

PRINTED: 11-27-2001

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: LEVIATHAN

ALTERNATE NAMES:

CONGRESS
WHALE VEIN
COPPER WONDER
MC CARTY MOLYBDENITE DEPOSIT

MOHAVE COUNTY MILS NUMBER: 492A

LOCATION: TOWNSHIP 17 N RANGE 14 W SECTION 30 QUARTER NE
LATITUDE: N 34DEG 49MIN 49SEC LONGITUDE: W 113DEG 47MIN 41SEC
TOPO MAP NAME: DIAMOND JOE PEAK - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:

MOLYBDENUM SULFIDE
COPPER SULFIDE
SILVER

BIBLIOGRAPHY:

ADMMR LEVIATHAN MINE FILE
ADMMR "MOLY OCCUR. IN AZ" RPT. NO. 3; 1979
BLM UNIT RES. ANALYSIS, STEP 3&4 OF HUALAPAI
UNIT (IRS-19)
HESS, F.L. "MOLY DPSTS" USGS BULL 761, P. 14
HORTON, F.W. "MOLY" USBM BULL 111, P. 52-54
KING, R.U. "MINERAL & WATER RESOURCES OF AZ"
AZBM BULL 180, P 235; 1969
MALACH, R. "PEACH SPRINGS BKLT" P. 4; 1975
MALACH, R. "MOH. CTY PLACE NAMES" P 19; 1976
MALACH, R. "BIG SANDY CTRY" P 10,36,37; 1975

from: W.H. Crutchfield Jr. Mohave County Prospect Assessment Compilation (post 1982)

Copper Wonder	17N	14W	29 dac	C
Principal Minerals:	1:250,000 Quad		7.5' - 15' Quad	
	Prescott		Diamond Joe Peak	
Associated Minerals:	District		Principal Product	
	Maynard		Copper(?)	
Type of Operation:	County	State	Type of Deposit	
	Mohave	Ar.		

Ownership or Controlling Interest:
 Consult current tax assessment records

Access: From Wikieup, Ar. proceed north on U.S. 93 for 7 miles, turn left on light duty road into Deluge Wash and travel west for 10 miles. Mine is shown (unnamed) on topographic quadrangle.

Structural Control or Geological Association:
 "Older Precambrian Age, Granite Gneiss."¹

Age of Mineralization:

Production History	Geochemical Analyses
Patented claims (7) Book #203 MS #3527 #3290A	

References

- 1) Wilson & Moore (1959) Geologic map.

Name of Mine or Project: Leviathan Mine	Township 17N	Range 14W	Section 30 cda	Priority A
Principal Minerals: Molybdenite	1:250,000 Quad Prescott		7.5' - 15' Quad Diamond Joe Pea	
Associated Minerals: Copper, Sphalerite	District Maynard		Principal Product Molybdenum	
Type of Operation: Underground	County Mohave	State Ar.	Type of Deposit Vein	

Ownership or Controlling Interest:
Consult current tax assessment records

Access: From Wikieup, Ar., proceed north on U.S. 93 for 7 miles. Turn left on light duty road into Deluge Wash and travel west for 10 miles to mine. Mine is shown on topographic quadrangle.

Structural Control or Geological Association:

"Molybdenite in quartz veins cutting Precambrian quartz diorite."¹

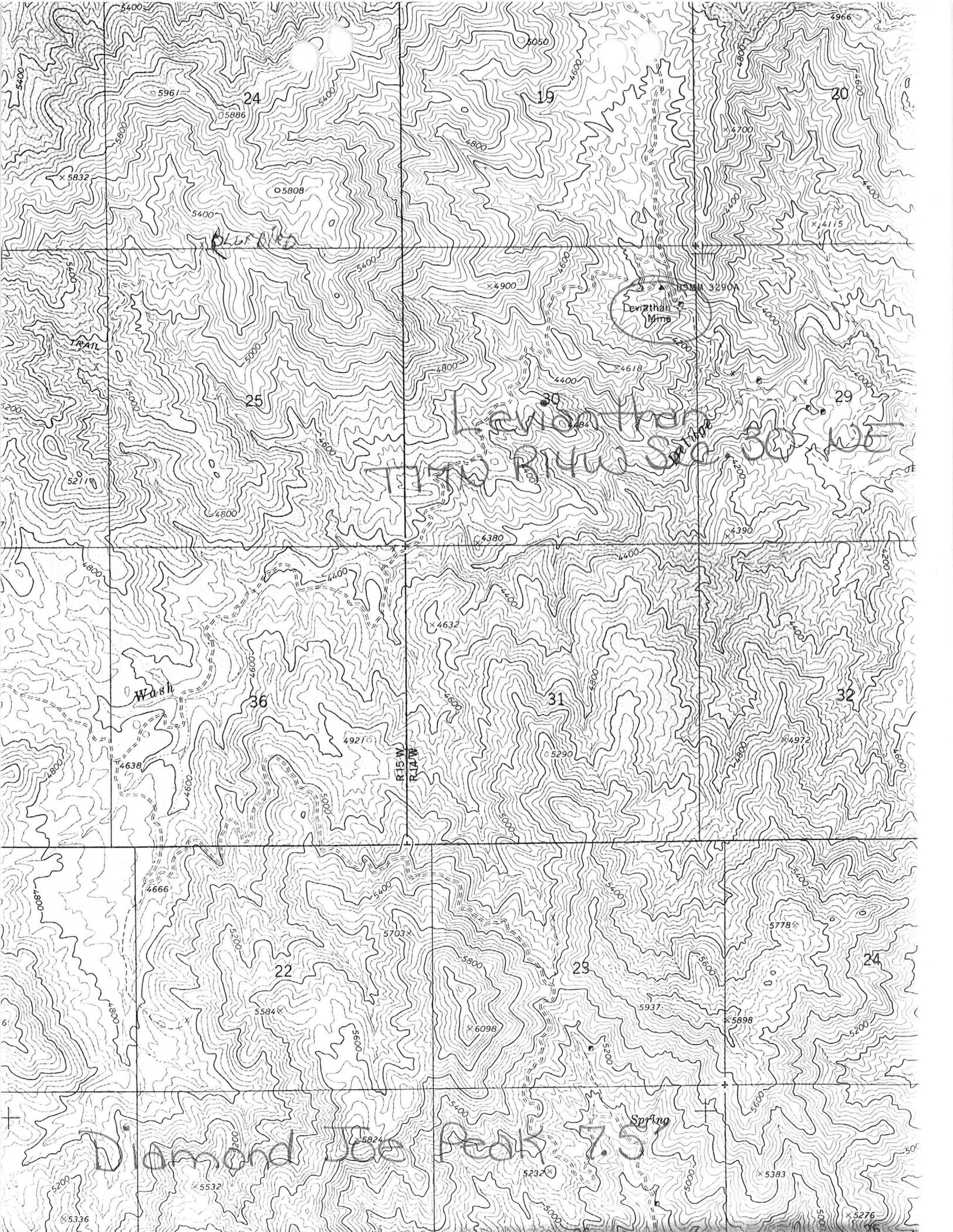
"Molybdenum mineralization associated with the Leviathan vein is found both in and adjacent to a quartz monzonite stock of Laramide Age."⁴

Age of Mineralization:

Production History	Geochemical Analyses
<p>"Total estimated deposit greater than 1000 tons molybdenum."¹</p> <p>Patented claim Bk #203 MS #3290A</p>	

References

- 1) ABM (1969) Bull. 180, p. 230-238.
- 2) Mallach (1977) p. 57.
- 3) CETA map file Rack #9, underground map.
- 4) Liggett (1974) field reconnaissance.



24

19

20

25

29

36

31

32

22

29

24

Diamond Joe Peak 7.5

Devrathal Wm

Lewiston
Tinto River Sec. 30 NE

Wash

Spring

R15 W
R14 W

5336

5532

5232

5383

5276

4666

5584

6098

5937

5898

5778

4927

4632

5290

4972

4390

4380

4618

4800

4900

4700

4415

5050

5961

5586

5808

5832

4966

RAIL

5211

5000

5000

4800

4600

4800

4600

4400

4200

4000

3800

3600

4600

5200

5000

5000

The Leviathan Mine is idle. VBD WR 8/21/76

KP/WR 10/1/79 - Ralph Baglino is prospecting & evaluating the Leviathn Mine & Mary Nevada Mine. He is logically evaluating the potential of each to produce molybdenum as a small mine operation.

KAP WR 2/5/88: George Riddle, Rose Mining, P O Box 237, Barstow, California 92311, phone (619) 364-3419 called for information on the Leviathan Mine (file) Yavapai County. His firm has an interest in the property and is collecting literature data before starting reconnaissance work at the property.

~~DO NOT~~ REPRODUCE

RR

Interviewed Tate at Yucca. He reported that Inspiration was relinquishing the Leviathan property and that Allison would probably take over at the end of May. TPL WR 5-23-59

Visited in Yucca, Earl Heath, owner of the Leviathan mine. He reported that Inspiration had not reached a final decision re their option, i.e. to continue or quit.
TPL WR 6-25-59

Interviewed Tait, the postmaster at Yucca. He reports that Allison took over the Leviathan mine July 1st, following relinquishment by Inspiration and gave a contract to Earl Heath, the owner, to unwater and sample the mine. The contractor failed to do the job and Allison removed his equipment about August 1st. Mr. Heath passed away shortly thereafter. TPL WR 9-28-59

In Wikieup interviewed Walter Gould, Exploration Geologist for Western Equities Inc., - Gould stated he and Mr. Pate are mapping the area around and including the Leviathan. EGW WR 1-8-65

Active Mine List Oct. 1966 - Expl. Arkansas-Louisiana Gas
Active Mine List Apr. 1967 - Expl.
Active Mine List Oct. 1967 - Expl.

Interview with Gerry Weathers - Drilling in the Leviathan area is held in abeyance.
FTJ WR 1-5-68

Active Mine List April 1968 - Exploration

Visit Gerry Weathers at Arkla office. They were moving in a second drill for the Leviathan project. FTJ WR 5-10-68

It is reported by Emery Blevins that Arkla was still holding Leviathan etc., but were not drilling. FTJ WR 11-8-68

Active Mine List Oct. 1968 - Expl.
Active Mine List April 1969 - Expl.

