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Reconstruction Finance Corporation Arizona Records

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309 Heard Building
Phoenix, Arizona
August 12, 1944

TULLY - Ass't Chief, Mining Section - Washington

Re: , Liberator Mines Company, Docket No. ND-6018

I enclose the original and one duplicate of my report covering applicant's request for a loan of \$15,000. on the Yuma Copper Mine. It is recalled that the Yuma Copper Mine obtained a loan of \$5,000. for rehabilitation of underground workings (Docket No. ND-8111) and was declined a further loan of \$25,000. (Docket No. ND-5621).

In May 1944, the Reconstruction Finance Corporation interposed no objection to a certain agreement submitted by the Liberator Mines Company to operate the Yuma Copper Mine upon condition that 10% of net smelter returns and 10% of all payments made by Metals Reserve Company be deposited in "Yuma Copper Mine's R.F.C. account." To date there has been deposited \$347.23.

Applicant and correspondent have spent approximately \$35,000. in placing the mine in operation, but apparently is unsuccessful in obtaining further funds. Applicant now applies for operating funds.

The mine can produce considerable copper, but the operation is run inefficiently and there appears no hope of it changing. I have been asked for the date when this report goes out, which suggests that a word in the right place will be used to influence a decision.

I also enclose the following data in support of applicant's request:

Application for Mining Loan
Exhibit A, containing 11 pages
Articles of Incorporation
Supplemental Lease and Option
Assignment of Lease and Option Contracts
Letter from Phelps-Dodge to Mr. J. S. Coupal
Elgin B. Holt's report
Blue Print Map
Letter to Mr. Gohring regarding liability of
Liberator Mines Company

CAR/db
Enclosures

CAR
CHARLES A. RASOR
Supervising Engineer

Prefer mining
-2-

1. Name and Address of Applicant:

Liberator Mines Company
Home Builders Building
Phoenix, Arizona

Correspondent: J. S. Coupal
(same address as applicant)

2. Character of Project:

To buy equipment and mine copper ore.

3. Location of Mine:

In Section 24, T.6 N., R. 15 W. and Section 19, T. 6 N., R.14 W., Ellsworth Mining District, Yuma County, Arizona, about 5½ miles northeast from McVay Siding on the Santa Fe Railway, the nearest shipping point. Road condition fair to good depending on seasonal storms.

4. Applicant:

Applicant is a corporation, incorporated January 4, 1944, State of Arizona, and has 45,087 shares par value \$1.00 issued and outstanding as of July 1, 1944. The purpose of incorporating was to acquire the lease and finance the operations on the Yuma Copper Mine (Docket ND-8111).

The Board of Directors of the Company is composed of four members of the Board of Directors of the Arizona-Eastern Gold Mines Company, owners and operators of the Octave Mine, near Congress Junction, Arizona. George Spry, who operated the mine under a Reconstruction Finance Corporation Loan of \$5,000., is a fifth member of the Board.

George Spry is mine superintendent of the present operation and is a competent miner. J. S. Coupal, former director of the Arizona Department of Mineral Resources, is manager for the Liberator Mines Company.

5. Loan Requested:

A loan of \$15,000. is requested; \$5,000. to repay the original rehabilitation loan granted in March 1943.

6. Description of Project:

A. General Features:

1. No description of mine workings, mill or other necessary appurtenances, which are not confined within applicant's ownership.

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1. No description of mine workings, mill or other necessary appurtenances, which are not confined within applicant's ownership.

2. Proposed project will comply with State Compensation and safety-first statutes.
3. There are no legal discrepancies not covered.
4. No impeded right-of-way facilities.
5. No likelihood of surface or sub-surface trespass during project.

B. Existing Development:

1. Tunnel and Shaft Mine:

- (a) From a tape and compass survey a map was made of the existing underground workings. On the map are plotted the underground workings surveyed previously and which are now under water.

The mine is developed from the surface by a 135-foot vertical shaft and a 630-foot working adit level. From the bottom of the vertical shaft an incline shaft of 30 degrees extends below the water level. Just above the water level an opening has been made to the 185 foot level to allow circulation of air. Extending in two directions from the bottom of the vertical shaft are approximately 250 feet of drifting. This level is not in use. The 630 foot adit was 15 feet too high when it reached the incline winze or working winze. This necessitated an extension of the winze upward, the blasting of a new hoist room and erection of an ore bin. The 185 foot level or working level is now approximately 160 feet long. Below this is the 250 foot level, which is under water.

(b) Sampling:

Applicant does not have the full width of the ore exposed for sampling. Applicant claims a width of 40 feet, but he has failed to make a sincere effort to cut the hanging wall by crosscutting. I measured and sampled three ore bearing beds for a total thickness of 17.5 feet and it is known that the hanging wall formation exposed by a raise above the drift contains mineralization. Actually, the sampling only proves that there is ore in the places sampled and can not be used as a yardstick to the actual grade. The returns from the smelter are the best evidence and they show an average grade of 2.04% copper.

I sampled areas in both the upper level and the 185 foot level. Samples in the upper level were taken mainly to show that copper mineralization was scant.

Sample No. 1, taken in east face of 135 foot level across 62 inches of mineralization assayed .04 ounces gold and 0.71% copper.

Sample No. 2, on the same level across 40 inches of mineralization assayed .02 ounces gold and 0.44% copper.

Sample No. 3, 10 feet from sample No. 2 across 40 inches of mineralization assayed trace of gold and 0.55% copper.

Sample No. 4, 15 feet from sample No. 3, across 60 inches of mineralization assayed .04 ounces gold and 1.20% copper.

Sample No. 5, about 20 feet from sample No. 4, assayed across 60 inches of mineralization, .06 ounces gold and 1.45% copper.

Sample No. 6, about 15 feet east of shaft, assayed across 60 inches of mineralization .05 ounces gold and 1.08% copper.

All of the above samples were cut across mineralization, which consisted chiefly of iron oxides. Only here and there were seen traces of green copper minerals. These samples were taken to prove that the ore zone was unlikely to extend from the 185 foot level through to the 135 foot level.

Sample No. 8 represents a grab of a 50 ton car shipped August 1, 1944 to the Smelter. This assayed .03 ounces gold and 1.36% copper.

Sample No. 9 taken in the face August 4, 1944 across 60 inches of mineralization which looked like sand tailings, assayed .01 ounces gold and 1.64% copper. Sulfide ore.

Sample No. 10 taken across the ore from foot wall upward for 52 inches, assayed .05 ounces gold and 1.61% copper.

Sample No. 11, taken across the ore from foot wall upward for 60 inches, assayed .01 ounces gold and 5.69% copper. Ore is oxidized.

Sample No. 12 is a continuation from the end of No. 11 for another 60 inches across oxidized ore. Assay showed .02 ounces gold and 4.50% copper.

Sample No. 13, which is between Sample No. 10 and No. 11, assayed across 60 inches .02 ounces gold and 4.40% copper. Ore is oxidized.

Sample No. 14 across face of ore zone. Sulfide ore in white limestone. Assay across 84 inches showed .03 ounces gold and 0.71% copper.

Sample No. 15 across 2 feet of sulfide ore next to the foot wall assayed .04 ounces gold and 0.82% copper.

Sample No. 16 assayed across 72 inches of mixed sulfide and oxidized ore, .05 ounces gold and 1.42% copper.

Sample No. 17, taken across a face of oxidized ore in stope assayed across 72 inches, .05 ounces gold and 2.00% copper.

Sample No. 18, taken across a face of oxidized ore in stope assayed across 72 inches, .02 ounces gold and 1.01% copper.

(c) Condition and accessibility of mine workings:

All underground mine workings are accessible and in good condition except that under water, which has no bearing on the present application.

(d) General features of deposit:

The ore deposit is associated with sedimentary beds of pre-Cambrian age. A partial section of the ore horizon can be seen and studied from the incline shaft through to the 185 foot level. (See Section.) Apparently overlying a gneissic formation with pegmatite stringers is a massive quartzite bed of variable thickness. No mineralization occurs in this quartzite. On top of the quartzite is a thin bedded limestone formation with bands of novaculite. This is the footwall of the ore zone and also contains no mineralization. The ore zone begins with a four foot bed of limestone containing oxidized minerals. In some places the lower foot of this zone is green with copper carbonate. Overlying in a 5 foot soft white limestone bed with sulfide ore disseminated throughout. The last measurable bed is a sand layer with abundant sulfide in the

form of pyrite. Here and there are hard ribs of massive sulfide 1 - 2 inches thick. This pyrite is copper bearing but low grade. This is the same type of ore which I sampled on the level below the water.

Apparently these sand layers are not continuous but grade into limestone. If they were continuous the sand should be found in the vertical shaft, but close examination did not reveal any sand layer. The shaft exposed massive limestone. Also in the stope on the 185 foot layer massive limestone mineralized with copper carbonates abruptly passes into a sand layer with sulfide and apparently there is no faulting. It would appear to me that possibly the massive limestone formation represents an old erosion surface with channels containing sand.

The age of the mineralization could not be determined at this time, but apparently it is associated with minor folding of the ore bearing horizon. Copper bearing pyrite replaces the various beds which subsequently have been oxidized.

