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Report of Supervising Engineer

Docket No. ND 5976
Date authorization for Exam
Rec'd April 12, 1944
Date of Exam assigned
March 29, 1944
April 16, 1944
Date of Report ~~April~~ 1 1944

Durring October 1943 the Reconstruction Finance Corporation granted this project a $5000 loan to make the main 350 foot vertical shaft accessible. Since it was ~~to~~ ~~obvious~~ obvious that that amount of work could not be accomplished with $5000 the applicant agreed to advance $2500 of his own money in addition to the loan. This $7500 has now been spent and the shaft was made accessible to the 250 foot level. Applicant now requests a further loan to place the mine on production.

1. Name and Address of Applicant

Name - Mark F. Jones & Rosie S. Jones
Address 622 CC Chapman Bldg
City & State - Los Angeles 14, Calif
Correspondent Mark F. Jones
Same address

2. Character of Project

To do raising, ~~and~~ drifting, and stoping from the 250' level of the vertical shaft inorder to mine a lead-silver ore body located in a ~~breccia~~ limestone breccia

3. Location of Mine

Name of Mine - Blue Nose Mine formerly known as the Abe Lincoln or Big Jim

Township Range Section - Unsurveyed section of T23S, R16E G+SRB+M.

Mining District, County, State - Harshaw Mining District, Santa Cruz Co, Arizona

Name and distance by road nearest railway station - The mine is located 11 miles southeast of Patagonia a station on the Southern Pacific Railroad

(2)

Condition and seasonal accessibility of road, mine to railway - a very well graded dirt road that should be accessible at all times of the year connects the mine with the railroad. Elevation of the mine is approximately 5000 feet so climatic conditions should be favorable for year around operation

4. Applicant

Mark F Jones is a successful Los Angeles attorney who once ran for Los Angeles District Attorney. He has apparently been connected in a financial way in the past with a number of mining ventures. He appears to be a shrewd business man altho he is not a practical

mine operator. Rosie S. Jones is his wife.

Mr. M.A. Hogan an elderly ~~mine~~ practical mining man is in direct charge of the operation as superintendent. Hogan has been mining in this area for the past 15 years and has a very comprehensive knowledge of the geology and mining conditions of this mine and of this area. Under his direction the first loan was well and advantageously spent and I believe him fully ~~capabl~~ capable of operating this project. I was favorably impressed with his knowledge of the former operations of this mine and his logical opinions as to the potential value of the property as reflected by existing ore indications.

(8) At the time of my visit four men were employed on the project and they appeared to be experienced workers.

5. Loan Requested

The application originally called for a loan of $30,000. After I visited the property in the company of Jones and Hogan they modified their loan request to $19,000 as indicated by the applicants letter of April 15th which is attached to this report.

After I had received the results of my sampling and drawn the accompanying maps it is my personal opinion that the loan if granted should be further reduced to $15,000 which includes repayment of the $5000 existing loan as will be further explained in this report.

6 Description of Project

A Legal Consideration

Applicant holds a lease and option dated April 15, 1943 on 9 unpatented claims under the following terms:-

1. Purchase price $40,000 payable $1000 down (paid) and 10% of net smelter after deducting all transportation and smelting and/or milling charges.

2. Work requirements are 1000 shifts for the first year, 1500 shifts for the second year, and 2500 shifts per year thereafter

(4) 3 No limit to period of option

In a subsequent agreement dated Sept 11 1943 Mark Jones agrees to purchase under option his partner's, James M. Laymon's one half interest in the original lease of April 15, 1943 under the following terms:-

(a) 1. Purchase price $10,000 with $300 cash payment and the balance on a royalty of 2½% of net smelter after deducting all transportation and smelting and milling charges with a minimum royalty guarantee of $50 per month.

(b) 2. However Laymon agrees to subordinate his 2½% royalty and/or $50 per month payments to an R.F.C. loan if required by this Corporation. I believe this subordination should be required as a provision of any future loan since a total royalty of 12½% is too high for this type of mine and I see no reason why the R.F.C. should wait for their loan repayment while the promoter of the mine, Mr Laymon, is profiting from this Corporation's investment.