To Arkla core house - no one around. Arkla is retaining option on claims west of Wikieup. Thought to be searching for partner. FTJ WR 1-8-71

Arkla were holding the lease on the Robinette property west of Wikieup but were thought to be seeking a partner. FTJ QR 1-13-71

NAME: LEVIATHAN

See ARKLA file - ADUR
File #4

COUNTY: MOHAVE

¹⁰⁷
J⁵ PAT CLAIMS

T 17 N R 14 W

SEC. 30

E 1 4100'

DISTRICT: CEDAR VALLEY

Diamond Joe 7'2"

Mineralization: $MO S_2$

Geology: 2 parallel veins

Type Operation: 275' 85° incline

Production: Moly Corp. 1928?

References: J.B. Tenny Report 6/10/1938

Mohave County Card File



REASON CHECKED

Unclaimed
Unknown
Insufficient address
Moved. Left no address
No such office in state
Do not remain in this envelope
POSTAGE DUE 2 CENTS



~~Mr. M. B. Dudley
P.O. Box 534
Kingman, Arizona~~

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

October 21, 1958

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

✓
LEVIATHAN MINE (Mohave County) copper
(Property) (ore)

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

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

Frank P. Knight

FRANK P. KNIGHT,
Director.

Enc: Mine Owner's Report

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



July 10, 1958

Mr. M. W. Cox
Consulting Geologist
55 New Montgomery Street
San Francisco, California

Dear Mr. Cox:

In reply to your July 8th inquiry concerning the Leviathan Mine in Mohave County, we regret that we have very little information in the file pertaining to this property. The project engineer for the R.F.C. in making a report 11-5-42 referred to J. B. Tenney's report for cost estimates as well as values of the ore. We do not have a copy of the Tenney report.

We note that the Leviathan Mine and claims two miles away containing molybdenite are described in U. S. Bureau of Mines Bulletin # 111, entitled "Molybdenum; Its Ores and Their Concentration". The Bulletin may be out of print but should be available at your local library.

We shall be pleased to have you call at this office when you come to Phoenix if you find it convenient; meanwhile, if we can be of further service, please advise.

Very truly yours,

FRANK P. KNIGHT,
Director.

LP

C
O
P
Y

August 4, 1953

Mr. Charles O. Peterson
1637 Van Buren Avenue
St. Paul, 4, Minnesota

Dear Mr. Peterson:

In reply to your letter of recent date, the Leviathan Metals Company, a corporation, is still in good standing in this State.

Mr. E. S. Clark, Heard Building, Phoenix, Arizona is their agent, and the one with whom you could correspond regarding all matters.

If we can be of further service, please feel free to call on us.

Very truly yours,

R. I. C. Manning,
Director

RICM:lp

C
O
P
Y

Charles D. Peterson
1637 Van Buren ave
St. Paul 4, Minn.

RECEIVED
JUL 25 1953
DEPT. MINERAL RESOURCES
PHOENIX, ARIZONA

July 21st 53

Attention, State office of
Mining Bureau, State of Arizona.
Stat Capital, Phoenix.

Gentlemen -

Please let me know if your
Mining registration have a company
By the name of,

Serathan Metals Company, the office
& Officers originally was at in close
proximity of the City of Duluth Minnesota,
In the year of 1927 - Their officers were Thos.
Hollister - Pres. Gust Carlson vice. U.G. Parawby -
- Sec. Office were 502 Bldg Exchange, Lake ave. 1st
Street, in Duluth, Minn. St Louis County.

They were incorporated in Oct. 1923 under Arizona
laws with the authorized par value of \$1.00 A share
with capital of \$1,000,000. that was sold before
my time. The reorganized Serathan officers
are evidently not working the claims which
is advertized to contain valuable molybdenum
& iron & copper deposit for mining in Arizona.
is evidently inactive & has been for years.

Yours truly, Charles D. Peterson 1637 Van Buren ave
St. Paul Minn.

THE
LEVIATHAN MOLYBDENUM
MINE

P. O. BOX 534
KINGMAN, ARIZONA

Feb 8th. 1944.

Mr. Charles F. Willis.
The Mining Journal.
Phoenix, Arizona.

Dear Mr. Willis.,

I have your letter of the 2nd. Have delayed acknowledging it, awaiting the letter from Sam which you said he was sending. To date this has not shown up.

Am sorry Henderson was not at the meeting. However, I appreciate your'e talking with Kait and Levensaler. They are both familiar with the situation but, apparently neither of them care to back up any at this time. I'll still keep after the bunch and, maybe will land somewhere.

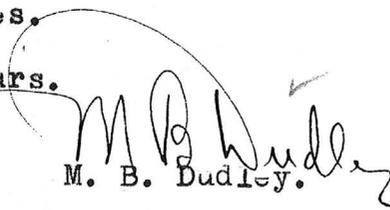
From your letter the molybdenum situation is certainly not attractive at the present time. Whether or not this is the true condition as, claimed, is rather beside the point in my case as, that surely was not the situation when I was urged on to get into production. Looks like its the same condition that confronted many of us in chrome after the last war. Left to hold the bag at short notice.

I understand the Denver meeting was quite a success. I am sure you did lots of good there. Sorry I could not get there.

Expect to be in Phoenix and, will contact you then. Please stir Sam up on his letter.

With all good wishes.

Sincerely yours.

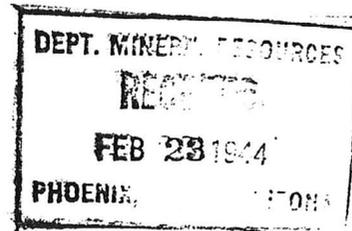

M. B. Dudley.

THE
LEVIATHAN MOLYBDENUM
MINE

P. O. BOX 534
KINGMAN, ARIZONA

Feb 19th. 1944.

Mr J. S. Coupal.
Dept of Mineral Resources.
413 Home Builders Bldg.
Phoenix, Arizona.



Dear Sam.,

Have just returned from Phoenix this evening and, find your letter of the 15th. This is the first word I have had since your trip to Denver and, have been awaiting word as to what the Shattuck Chemical people had to say regarding Leviathan. I had asked Charlie to advise me from Denver after either he or you had seen the Shattuck people.

Note you say in your letter that they were expecting some word from me regarding the property. This is the first I knew of this as I have never had any direct word from them. However, I will shoot on the data to them and, see what can be done. If they are really looking for a molly property, I think the Leviathan should come near suiting them. I don't think there is any doubt but that the Leviathan can produce the amount of MoS₂ they require. The property has a considerable tonnage of available ore in sight now and, all of the faces are in ore. The report of the R.F.C. engineer was quite favorable as you no doubt know. In fact, I was so told in Washington by that bunch. ~~In fact~~, I had a very definite commitment when I left Washington last May and, that's why I'm so d- sore at the present situation.

Am leaving for the coast tomorrow morning. Will be back here the middle of next week. In the meantime will shoot on the dope to Denver and, keep you advised if anything happens.

Thanks for your letter and interest. I believe we can work out something.

With kind personal regards.

Sincerely yours.


M. B. Dudley.

February 15, 1944

Mr. M. B. Dudley
P. O. Box 534
Kingman, Arizona

Dear M. B.:

I have your letter of February 8 before me. There must have been some misunderstanding concerning my writing you regarding the inquiry by the S. W. Shattuck Chemical Company. It may have been my fault.

While in Denver, I called on Mr. Potter of the Shattuck Chemical Company and at that time we were awaiting your sending him complete information on the Leviathan Molybdenum. I understood from Charlie Willis that you thought you would hear from Mr. Potter. He is in the market for a property to supply around two thousand pounds of MOS₂ per month. I believe it is up to you to write him and show him that your property can deliver this at a low cost. It must be a good grade of ore where they can produce at a cost which would induce them to take over the property. The object of the Shattuck Chemical Company in buying a property is to get away from the excessive charge made by the Climax Company on MOS₂. The charges have been published and show a cost of production of between 15 and 19 cents per pound of MOS₂. The Shattuck Company does not like the idea of paying 35 cents or up to the nominal cost of 45 cents per pound of MOS₂. Hence, it is their desire to buy a property where production can be had at a low cost. If your property can do it, I would suggest that you send complete information regarding it and sell him on the idea of the Leviathan being the property he should buy.

Very truly yours,

J. S. Coupal
Director

JSC:JES

Washington, D.C.
Oct. 15, 1943

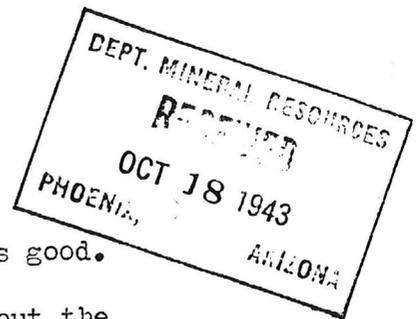
SUBJECT. Access road, Leviathan Mine

The copper in this mine is too low, but the moly is good.

However, the way things are going, I am dubious about the possibilities of getting approval on Moly.

Do you think it is a project we should especially push?
I am having it held open waiting your opinion.

Bill Broadgate



October 19, 1943

MEMORANDUM

ACCESS ROAD ✓
LEVIATHAN MINE

TO: W. C. Broadgate

FROM: J. S. Coupal

Fortunately we had an engineers' meeting and I discussed with Holt his views on the Leviathan Mine and he urged that the access road should be pushed on this project as it will get a good production of both copper and molybdenum.

I might add that the feeling in Kingman is that a number of properties such as Leviathan are being held back from getting molybdenum production due to the fact that Climax controls the situation and does not want increased molybdenum production. This attitude, of course, may be entirely wrong, but they were lead to believe otherwise on account of the urge last spring to step up molybdenum production.

Holt has been advised of the change in requirements and will pass the word along. It would seem advisable to push this road project.

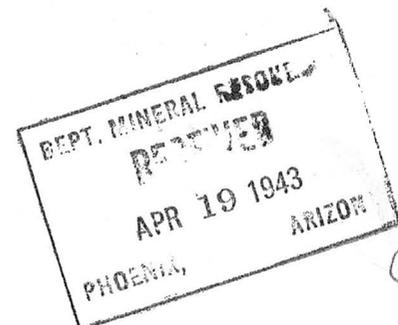
JEC:LP

THE
LEVIATHAN MOLYBDENUM
MINE

P. O. BOX 534

KINGMAN, ARIZONA

April 18th. 1943.



Mr. J. S. Coupal.
Dept of Mineral Resources.
Phoenix, Arizona.

