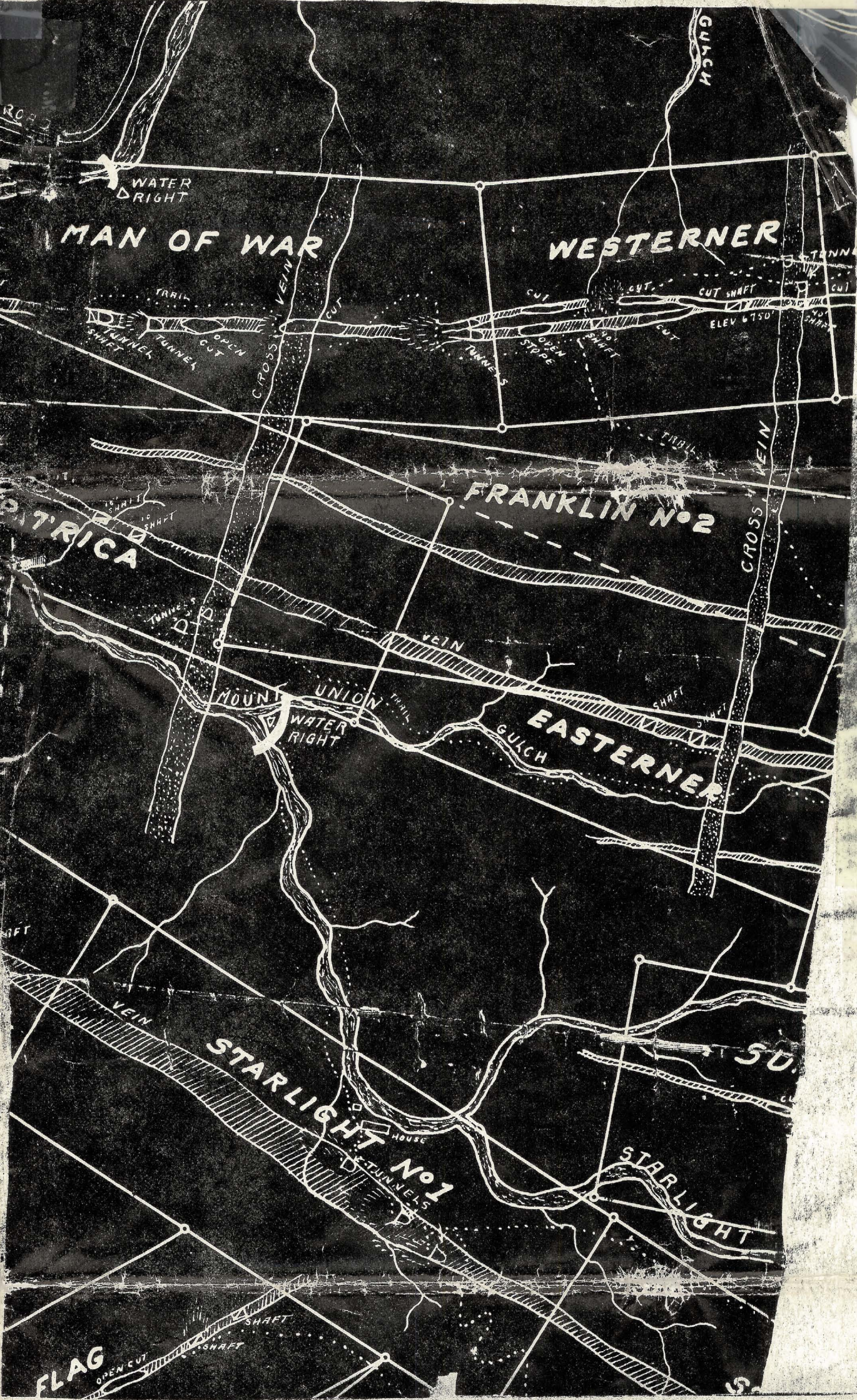