Lamprophyre dikes cut the series of rocks and are subsequent to the mineralization. These dikes stand nearly vertical and vary from a few feet to 25 feet in thickness.

C. Proposed Development:

1. Recommended plan of development:

Applicant claims thickness of ore zone to be 40 feet and dipping 30 degrees. The hanging wall of the zone has not been cut so it is now known whether or not 40 feet represents the true thickness. The present drift is following the footwall of the ore zone and thus it is proposed and agreed upon by the applicant and your Engineer to continue on the footwall for another 150 feet and to crosscut to the hanging wall at regular intervals, preferably at 50 foot intervals. It is estimated that four 50 foot crosscuts should outline this part of the ore body.

2. Recommendation concerning applicant's mining method:
After the hanging wall has been found it is proposed to raise and use slusher scrapers to bring the ore to the level.

3. Expected capacity of operations:

- (a) Mining, 100 tons per 24-hour day.
- (b) Drift development, 6 feet per working place per 24-hour day.
- (c) Crosscut development, 6 feet per working place per 24-hour day.
- (d) No raise development contemplated.
- (e) Milling not contemplated.
- (f) Not applicable.
- (g) Not applicable.
- (h) Not applicable.
- (i) Local wage scale: Miners \$8.00 per day
Trammers 7.50 " "
Operators 8.00 " "

D. Equipment:

- 1. Workable equipment consists of -
 - N.S.O. - 14", 340 cu. ft. Chicago Air Compressor
 - 15 HP gasoline driven hoist
 - Air Hoist
 - 12-B Eimco Findley Mucking Machine
 - 12 - 20 cu.ft. card roller bearing ore cars
 - 2 - mine skips
 - 1 #6 Cameron pump
 - 1 pick-up truck
 - 1 6-ton Ford ore truck
 - Kohler light plant
 - 1 Stoper
 - 3 air drills
- 2. Mine equipment and supplies recommended for purchase under project:
 - 1- 340 cu. ft. compressor
 - 1- Slusher
 - 2 - Stopers
 - Lumber, pipe and rails
- 3. Condition and serviceability of buildings or housing facilities:

There are five camp buildings which include complete boarding house with equipment;
change house;
combination office and bunk house;
two bunk houses;
hoist house.

All of these buildings are in good repair and occupied.

4. Recommended camp construction:

Two more bunk houses.

E. Cost Estimations:

1. Lode Mine:

- a. Mining. Applicant has estimated the cost of mining from production of 500 tons of ore June 15 to July 1 at \$3.50 per ton, but anticipates that the cost of mining can be dropped to \$2.00. At 100 tons per day the applicant should mine for at least \$2.50 per ton.
- b. Haulage - Mine to McVay Siding - a 5½ mile haul - \$1.00 per ton.
- c. Freight: McVay to Clarkdale Smelter \$1.40 per ton
- d. Federal Transportation tax 3% of \$2.40 = 7 cents
- e. Smelter treatment - \$2.75 per ton less credit for lime which amounts to 30 cents per ton
- f. Total cost per ton:

Hauling	\$1.00
Freight	1.40
Treatment	2.45
Tax	.07
Mining	<u>2.50</u>
	\$7.42

F. Ore Reserves and Grade:

Considerable sampling by both the applicant and your engineer has been done on the property. In addition the applicant has shipped 929 tons of ore to the smelter which is used to calculate the average grade. Also, I am told that about 600 tons more are at the smelter which they have not heard from. I am tabulating this information to more clearly evaluate the grade of ore.

On my first examination in June 1943 I took some 14 samples of sulfide ore from a drift which is now under water. The average of those samples gave 1.68% copper and .04 ounces gold. It now appears that probably the gold per ton was a little high.

The applicant is now mining above the water table where the ore is both sulfide and oxide. In support of the application, the applicant submits a blue print map of this new work and a record of the assay of samples. The assays were made by Mr. George Spry, superintendent of the operation. The applicant's following samples are used as a representative of the ore body exposed at the time the samples were taken:

TABLE NO. 1
Applicant's Samples

No.	Width	cu%	feet x %cu
1	12	2.05	24.6
" 2	8	2.1	16.8
" 3	8	2.5	20.0
" 4	10	1.25	12.5
" 5	8	2.0	16.0
" 6	8	4.5	36.0
" 7	10	2.5	25.0
" 8	12	2.0	24.0
" 9	10	4.2	42.0
" 10	12	4.6	55.2
" 11	10	4.0	40.0
" 12	Omit		
" 13	10	1.25	12.5
" 14	12	1.25	15.0
	<u>130</u>		<u>339.6</u>

Average thickness $\frac{130}{13} = 10$ feet

Average grade $\frac{339.6}{130} = 2.61\%$ cu

I took a number of samples in the same area as the applicant and will use the following as representative:

TABLE NO. 11
R.F.C. Samples

No.	Width	au	cu	Width x au	Width x cu
7	72"	.01	2.00	.72	144.0
9	60"	.01	1.64	.60	98.4
10	52"	.05	1.61	2.60	83.72
11)					
12)	120"	.015	5.09	1.80	610.8
13	60"	.02	4.40	1.20	264.0
14	84"	.03	.71	2.49	59.64
16	84"	.05	1.42	4.20	119.28
17	72"	.05	2.00	3.60	144.00
18	72"	.02	1.01	1.44	72.72
	<u>676"</u>			<u>18.65</u>	<u>1596.56</u>

Average width $\frac{676}{9} = 75$ inches or 6.3 feet

Average grade $\frac{18.65}{676} = .0276$ ounces (no valve at Smelter)

Average copper $\frac{1596.56}{676} = 2.36\%$ cu.

The best test as to the grade of the ore on the 185 foot level is represented by the weighted average of shipments. Shipments from the 185 foot level are represented by Shipper's lots No. 7 to 14 inclusive. Lots 5 and 6 are from the adit level near the portal. The shipments are tabulated in Table No. 3.

TABLE NO. 3

Date	Lot No.	Assay		Tons	Total Metal		Treat-ment Charge*	Due Shipper	15 cents Bonus
		au	cu		au	cu			
3-29-44	5	.025	1.35	58.152	1.454	1570	-	2.75	-156.16
5-3-44	6	.04	1.50	54.137	2.165	1624	-	2.75	- 69.87
6-19-44	7	.01	1.72	104.740	1.047	3603	.42	2.33	-169.45
6-26-44	8	.02	2.03	106.639	2.133	4330	.39	2.36	-112.35
6-29-44	9	.02	2.52	97.389	1.948	4908	.34	2.41	- 19.57
7-1-44	10	.02	1.72	99.622	1.992	3427	.30	2.45	-170.06
7-5-44	11	.03	1.33	107.859	3.236	2869	.34	2.41	-164.91
7-7-44	12	.02	2.53	96.597	1.932	4888	.30	2.45	- 24.42
7-13-44	13	.02	2.67	103.869	2.077	5547	.29	2.46	1.98
7-18-44	14	.01	1.90	100.612	1.006	3823	.29	2.46	-147.59
				929.616	18.990	36589		-1022.40	5323.65

* Base treatment 2.75

If we eliminate Lots No. 5 and No. 6, which are from near the portal of the adit, the total shipped from the 185 foot level is 817.327 tons. This produced 33,395 pounds of copper having a smelter deficit of \$806.37. The bonus is figured at 33395 x 97% x 15 cents, or \$4,858.95. Thus, we see that the average grade of ore is 2.04% copper and that the net to the shipper before hauling and mining is \$4.96. Hauling costs are \$1.00 per ton; thus, there is left \$3.96 for mining and profit. If mining costs are \$3.50 per ton there is left 46 cents for profit.

Setting up the figures in the usual manner and using 2.04% copper as the average grade of the ore we get:

2.04% cu = 40.8 lbs. copper less 10 lbs. = 30.8 lbs.

30.8 lbs. x .09275 cents =	\$2.86
Metals Reserve Premium	
40.8 x 97% = 39.6 x 15 cents =	<u>5.94</u>
Total value of ore	\$8.80

Costs against this are:

Freight to Clarkdale =	\$1.40
Treatment \$2.75 - .30 credit for CAO =	2.45
Hauling =	<u>1.00</u>
	\$4.85

Net before mining	\$3.95
If mining costs can be lowered by producing 100 tons per day to	<u>2.50</u>
the profit will be	\$1.45

Tonnage Estimates:

It is estimated that the development work will outline the following tonnage. Ore is exposed for 150 feet and there is evidence that it will likely continue for 150 feet more. There is evidence on the surface that the ore zone extends for 800 feet. Taking the width of the ore as 10 feet and projecting it 50 feet upward on the dip of the ore zone the following tonnage is estimated:

$$\frac{300 \text{ feet long} \times 50 \text{ feet} \times 10 \text{ feet thick}}{13} = 11,500 \text{ tons of ore.}$$

7. Employment:

A. Men now employed:

Manager, J. S. Coupal (expects no salary from R.F.C.)	
Superintendent, George Spry	\$15.00 per day
Clerk, Mr. Bannon	5.00 " "
Cook	4.00 " "
Two hoist men	8.00 " "
Two operators (compressor men)	8.00 " "
Three trammers	7.50 " "
One timberman	8.00 " "
Four miners	8.00 " "
One truck driver	8.00 " "

B. Number to be employed under project:
Same as above

C. Number of shifts per 24-hour day:
Applicant is operating two shifts per day and will continue same.

8. Objections to Project:

A. Local or Regional:
None.

B. Advisability of Project:
Project is advisable because it should develop and produce a substantial amount of copper, a strategic and critical metal deemed advantageous to the war effort.

