DMA Form 1

DEFENSE MINERALS ADMINISTRATION
Control Slip

CONTROLLED DOCUMENT

DMA Docket No. 3328

DO NOT DETACH THIS SLIP

Action on this document is recorded and controlled in Reports and Records Branch. Any movement of this document between divisions or offices of DMA or movement outside DMA must be reported to the Reports and Records Branch. Actions taken that affect status of the case must also be reported.

This document has been recorded as

Exploration Assistance

Any action taken to change the type of request for assistance must be promptly reported to the Reports and Records Branch. Use DMA Form 2 for submitting these reports.

Cys to USGS & USBM

Routing Slip

To:	500	Date	4/29/54
To:	Open Com	Date	5-10-54
To:	Open Com	Date	8-27-54
To:	Open Com	Date	10-13-54
To:		Date	
To:		Date	
To:		Date	
To:		Date	
To:		Date	
To:		Date	
To:		Date	
To:		Date	
To:		Date	
To:		Date	
To:		Date	

DO NOT DETACH

CONTROLLED DOCUMENT

File Copy
Surname
J. W. All.
Griswold
Kiilsgaard
Hedges
Selfridge
H. Johnson

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

500

OCT 14 1954

St Anthony Mining Company
3525 Watson Road
St. Louis, Missouri

Re: Docket No. DMEA-3328 (Copper)
St. Anthony Mining Company
Upshot Mine
Yavapai County, Arizona

Gentlemen:

Your application for aid for an exploration project and other reports available to us in Washington concerning your application have been reviewed.

Projects approved by the Defense Minerals Exploration Administration must, in its judgment, show definite promise of yielding materials of acceptable grade in quantities that will significantly improve the mineral supply position for the National Defense Program.

Careful study of all our information, although noting a small amount of marginal ore on your lease, indicates to us that the probability of disclosing minable ore reserves by your proposed program is not sufficiently promising to justify Government participation. We regret to advise you, under these circumstances, that your application for exploration assistance is denied.

We wish to thank you for your interest in the Defense Minerals Program and for bringing your property to our attention.

Sincerely yours,

C. O. Mittendorf

Administrator

WHALT/er 10/12/54
Copy to: Docket
Admr. R. File
Op. Committee
Base Metals
Mr. Kiilsgaard, USGS
Mr. C. H. Johnson, USBM
Region IV (2)
Chron.

K

UNITED STATES
DEPARTMENT OF THE INTERIOR 500
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

October 12, 1954

Memorandum

To: Administrator

From: Chief, Base Metals Division

Subject: Denial of Application, Docket No. DMEA-3328, St. Anthony Mining Company, Upshot Mine, Yavapai County, Arizona, (Copper)

The cited application was submitted to this Division on April 29, 1954. The Applicant estimated that the work of the project would cost $100,000.00.

An examination of the property was made by the field on July 13, 14 and 15, 1954 and their report was received by this office on August 18, 1954.

The Field Team states: "This is a small low grade deposit. Diamond drilling shows that the veins feather out at a depth of less than 350 feet. Other lenses of mineralized rock such as that opened by the 40-level might be found if the schist zone containing the quartz lenses is explored intensively along its strike but the size and grade of the deposits do not warrant exploration. Geological conditions at the Upshot mine are unfavorable for the existence of ore in significant amounts."

We concur with the recommendations of the Field Team and the Commodity members of the USGS and USBM that this application be denied.

W. R. Griswold

W. R. Griswold

UNITED STATES
DEPARTMENT OF THE INTERIOR 500
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

October 12, 1954

Memorandum

To: Administrator

From: Chief, Base Metals Division

Subject: Denial of Application, Docket No. DMEA-3328, St. Anthony Mining Company, Upshot Mine, Yavapai County, Arizona, (Copper)

The cited application was submitted to this Division on April 29, 1954. The Applicant estimated that the work of the project would cost $100,000.00.

An examination of the property was made by the field on July 13, 14 and 15, 1954 and their report was received by this office on August 18, 1954.