Dear Sam.,

I have your letter of the 15th, received yesterday.

I want to apologize for not returning the Leviathan file to your office as I promised Hastings I would. Also, please explain to him that I intended returning these papers on my return from Phoenix.

I found the file was out at the property with our engineer and, immediately sent word to him to send it in. However, he sent in the Copperville data instead, so I sent further word to him several days ago. I expect he will send, or bring the file in with him tomorrow and, I will see that it is sent you immediately.

I did not notice at th time that the file contained your office data and am sorry this occurred.

The road men are busy on our new road and, we expect to have it completed within two or three weeks. It will be a great imporvement over the other route via Yucca, as it will eliminate all mountain grades and give us an all year road.

Expect to go east shortly but, will see you in Phoenix before I leave. The engineer has finished his Leviathan examination and, I believe is quite well pleased.

With best wishes to Charlie and Earl, with the same for yourself.

Sincerely yours.


M. B. Dudley.

MEMORANDUM

THE ARIZONA PRINTERS, INC.

March 30, 1943

Sam:

The WPB approved the approved
the application for the construction
of the Copper Bell Leviathan mine access
road on March 26.

This is M. B. Dudley's
property.

C.F.W. *C*

April 15, 1943

Mr. M. B. Dudley
Box 534
Kingman, Arizona

Dear M. B.:

I understand that you asked for the file on the Leviathan Mine and someone in the office kindly gave you our full file. There are certain official records regarding our work on the Leviathan in that file.

I hope you will look it over carefully and return all those papers which are not the ones that you left here for reference.

With best wishes and kindest regards, I am

Very truly yours,

J. S. Coupal, Director

JSC:kk

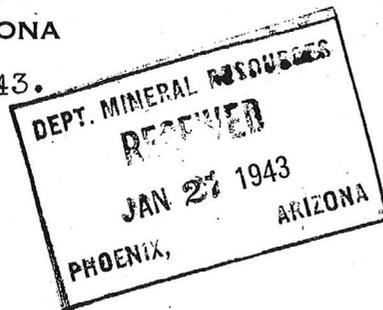
MINES DEVELOPMENT, INC.

P. O. BOX 534

KINGMAN, ARIZONA

MINES IN
CEDAR VALLEY MINING DISTRICT
MOHAVE COUNTY, ARIZONA

Jan 26th. 1943.



OFFICERS
M. B. DUDLEY
PRESIDENT
LEONARD HOFFMAN
VICE-PRESIDENT
J. H. HOFFMAN
SEC. & TREAS.

Mr. J. S. Coupal.
Dept Of Mineral Resources.
Phoenix, Arizona.

Dear Sam.,

I have your letter of the 21st, just received. We had no mail here for several days, due to wrecks and washouts, both on the railroad and highway. I just learned of another bad wreck west of Needles, that will hold our western mail up another 24 hours.

Called on the supervisors this morning and had a lengthy chat. No one there knew where the Spring manganese property was, or anything about it, and, it was not until I contacted Holt that I got a line on it.

I have not received the copy of Schiele's letter to the Supervisors here. However, they say they received it, also that they will cooperate in the maintenance of the Sandy road. However, as to getting easements, it looks like this is the cart before the horse. How can we get easements when there has as yet been no survey made. I always thought, and, still think that the matter of surveys and easements is part of the engineering work on the proposed road. Certainly we are not in a position to do this work ourselves, and, if we were, under the present condition, we would not know what easements to ask for.

In my talks with Mr. Brooks and others in Phoenix, I was led to believe that, we had covered all the obstacles, and, that it was just a case of when the men would start their engineering work, etc.

Mr. Lee Hilton, the Kingman grazing head, is out of town but, will return this eve and I will then see him and see, what if anything he can do. It's a D- shame to compel us to haul over that goat trail out of Yucca, incurring big expense and danger, when we are assured the road had been approved.

Will be in Phoenix next Monday for a stockholders meeting of the Leviathan Metals, of Duluth. Will see you then and, in the meantime, please ask the Grazing Dept there how we are to get these easements before a survey of the proposed road is made. Also, tell them that this is really not a "New road", but really means the repairing of an old road that was used years ago. In fact, of the 11 miles, they will have practically all blade work, other than about $3\frac{1}{2}$ miles.

We have a big Diesel plant to move into Copperville as soon as we get the development loan, and, certainly it would be a great help for us if they could get the road in by that time. All of the other equipment, necessary for development, including the big electric hoist, compressor, is already on the ground. As is the big steel head-frame, cages, etc.

2JSC.

The simple and quick way to get the road in would be to give us the money and, let us have it built. However, I don't know whether or not that could be arranged. It's not an expensive job at all, and, no serious engineering problem.

Thanks for your letter and, your many efforts in our behalf. It is appreciated.

With all good wishes.

Sincerely yours.



M. B. Dudley.

Mr. E. L. Whipple
Consolidated Minerals, Inc.
P.O. Box 12345
Phoenix 34, Arizona

Dear Mr. Whipple:

Subject : Molybdenite Deposit, Mohave County, Arizona

Pursuant to your instructions I drove to Wikioup, Mohave County, Arizona on June 15, 1961 to investigate a molybdenite deposit offered you by Mr. Frank McCarthy. As no one in Wikioup had any knowledge of McCarthy nor of a molybdenite deposit I went on to Kingman where inquiry at the Citizens Utilities office, at the Mohave County Court House and at the Mohave Motors developed information that McCarthy is an associate of Vern C. Haynes of Mohave Motors. Mr. Haynes was absent on business but was expected to return to Kingman on the 15th. I contacted him at his home at 9:30 PM, making an appointment for the following morning.

I met Mr. Haynes in his office at Mohave Motors June 16th and obtained the following information:

Haynes and McCarthy have been associated in a number of mining ventures in Mohave County; several years ago they operated the Dariana tungsten mine.

At present, Haynes and McCarthy are interested in several groups of mining claims on the eastern side of the Hualpai Mountains. The groups offered to you by McCarthy are the Leviathan and the Lower Group, both in the Deluge Wash area, near Diamond Jo Peak.

Leviathan Group

The Leviathan is an old property which has, in the past, produced copper and molybdenum ores. The mine is developed by a two-compartment shaft, sunk on the vein and by an adit. The shaft is about 400 feet deep; the adit 200 feet long. There are levels off the shaft on the 100 and 200 foot elevations and there may be some work below this. According to Haynes, there is little ore remaining unmined above the 100-level but ore remains on the 200-level and in the bottom of the shaft.

The adit is about 200 feet long and shows high grade molybdenite at 150 feet from the portal.

The vein is quartz, dipping at a high angle between granite walls, with an average width of 2 feet. Ore minerals are molybdenite and chalcopyrite, occurring in irregular pods.

The Leviathan shaft is reported in fair condition except for the ladders, which need repairs. Equipment consists of a small hoist and pump, installed by a former lessee, Earl Heath, deceased. It is reported that the mine makes very little water.

The precious metal content of the Leviathan ore was low; only a few cents per ton, according to Haynes. Ore was concentrated in a small mill at the shaft; the mill has been scrapped.

LOWER GROUP

Consists of several mining claims showing molybdenite and copper minerals. The claims are near the head of Deluge Wash, about 1- $\frac{1}{4}$ miles from the Leviathan. Haynes said there is a good showing of ore on the claims.

Access Roads

I asked Haynes if I could drive to the Leviathan and at least go over the surface. He advised against it very strongly, stating that he and McCarthy had visited the property early in June; that they had a very rough trip. The road was badly washed and it was difficult to get back up the hill from the mine. He said that it required a four wheel-drive vehicle with high clearance; that a four-speed pickup with standard clearance couldn't pass the last part of the road. I told him I would postpone a visit to the property until the road was repaired.

Haynes said there are three possible ways of reaching the Leviathan; one of these is a road from Yucca, the other two are roads from the Big Sandy Valley.

1. There is at present a road from Yucca to the Leviathan. It is the one described in the paragraph above and is the original ore haulage road. It turns off the Yucca-Boriana Mine road. The distance from Yucca to the Leviathan is about 16 miles and it would require an additional 1- $\frac{1}{4}$ miles to connect the Lower Group of mining claims. Haynes does not recommend spending any money on this road.

2. The ore from the Leviathan could be hauled from the mine through Copperville and over an old road to the Big Sandy Valley (Highway 93.) Total distance would be about 20 miles and there would be an additional 1- $\frac{1}{4}$ miles from the Lower Group to the Leviathan. Parts of the old road are impassable without repairs.

3. Haynes recommends an access road in Deluge Wash from Highway 93 to a point near the Lower Group; then to build a new road from the Lower Group to the Leviathan. He estimates

that road repairs and new construction will cost between \$2,000.00 and \$3,000.00. Total haulage distance will be between 10 and 12 miles without adverse grades as in the Yucca or Copperville roads.

Miscellaneous

Title and Taxes : Haynes said McCarthy had all of this information. That he believed most of the mining claims are patented and that the taxes are paid. He said he did not know who the former owners were nor did he have the survey numbers of the patented claims nor the claim names. When McCarthy returns the status of the mining claims can be checked and if there are any unpatented claims these should be checked for possible forfeiture.

Concentrating, Power and Water: Electrical power is available in the Big Sandy Wash at Deluge Wash and Haynes said ample water is available for milling. No power exists at the mine and either gasoline or diesel equipment will be required.

Reports: According to Haynes there are several reports extant on the Leviathan Group; the latest being one made by Manning W. Cox, of Wissar and Cox, Consulting Geologists, San Francisco, California. McCarthy has all of the reports.

General: Haynes said that Union Carbide and Bear Creek Mining are acquiring mining claims and doing exploration work north of the Leviathan. That he does not consider the Leviathan nor the Lower Group attractive for a large operation; if the properties are worked " Lease fashion" they will be profitable. McCarthy is in Canada and should return to Kingman within a short period of time.

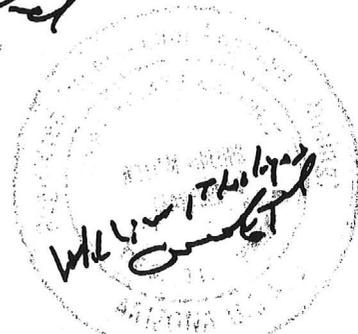
According to Haynes, he and McCarthy have sufficient capital to operate the properties on a "shoe string." They would like additional capital to take care of unforeseen contingencies. When McCarthy returns to Kingman they will contact you.