Before the ore found on the 250 foot level can be stoped it will be necessary to start work on a second exit for the mine and this work would probably consist of driving a raise from the 150 foot level to the adit 75 feet above. It is possible that this raise would be in ore for part of the way at least.

B. Existing Mine Development

The mine is developed by a number of short adits and small shafts, and one two compartment vertical shaft said to be 350 feet deep with levels at ~~the~~ 150, 250, and 350 feet. Most of the 150 foot level is now caved and inaccessible, the 250 foot level is all accessible but since the water stands in the shaft just below the 250, the bottom or 350 foot level is not now open. As shown by the accompanying maps a large amount of underground development work has been done on this project but since most of these workings are now inaccessible it is difficult to gain a clear picture of the geology or to estimate the amount of ore left in the mine. At this ~~this~~ point it might be well to point out that the attached maps are in large part based upon old maps and records submitted by the applicant. Apparently the only new work of any consequence done since these old maps were made (1929) was the north drift of the 250 foot level.

Most of the back of the stopes on the 250 foot level were inaccessible for sampling as was

the floor of this level as it was covered with about 18 inches of heavy mud.

C. Surface Improvements

Before the loan was granted there were no surface improvements at the mine. Under loan funds the applicant has done the following work:-

Constructed a small head frame
Built hoist house + installed small hoist + cage
Repaired 3/4 mile of road (now in excellent condition)

While underground work done with loan funds consisted of:-

(6)

Retimbering shaft for first 100 feet
Dewatering mine from 235' to 280' level
Installed new cage guides to 250' level
Cleaned out 50' of drift on 150' level
Drove 35' of new drift on 150' level.

~~Altogether~~

All together I consider that the $7500 available under the first loan was well spent.

D. General Geology of Area

The regional geology and to a small degree the geology of the Blue Nose Mine has been described in U.S.G.S. Bulletin No 582 by F. C. Schrader a copy of which accompanies the application

Briefly the country rock is thin bedded grey Devonian limestone locally intruded by Tertiary rhyolite and underlain at depth by a granitic intrusive mass.

The mine is particularly well situated in regard to the surrounding producing mines. The

American Smelting and Refining Company is now operating the adjoining French, Flint, and Hard Shell Mines and at the French Mine they have a 200 ton ~~and~~ flotation mill in which they have agreed to treat the Blue Nose ore. In addition 11 miles to the south the Callahan Lead & Zinc Co operates a selective flotation custom mill.

The three properties, mentioned above as adjoining the Blue Nose Mine have reached depths of from 500 to 900 feet so that we have proof that ore deposits in this area are relatively deep seated

(7)

~~E Economic Geology of Deposit~~

E Economic Geology of Deposit

The Blue Nose Mine consists of a series of three and possibly four pipes of ore along a breccia zone with the ore formed by selective replacement of the ~~softer~~ gouge parts of the breccia. The foot wall of the ore zones is ~~formed by~~ composed of a dense pyritic shyolite (?) and the hangingwall is well bedded limestone with related minor beds of metamorphosed more siliceous sediments. These various pipes of ore are localized along the contact by ~~cross~~ cross faults ~~causing~~ occurring as regular step faults nearly at right angles to the ore horizon.

The ore zones marked on the map are merely mineralized zones ranging in widths from a few feet to more than thirty feet and in lengths from twenty to more than one hundred and fifty feet. These zones as marked on the map are not actually

all mineable ore but are merely the altered areas of country rock containing sufficiently well mineralized areas to be classed as ore at some points.

A study of the accompanying maps would indicate that the No 2 ore body ~~was~~ above the 150' level contained a large pipe of ore which produced the major tonnage in the past production of the mine. The Arizona Bureau of Mines Bulletin 140 lists the production of the Blue Nose Mine at 500,000 lbs of lead, and $225,000 worth of silver or a total production worth $250,000. At the same time the production of the Hardshaw District, from 1880 to 1930, in which the Blue Nose Mine is located was as follows:

(8)

Copper	400,000 lbs
Lead	13,600,000 lbs
Silver	$3,065,000
Total	$3,835,000

Oxidation of the Blue Nose ore extends only to a few feet in depth. The chief primary ore minerals are galena, sphalerite, chalcopyrite, gold, and silver. The gangue minerals are ~~—~~ calcite, quartz, pyrite, rhodochrosite, alabandite, and talc. The ore is well suited to selective flotation.