The Field Team states: "This is a small low grade deposit. Diamond drilling shows that the veins feather out at a depth of less than 350 feet. Other lenses of mineralized rock such as that opened by the 40-level might be found if the schist zone containing the quartz lenses is explored intensively along its strike but the size and grade of the deposits do not warrant exploration. Geological conditions at the Upshot mine are unfavorable for the existence of ore in significant amounts."

We concur with the recommendations of the Field Team and the Commodity members of the USGS and USBM that this application be denied.

W. R. Griswold

W. R. Griswold

File Copy
Surname
J. W. Alt.

UNITED STATES
DEPARTMENT OF THE INTERIOR 500
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

OCT 12 1954

Memorandum

To: Administrator

From: Chief, Base Metals Division

Subject: Denial of Application, Docket No. DMEA-3328, St. Anthony Mining Company, Upshot Mine, Yavapai County, Arizona, (Copper)

The cited application was submitted to this Division on April 29, 1954. The Applicant estimated that the work of the project would cost $100,000.00.

An examination of the property was made by the field on July 13, 14 and 15, 1954 and their report was received by this office on August 18, 1954.

The Field Team states: "This is a smallow grade deposit. Diamond drilling shows that the veins feather out at a depth of less than 350 feet. Other lenses of mineralized rock such as that opened by the 40-level might be found if the schist zone containing the quartz lenses is explored intensively along its strike but the size and grade of the deposits do not warrant exploration. Geological conditions at the Upshot mine are unfaverable for the existence of ore in significant amounts."

We concur with the recommendations of the Field Team and the Commodity members of the USGS and USBM that this application be denied.

W. R. Griswold

W. R. Griswold

JWAlt:er 10/12/54

Copy to: Docket
Base Metals
Chron.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

RECEIVED
OCT 7 1954

224 New Customhouse
Denver 2, Colorado

October 4, 1954

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: DMEA Docket 3328 (Copper) St. Anthony Mining Company, Upshot mine, Yavapai County, Arizona.

In reply to your letter dated August 27, 1954 and letter from C. H. Johnson dated August 27, 1954 concerning the desirability of having actual assays of mineralized portions of drill holes from the subject property, enclosed are the original and three copies of a Supplemental Report prepared by William R. Hardwick of the Bureau of Mines and John N. Faick of the U. S. Geological Survey.

Assay values of the samples obtained from drill hole core substantiated the recommendations of the inspecting engineers in the report of examination.

W H King

W. H. King

Mining Division
Date Rec'd.

OCT 4 - 1954

BUREAU OF MINES
Denver, Colorado

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

SOUTHWEST EXPERIMENT STATION
Box 4097
UNIVERSITY STATION

TUCSON, ARIZONA

DEPARTMENT OF THE INTERIOR
Bureau of Mineral Administration
RECEIVED
OCT - 7 1954

October 1, 1954

Memorandum

To : W. H. King, Chief, Mining Division, Region IV

From : Chief, Mining Methods Br., Mining Div., Region IV

Subject : Supplemental Report, Docket DMEA-3328, St. Anthony Mining Co.'s Upshot Copper Mine, Yavapai County, Ariz.

In regard to your recent memorandum, W. R. Hardwick of the Bureau of Mines, and J. N. Faick and Larry Bryner of the Geological Survey visited the Upshot mine on September 20 and sampled the diamond drill hole core from Holes 1, 5, 6 and 11. The assays of the best mineralized part of the core are shown in the attached report by Hardwick and Faick. These assays seem to confirm the DMEA field examiners' original conclusions.

Walter R. Storms

Walter R. Storms

CC W. H. King (8)
J. N. Faick
DMEA-3328
DF

WRStorms:frj

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

SOUTHWEST EXPERIMENT STATION
Box 4097
UNIVERSITY STATION

TUCSON, ARIZONA

REC'D
OCT 7 1954

October 1, 1954

Memorandum

To : DMEA Field Team, Region IV

Through : Walter R. Storms, Chief, Mining Methods Br., Mining Division, Region IV, Tucson, Ariz.

From : William R. Hardwick, Mining Engineer, Bureau of Mines, Tucson, Ariz.
John N. Faick, Geologist, Geological Survey, Tucson, Ariz.