Conclusion: I requested Mr. Haynes to have McCarthy contact you upon his return. The property may deserve a physical examination. I regret that Mr. Haynes and I were unable to reach the area at this time.

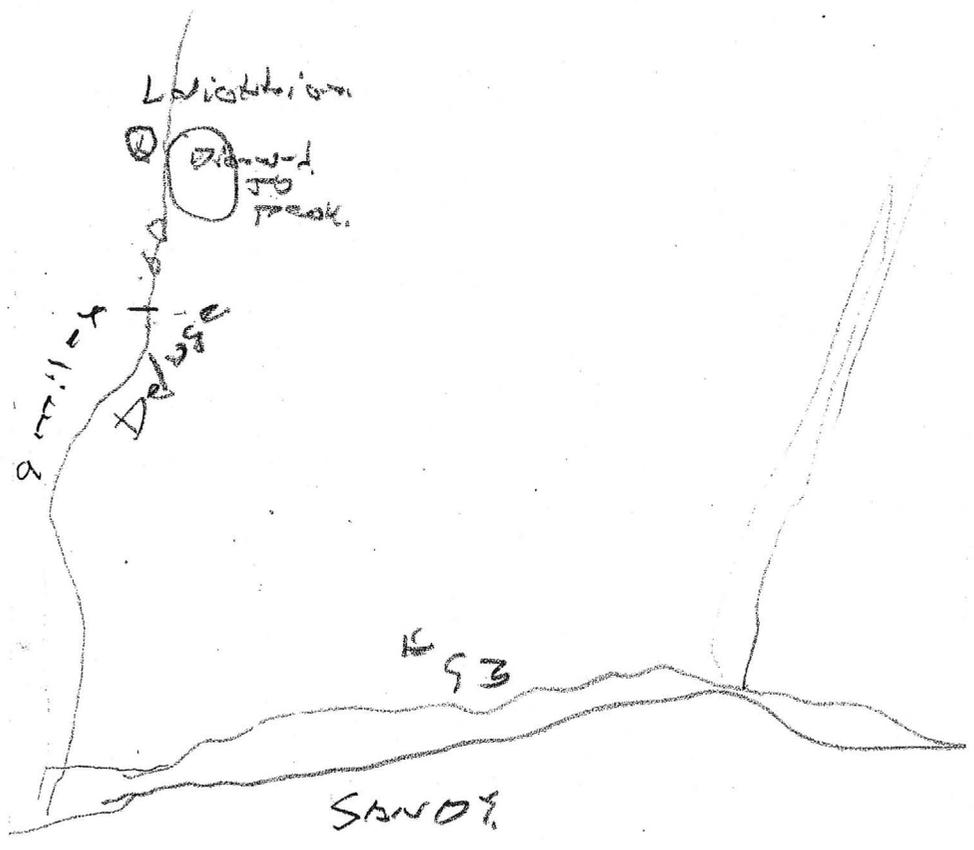
Very truly Yours,

William P. Crawford
William P. Crawford, E. M.

1823 North 40th Street
Phoenix 8, Arizona
June 18, 1961



0
Coyoteville



a/c Corporation Commission.

Leviathan Metals Company were incorporated
7-18-23 - E. S. Clark of the Heard Building
is their statutory agent and the company is in
good standing.

LEVIATHAN MINE

MOHAVE COUNTY
CEDAR VALLEY

Bert Reed, Chief Geologist of Inspiration Cons.
Copper Corp. reported that his company is
drilling at the Leviathan, viz: they have
completed 4 holes and are currently drilling
a fifth and final hole. The results to date
are indifferent. The co. is debating whether
to abandon or to open a caved level to check
a reported exposure of ore. Because of the
spotty nature of the values in this narrow
vein (5' to 6") no further exploratory
drilling will be done.

T P LANE
4-3-59 WR

*

MEMORANDUM.
to W. C. Broadgate.

Phoenix,
Jan. 13, 1942.

Subject: P-56 Application.

M. B. Dudley, P O Box 534 Kingman filed an application for a P-56
serial number for the Leviathan Mine, Docket Number C-ND- Phx 87
on January 12th with C. M. Martin.

He was so specifically directed by G. Lee Brown and decided to follow
instructions but wanted to so notify you.

J. S. Coupal.

General Information: 3/1943

Report Chas. A. Anderson, USGS. In a vein 2 to 20' wide, averaging 3 1/2', occurs Mo & Cu minerals. Development is by 265' shaft with 2 levels having 1474' of work. In addition 220' work has been done in another section.

A parallel vein carrying Mo crops 450' NW of the shaft.

According to Mineral Yearbook, 1943, this was reported a heavy producer Mo.

Mine was unwatered to 261' level & sampled. 23,320 T of 1.16%

1944 MoS₂ ore is given as reserves.

Operations stopped 4/1943.

Character of Ore:

Mo & Cu carrying small amounts of Ag.

Equipment (Date 3/1943):

*

R.F.C. File

3

Department of Mineral Resources

Nov. 9, 1943

Engineer - Earl F. Hastings

Mine - Leviathan
District - Cedar

Docket No. C-MD- Phx. 87
Date Application Received Nov. 5, 1942
Date of Report Nov. 9, 1942

1. Name and address of applicant (correspondent)
M. B. Dudley, Box 534, Kingman, Ariz.
2. Character of project and estimated cost thereof:
Unwater and repair shaft and lateral workings to and including the 250 level to prepare Cu-MoS₂ vein for production, \$5000.00
3. Location of property
Cedar Mining District, Hualapai Mountains, Mohave County, Ariz.
4. Applicant's interest in or ownership of property
Applicant has 5 year lease at 7 $\frac{1}{2}$ % royalty.
5. Loan requested:
\$5000.00
6. Loan recommended:
\$5000.00
7. Comments:
(A) Using the average width and values of the J. B. Tenney report there appears to be tonnage blocks, after a 50% reject by sorting in stopes, as follows:

Blocks A, B, & C.	Tons Assured	16,000	Block III	Tons Probable	4,700
Block II	"	"	Block IV	"	3,300
	Total	"	Total	"	8,000
		"			22,100

TOTAL TONNAGE - 30,100

- Notes: (1) All calculations by slide rule
(2) Notations on map in red by writer)

(B) The Tenney report indicates that by stope screening and sorting, eliminating 50% of the mined vein material, the MoS₂ mill heads are increased to 177% and the cu. 230%. This test was made on ore above the 100 foot level. Applying this percentage to ores on both the 100 and 250 foot levels the block assays are approximately as follows:

Blocks	MoS ₂ %		Cu. %		Au. & Ag. Ozs.	
	Mined	Sorted	Mined	Sorted	Mined	Sorted
A, B & C	1.13	2.0	0.65	1.5	\$0.75	\$1.00
II, III, & IV	0.994	1.76	0.18	0.41	?	?

*

(C) The Tenney report indicates a mill recovery of 90% on molybdenite and 75% on copper, gold and silver. The net market payment per pound of metal contained in concentrates will approximate \$0.40 for MoS₂ and \$0.13 for copper (including premium at zero quota). The net value at market point, before deduction of freight, and the recoverable metallic content of ore can therefore be tabulated as follows:

Blocks A, B, & C.	Tons	Lbs/T	\$/T	Total Lbs.	Total Dollars
MoS ₂	16,000	36.0	\$14.40	576,000	\$230,400.00
Cu.	16,000	22.4	2.91	358,400	46,592.00
Au. & Ag.	16,000	-	0.75	-	12,000.00
Total	16,000		18.06		\$ 288,992.00
Block II					
MoS ₂	6,100	31.6	12.64	192,760	77,104.00
Cu	6,100	6.0	0.78	36,600	4,758.00
Au & Ag.	6,100	-	?	-	?
Total			13.42 *		81,862.00 *
Blocks III & IV					
MoS ₂	8,000	31.6	12.64	252,760	101,120.00
Cu	8,000	6.0	0.78	48,000	6,240.00
Au & Ag		-	?	-	?
Total			13.42 *		107,360.00 *
Total Assured					
MoS ₂	22,000	34.95	13.98	768,760	307,504.00
Cu.	22,000	17.9	2.33	395,000	51,350.00
Au. & Ag.	22,000	-	0.54	-	12,000.00
Total	22,000		16.85 *		\$370,854.00 *

No gold and silver value in the ore below Block "C" is stated. If these values are associated with the copper the net returns would be negligible, if not associated with copper this value could range considerably.

(D) Referring to cost estimates of the Tenney report some increases will be in order due to current conditions. The mining cost on the basis of sorted tonnage will probably exceed \$4.50 and milling including drying and sacking, \$1.50. The market for molybdenite will be in the east and the rail freight will equal both rail and ocean freight as reported. Royalty, for all metals, will be approximately \$1.26 per ton. \$1.00 per ton of the present assured tonnage should be expended in development. Operating costs will consequently average about \$10.00 per ton and the operating profit about \$6.85 on assured ore and \$3.42 on probable ore, or \$5.68 on combined assured and probable ore.

(E) Investment prior to production, exclusive of a proposed new shaft, will approximate \$135,000.00 or \$6.14 per ton of blocked ore on \$4.49 per ton of combined blocked and probable ore. It can be summarized as follows:

*

Net returns from concentrates (assured & probable) Cr.		\$478,214.00
Operating and Development costs	\$301,000.00	
Capital Investment "	135,000.00	
	Total Dr.	436,000.00
	Net profit	<u>42,214.00</u>

*Initial Capital requirement:

Mine sampling, mine repairs and mining & metallurgical engineering	\$10,000.00
Mine equipment	15,000.00
Power Plant	30,000.00
Mill - 100 ton	40,000.00
Housing and camp	25,000.00
Pumping equipment	15,000.00
	<u>\$135,000.00</u>
Working capital	30,000.00
Total Capital	<u>\$165,000.00</u>

Working capital is absorbed in operating and development costs, in that it is a prepayment of some of these costs and is therefore not duplicated in the Capital Investment of the above tabulation.

(F) From cost and capital tabulated estimates as outlined in paragraphs "D" and "E" there is an apparent profit above capital investment as follows:

	Operating Profit	Per Ton	Cap. Inv./T	Profit/T
Assured ore	\$6.85		6.14	\$0.69
Assured & Probable ore	5.88		4.49	1.39

It appears that the assured ore is sufficient to repay the initial investment, pay development of probable ore, and return a slight profit. If the probable ore materializes, there will be sufficient value to further develop, establishing continuity of operation within the cost range outlined, and mine at an increased per ton profit.