Associated with these massive pipes of ore are small veins of sulfide ore striking north and south and dipping as do the pipes to the west. Apparently the ore pipes are becoming smaller at depth and occur more as veins altho there is no indication that the ore has bottomed but instead I believe that the ore

should continue to perhaps at least twice the present depth of the workings.

At present the only important accessible ore showings in the mine are on the 250 foot level. Here the number 1 ore body is exposed in a short crossout to the west of the 250 Station and in the shaft itself for about ~~about~~ 30 feet above the 250 Level. Another west crossout shows that the south limit of this pipe has been reached and the east limit is found in the main 250 foot level but the north and west limit of this ore body has not as yet been reached. The two stopes on the 250 Level expose a spotty ore zone about 6 feet wide. A Sample was taken in this stope in the only accessible place but the ore was found to be too low grade to be mined at a profit altho I believe it warrants further investigation.

(9)

The cross section map indicates that the lead ore pipe found at the 250' shaft station occurs in the hanging wall area of the ore zone while the vein found in the 250 Level stopes occupies the foot wall of the zone.

F Ore Reserve

There is no blocked out ore in the mine and the lead ore exposed on the 250 Level unfortunately occurs ~~at~~ the shaft station so that a ~~good~~ part of the present ore exposed will have to be left as shaft pillars.

I have taken such samples of the mine and since much of the mine is inaccessible these were all the samples that it was possible to

obtain
~~take~~. attached are the assay certificates

Sample No 111 and 115 across an average width of 18" were taken on the 150 foot level in the No 1 Ore body but did not indicate profitable ore. Samples No 118 and 119 across an average width of 16 inches were taken in the footwall ~~of the No~~ ore zone of the No 2 ore body on the 250' Level but did not indicate profitable ore. Sample No 117 was a grab sample from a 6 foot spotty ore zone (No 1) found in the stopes above the 250' level but this sample ~~would~~ indicates marginal ore. Samples No 112 and 116 were taken in the No 1 ore body exposed near the 250' station. This would be profitable ore if shipped to the nearby French custom mill. Sample No 112 was taken near the face of the west crosscut from the 250' station and across a horizontal width of 108". The face of the crosscut was still in ore and so is the shaft station proper but since it would be necessary to leave a pillar at the shaft the ore here was not sampled by me. Sample No 116 was taken the full width of the shaft (60") but here again the ore is wider but since the shaft is timbered this was the only available place to cut a sample. I estimate that the No 1 lead ore pipe as exposed at the 250 station is approximately 20 ~~ft~~ wide, at least 30' long (north + south) and should extend for a vertical height of 70' above the level and 20 feet below or a total of 90' vertically. This would calculate out to be a probable tonnage of 3600 tons of which only 1800 tons could ~~possibly~~ probably be mined as the balance would have to be left as shaft pillars. There is no indication that

(10)

(continued)

this ore shoot will not go down below the 250 foot level so that it is possible that the No. 1 orebody when ~~dev~~ fully developed will produce 3000 or 4000 tons of ore,

The average value for ~~this ore~~ the ore d sampled would be :-

Assay No	Width	oz silver	% Lead	% Zinc	Location
112	108"	5.5 59	13.66 1475.3	1.04 112.3	West Crosscut
116	60"	8.6 516	13.94 831.4	1.30 78.0	Shaft
(11) Average	84" 108	6.6 oz	13.76% 138 38	1.13%	~~Sam~~

The following samples were taken by the applicant:

Assay No	Width	oz Silver	% Lead	% Zinc	Location
—	Grab (60")	12.40 744	20.8 1248	6.6 396	Shaft
4	48"	5.00 240	10.5 504	3.2 153.6	West Crosscut
5	48	5.0 240	8.2 393.6	2.2 105.6	" "
6	66"	8.4 554.4	18.7 [illegible]	3.0 198	" "
7	66"	4.8 [illegible]	9.4 [illegible]	2.1 138.6	" "
8	66"	2.8 [illegible]	3.3 217.8	1.0 66	" "
11	66"	3.8 250.8	9.2 607.2	1.3 85.8	" "
3	66"	1.8 118.8	5.3 [illegible]	1.5 99	" "
Average of 8	61"	5.5 oz.	10.65%	2.56%	