9. Time Schedule:

A. Project could be completed in approximately two months after disbursement of first Requisition.

B. Length of operating season is all year.

C. Total time to repay loan depends on amount of profit and the length of time the 15 cent bonus continues. Under the present conditions it would take more than a year to repay the loan.

10. Estimated Cost of Project:

A. Total development:			
150 feet drifting, \$8.50 per foot (no timbering necessary)	\$1,275.00		
200 feet cross-cuts, \$8.50 per foot	<u>1,700.00</u>		\$2,975.00
B. Purchase of Equipment:			
Slusher scraper	900.00		
Two stopers	650.00		
New compressor	<u>3,000.00</u>		4,550.00
C. Construction:			
Added housing facilities	800.00		
New ore bin	<u>300.00</u>		1,100.00
D. General Expense:			
1. Supervision, 2 months, \$350. per month	700.00		
2. Insurance, 1 month	540.00		
3. Miscellaneous Expense	135.00		
4. Repayment of Loan	<u>5,000.00</u>		6,375.00
			<u>\$15,000.00</u>

11. Nature and Sources of Revenue:

Loan is expected to be repaid from proceeds on ore shipments. Applicant is shipping regularly to the Clarkdale Smelter about 50 tons per day and hopes to increase this output to 100 tons per day after loan is granted.

12. Comments of Supervising Engineer:

I recommend that the applicant be approved a loan on its copper property because it should develop and produce a substantial amount of copper which is deemed advantageous toward the war effort. However, it does not appear that the loan will ever be repaid, not because there isn't sufficient evidence to show a large tonnage, but because of the past and present inefficient management. Our experience with Mr. Spry shows him to be a good miner, but a poor manager. Arizona-Eastern advanced \$30,000. to place this property on a paying basis, but after the \$30,000. was spent, there was little to show for the money except a 600 foot adit and an adequate mine camp. Apparently none of the money was used to drive on the ore. When the Liberator Mines Company, the operating company of Arizona-Eastern, prepared to close down Mr. J. S. Coupal was called in for advice. He entered into management of the operations by furnishing an additional \$5,000. to get the operation into production.

The mine is in production, but apparently not paying. If it were paying, the Arizona-Eastern should be glad to put up another \$10,000. to stay in the picture, I would think. When the Liberator Mines Company took over operations one condition imposed by the Reconstruction Finance Corporation was that 10% of the net smelter returns and 10% of all payments made by Metals Reserve Company be deposited in the Yuma Copper Mines R.F.C. account. Now they are toying with the idea of petitioning the R.F.C. to continue the 10% royalty so that they can bale out some of their investment.

I spent part of four days at the property, taking samples and observing the operation. Sampling indicates the grade of ore about 2.36% copper, but shipments indicate the grade about 2.04% copper. The difference in grade indicates a sampling discrepancy of about 12% between the estimated value as indicated by mine samples and the actual value as shown by yield from the smelter. Thus, all calculations were based on the value as shown by weighted averages from the shipments.

Mr. Coupal does his managing from an office in Phoenix, based on daily mail from the mine in place of actually observing the operation. My observations indicated two things which were not in harmony: Lack of sufficient power to operate hoist pump and mechanical loader at the same time and inadequate trucking facilities to haul the ore away from the bin.

On night shift between 70 and 90 tons are blasted down, but more could be. The hoistman told me he could make a round trip in two minutes and could easily hoist between 100 and 120 tons per 8 hour shift.

Three trammers can each tram out four 20 cu. ft. cars of ore an hour or between 90 and 100 tons per 8 hour shift. But the following conditions seemed to interfere with maximum production. The men loading ore into the skip were sitting around from 2 to 3 hours each day because the hoistman was waiting for the trammers to empty the ore bin. The trammers were held up because they could not empty their cars until the ore was lowered in the main bin. It boiled down to the fact that the management had not provided trucking facilities or were unable to keep a tracker on the job in addition to their own tracker, hauling the ore to the railroad. Two trucks can easily fill two railroad cars in an 8 hour shift.

The applicant is shipping ore all the time and now has 600 tons at the smelter in addition to the 11 shipments we have returns on.

Whether or not this operation is worthy of a loan depends on whether the management can be economical and lower the mining costs. It certainly seems reasonable after watching the operation for three days to believe that a production of between 100 and 120 tons per day would reduce the mining costs to \$2.50 per ton.

Docket No. ND-6018
Rep. Sup. Eng.
August 11, 1944

-14-

This mine will produce considerable copper even though it is low grade. The facts are presented as I see them and it is apparent that considerable outside pressure will be exerted to influence a decision.

Car

CHARLES A. RASOR
Supervising Engineer

RAS/db

No. 251 R

Phoenix, Arizona,
Aug. 4, 1944

CHAS. A. DIEHL

ARIZONA ASSAY OFFICE

Phone 3-4001

815 North First Street

P. O. Box 1148

This Certifies That samples submitted for assay by Mr. C. A. Rasor

contain as follows per ton of 2000 lbs. Avoir.

No.	Yuma MARKS Width	SILVER		VALUE (Oz.)	GOLD		VALUE (Oz.)	TOTAL VALUE Of Gold and Silver	PERCENTAGE			REMARKS
		Ounces	Tenths		Ounces	Hundths			COPPER			
1	62"				.04		\$1.40		.71			
2	40"				.02		\$.70		.44			
3	40"				Trace				.55			
4	60 40"				.04		\$1.40		1.20			
5	60"				.06		\$2.10		1.45			
6	60"				.05		\$1.75		1.08			
7	72"				.01		\$.35		2.00			
8	⁵⁰ Grab ton lot				.03		\$1.05		1.36			
9	60"				.01		\$.35		1.64			
10	52"				.05		\$1.75		1.65			
11	60"				.01		\$.35		5.69			
12	60"				.02		\$.70		4.50			
13	60"				.02		\$.70		4.40			
14	7'				.03		\$1.05		.71			
15	24"				.04		\$1.40		.82			
16	7'				.05		\$1.75		1.42			
17	72"				.05		\$1.75		2.00			
18	72"				.02		\$.70		1.01			

Charges \$ 27.00

Assayer ARIZONA ASSAY OFFICE



DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

granted

Mine YUMA COPPER - Cu.

Date February 22, 1943

District Ellsworth

Engineer Earl F. Hastings

C

Subject: Reconstruction Finance Corporation
Preliminary Development Loan

Docket No.

Phoenix C - 139

Date Application Received

February 15, 1943

Date of Field Examination

February 11, 1943 (Holt)

Date of Report

February 22, 1943

1. Name and address of applicant (correspondent):

George Spry (a partner) Vicksburg, Arizona.

2. Character of project and estimated cost thereof:

Unwater and re-enter workings from the 320 foot level to and including the 500 foot level. \$5000.00.

3. Location of property:

Ellsworth Mining District, Yuma County, Arizona.

4. Applicant is partnership (correspondent is major partner with power-of-attorney) holding lease and option. Option price is \$200,000.00, royalty 10% with a monthly minimum of \$100.00. The option agreement was apparently not prepared by an attorney.

5. Loan requested:

\$5000.00.

6. Loan recommended:

\$5000.00.

7. Comments:

(A) Added to the docket is a report and a memorandum by Elgin B. Holt, Field Engineer for the Department of Mineral Resources dated February 11, 1943.

(B) The property is developed at some depth by a vertical 135 foot shaft and thence 365 feet of inclined shaft and a 390 foot winze from the 135 foot level. The winze is sunk on ore and shipments made represent carbonate ore from the 320 foot level stope. These shipments assayed from 4.39% to 5.75% cu. on a stope width of 10 feet. The ore is not ideal fluxing ore as SiO₂ content is only 40.0% and less. Iron and lime are the other major constituents.

The property is currently in operation that is, according to our field engineer, being conducted in an intelligent fashion. The operators (applicants) are experienced mining men.

(C) There are four parallel veins within the ore zone. The ore upon which development has been accomplished is visibly persistent to the 320 foot level, and sulphide fragments on the mine dump indicate the proximity of the transition zone within development limits.

The upper oxidized levels are of little commercial importance as the ore, claimed to assay up to 3% copper, is too low for shipment. The lower oxidized levels from which

2/22/43

shipments are being made are not highly profitable, but the value and width are such that appreciable production is possible.

(D) Lateral limits of extent have not been reached. The 135 foot level is developed to a greater lateral distance, a length of 300 feet, than any of the lower levels. The vein here is 3 to 8 feet in width, and at the 320 foot level is 10 feet in width at the stope (though the average will no doubt be less over the lateral extent of the shoot as the 10 ft. width is local).

(E) Values of sulphide ores are unproven though the applicant states an 11% grade of sulphide ore was shipped by the owner of the property.