While the Tenney cost tabulation allows for taxation and general overhead, it is probable that the allowance for taxes is insufficient under the current tax laws. This item can easily wipe out the operator's profit, as above tabulated, as well as infringe upon the per ton return of capital investment. This item should receive more serious consideration than is possible in this report.

(G) Familiarity with the district in which the mine is located and experience with the metallurgy of Copper Creek ores, which is claimed in the Tenney report as identical to the Leviathan ore, combines to indicate the feasibility of this project. An appreciable MoS_2 production appears assured and, aside from the tax consideration, a sufficient profit for the repayment of capital and a small net profit is evident. The data submitted is ample to warrant this loan for the purpose of checking the ore values, and economics in a more thorough manner.

ARIZONA DEPARTMENT OF MINERAL RESOURCES
s/ Earl F. Hastings
Asst. Director & Projects Engineer

NAME OF MINE: LEVIATHAN

COUNTY: MOHAVE W
DISTRICT: CEDAR VALLEY
METALS: MO, CU

OPERATOR AND ADDRESS:

MINE STATUS

DATE:

DATE:

M.B.Dudley, Box 534, Kingman

RFC loan granted \$5000

Access road approved

3/1/44 Closed

BUREAU OF MINES ENGINEER'S REPORT ON THE LEVIATHAN MINE ✓

Mohave County, Arizona

INTRODUCTION: The Leviathan mine was visited by Bureau of Mines engineers on June 13, 1943, in connection with the application for the improvement of the access road.

LOCATION: The mine is situated in the eastern foothills of the Hualapai Mountains 50 miles southeast of Kingman and 4 miles south of the Copperville mine.

ACCESSIBILITY: An access road to the Copperville mine from the Kingman-Big Sandy road is now under construction. Improvement of an extension of that road to the Leviathan mine is desired.

OWNERSHIP: The mine is owned by residents of Suluth, Minnesota. It is under 10-year lease to M. B. Dudley, of Kingman, Arizona.

ORE OCCURRENCE AND DEVELOPMENT: The ore is a quartz ore that contains molybdenite and a small amount of copper. The vein is 3 feet to 20 feet wide. It strikes N. 30 degrees E. and dips 80 degrees West. The country rock is diorite. There is a second quartz vein parallel to the one that has been developed.

The mine has been opened by a 2 compartment shaft, inclined at 82 degrees, with a considerable amount of drifting on the 260 foot level.

It has been unwatered with the aid of a \$5,000 R. F. C. loan and sampled by an R. F. C. engineer. The pumping equipment had been removed and the water had risen in the shaft so that workings were inaccessible when the mine was visited by the Bureau of Mines Engineers.

ORE RESERVES: The R. F. C. engineer reported that 25,000 tons of measured ore is blocked out above the 260-foot level that averages 1.18 per cent MoS_2 , 0.83 per cent copper, and 0.58 ounces per ton silver. It is estimated by the Geological Survey that 17,000 tons of the same grade of ore may be inferred in the extension of the vein below the 260-foot level.

MILLING: A mill was built about 1916 and operated for some time. Recovery was not very satisfactory.

EQUIPMENT: There is a small temporary headframe over the shaft. There is a considerable amount of old equipment scattered about but the most of that is not usable.

CONCLUSION:

Improvement of the road is needed for the contemplated development of the mine and approval of the access road application is recommended.

111N, K11W Sec 7
LEVIATHAN MINE (A)
MOLYBDE CO.

FLOTATION TESTS ON
LEVIATHAN MOLYBDENITE ORE

FOR

MR. J. B. TENNEY

BY

JOHN F. GRAHAM

TEXAS COLLEGE OF MINES AND METALLURGY

EL PASO, TEXAS.

NOV. 23, 1935

* * *

* *

*

D K MARTIN & ASSOC
4728 No 21ST AVE
Phx Az 85015

Mr. J. B. Tenney,
1070 Mountain Ave.,
Tucson, Arizona.

Dear Mr. Tenney:

The Molybdenite ore which you sent me for testing assayed:

$\text{MoS}_2 = 6.51\%$ $\text{Cu.} = .58\%$

This ore is identified as the Leviathan ore.

Your instructions were to test the ore in conformity to a flow sheet included in your letter. In the main I have followed those instructions, but I have deviated at times when it seemed more likely to give better results.

Because of the high cost of Molybdenum assays I have made little attempt at metallurgical balancing but have tried to pick out indicative samples for assaying.

The one balanced test that I made is summarized below:

Material	Weight Grams	Assay			Recovery	
		MoS_2	Cu %	Insol.	MoS_2	Cu
Concentrate	42	83.45	.48	12.4	44.80	1.8
Middling	35	27.12	1.72		9.75	5.5
Middling	35	11.72	.98		5.25	3.2
Middling	300	5.64	.57		21.70	15.6
Tails	<u>1658</u>	.87	.49		<u>18.50</u>	<u>74.0</u>
	2070				100.00	100.1
Calculated Heads		3.80	.53			

This particular test was ground somewhat finer than most of the tests, being only 2% + 100 mesh.

The procedure of the test was:

Grind in a rod mill with a water-solid ratio of .8 to 1 and 6 lb of lime to the ton of ore. The amount of lime to be used will be governed by the ore, the water and the quality of the lime.

Float approximately one hour. At first Molybdenite came over freely, but after the first ten minutes the flotation was very slow. (You have accounted for this by saying that the coarse Molybdenite possibly should be removed from the tails by a classifier.)

The tails from this operation can be floated for copper with good results. In one test, not this one, I produced a copper concentrate assaying:

Cu = 16.28% Au = .02 oz Ag = 4.3 oz

with a recovery of 76.4% of the total copper.

Considering the low copper value of the heads of the ore tested, any saving of copper from this particular grade would be uneconomic. The reagents used were 1 lb CuSO₄, .1 lb Amyl Xanthate and pine oil to make a froth.

The rougher concentrate was then floated, using 2 lb. sodium cyanide as a copper depressant and pine oil sufficient to maintain a froth. Each concentrate made was refloated with 1 lb. sodium cyanide, calculated on the basis of original tonnage. This is more cyanide than is needed for these small concentrates, but it maintains the same cyanide strength of solution.

In this test the rougher concentrate was refloated six times and then the various cleaner tails combined as shown on the table.

The computed heads for this test was 3.8% MoS₂ instead of the 6.51% shown by a sample of the ore. This can be accounted for by admitting that the head sample is incorrect, either in sampling or in assaying, or by admitting that the sample taken for the test, although quartered out, was actually lower than the true heads.

COMMENTS.

I feel that the 12.4% insoluble in the concentrate can easily be lowered either by regrinding or my manipulation thus bringing the product above the required minimum.

One test gave a concentrate from 2000 grams, of:

Wt. = 24 grams MoS₂ = 88.54% Cu = .50%

These are the only Molybdenite assays on the concentrate that I had made. I have copper assay of a second concentrate running .50%.

Besides the tail values shown in this test I have tail values of .93%, .41%, and .79% MoS₂.

The tailing assaying 179% MoS₂ was screened and the component parts assayed with the following results:

Mesh	Quality	Assay % MoS ₂	Distribution of MoS ₂
+ 65	9.5%	.89	10.0%
- 65, + 100	37.0	.61	43.0
- 100, + 150	14.5	.91	16.5
- 150, + 200	12.5	.58	9.0
- - 200	26.5	.65	21.5
			<u>100.0</u>

This shows that the Molybdenite losses in the tailing closely parallel the character of the grinding, with 150 mesh as an apparent dividing line. One third of the tailing losses can be avoided by grinding below this limit.

However, this is but one test and needs to be checked up for correctness, and for effect on copper content.

###

A test on the disposition of the copper gave:

Material	%Weight	Copper Assay	Recovery
Tails	92.1	.11	17.8
Copper Conc	2.65	16.28	76.4
Middling No. 1	3.25	.56	3.4
Middling No. 2	1.3	.65	1.5
MoS ₂ Conc	.7	.72	.9
	<u>100.00</u>		<u>100.0</u>

###

2070 grams raw ore at 3.80%	=	78.66 Grams MoS ₂
1658 " Tails at .87	=	14.42 " "
42 " Concentrate at 83.45	=	35.05 " "
		<u>49.47 " "</u>
370 " middlings at 7.89	=	29.19 " "
		<u>78.66</u>

The actual recovery as concentrate is 35.05 grams from 78.66 grams or 44.8%. But if you admit that the mill makes no middling, then the recovery is 35 parts out of 50 or a recovery of 70%. This presupposes a tailing of 1.14% MoS₂, and since I do not think you should get a tailing that high, your recovery should be higher than 70%.

All this is predicated on heads of 3.80% MoS₂. I would expect the value of the tails to be about constant regardless of changes in the grade of the feed and so the higher the fed value the greater the recovery. The actual value of the tailings will of course be modified by the care given them, such as regrinding, etc.

CONCLUSIONS

A low tailing value will be obtained if the rougher concentrate tailings are scavenged by repeated refloats, the concentrate made each time working back to the rougher machine or even to the ball mill.

A certain amount of copper persists throughout the cleanings into the final concentrate. I think cyanide can be washed in this part of the circuit endeavoring to depress copper which is in fact entangled with the Molybdenite. I believe that having obtained somewhat near the desired grade of Molybdenite a regrinding before the final cleaning might be effective in removing insoluble and releasing copper.

The percentage of recovery of Molybdenite is governed by the Molybdenite content of the tails. Therefore a great deal of attention can be given to the effectiveness of this part of the flow sheet.

I believe the flow sheet incorporated in your letter of October 8th is faulty in one respect. The middling from any machine should work its way back thru the machines ahead of it instead of being sent back to the ball mill. The middling is a middling because of a desire to make a clean concentrate and is not necessarily unfloatable Molybdenite. Why, for instance, dilute a 40% Molybdenite by dumping it into a 4% heads when there already is a machine handling 40 % product?

Likewise the concentrate from the machines scavenging the tails is low grade and should enter the circuit at a low grade point, preferably the ball mill, rather than into a comparatively high grade cleaner concentrate. I realize that the flow sheet sent me is still in an embryonic stage, but in making any changes I think the above criticism should be checked up.