(Omite Red number)

Taking my assays and making the customary 10% reduction for sampling error we have for the purpose of calculating the net value :-

6 oz silver, 12.5 % lead, 1 % Zinc

If the ore is shipped to the nearby Trench Mill we have the following schedule per ton:-

Net Custom Mill Return

	Ag 6 oz = 6 x 50¢	=	$3.00
	Pb 12.5% = 250 x 3.05¢	=	7.63
4.14	Zn 1% = 20 x 2.525¢	=	0.51
	Total mill ~~return~~ payment		$11.14
	Less milling charge $3.50 + 0.41		3.91
	Net custom mill payment		$7.23

Premium Payment (A Premium only)

(12)

Pb	250 lbs x 86% x 2.75¢	5.91
Zn	20 lbs x 77% x 2.75¢	0.42
	Total premium payment	6.33
Total ore payments		$13.56

Deductions

Trucking 2 miles	0.50	
Royalty 10% net	1.31	
Estimated mining cost	6.00	
Total estimated costs		7.81
Total estimated net profit per ton		$5.75
Estimated net profit on 1800 tons probable ore		$10,350

The applicant is also sending a representative ore sample to the nearby Callahan Lead + Zinc custom mill with the hope that their milling schedule will be more favorable. The applicant applied last year for an additional premium on copper, lead and zinc but at that time it was denied as applicant had as yet not dewatered the shaft

G. Economic Considerations

Mining would probable be done with shrinkage stopes. Four men are now employed and it would ~~probably~~ likely take an additional four men. Applicant now owns at his Arizona gold property most of the equipment necessary for the operation of the mine.

(13) I believe that all future operations should be concentrated on the mining of the No 1 orebody by means of extending the small raise found ~~on the~~ to the east of the main shaft on the 250' Level. Then this raise all the ore above the 250 level and east of the shaft could be mined. The crosscut in ore to the west of the shaft on the 250 level should be extended to the west limits of the ore body and a north drift run to determine the north limit of ore. The ore above these levels could be largely mined by means of a number of ~~small~~ short open raises. Later a winze could be started from this crosscut to determine the depth to which this ore extends and if the ore extends nearly to the 350 level the shaft could be dewatered and the ore mined from the raise on the 350 level. Therefore all development work will be confined to actual stoping in ore so this work should nearly pay its own costs.

It is expected that the mine should produce at least 25 tons per day after the first 90 days of preparatory work.

Proposed Expenditures

In the original application and the letter of ammendment accompanying this report the applicant has requested a loan of $19,000.

Based upon the development program as outlined above I believe that the following expenditures would be most in order:—

Repayment of existing loan	$5,000.00
(14) Purchase of engine for applicants hoist located at Kingman, incl. freight and installation costs	750.00
Freight Kingman to mine on applicants compressor, and installation costs	750.00
1 - 50 ton ore bin (applicant originally planned to build a 200 ton bin)	500.00
1 hoist house (present hoist house to be used for change room)	400.00
Replace 50' of shaft timber between 150 and 250 levels	1000.00
300' of 2" air line delivered (used)	75.00
9 300' of 1" water line " (used)	50.00
1 water storage tank (smaller than applicant planned)	100.00
Timber and labor to install chutes & prepare 250 level for stoping	1000.00
1 stoper (already owned by applicant)	—
11725.00 / 275 / 12,000 / 14,000 / 500 / 15,000 — 1 mounted jackhammer (used)	300.00
Drill steel, bits, hose, etc	500.00
600 feet of 12 lb rail	120.00
Misc tools and supplies	200.00
Raise 100 feet for ore between 150 + 250 levels	1200.00
Reserve for second exit raise (if required by Mine Inspector) between 150 level + adit (60 ft)	780.00
Reserve for insurance, social security, and contingencies	2275.00
Total for loan	$15,000.00