It is reasonable to assume that secondary enrichment below the barren zone or careful sorting of ore could qualify this claim.

(F) The property is partially equipped thereby limiting the necessity for major capital expenditures.

The location is such, in relation to railroads and smelter, that trucking and freight rates are favorable.

An economic balance between costs and returns can be anticipated.

(G) There then appears to be an ore body, or bodies, of lateral and vertical extent of promise, as well as a copper content permitting an appreciable production at limited profit. This loan can therefore be recommended for the purpose requested.

(H) The option agreement is not particularly suitable for operation under an R. F. C. loan but can possibly be altered, or monthly minimum payments assumed, by the applicant.

ARIZONA DEPARTMENT OF MINERAL RESOURCES

Earl F. Hastings

Earl F. Hastings
Projects Engineer

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine YUMA COPPER - Cu.

Date February 22, 1943

District Ellsworth

Engineer Earl F. Hastings

Subject: Reconstruction Finance Corporation
Preliminary Development Loan

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(F) The property is partially equipped thereby limiting the necessity for major capital expenditures.

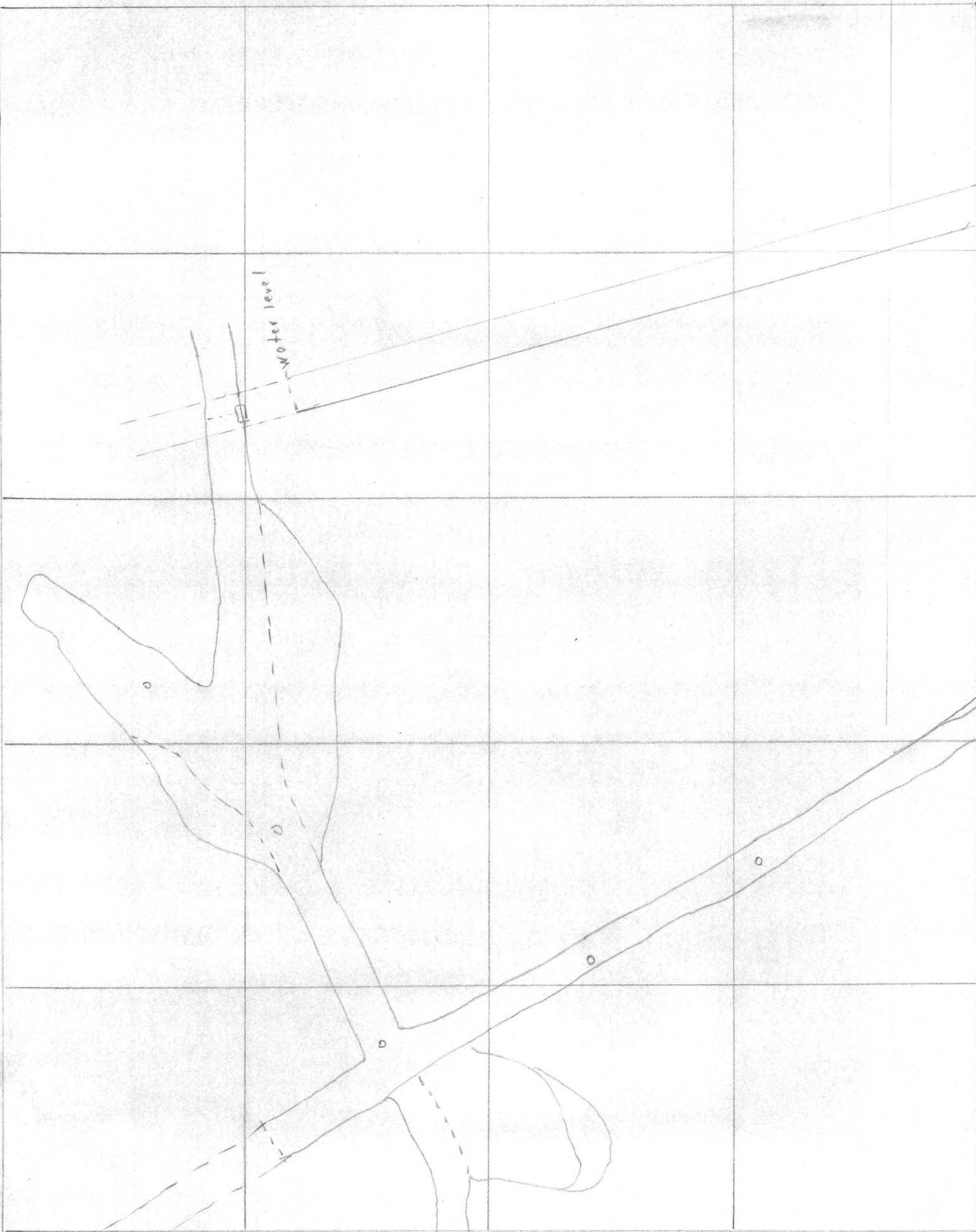
The location is such, in relation to railroads and smelter, that trucking and freight rates are favorable.

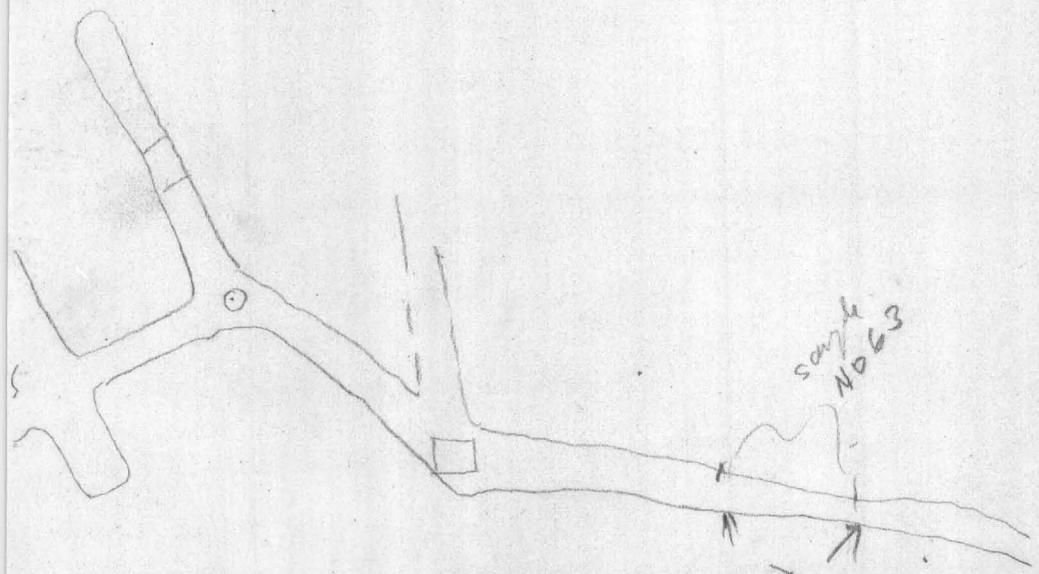
An economic balance between costs and returns can be anticipated.

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ARIZONA DEPARTMENT OF MINERAL RESOURCES