I regret that I could not make a locked test. The ordinary laboratory flotation machines are made to work at their best when handling 500 grams. With a concentration of 50 to 1, for example, and a desire to have 500 grams in the final machine, the original sample would have to be 25,000 grams. Such an extensive test is not warranted until a reasonable certainty as to details is obtained. It would seem best to do it before building a pilot mill.

Yours very truly,

John F. Graham.

LEVIATHAN MINE

LOCATION:

60 Miles south of Kingman, Mohave County, Arizona.

ACCESSIBILITY:

Big Sandy highway 49 miles from Kingman. Partly constructed old road 11 miles to mine, needs repaid and $2\frac{1}{2}$ miles of new road.

PROPERTY:

7 patented claims, 2 wide and 3 long, plus one extra claim to west.

OWNERSHIP:

Leviathan Metals Company, Theo Hollister, Pres., 422 Providence Bldg., Duluth Minn. An Arizona Corp.

DEVELOPMENT:

260-ft tunnel, driven on vein; 260-ft steeply inclined shaft, with 800 feet of drifting on 100-ft level and 235 feet of drifting on 250-ft level. Considerable shrinkage stoping between 100-ft and tunnel levels, filled with waste.

ORE OCCURRENCE:

Two parallel veins striking N 30 E dipping from 70 to 80 degrees to the West. Veins 400 feet apart. Vein outcrops consist of iron-stained sparsely copper-stained much fractured quartz. Where Copper Canyon cuts the veins molybdenite outcrops. Elsewhere no molybdenum minerals crop. Leviathan vein outcrop on which development has been done, outcrops about 1500 feet long with widths varying from 3 feet to 20 feet and averaging about 6 feet. Copper Wonder vein outcrop 2000 feet long with vein widths varying from 3 feet to 10 feet and averaging about 5 feet.

Country rock medium grained much fractured and iron-stained monzonite. At South end of property pre-Cambrian complex of granite and gneiss outcrops.

Underground work shows molybdenite and chalcopyrite occurring chiefly as seams

and cementing material to quartz breccia fragments and sparingly disseminated through the quartz fragments. Consistent values found under the outcrop prospected. Average width of vein (Leviathan) 4 feet (surface outcrop width 6 feet). Values of molybdenite and chalcopyrite strongest on footwall side of vein, especially where the vein width exceeds 6 feet.

No work, other than superficial pits and cuts, done on the Copper Wonder vein. The character of the outcrop of this vein is identical to that of the Leviathan vein.

GRADE:

Carefully cut channel samples taken by Jas. Hill, Robert Oliver, and J.B. Tenney show the average of all vein material to be 1.03% MoS₂, 0.6% Cu, and 50% Au, Ag. Discarding those samples under 0.4% MoS₂ assuming that these low-grade parts of the vein could be left as waste pillars, the remaining grade averages 1.2% MoS₂, 0.6% Cu and 50% Au Ag. Low grade material I estimate as 10% of the total. Details are shown in the accompanying plans and longitudinal section.

ORE RESERVES:

Referring to the accompanying longitudinal section, it is seen that there are three blocks of ore, two above the 100-ft and one between the 100-ft and the 250-ft levels. Assuming 10% as waste, there remains a tonnage of about 50,000 tons of 1.2% MoS₂ material. The faces to the South are all in ore and there remains yet to be prospected about 700 feet of outcrop. The northern limit of the vein has been reached on the 100-ft level, coinciding with the end of the outcrop.

MINING:

Due to the fact that oxidation films develop rapidly on both the MoS₂ and chalcopyrite in this occurrence, a mining method will have to be used allowing for the removal of freshly blasted ore to the mill bins as quickly as possible. The walls tend, if left to stand, to slough. Probably the best mining method will be horizontal cut and fill, using slushers to scrape the broken ore to the chutes broken down on plank flooring. Little or no timbering will be required, as the wall sloughing does not extend more than 3 feet from the walls of the vein material. The contacts between vein material and wall rock are sharp and no values occur in the wall rock.

TREATMENT:

The ore is very similar to that of Copper Creek. Preliminary testing following Copper Creek procedure, by Prof. Graham of the Texas School of Mines At El Paso Showed that a clean molybdenite concentrate can be made, as at Copper Creek. Insufficient work has been done to show extractions. However; the solution of the molybdenite-chalcopyrite separation at Copper Creek, Cananea, and Utah Copper makes it entirely probable that it can be satisfactorily solved for Leviathan ore.

A possible out to the metallurgy is the use of the Cunningham-Donahue roasting and leaching process. If this were done, the milling would be such simplified as a bulk sulphide concentrate containing about 20% each of MoS₂ and copper would present no problem at all. The only drawback to this would be the more difficult marketing of calcium molybdate as against molybdenite concentrates. The difference in price of the two products would pay for the conversion plant in less than a year's operation. Prof. Cunningham estimates the cost of such a plant for the Leviathan concentrates (4 to 6 tons a day) would not exceed \$25,000, and the cost of treatment not over 5¢ a pound of molybdenum. Royalty would be 1 1/2¢ a pound of molybdenum.

ESTIMATED OPERATING COSTS AND PROFITS

A Assuming Concentration Plant to make MoS₂ and Copper Concentrates

1.2% MoS ₂	24# @ 90% Extr.	21.6 # @ 40¢	\$ 8.64
0.6% Cu	12# @ 80% Extr.	9.6 # @ 7¢ net	0.67
50% Au Ag @ 80% Extr			0.40
Total			\$ 9.71

Mining	\$2.50
Milling,	1.50
Haul to King 4/70 .	0.06
Frt from King 30/70	.30
Taxes and overhead	1.00
Royalty 10%	0.95

\$6.31

Profit per ton of ore\$3.40

$$\text{Cost per \# MoS}_2 = \frac{6.31 - 107}{21.6} = 24\frac{1}{2}\%$$

B Assuming Concentration plant and Cunningham-Donahue Plant.

1.2% MoS ₂	24# @ 90%	21.6# MoS ₂ @ 60%	13# Mo @ 80¢	\$10.40
0.6% Cu	12# @ 85%	10.2 # @ 7¢		0.71
50% Au Ag @ 80%				0.40
Total				\$11.51

Mining	\$2.50
Milling	1.25
Haul to King 2/20	0.20
Taxes and overhead .	1.00
Royalty 10%	0.98

$$\text{Cost per \# Mo} = \frac{7.11 - 1.11}{13} = 46.15\%$$

Conc. Treatment, 12X5	0.65
Patent Royalty 12X5	0.20
Frt. King, to Market	0.33 (20/60)
Profit per ton of ore	\$4.40

10% royalty payments assumed to owners, Cost figures assuming an extraction rate of 100 tons a day.

Plan A shows a yearly profit assuming 300 working days of \$102,000
Plan B " " " " " " " " " " \$152,000

Molybdenum yield for either plan would be 390,000 lbs as compared with yield at Climax of 22,000,000 lbs a year in 1937.

WATER DEVELOPMENT:

An ample water supply would have to be developed in the valley of the Big Sandy River. Local spring water is too uncertain, as would be the damming of such streams as Deluge Wash, a large mountain canyon, a mile from the mine. The mine makes very little water. The most favorable site for water development would be where the Deluge Wash - Crow canyon washes debouch into the valley fill material of Big Sandy River. As both these canyons have a very large drainage basins, the probability of shallow water at this point is very good. At this point where the wash is several hundred feet wide, there is a healthy growth of wild willow and other water-requiring shrubs. This spot is just off the proposed new road 5 miles from the mine and about 1000 feet lower elevation.

ROAD CONSTRUCTION:

The site of the proposed new road was surveyed two years ago and the survey is expended. A local Kingman road contractor who has built most of the mine roads of the Kingman-Dhloride district gave me a contract price of \$6,000. About 8 1/2 miles of old road has to be repaired and about 2 1/2 miles of new road. The total difference in elevation between the Big Sandy road and the mine is about 1,500 feet. The elevation at the mine is about 4,000 feet above sea level.

CAPITAL EXPENSES

Assuming preliminary development by tunnels of both veins

Plan A Assuming 100-ton concentrator and marketing of MoS₂ concentrates

Preliminary Work

Road	\$6,000	
Equipment	2,000	
1500 feet of tunnel	13,750	
		\$26,750

Final Equipment

Water Development and Pipe-line and pump	15,000	
100-ton Concentrator	40,000	
Power Plant	20,000	
Mine Equipment	15,000	
Townsite	20,000	
Miscel.	10,000	
Working Capital	10,000	\$158,750

Plan E Assuming 100-ton Concentrator and Treatment Plant at Kingman

Preliminary Work as for Plan A	\$ 23,750
Final Equipment Same as for Plan A plus Treatment Plant, ...	<u>153,000</u>
Total	\$176,750

Submitted by J. E. Tenney,
Mining Engineer.

C O P Y
1-26-38

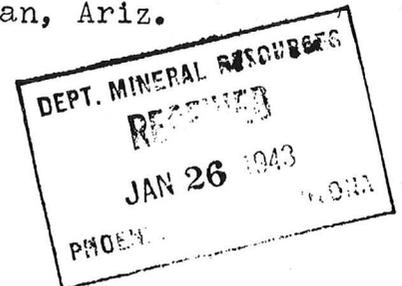
January 21, 1943

Progress Report,
LEVIATHAN,
M. B. Dudley,
Kingman, Ariz.

MEMORANDUM

To: Earl F. Hastings

From: Elgin B. Holt



Talked to M. B. Dudley, who has a \$5,000 loan on this property, located in the Cedar Mining District, Mohave County. He states: "We are arranging to start dewatering the Leviathan shaft within a few days. Equipment has been acquired for this property for unwatering and crew now on way to the mine".

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loan

Elgin B. Holt

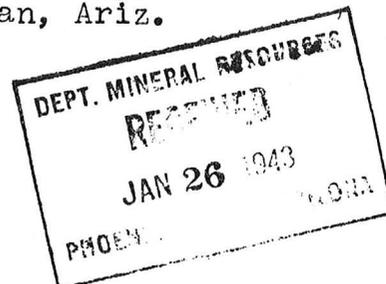
January 21, 1943

Progress Report, *H.*
LEVIATHAN,
M. B. Dudley,
Kingman, Ariz. *C*

MEMORANDUM

To: Earl F. Hastings

From: Elgin B. Holt



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loan

Elgin B. Holt

MEMORANDUM

THE ARIZONA PRINTERS, INC.