Subject : Supplemental Report, Upshot Copper Mine, Docket DMEA-3328, Yavapai County, Ariz.

The Upshot mine was visited on September 20, 1954 by John N. Faick and Larry Bryner, geologists, U. S. Geological Survey, and William R. Hardwick, Mining Engineer, U. S. Bureau of Mines, for the purpose of splitting and sampling diamond drill core from sample holes drilled on the property. A. J. Sullivan was at the mine and assisted in selecting the core intervals to be sampled. This core was split and assayed to supplement a report of a field examination which was made on July 13, 14, and 15, 1954.

The entire core was examined and the most highly mineralized sections were noted on the previous visit. On this second visit, the highest-grade part of the mineralized sections, by visual inspection, was split with a Longyear core splitter and half of the core was assayed in the U. S. Bureau of Mines Laboratory in Tucson. Mr. Sullivan requested that he receive a copy of the assay report.

The results were as follows:

Hole No.	Depth in feet From	Depth in feet To	Assay: Percent Copper	Percent Lead	Percent Zinc	Silver Oz/ton	Gold Oz/ton
1	570½	581½	0.025	0.20	0.15	0.10	0.01
1	595	605	0.050	0.18	0.10	0.15	0.01
5	293½	302½	0.200	0.14	0.30	0.25	0.02
6	185	187½	0.075	0.20	0.30	Tr	Nil
6	292½	297	0.050	0.10	0.15	Tr	Nil
11	426½	427-1/6	0.730	0.34	1.00	3.15	0.15

CC W. H. King (Orig. & 8)
J. N. Faick
DMEA-3328
DF

WRHardwick:frj

These analyses of the most intensely mineralized parts of the diamond drill core confirm the previous evaluation of the core.

William R. Hardwick, Mining Engineer
Mining Methods Branch
Mining Division, Region IV
Tucson, Ariz.

John N. Faick, Geologist
U. S. Geological Survey
Tucson, Ariz.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

OCT 7 1954

224 New Customhouse
Denver 2, Colorado

October 4, 1954

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: DMEA Docket 3328 (Copper) St. Anthony Mining Company, Upshot mine, Yavapai County, Arizona.

In reply to your letter dated August 27, 1954 and letter from C. H. Johnson dated August 27, 1954 concerning the desirability of having actual assays of mineralized portions of drill holes from the subject property, enclosed are the original and three copies of a Supplemental Report prepared by William R. Hardwick of the Bureau of Mines and John N. Faick of the U. S. Geological Survey.

Assay values of the samples obtained from drill hole core substantiated the recommendations of the inspecting engineers in the report of examination.

W. H. King

October 1, 1954

Memorandum

To : W. H. King, Chief, Mining Division, Region IV

From : Chief, Mining Methods Br., Mining Div., Region IV

Subject : Supplemental Report, Docket BMEA-3138, St. Anthony Mining Co.'s Upshot Copper Mine, Yavapai County, Ariz.

In regard to your recent memorandum, W. R. Hardwick of the Bureau of Mines, and J. N. Faick and Larry Bryner of the Geological Survey visited the Upshot mine on September 29 and sampled the diamond drill hole core from Holes 1, 3, 6 and 11. The assays of the best mineralized part of the core are shown in the attached report by Hardwick and Faick. These assays seem to confirm the BMEA field examiners' original conclusions.

Walter R. Storms

Walter R. Storms

CC W. H. King (8)
J. N. Faick
BMEA-3138
RF

WRStorms:frj

October 1, 1954

Memorandum

To : DMEA Field Team, Region IV

Through : Walter R. Stearns, Chief, Mining Methods Br., Mining Division, Region IV, Tucson, Ariz.

From : William R. Hardwick, Mining Engineer, Bureau of Mines, Tucson, Ariz.
John N. Faick, Geologist, Geological Survey, Tucson, Ariz.

Subject : Supplemental Report, Upshot Copper Mine, Docket DMEA-3328, Yavapai County, Ariz.