Earl F. Hastings
Projects Engineer



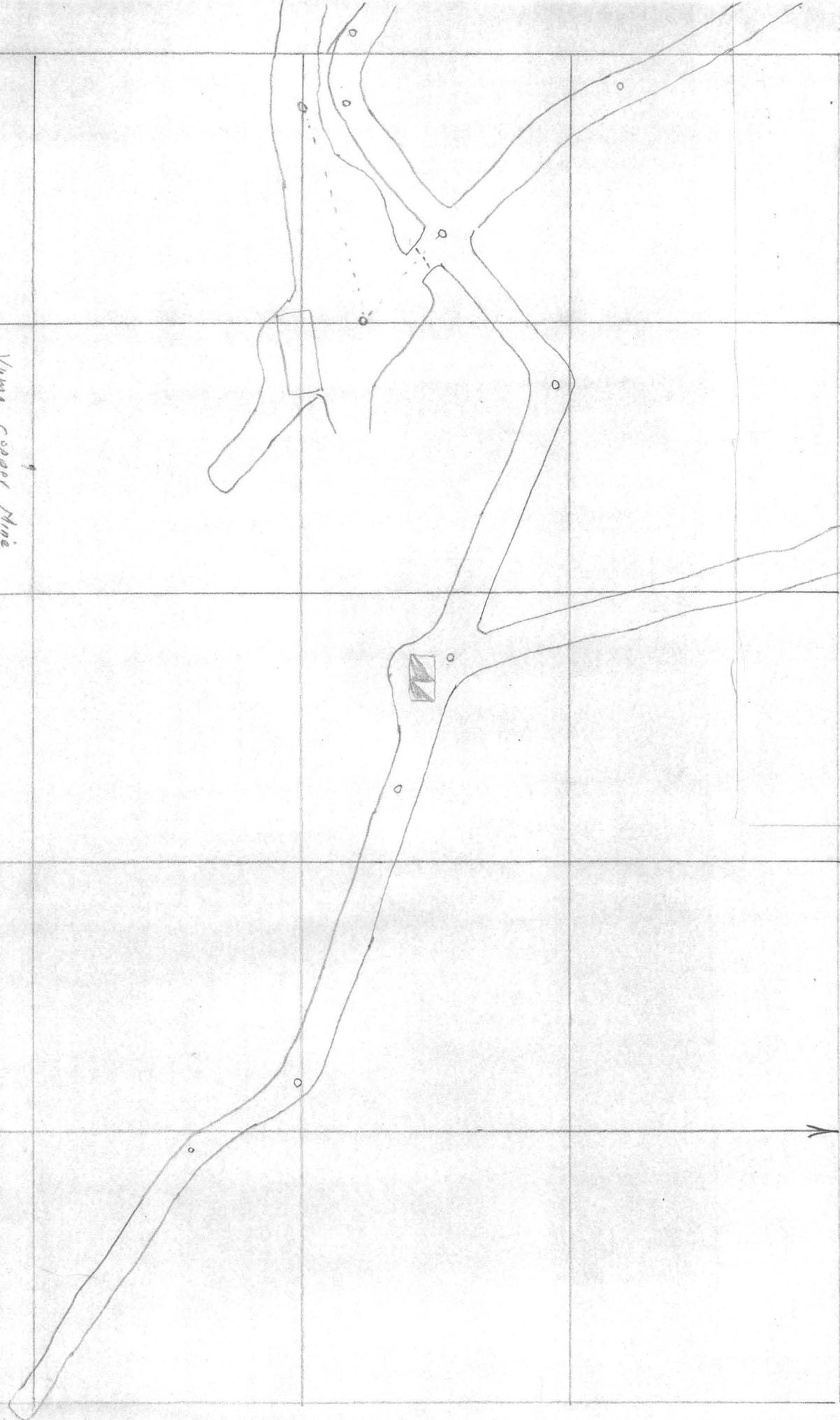


SOUTH
No 63

No 63

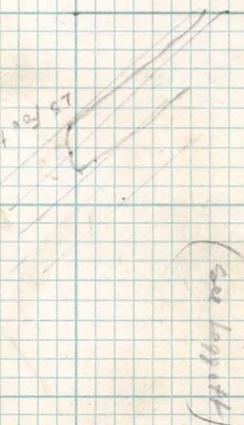


Yuma Copper Mine
1" = 20'



Yuma Copper Mine
 1" = 20'
 7-31-44

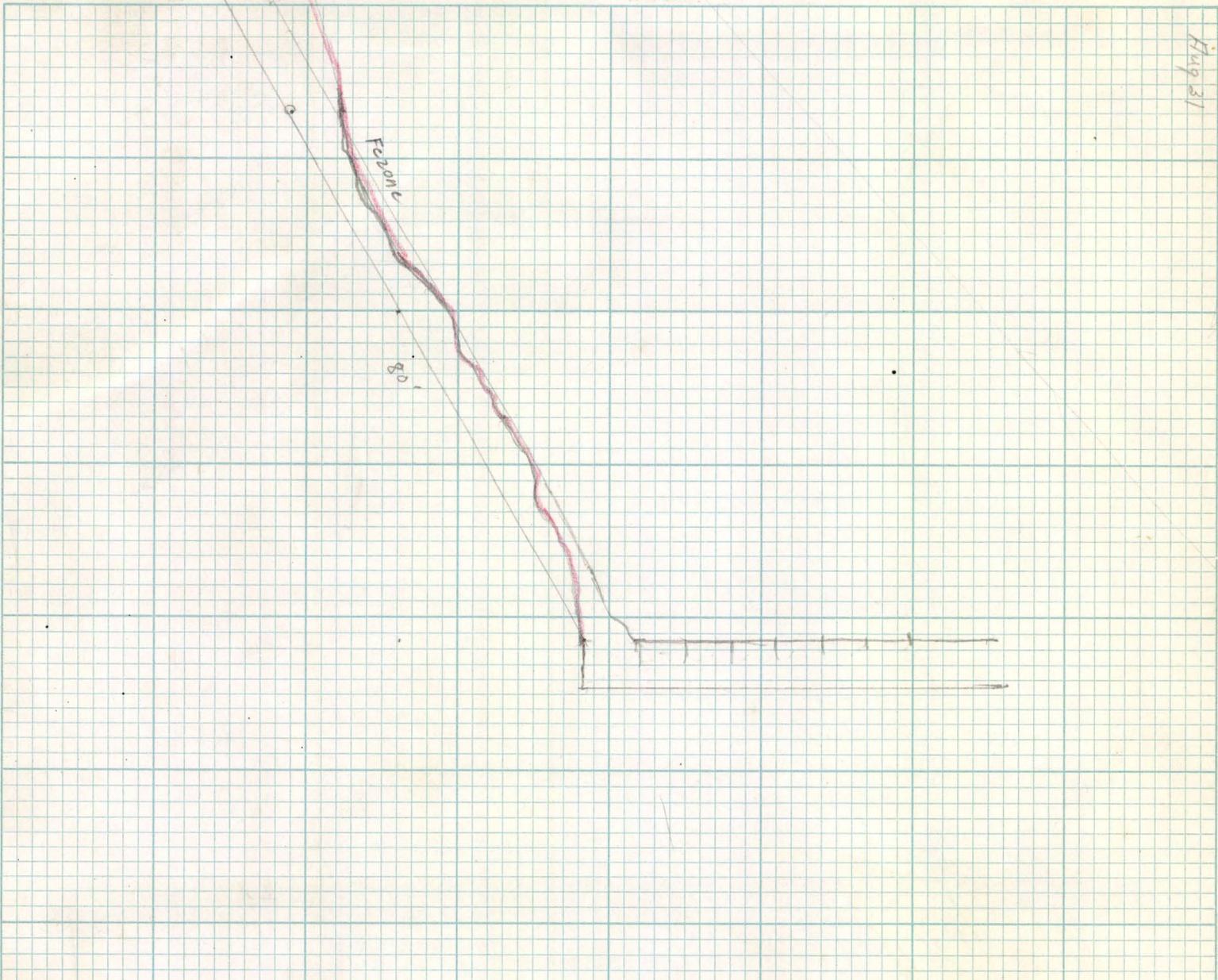
Aug 3 - Face showed white sand
 beginning drift & deep to NW



(see layout)

power	8	
50 KW Unit	4000 lbs Angles	
Motor for hoist	300	
Shaftbol	883	HMN II. Delini
Stoper	805	
Wagon & derrick	1000	
	65.25	
Aluminum Machinery & Clever	85	
	210	
	100	
	315	

Aug 31



Sample before

Sample 1 62" face of drift
Just beyond ditch oxidized rock
No Ca stains - red

Sample No 2 40" 15' from
ditch / oxidized rock No Ca
stains

Sample before

Sample No 3 10' from No 2
40" oxidized rock

No Ca. M.H.

Sample No 4 15' from No 3

60" oxidized

Previous cut

Sample No 5 But edge of sand
zone 60" 1.5' H.H.
cut starts,

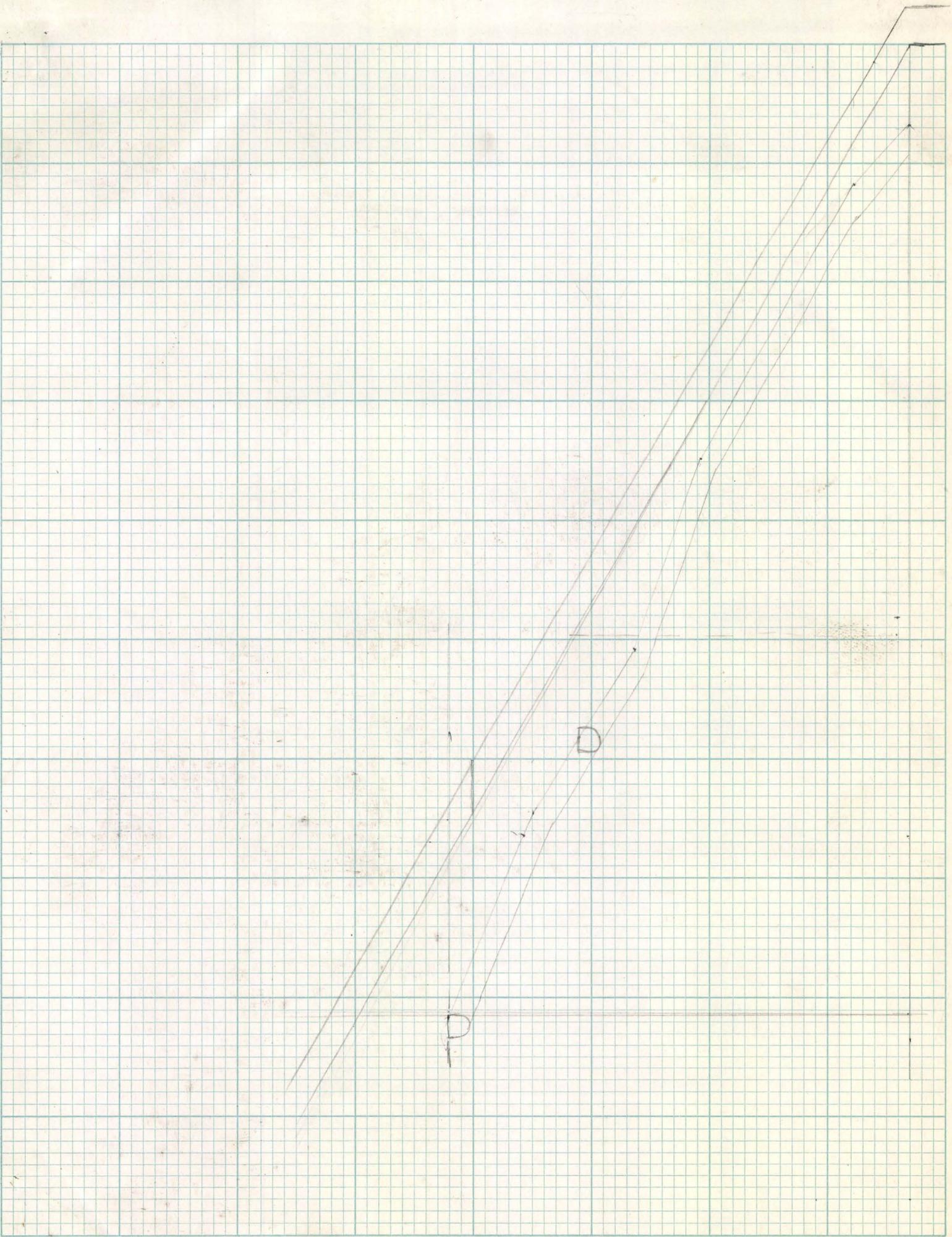
apparent cut 3' from sample No 5
to No 5 below