March 30, 1943

Sam:

The WPB approved the approved
the application for the construction
of the Copper Bell Leviathan mine access
road on March 26.

This is M. B. Dudley's
property.

C.F.W.

C

PHOENIX,
OCT 22
8 30 PM
79 58



REASON CHECKED
Unclaimed
Unknown
Insufficient address
Moved, Left no address
No such office in state
Do not remail in this envelope
POSTAGE DUE 2 CENTS

~~Mr. M. B. Dudley
P.O. Box 534
Kingman, Arizona~~

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

October 21, 1958

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

LEVIATHAN MINE (Mohave County) copper
(Property) (ore)

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

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

Frank P. Knight

FRANK P. KNIGHT,
Director.

Enc: Mine Owner's Report

April 15, 1943

Mr. M. B. Dudley
Box 534
Kingman, Arizona

Dear M. B.:

I understand that you asked for the file on the Leviathan Mine and someone in the office kindly gave you our full file. There are certain official records regarding our work on the Leviathan in that file.

I hope you will look it over carefully and return all those papers which are not the ones that you left here for reference.

With best wishes and kindest regards, I am

Very truly yours,

J. S. Coupal, Director

JSC:kk

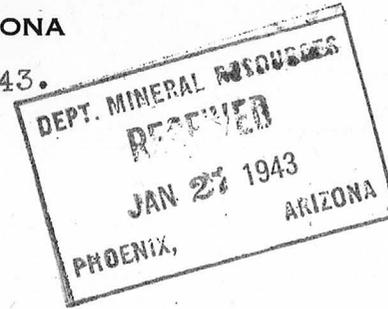
MINES DEVELOPMENT, INC.

P. O. BOX 534

KINGMAN, ARIZONA

MINES IN
CEDAR VALLEY MINING DISTRICT
MOHAVE COUNTY, ARIZONA

Jan 26th. 1943.



OFFICERS
M. B. DUDLEY
PRESIDENT
LEONARD HOFFMAN
VICE-PRESIDENT
J. H. HOFFMAN
SEC. & TREAS.

Mr. J. S. Coupal.
Dept Of Mineral Resources.
Phoenix, Arizona.

Dear Sam,

I have your letter of the 21st, just received. We had no mail here for several days, due to wrecks and washouts, both on the railroad and highway. I just learned of another bad wreck west of Needles, that will hold our western mail up another 24 hours.

Called on the supervisors this morning and had a lengthy chat. No one there knew where the Spring manganese property was, or anything about it, and, it was not until I contacted Holt that I got a line on it.

I have not received the copy of Schiele's letter to the Supervisors here. However, they say they received it, also that they will cooperate in the maintenance of the Sandy road. However, as to getting easements, it looks like this is the cart before the horse. How can we get easements when there has as yet been no survey made. I always thought, and, still think that the matter of surveys and easements is part of the engineering work on the proposed road. Certainly we are not in a position to do this work ourselves, and, if we were, under the present condition, we would not know what easements to ask for.

In my talks with Mr. Brooks and others in Phoenix, I was led to believe that, we had covered all the obstacles, and, that it was just a case of when the men would start their engineering work, etc.

Mr. Lee Hilton, the Kingman grazing head, is out of town but, will return this eve and I will then see him and see, what if anything he can do. It's a D- shame to compel us to haul over that goat trail out of Yucca, incurring big expense and danger, when we are assured the road had been approved.

Will be in Phoenix next Monday for a stockholders meeting of the Leviathan Metals, of Duluth. Will see you then and, in the meantime, please ask the Grazing Dept there how we are to get these easements before a survey of the proposed road is made. Also, tell them that this is really not a "New road", but really means the repairing of an old road that was used years ago. In fact, of the 11 miles, they will have practically all blade work, other than about $3\frac{1}{2}$ miles.

We have a big Diesel plant to move into Copperville as soon as we get the development loan, and, certainly it would be a great help for us if they could get the road in by that time. All of the other equipment, necessary for development, including the big electric hoist, compressor, is already on the ground. As is the big steel head-frame, cages, etc.

2JSC.

The simple and quick way to get the road in would be to give us the money and, let us have it built. However, I don't know whether or not that could be arranged. It's not an expensive job at all, and, no serious engineering problem.

Thanks for your letter and, your many efforts in our behalf. It is appreciated.

With all good wishes.

Sincerely yours.

A handwritten signature in cursive script that reads "M B Dudley". The signature is written in dark ink and is positioned above the printed name.

M. B. Dudley.

File Copy 2
A

Mr. E. L. Whipple
Consolidated Minerals, Inc.
P.O. Box 12345
Phoenix 3rd, Arizona

Dear Mr. Whipple:

Subject : Molybdenite Deposit, Mohave County, Arizona

Pursuant to your instructions I drove to Wikioup, Mohave County, Arizona on June 15, 1961 to investigate a molybdenite deposit offered you by Mr. Frank McCarthy. As no one in Wikioup had any knowledge of McCarthy nor of a molybdenite deposit I went on to Kingman where inquiry at the Citizens Utilities office, at the Mohave County Court House and at the Mohave Motors developed information that McCarthy is an associate of Vern C. Haynes of Mohave Motors. Mr. Haynes was absent on business but was expected to return to Kingman on the 15th. I contacted him at his home at 9:30 PM, making an appointment for the following morning.

I met Mr. Haynes in his office at Mohave Motors June 16th and obtained the following information:

Haynes and McCarthy have been associated in a number of mining ventures in Mohave County; several years ago they operated the Dariana tungsten mine.

At present, Haynes and McCarthy are interested in several groups of mining claims on the eastern side of the Hualapai Mountains. The groups offered to you by McCarthy are the Leviathan and the Lower Group, both in the Deluge Wash area, near Diamond Jo Peak.

Leviathan Group

The Leviathan is an old property which has, in the past, produced copper and molybdenum ores. The mine is developed by a two-compartment shaft, sunk on the vein and by an adit. The shaft is about 400 feet deep; the adit 200 feet long. There are levels off the shaft on the 100 and 200 foot elevations and there may be some work below this. According to Haynes, there is little ore remaining unmined above the 100-level but ore remains in the 200-level and in the bottom of the shaft.

The adit is about 200 feet long and shows high grade molybdenite at 150 feet from the portal.

The vein is quartz, dipping at a high angle between granite walls, with an average width of 2 feet. Ore minerals are molybdenite and chalcopyrite, occurring in irregular pods.

The Leviathan shaft is reported in fair condition except for the ladders, which need repairs. Equipment consists of a small hoist and pump, installed by a former lessee, Earl Heath, deceased. It is reported that the mine makes very little water.

The precious metal content of the Leviathan ore was low; only a few cents per ton, according to Haynes. Ore was concentrated in a small mill at the shaft; the mill has been scrapped.

LOWER GROUP

Consists of several mining claims showing molybdenite and copper minerals. The claims are near the head of Deluge Wash, about 1- $\frac{1}{2}$ miles from the Leviathan. Haynes said there is a good showing of ore on the claims.

Access Roads

I asked Haynes if I could drive to the Leviathan and at least go over the surface. He advised against it very strongly, stating that he and McCarthy had visited the property early in June; that they had a very rough trip. The road was badly washed and it was difficult to get back up the hill from the mine. He said that it required a four wheel-drive vehicle with high clearance; that a four-speed pickup with standard clearance couldn't pass the last part of the road. I told him I would postpone a visit to the property until the road was repaired.

Haynes said there are three possible ways of reaching the Leviathan; one of these is a road from Yucca, the other two are roads from the Big Sandy Valley.

1. There is at present a road from Yucca to the Leviathan. It is the one described in the paragraph above and is the original ore haulage road. It turns off the Yucca-Boriana Mine road. The distance from Yucca to the Leviathan is about 16 miles and it would require an additional 1- $\frac{1}{2}$ miles to connect the Lower Group of mining claims. Haynes does not recommend spending any money on this road.

2. The ore from the Leviathan could be hauled from the mine through Copperville and over an old road to the Big Sandy Valley (Highway 93.) Total distance would be about 20 miles and there would be an additional 1- $\frac{1}{2}$ miles from the Lower Group to the Leviathan. Parts of the old road are impassable without repairs.

3. Haynes recommends an access road in Deluge Wash from Highway 93 to a point near the Lower Group; then to build a new road from the Lower Group to the Leviathan. He estimates

that road repairs and new construction will cost between \$2,000.00 and \$3,000.00. Total haulage distance will be between 10 and 12 miles without adverse grades as in the Yucca or Copperville roads.

Miscellaneous

Title and Taxes : Haynes said McCarthy had all of this information. That he believed most of the mining claims are patented and that the taxes are paid. He said he did not know who the former owners were nor did he have the survey numbers of the patented claims nor the claim names. When McCarthy returns the status of the mining claims can be checked and if there are any unpatented claims these should be checked for possible forfeiture.

Concentrating, Power and Water: Electrical power is available in the Big Sandy Wash at Deluge Wash and Haynes said ample water is available for milling. No power exists at the mine and either gasoline or diesel equipment will be required.

Reports: According to Haynes there are several reports extant on the Leviathan Group; the latest being one made by Manning W. Cox, of Wissler and Cox, Consulting Geologists, San Francisco, California. McCarthy has all of the reports.

General: Haynes said that Union Carbide and Bear Creek Mining are acquiring mining claims and doing exploration work north of the Leviathan. That he does not consider the Leviathan nor the Lower Group attractive for a large operation; if the properties are worked " Lease fashion" they will be profitable. McCarthy is in Canada and should return to Kingman within a short period of time.

According to Haynes, he and McCarthy have sufficient capital to operate the properties on a "show string." They would like additional capital to take care of unforeseen contingencies. When McCarthy returns to Kingman they will contact you.

Conclusion: I requested Mr. Haynes to have McCarthy contact you upon his return. The property may deserve a physical examination. I regret that Mr. Haynes and I were unable to reach the area at this time.

Very truly yours,

William P. Crawford
William P. Crawford, E. M.

1823 North 40th Street
Phoenix 8, Arizona
June 18, 1961



MEMORANDUM.
to W. C. Broadgate.

Phoenix,
Jan. 13, 1942.

Subject: P-56 Application.

M. B. Dudley, P O Box 534 Kingman filed an application for a P-56
serial number for the Leviathan Mine, Docket Number C-ND- Phx 87
on January 12th with C. M. Martin.