The Upshot mine was visited on September 20, 1954 by John N. Faick and Larry Bryner, geologists, U. S. Geological Survey, and William R. Hardwick, Mining Engineer, U. S. Bureau of Mines, for the purpose of splitting and sampling diamond drill core from sample holes drilled on the property. A. J. Sullivan was at the mine and assisted in selecting the core intervals to be sampled. This core was split and assayed to supplement a report of a field examination which was made on July 13, 14, and 15, 1954.

The entire core was examined and the most highly mineralized sections were noted on the previous visit. On this second visit, the highest-grade part of the mineralized sections, by visual inspection, was split with a Longyear core splitter and half of the core was assayed in the U. S. Bureau of Mines Laboratory in Tucson. Mr. Sullivan requested that he receive a copy of the assay report.

The results were as follows:

Hole No.	Depth in feet From	To	Assay Percent Copper	Percent Lead	Percent Zinc	Silver Oz/ton	Gold Oz/ton
1	570½ -	581½	0.035	0.20	0.15	0.10	0.01
1	596 -	605	0.050	0.18	0.10	0.15	0.01
5	303½ -	309½	0.200	0.14	0.30	0.25	0.02
6	185 -	187½	0.075	0.20	0.30	Tr	Nil
6	296½ -	297	0.080	0.10	0.15	Tr	Nil
11	426½ -	427-1/6	0.730	0.34	1.00	3.15	0.15

CC W. H. King (Orig. & 8)
J. N. Faick
DMEA-3328
RF

WRHardwick:frj

These analyses of the most intensely mineralized parts of the diamond drill core confirm the previous evaluation of the core.

William R. Hardwick

William R. Hardwick, Mining Engineer
Mining Methods Branch
Mining Division, Region IV
Tucson, Ariz.

John N. Faick

John N. Faick, Geologist
U. S. Geological Survey
Tucson, Ariz.

File Copy
Surname
J. W. Alt
Grimwood
500 Martin
H. Johnson
McKaughy

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

AUG 27 1954

Mr. W. H. King, Executive Officer
DMEA Field Team, Region IV
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA-3328 (Copper)
St. Anthony Mining Company
Upshot Mine
Yavapai County, Arizona

Dear Mr. King:

Referring to the cited application, we are in accord with the Field Team that this application should be denied, but we believe that the suggestion made by Mr. C. H. Johnson, USBM, in his memorandum of August 23, 1954, a copy of which is enclosed, should be carried out if possible. If this could be done we would have better justification for denying this application.

We will not take any action on this application until we receive your reply in regard to the suggestion made by Mr. C. H. Johnson.

Sincerely yours,

W. S. Martin
ACTING Chairman, Operating Committee

Enclosure 1

JWAlt/er 8/26/54

APPROVED:

J. H. Hedges
Member, Bureau of Mines

s/Thor N. Kulsgaard
Member, Geological Survey

Copy to: Docket
Admr. R. File
Op. Committee
Base Metals
Mr. Gildersleeve
Mr. C. H. Johnson (USBM)
Chron.

~~Reviewed by~~
~~DMEA OPERATING COMMITTEE~~

~~(date)~~

R.S.H.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

August 23, 1954

Memorandum

To: W. R. Griswold, DMEA

From: C. H. Johnson, Bureau of Mines

Subject: DMEA-3328 (Copper) St. Anthony Mining Company, Upshot Mine, Yavapai County, Arizona

I have reviewed the field team report by Romslo, Faick and Bryner, dated July 1954.

The report contains sufficient justification for denying the application. However, in view of the sharp contradiction between the Bureau's findings and the information submitted by applicant, particularly with reference to the metal content of the drill cores, I think it might be advantageous and in the end more satisfactory, both to applicant and Government, if the Government could have sufficient samples of the core from a few critical points to have analyses made for confirmation of the visual inspection reported by our field team. In spite of the evidence that the applicant did not take proper samples of the core for analysis, he is likely to feel that D.M.E.A. has rejected his claims without due consideration.