Sample No 6 60" Ca stain
upper portion

Sample No 7 92" soil side
above water C.H.
2' above floor

sample No 8 60" 66" Ca
cutting 1. 1. 1914
1.25' 30" Ca

111
112
113





1000 15

Liggett

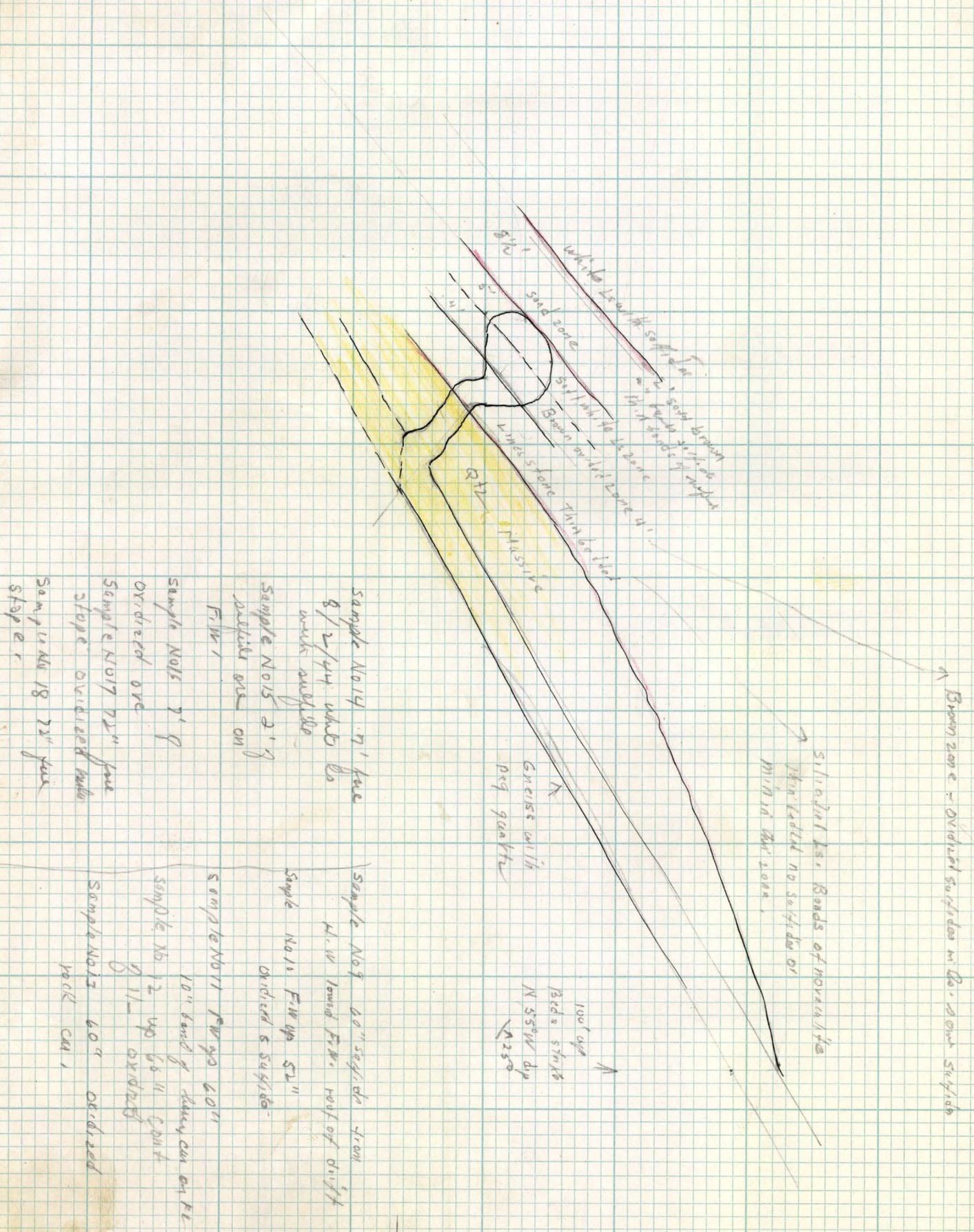
500

7350

150-200 feet

2570 down

mineral fragments



Sample No 14 7' face
8/2/44 white ls
with argillite

Sample No 15 2' g
white ore on
FW 1

Sample No 16 7' g
oxidized ore

Sample No 17 7 1/2" face
slope oxidized matrix

Sample No 18 7 1/2" face
slope

Sample No 9 60" section from
N.W. toward FW. roof of drift

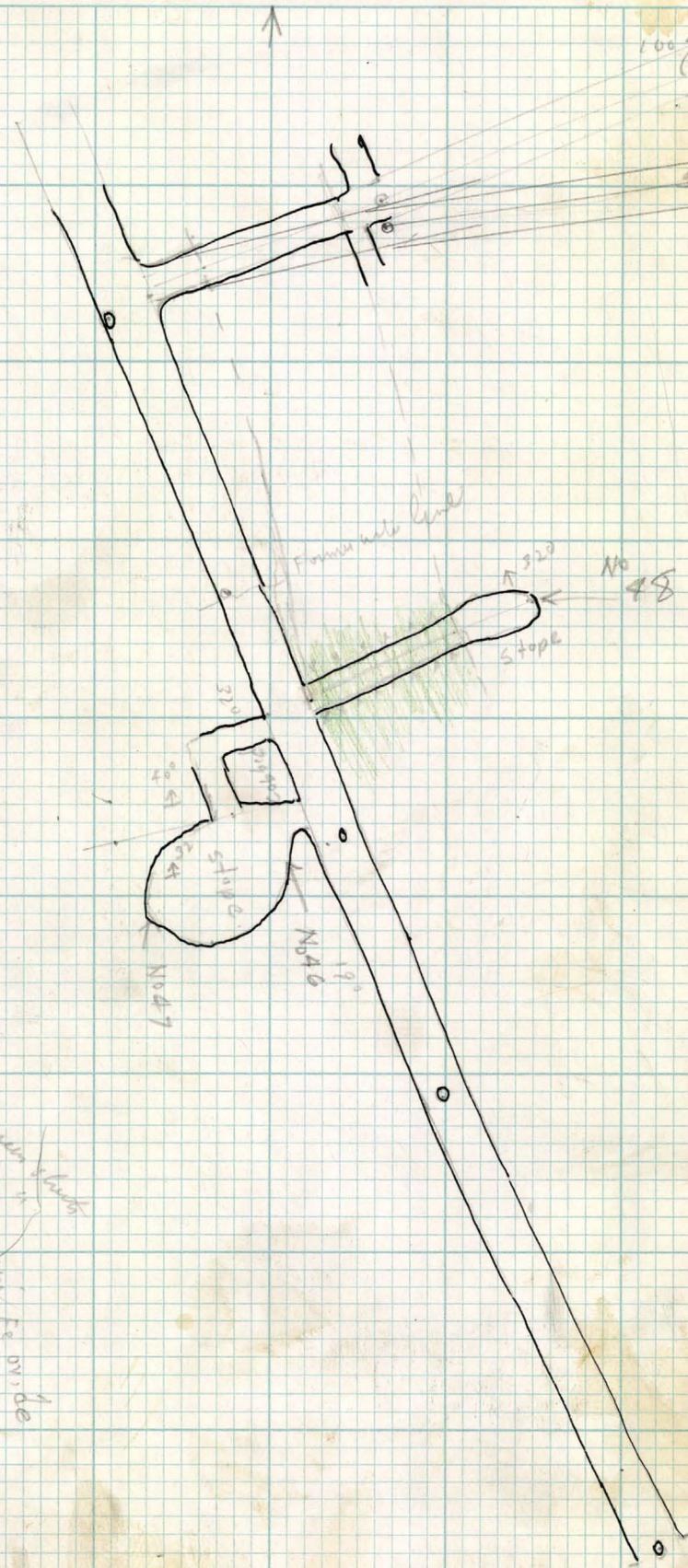
Sample No 10 FW up 52"
oxidized & argillite