In my estimate I have not included the item of $2000 for repayment of advances made by applicant to ~~keep the~~ finish the accessibility work on the mine. I informed him that any such repayment would first have to be approved by the Division Chief. Personally I believe such a repayment should be made out of production for at present there is a limited amount of ore exposed in the mine and the necessary operating funds have already reached a total of $15,000.00

(15) 8 Comments of Supervising Engineer

It is my opinion that the factors favoring a loan of $15,000 for this project are:-

1. Applicant has shown his good faith by investing $4500 of his own money in the project and has never personally received any part of the first loan

2. The accessibility loan was ~~well~~ efficiently spent and the mine is apparently well supervised by Mr. M. A. Hogan

3. Applicant already owns most of the equipment necessary to place the property on production

4. Applicant is now employing half of the crew necessary for the operation of the mine, wages are cheap in this area, and due to the mines' close proximity to the Mexican Border labor is not too scarce.

5. The mine is well located in regard to two custom mills and is surrounded by producing mines

6 Geology of the deposit appears favorable for the occurrence of large profitable silver lead ore bodies with the probability of an increase in the copper and zinc content at depth.

7. The mine now exposes a large pipe of profitable lead silver ore which can be immediately stoped.

8 The ore bodies as exposed are large and the ground below the 150' level stands well so mining costs should be low.

9. There are possibilities of developing new and hitherto undeveloped ore shoots on the 250 and 350 Levels

(16)

10 The mine has the possibilities of developing into a large producer that could have a good market value in a sale to the nearby American Smelting and Refining Co ~~smelting operation~~

The apparent disadvantages of this mine are:-

1. There is no blocked out ore in the mine and the probable ore will not entirely repay the loan requested unless new ore is developed.

2. The geology indicates that the ore shoots are irregular and erratic in their occurrence as are most lead replacement ore bodies in limestone

It is difficult to make a definite recommendation on this project ~~at this~~ as the ore bodies are only partly exposed but it is my opinion that the possibilities of producing a ~~large~~ considerable tonnage of ore from this project are favorable

Wm B Wheeler

Repayment of Loan $5000.

Surface

200
130
~~160~~
440
350

1 - hoist 60 H.P. 500' 3/4" cable, engine 750.00
Hoist only owned by applicant in Ruzman (fit only $250)
Purchase engine $500

1 - C.R. Imperial #10 310 cu ft compressor
Westcoast 60 H.P. engine both owned by applicant
Fit only $750.00

1 - 100 ton ore bin wood (Powders mag in) 1500.00

1 - hoist house (charge room now in) 400.00

$3400.00

Mine Rehabilitate Mine

Replace 50' shaft timber 500.00

23
3
69

2" air line 300' @ 23¢ 75.00

1" waterline 300' @ 12¢ 50.00

385

Water storage tank 350.00

Chute + stope on 250' Level timbering 500.00

5000
3280
3400
$11,680
3430
$15,110
17,110
19,110
20,000
Loan

2 stopers 1 already owned 385.00

2 mounted jackhammer 600.00

Drill steel + bits, hose 500.00

Misc Tools + supplies 200.00

600' rail 120.00

3280.00

Development Work

Drift 50' on 150' level $15/ft 750.00

980

Raise 80' on 150' level to Tunnel $12/ft 980.00

Raise 100' between 250' + 150' $12/ft 1200.00

Misc labor costs 500.00

$3430.00

Reserve for Contingencies $2000.00

Repayment of Jones 2000.00

Ag 5.5 X 50 = = 2.75
Pb 13.66 X 2 = 273.2 X 3.05 = 8.33
Zn 1.04 X 2 20.8 X 2.525 = 0.55

11.61
− 4.10
7.51

273.2 X 96 X 2.75 = 7.21
20.8 X 77 X 2.75 = 44
Total 15.16

16
02

6

6

190.70
7
13349

88
85
440
704
74.80

.342 .9397
32 32

684 18794
1026 28191
10.944 300704

870
95
450

.242 9703
30 3
7.26 29109

85
83

275
.25
5500
1375
275
41.25

345
5
19.75

15.15
45.00
19.75
22.80
18.00
190.70

285
8
2280

6

83

Blue Nose

In Devonian thin bedded grey limestone with Tertiary Rhyolite to North