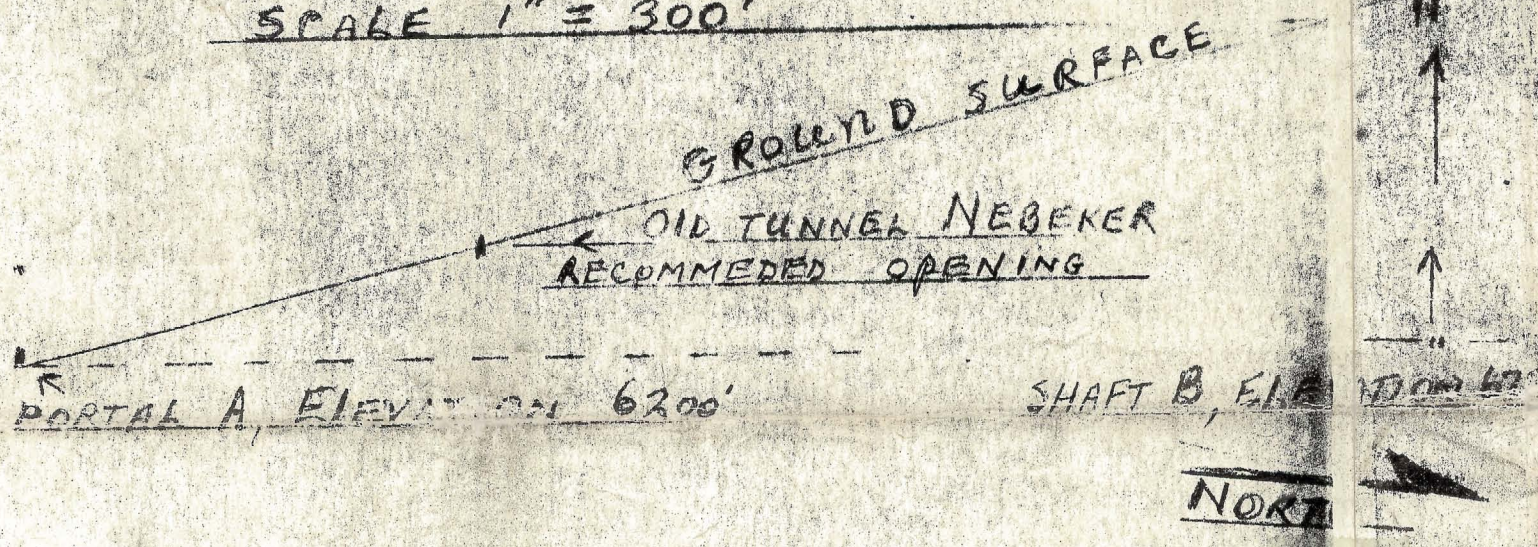