C. H. Johnson

C. H. Johnson

Copy to - Mr. Newcomb, USGS
Minerals Division
C. H. Johnson
Files

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

August 20, 1954

Memorandum

REVIEW OF FIELD TEAM REPORT ON APPLICATION DMEA-3328 (copper)

To: W. R. Griswold, Defense Minerals Exploration Administration
From: R. D. Trace, U. S. Geological Survey
Applicant: St. Anthony Mining Company
Name of property: Upshot Mine
Location of property: Yavapai County, Arizona
Date of Field Team Report: August 13, 1954
Authorship of Field Team Report: T. M. Romslo, USBM, J. N. Faick and L. Bryner, USGS.
Field Team's recommendation: Deny application.
Comments: Previous work on the deposit has shown it to be too low in grade and too small to be considered ore. There are no indications that higher grade or larger deposits will be found.
ACTION RECOMMENDED: Follow Field Team recommendation.

Bob Trace

R. D. Trace

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

August 20, 1954

Memorandum

REVIEW OF FIELD TEAM REPORT ON APPLICATION DMEA-3328 (copper)

To: W. R. Griswold, Defense Minerals Exploration Administration
From: R. D. Trace, U. S. Geological Survey
Applicant: St. Anthony Mining Company
Name of property: Upshot Mine
Location of property: Yavapai County, Arizona
Date of Field Team Report: August 13, 1954
Authorship of Field Team Report: T. M. Romslo, USBM, J. N. Faick and L. Bryner, USGS.
Field Team's recommendation: Deny application.
Comments: Previous work on the deposit has shown it to be too low in grade and too small to be considered ore. There are no indications that higher grade or larger deposits will be found.
ACTION RECOMMENDED: Follow Field Team recommendation.

R. D. Trace

RDTrace:hlm
G-8/20/54

Copy to: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
C. H. Johnson, 3621

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

August 20, 1954

Memorandum

REVIEW OF FIELD TEAM REPORT ON APPLICATION DMEA-3328 (copper)

To: W. R. Grimwold, Defense Minerals Exploration Administration
From: R. D. Trace, U. S. Geological Survey
Applicant: St. Anthony Mining Company
Name of property: Upshot Mine
Location of property: Yavapai County, Arizona
Date of Field Team Report: August 13, 1954
Authorship of Field Team Report: T. M. Romslo, USBM, J. N. Feick and L. Brymer, USGS.
Field Team's recommendation: Deny application.
Comments: Previous work on the deposit has shown it to be too low in grade and too small to be considered ore. There are no indications that higher grade or larger deposits will be found.
ACTION RECOMMENDED: Follow Field Team recommendation.

R. D. Trace

RDTrace:hlm
G-8/20/54

Copy to: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
C. H. Johnson, 3621

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

August 20, 1954

Memorandum

REVIEW OF FIELD TEAM REPORT ON APPLICATION DMEA-3328 (copper)

To: W. R. Griswold, Defense Minerals Exploration Administration
From: R. D. Trace, U. S. Geological Survey
Applicant: St. Anthony Mining Company
Name of property: Upshot Mine
Location of property: Yavapai County, Arizona
Date of Field Team Report: August 13, 1954
Authorship of Field Team Report: T. M. Romslo, USBM, J. H. Faick and L. Brymer, USGS.
Field Team's recommendation: Deny application.
Comments: Previous work on the deposit has shown it to be too low in grade and too small to be considered ore. There are no indications that higher grade or larger deposits will be found.
ACTION RECOMMENDED: Follow Field Team recommendation.

R. D. Trace

RDTrace:hlm
G-8/20/54

Copy to: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
C. H. Johnson, 3621

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

Alb
Betty

224 New Customhouse
Denver 2, Colorado

August 13, 1954.

Memorandum

To: Secretary to the Operating Committee

From: DMEA Field Team, Region IV

Subject: Report of Examination - DMEA Docket 3328 (Copper), St. Anthony Mining Company, Upshot Mine, Yavapai County, Arizona.

Enclosed are four copies of the report of examination on the subject property which was prepared in conformance with your request dated May 11, 1954.

The engineer examiners conclude that the St. Anthony Mining Company property has been sufficiently investigated and this previous exploration work has not disclosed any mineable deposits of copper-lead-zinc ore, and that the probability of discovering mineralization of ore grade by the proposed work of the subject application is not sufficiently promising to justify Government participation.