Sample No 11 FW up 60"
10" band of heavy ore on Fe
Sample No 12 up 66" cont
9 1/2" oxidized

Sample No 13 60" oxidized
rock on 1

11

100	(20' - +430
	(80' - +280
	51 - -190
	50 - -32
	48' - -220 level



white gravel
 2-1/2' of
 Reddish-brown
 sandstone
 Fe oxide
 19'

Checked

10-10-42

an - 0.15 } 9.70

dog 1.54 } 9.70

cat 5.75 } 9.70

dog 0.13 } 2.97

FE 14.4

CAO 20.5

dog 35.72

dog 2.5

Magnum dog

Dec 11, 1942

an - 4.88 } 9.11

dog 3.1 } 9.11

dog 0.3 } 9.11

FE 15.99 } 8.50

CAO 20.60 } 8.50

dog 2.1 } 8.50

dog 88.0 } Freight

dog 2.10

12-29-43

AS R

53.65

Freight water dog 1/20 Jan 2.10

dog 1.35 } 8.20

dog 5.06 } 8.20

dog 4.12 } 8.20

dog 2.17 } 8.20

FE 11.5

CAO 18.16

10 St Rogally

Dec 1943

an - 1.01 } 7.22

dog 1.24 } 7.22

dog 4.13 } 7.22

dog 2.16 } 2.75

FE 10.8 } 2.75

CAO 19.8 } 2.75

dog 30.8 } 2.75

dog 2.5 } 2.75

an - 0.1 } 9.29

dog 1.24 } 9.29

dog 5.52 } 9.29

FE 14.15 } 34.39.85

CAO 20.5 } 34.39.85

dog 33.8 } 34.39.85

dog 2.0 } 34.39.85

Freight water dog 1/20

dog 1.50

12 rows

① 1/4 inch 5' shaft at bottom
Prepare station & post
Raised ore put in priority
timber

\$
1500.
1500

② Prepare steps & ore body for
mining on level of 1104
WIDE with raises

2500.
2500

③ Gallons of rain

1000.
1000

④ 750 3" pipe
450 2 1/2" pipe for ore
Roll

1000

⑤ 1/2 inch pipe 1324 ft.
+ Conduits

5000.
5000

⑥ 2 shafts 600
5' pipe
+ 1/2 inch
+ 2 1/2 inch
+ 4 inch
Conduits

1200.
450
235
200
200
165
2500

Bench houses
Repairs & building
Ore bins
Change room
Shed for machinery
Conduits

300.00
1500
300.00
250.00
1500

One lumber loan

3000
18000
5000
25000

No. 217 Re.

Page #1.

CHAS. A. DIEHL

Phoenix, Arizona,

JUNE 22 1943.

ARIZONA ASSAY OFFICE

Phone 3-4001

815 North First Street

P. O. Box 1148

This Certificate That samples submitted for assay by MR. C. A. RASOR.

contain as follows per ton of 2000 lbs. Avoir.

YUMA COUNTY		SILVER		VALUE (Oz.)	GOLD		VALUE (Oz.)	TOTAL VALUE Of Gold and Silver	% PERCENTAGE %			REMARKS
		Ounces	Tenths		Ounces	Hundredths			COPPER			
No. 46.	9 ^g				.03		1.05		2.21			
No. 47.	9 ^g				.03		1.05		3.70			
No. 48.	11 ^g				.03		1.05		3.95			
No. 49.	42 ^g				.02		.70		1.45			
No. 50.	60 ^g				.02		.70		1.70			
No. 51.	GRAB CAVE				.01		1.40		1.82			
No. 52.	60 ^g				.01		1.40		1.71			
No. 53.	60 ^g				.05		1.75		1.85			
No. 54.	60 ^g				.05		1.75		1.55			
No. 55.	49 ^g				.05		1.75		1.95			
No. 56.	GRAB.				.03		1.05		1.85			
No. 57.	49 ^g				.04		1.40		1.25			
No. 58.	49 ^g				.07		2.45		2.35			
No. 59.	60 ^g				.05		1.75		1.60			
No. 60.	39 ^g				.05		1.75		1.55			
No. 61.	39 ^g				.07		2.45		1.15			
No. 62.	49 ^g				.02		.70		1.55			

168
175
McLear

Charges \$ _____

Assayer ARIZONA ASSAY OFFICE.

No. 217 Re.
Page #2.

Phoenix, Arizona,

CHAS. A. DIEHL

JUNE 23 1943.

ARIZONA ASSAY OFFICE

Phone 3-4001

815 North First Street

P. O. Box 1148

This Certifies That samples submitted for assay by

DR. C. A. RASON.

contain as follows per ton of 2000 lbs. Avoir.

YUMA COPPER.	COPPER		GOLD		VALUE (Oz.)	TOTAL VALUE Of Gold and Silver	PERCENTAGE			REMARKS
	Ounces	Grms	Ounces	Grms			%	%	%	
No. 63.	0.35	0.51	0.07		\$ 2.45					
Comp. Sulphides.							1.40	39.04	18.70	8.51

Charges \$ 36.25

Assayer **ARIZONA ASSAY OFFICE.**



R. F. C
Mining Division
Report of Supervising Engineer

Docket No Yuma copper company ND-8111
Date Authorization for Exam. Recd June 14, 1943
Date of Examination, inclusive June 16, 17, 1943
Date of Report June 1943

By Resolution of the RFC, the Bureau under the above captioned docket was granted a preliminary development loan of \$5000 to unwater and rehabilitate a portion of the underground workings of the Yuma Copper Mine on the basis that such work may reveal and make accessible sufficient copper ore to warrant subsequent development. Applicant has spent the money and is now asking for an additional loan.

What was accomplished with the \$5000?

- ① Water was lowered at time of examination 50 feet in incline winze or 20 feet vertically, but applicant stated inclined winze was unwatered to bottom ^{which was} about 40 feet beyond present water level. No drifts were found extending from bottom of winze as indicated on map. Applicant allowed water to rise to drift level.
- ② Lowering of water did not make accessible inclined shaft.
- ③ Ore in east drift off inclined winze was heavily timbered and lagged and impossible to see.
- ④ Applicant bought hoist, rented compressor, rented pump and spent the best of the money

in wages, unwatering shaft 50 feet, and scouting the country side for equipment.

1. Name and Address of Applicant

Yuma Copper Mine
Vicksburg, Arizona

Correspondent

George Spry,
Vicksburg, Arizona

2. Character of Project

To equip and prepare mine workings for mining copper.

3. Location of Mine

In T. 5 N., R. 16 W., Ellsworth Mining District Yuma County, Arizona. The nearest railroad shipping point is McVey, Arizona, a siding on the Phoenix Branch of the Santa Fe Railroad, approximately 5 1/2 miles from the mine. Mine is accessible by unimproved dirt roads from both McVey and Vicksburg, Arizona.

4. Applicant.

Three young miners make up the applicant and operating personnel and ^{they} appear competent to do any underground work.

5. Loan Requested

\$30,000

6. Description of Project

A. General Features

1. No mine workings or mill which are not confined within applicant's ownership.
2. Proposed project would comply with state compensation or safety-first statutes, but there is no record to show that compensation insurance was taken out by the applicant under the preliminary loan.
3. No legal discrepancies not covered
4. No impeded right-of-way facilities
5. No likelihood of surface or sub-surface trespass.

B. Existing Development

1. Shaft mine

a. a map was prepared showing existing workings. It differs somewhat from map submitted by applicant who obtained information from former operators. A vertical double compartment shaft was originally sunk to 135 feet where an ore bearing horizon was encountered. A winding level extends in two directions from this shaft. Off this level the shaft continues on down at an incline of 30 degrees for an unknown distance. A working winze is located 78 feet west of shaft and was sunk on an incline for 300 feet.

b. Sampling data

Eighteen samples were taken, four.

of oxidized ore above water level and portions of sulfides are below water level. The sulfides are below the water level were sampled between lagging along the drift and crosscut (winings). A definite vein could not be observed because of the extensive timbering but ~~the~~ all the samples taken of this ore show a uniform copper content.

c. Condition and accessibility of mine openings.

The mine workings below the water level are inaccessible, but other wise the workings are accessible except for areas opened up on the drift cutting the sulfide zone. The mine workings are exceedingly hot, due possibly to oxidation of the sulfides and the mere exertion of watching the samples being cut had the debilitating effect of a turkish bath.

d. General features of deposit

The ore deposits is associated with the Yavapai schist of pre-Cambrian age. In this area limy beds, quartzites, shales and phyllites occur in connection with the schist. Certain areas show gradations from the sedimentary beds into schist and into augen gneiss. In case of the limy beds underlying

a quartzite or silicified zone, pyrite mineralization has disseminated the bed for a thickness of 10 feet more or less in structurally controlled zones. Associated with the pyrite is chalcopyrite in minor amounts. The mineralization, as observed between the logging, is of such character as to run like sand. It appeared at first that former operators had dumped some mill tailings into the old workings. Subsequent to mineralization lamprophyre dikes cut the rocks. These dikes stand nearly vertical and vary in thickness from 25 feet to 5 feet.