EXHIBIT A



THIS IS A PORTION OF AN OLD MAP  
 SHOWING ELEVATIONS, OLD CUTS, SHAFTS ETC.  
 SCALE 1" = 300'

CROOKS CREEK

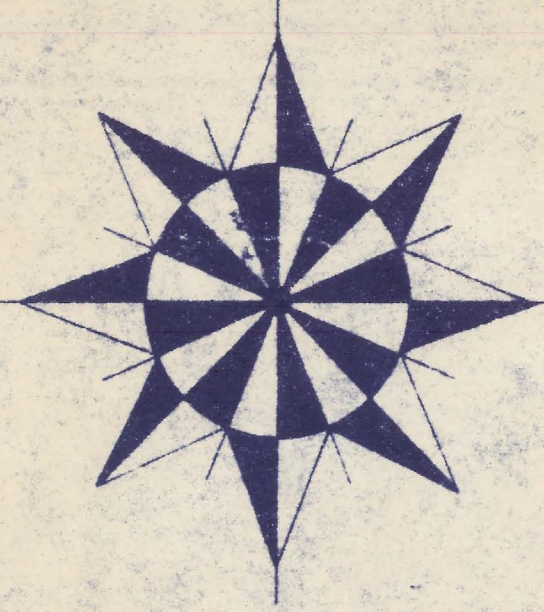




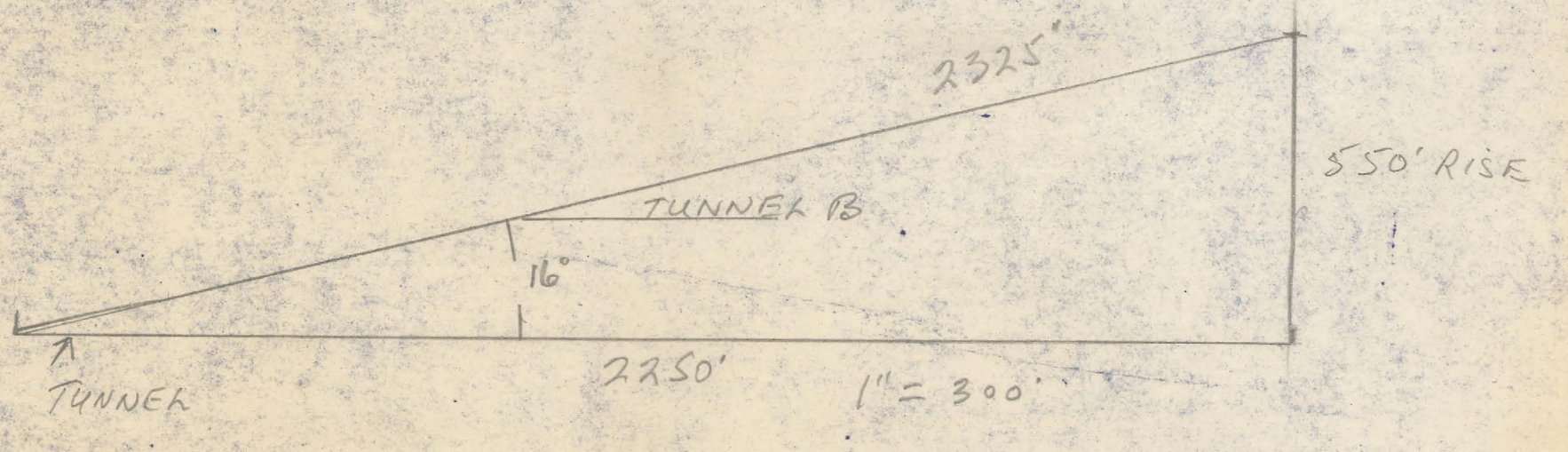
RED LINES ROUGHLY ARE  
 JOE WARD'S LINES. MONUMENTS WILL  
 DETERMINE SIZE & LOCATION RVE 11-29-78  
 NOTE AGE OF MAP NOVEMBER 1925 (?)  
 WARD'S CHAINS DATED SIXTY YEARS LATER  
*forly*

Longitude about 112° 24' 20"

- LEGEND**
- TUNNELS
  - SHAFTS
  - HOPES
  - OPENCUTS
  - CROSS-CUTS
  - BUILDINGS
  - STREAMS
  - GULCHES
  - TRAILS
  - ROADS
  - WATER RIGHTS
  - VEINS



**MAP**  
 OF  
**MINING PROPERTY**  
 BELONGING TO  
 THE  
**AMALGAMATED GOLD-LEAD MINES**  
 SITUATED IN THE HASSAAMPA MINING DISTRICT  
 YAVAPAI COUNTY ARIZONA  
 SCALE - 1 INCH = 300 FEET



Latitude about 34° 23' 30" N  
 D. R. N. W.

Wm. Merritt Co.  
 Prescott, Arizona.  
 E.L. Tomlinson Co.  
 Phoenix, Arizona.  
 No. 1007-111



MT. UNION CON. MNG. CO.

VERTICAL SECTION 1/4"=50 FT.

MARCH 3, 1906  
E.M. L'ENGLE.

WORK DONE - ORE GRANITE - M. SPERRY  
By L'ENGLE DIKE