He was so specifically directed by G. Lee Brown and decided to follow
instructions but wanted to so notify you.

J. S. Coupal.

H.

○
Coryville

Location

○ Diamond
to
Peak.

9
K
11
0
4

Deluse

693

SANDY

a/c Corporation Commission.

Leviathan Metals Company were incorporated

7-18-23 - E. S. Clark of the Heard Building
is their statutory agent and the company is in
good standing.

LEVIATHAN MINE

MOHAVE COUNTY
CEDAR VALLEY

Bert Reed, Chief Geologist of Inspiration Cons.
Copper Corp. reported that his company is
drilling at the Leviathan, viz: they have
completed 4 holes and are currently drilling
a fifth and final hole. The results to date
are indifferent. The co. is debating whether
to abandon or to open a caved level to check
a reported exposure of ore. Because of the
spotty nature of the values in this narrow
vein (5' to 6") no further exploratory
drilling will be done.

T P LANE
4-13-59 WR

*

General Information: 3/1943

Report Chas. A. Anderson, USGS. In a vein 2 to 20' wide, averaging 3 1/2', occurs Mo & Cu minerals. Development is by 265' shaft with 2 levels having 1474' of work. In addition 220' work has been done in another section.

A parallel vein carrying Mo crops 450' NW of the shaft.

According to Mineral Yearbook, 1943, this was reported a heavy producer Mari.

Mine was unwatered to 261' level & sampled. 23,320 T of 1.16%

2/1944 MoS₂ ore is given as reserves. Operations stopped 4/1943.

Character of Ore:

Mo & Cu carrying small amounts of Ag.

Equipment (Date 3/1943):

*

Department of Mineral Resources

Mine - Leviathan
District - Cedar

Nov. 9, 1943
Engineer - Earl F. Hastings

Docket No. C-ND- Phx. 87
Date Application Received Nov. 5, 1942
Date of Report Nov. 9, 1942

1. Name and address of applicant (correspondent)
M. B. Dudley, Box 534, Kingman, Ariz.
2. Character of project and estimated cost thereof:
Unwater and repair shaft and lateral workings to and including the 250 level to prepare Cu-MoS₂ vein for production, \$5000.00
3. Location of property
Cedar Mining District, Hualapai Mountains, Mohave County, Ariz.
4. Applicant's interest in or ownership of property
Applicant has 5 year lease at 7 $\frac{1}{2}$ % royalty.
5. Loan requested:
\$5000.00
6. Loan recommended:
\$5000.00

7. Comments:
(A) Using the average width and values of the J. B. Tenney report there appears to be tonnage blocks, after a 50% reject by sorting in stopes, as follows:

Blocks A, B, & C.	Tons Assured	16,000	Block III	Tons Probable	4,700
Block II	"	"	Block IV	"	3,300
Total	"	"	Total	"	8,000
		22,100			

TOTAL TONNAGE - 30,100

- Notes: (1) All calculations by slide rule
(2) Notations on map in red by writer)

(B) The Tenney report indicates that by stope screening and sorting, eliminating 50% of the mined vein material, the MoS₂ mill heads are increased to 177% and the cu. 230%. This test was made on ore above the 100 foot level. Applying this percentage to ores on both the 100 and 250 foot levels the block assays are approximately as follows:

Blocks	MoS ₂ %		Cu. %		Au. & Ag. Ozs.	
	Mined	Sorted	Mined	Sorted	Mined	Sorted
A, B & C	1.13	2.0	0.65	1.5	\$0.75	\$1.00
* II, III, & IV	0.994	1.76	0.18	0.41	?	?

(C) The Tenney report indicates a mill recovery of 90% on molybdenite and 75% on copper, gold and silver. The net market payment per pound of metal contained in concentrates will approximate \$0.40 for MoS₂ and \$0.13 for copper (including premium at zero quota). The net value at market point, before deduction of freight, and the recoverable metallic content of ore can therefore be tabulated as follows:

Blocks A, B, & C.	Tons	Lbs/T	\$/T	Total Lbs.	Total Dollars
MoS ₂	16,000	36.0	\$14.40	576,000	\$230,400.00
Cu.	16,000	22.4	2.91	358,400	46,592.00
Au. & Ag.	16,000	-	0.75	-	12,000.00
Total	16,000		18.06		\$ 288,992.00
Block III					
MoS ₂	6,100	31.6	12.64	192,760	77,104.00
Cu	6,100	6.0	0.78	36,600	4,758.00
Au & Ag.	6,100	-	?	-	?
Total			13.42 +		81,862.00 +
Blocks III & IV					
MoS ₂	8,000	31.6	12.64	252,760	101,120.00
Cu	8,000	6.0	0.78	48,000	6,240.00
Au & Ag		-	?	-	?
Total			13.42 +		107,360.00 +
Total Assured					
MoS ₂	22,000	34.95	13.98	768,760	307,504.00
Cu.	22,000	17.9	2.33	395,000	51,350.00
Au. & Ag.	22,000	-	0.54		12,000.00
Total	22,000		16.85 *		\$370,854.00 +

No gold and silver value in the ore below Block "C" is stated. If these values are associated with the copper the net returns would be negligible, if not associated with copper this value could range considerably.

(D) Referring to cost estimates of the Tenney report some increases will be in order due to current conditions. The mining cost on the basis of sorted tonnage will probably exceed \$4.50 and milling including drying and sacking, \$1.50. The market for molybdenite will be in the east and the rail freight will equal both rail and ocean freight as reported. Royalty, for all metals, will be approximately \$1.26 per ton. \$1.00 per ton of the present assured tonnage should be expended in development. Operating costs will consequently average about \$10.00 per ton and the operating profit about \$6.85 on assured ore and \$3.42 on probable ore, or \$5.68 on combined assured and probable ore.

(E) Investment prior to production, exclusive of a proposed new shaft, will approximate \$135,000.00 or \$6.14 per ton of blocked ore on \$4.49 per ton of combined blocked and probable ore. It can be summarized as follows:

*

Net returns from concentrates (assured & probable) Cr.		\$478,214.00
Operating and Development costs	\$301,000.00	
Capital Investment "	135,000.00	
	Total Dr.	436,000.00
	Net profit	<u>42,214.00</u>

*Initial Capital requirement:

Mine sampling, mine repairs and mining & metallurgical engineering	\$10,000.00
Mine equipment	15,000.00
Power Plant	30,000.00
Mill - 100 ton	40,000.00
Housing and camp	25,000.00
Pumping equipment	15,000.00
	<u>\$135,000.00</u>
Working capital	30,000.00
Total Capital	<u>\$165,000.00</u>

Working capital is absorbed in operating and development costs, in that it is a prepayment of some of these costs and is therefore not duplicated in the Capital Investment of the above tabulation.

(F) From cost and capital tabulated estimates as outlined in paragraphs "D" and "E" there is an apparent profit above capital investment as follows:

	Operating Profit	Per Ton	Cap. Inv./T	Profit/T
Assured ore	\$6.85		6.14	\$0.69
Assured & Probable ore	5.88		4.49	1.39

It appears that the assured ore is sufficient to repay the initial investment, pay development of probable ore, and return a slight profit. If the probable ore materializes, there will be sufficient value to further develop, establishing continuity of operation within the cost range outlined, and mine at an increased per ton profit.

While the Tenney cost tabulation allows for taxation and general overhead, it is probable that the allowance for taxes is insufficient under the current tax laws. This item can easily wipe out the operator's profit, as above tabulated, as well as infringe upon the per ton return of capital investment. This item should receive more serious consideration than is possible in this report.

(G) Familiarity with the district in which the mine is located and experience with the metallurgy of Copper Creek ores, which is claimed in the Tenney report as identical to the Leviathan ore, combines to indicate the feasibility of this project. An appreciable MoS₂ production appears assured and, aside from the tax consideration, a sufficient profit for the repayment of capital and a small net profit is evident. The data submitted is ample to warrant this loan for the purpose of checking the ore values, and economics in a more thorough manner.

NAME OF MINE: LEVIATHAN

COUNTY: MOHAVE W
DISTRICT: CEDAR VALLEY
METALS: MO, CU

OPERATOR AND ADDRESS:

MINE STATUS

DATE:

DATE:

M.B.Dudley, Box 534, Kingman

RFC loan granted \$5000
Access road approved
Closed

3/1/44

BUREAU OF MINES ENGINEER'S REPORT ON THE LEVIATHAN MINE ✓

Mohave County, Arizona

INTRODUCTION: The Leviathan mine was visited by Bureau of Mines engineers on June 13, 1943, in connection with the application for the improvement of the access road.

LOCATION: The mine is situated in the eastern foothills of the Hualpai Mountains 50 miles southeast of Kingman and 4 miles south of the Copperville mine.

ACCESSIBILITY: An access road to the Copperville mine from the Kingman-Big Sandy road is now under construction. Improvement of an extension of that road to the Leviathan mine is desired.

OWNERSHIP: The mine is owned by residents of Suluth, Minnesota. It is under 10-year lease to M. B. Dudley, of Kingman, Arizona.

ORE OCCURRENCE AND DEVELOPMENT: The ore is a quartz ore that contains molybdenite and a small amount of copper. The vein is 3 feet to 20 feet wide. It strikes N. 30 degrees E. and dips 80 degrees West. The country rock is diorite. There is a second quartz vein parallel to the one that has been developed.

The mine has been opened by a 2 compartment shaft, inclined at 82 degrees, with a considerable amount of drifting on the 260 foot level.

It has been unwatered with the aid of a \$5,000 R. F. C. loan and sampled by an R. F. C. engineer. The pumping equipment had been removed and the water had risen in the shaft so that workings were inaccessible when the mine was visited by the Bureau of Mines Engineers.

ORE RESERVES: The R. F. C. engineer reported that 25,000 tons of measured ore is blocked out above the 260-foot level that averages 1.18 per cent MoS_2 , 0.83 per cent copper, and 0.58 ounces per ton silver. It is estimated by the Geological Survey that 17,000 tons of the same grade of ore may be inferred in the extension of the vein below the 260-foot level.

MILLING: A mill was built about 1916 and operated for some time. Recovery was not very satisfactory.

EQUIPMENT: There is a small temporary headframe over the shaft. There is a considerable amount of old equipment scattered about but the most of that is not useable.

CONCLUSION:

Improvement of the road is needed for the contemplated development of the mine and approval of the access road application is recommended.