C. Proposed Development

1. Applicant proposal to install a pump in incline shaft, run water same, and prepare a station and raise to ore body exposed in drift off incline wing. Also the applicant expected to re timber drift on ore and prepare stopes for slushing ore into pocket built in the inclined shaft. As set up this would take \$4,000 the rest of the \$30,000 is to be used in re equipment of preliminary work, buying equipment and construction of camp and mine

facilities.

F. Ore Reserves.

Average Value of Sulfide ore.

Sample No	width	Au	Au x width	Cu	Cu x width
49	72"	.02	.84	1.45	60.90
50	60"	.02	1.20	1.70	102.00
51	Grab	.04		1.82	
52	60"	.04	2.40	1.71	102.60
53	60"	.05	3.00	1.85	111.00
54	60"	.05	3.00	1.35	81.00
55	48"	.05	2.40	1.95	93.60
56	Grab	.03		1.85	
57	48"	.04	1.92	1.25	60.00
58	48"	.07	3.36	2.25	108.00
59	60	.05	3.00	1.60	96.00
60	30	.05	1.50	1.55	46.50
61	36	.07	2.52	1.15	41.40
62	48	.02	0.96	1.35	106.20
	600		26.10		1009.20

Boulder ore

scud along drift

$$\text{Average value of Cu} = \frac{1009.2}{600} = 1.682\%$$

$$\text{Average value of Au} = \frac{26.10}{600} = .0402\%$$

Smelter value at Clarkdale, Arizona

.04 Au at 32.1195 = 1.28

1.68% Cu = 33.6 lbs less 8 lbs =

25.6 lbs at .09275 = 2.37

Total smelter value \$ 3.65

provided there are no deductions

for sulfur (8.81%) and iron (18.70%). \$ 3.65

4.88
- 1.23

3.65

Metal Reserve Premium

33.6 lbs x 97% = 32.5 lbs x (.05 + .046) = 3.12

Total value

\$ 6.77

~~6.91~~
~~1.86~~

Costs against this ore

Mining 2.50

Haulage mine to railroad 0.60

Freight to Clarkdale, Ariz 1.50

Transportation Tax .06

Smelting 2.75

Total 7.41

853
741

1104

7.41

2.80
9.91

Loss

0.64

The above costs are the minimum against this ore. Certainly some overhead will accrue as well as development costs.

32.5
- 1.3

31.2
- 1.5

29.7
- 4.0

25.7

Comments of Supervising Engineer

Whereas the ore from this mine cannot stand the 5 cent bonus plus 4.6 cents more and has none of the desirable features such as a high silica content, there is little reason to recommend an additional loan on this mine that under minimum costs can not show a profit but instead a loss of 64 cents a ton.

Applicant has spent the entire \$500 and did not open up the inclined shaft where it appears most of the ~~work~~ proposed work will be done. Unwarranted amount to lowering the water 50 feet on the incline or about twenty feet vertically.

Charles A. Rason
S. E.

attachments

map
assay certificates.

Stock no	width	Ac	aux width	cu	cu x cents
No 49	42"	.02	.84	1.45	60.90
No 50	60"	.02	1.20	1.70	102.00
No 51	60"	.04		1.82	
No 52	60"	.04	2.40	1.71	102.60
No 53	60	.05	3.00	1.85	111.00
No 54	60	.05	3.00	1.35	81.00
No 55	48	.05	2.40	1.95	93.60
No 56	60"	.03		1.85	
No 57	48	.04	1.92	1.25	60.00
No 58	48	.07	3.36	2.25	108.00
No 59	60"	.05	3.00	1.60	96.00
No 60	30"	.05	1.50	1.55	46.50
No 61	36"	.07	2.52	1.15	41.40
No 62	48	.02	0.96	1.35	106.20
	<u>600</u>		<u>26.10</u>		<u>1009.20</u>
		.04		1.68	

ore haulage 0.60
 Freight 1.50
 Smelter 2.75
4.85

260
 03
630

124-6

33.6
 597

cu - .09275 + 4.6 + 5 cents

168 2352
2 3024

33.6 32.5
8.0

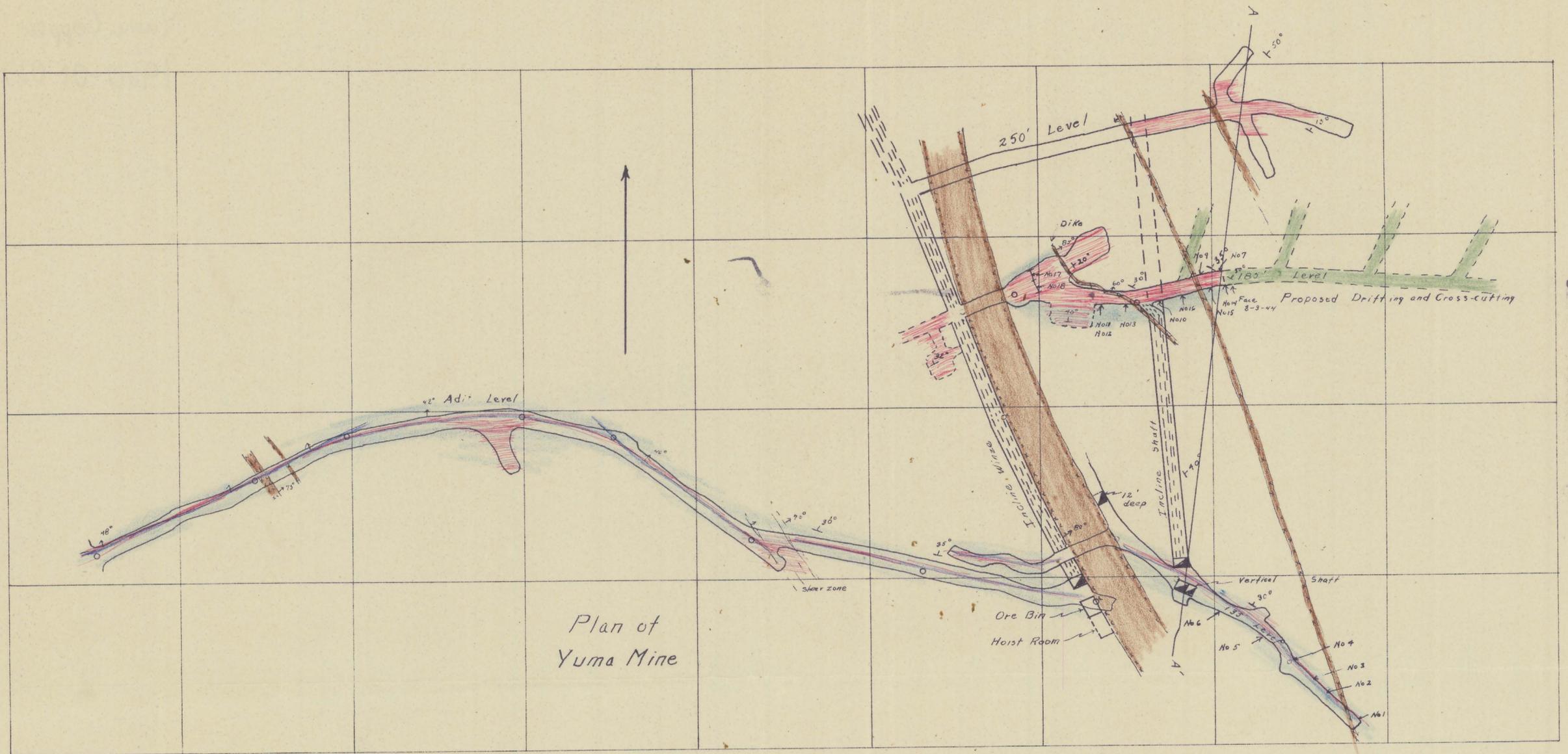
cu - .32, 1185
04
 1,284,780

25.6 32.5
.096

25.6 lbs at .09275
25.6
 55650
 443.75
 18550
2,3744.00

2.37
 3.12
1.28
 6.77

19.50
 2925
31200



Plan of
Yuma Mine

Assays

No	Width	Fe	Cu
1	62"	.04	0.71
2	40"	.02	0.94
3	40"	tr	0.55
4	60"	.01	1.20
5	60"	.06	1.95
6	60"	.05	1.08
7	72"	.01	2.00
8	Grab	.03	1.36
9	60"	.01	1.64
10	52"	.05	1.61
11	60"	.01	5.64
12	60"	.02	4.50
13	60"	.02	4.40
14	84"	.03	0.71
15	24"	.04	0.82
16	84"	.05	1.42
17	72"	.05	2.00
18	72"	.02	1.01

- Legend
- Mineralization and Ore
 - Limestone
 - Lamprophyre Dikes
 - Proposed Development

Liberator Mines Company
 Docket No ND-6018
 Scale 1" = 50' Aug. 3, 1944
 Charles A. Ross