We concur with the findings of the examining engineers and recommend that this application be denied.

W H King
W. H. King

E. N. Hanschmann
for A. H. Koschmann

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
8-18-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

August 13, 1954.

Memorandum

To: DMEA Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Engineering Report of Examination - DMEA Docket 3328 (Copper), St. Anthony Mining Company, Upshot Mine, Yavapai County, Arizona.

Enclosed are the original and eight copies of the Summary, Conclusions, and Recommendations by T. M. Romslo of the Bureau of Mines, and John N. Faick and Larry Bryner of the Geological Survey. Also enclosed are the original and eight copies of the Engineering Report of Examination by T. M. Romslo.

The applicant requested $100,000.00 to explore the St. Anthony property by means of diamond drilling, shaft sinking and drifting and to provide for the rehabilitation of existing surface buildings and the construction of additional surface facilities.

The examining team found that the possibilities of developing mineable deposits of copper, lead, zinc ore on this property have been sufficiently investigated and have proven that a small amount of mineralization exists but it is definitely not of ore grade.

We concur in their conclusions that this application be denied.

W. H. King
W. H. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
8-18-54
(date)

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Defense Minerals Exploration Administration
Denver Federal Center
Denver 2, Colorado

August 9, 1954

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 3328, St. Anthony Mining Company, Upshot Mine (copper, lead, zinc), Yavapai County, Arizona

Enclosed are 9 copies of a geologic report by J. M. Falck and Larry Bryner of the U. S. Geological Survey covering the above docket.

Mr. Falck concludes that although small lenses of low grade copper-lead-zinc ore might be found by the proposed exploration, geologic conditions at the Upshot mine are unfavorable for the existence of ore in significant amounts. He therefore recommends denial of the application for exploration assistance.

E. M. Hackman
for A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (9)

Reviewed by
DMEA OPERATING COMMITTEE
8-18-54
(date)

July 29, 1954

MEMORANDUM

To : W. H. King, Chief, Mining Division, Region IV

From : Chief, Mining Methods Br., Mining Div., Region IV

Subject : Report on Docket DMEA-3328, St. Anthony Mining Co.'s Upshot Copper-Lead-Zinc Mine, Big Bug Mining District, Yavapai County, Ariz.

Enclosed are original and 8 copies of the section on Summary, Conclusions and Recommendations by T. M. Rensle of the Bureau of Mines, and John N. Faick and L. Bryner of the Geological Survey, and the section on Engineering by Rensle. A separate section on Geology will be submitted by the Geological Survey.

The applicant now is diamond drilling the Upshot deposit and has found little or no mineralization. As there seems to be little chance of finding any significant quantity of copper-lead-zinc ore by additional exploratory work, the examiners have recommended denial of Governmental exploration assistance. I concur with this recommendation.

Brochure is enclosed.

Walter R. Storms

Walter R. Storms

CC W. H. King (8)
J. N. Faick
DMEA-3328
DF

WRStorms:frj

Reviewed by
DMEA OPERATING COMMITTEE
8-18-54
(date)

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Box 4126 University Station

Tucson, Arizona

July 29, 1954

Memorandum

To: Mr. A. H. Koschmann

From: J. N. Falck

Subject: St. Anthony Mining Company, Upshot Mine (Copper,Lead,Zinc)
Yavapai County, Arizona DMEA 3320

Enclosed are the original and 8 copies of a report by J. N. Falck and Larry Bryner of a field examination of the above subject.

The report recommends denial of the application for Government assistance because Geological conditions at the Upshot mine are unfavorable for the existence of ore in significant amounts.

John N. Falck

JNF:ms

cc. Koschmann (8)
Storms

Reviewed by
DMEA OPERATING COMMITTEE
8-18-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA-3328, St. Anthony Mining Company

Upshot Copper-Lead-Zinc Mine

Big Bug Mining District

Yavapai County, Arizona

T. M. Romslo, Mining Engineer
U. S. Bureau of Mines

John N. Faick and L. Bryner, Geologists
U. S. Geological Survey

July 1954

Reviewed by
DMEA OPERATING COMMITTEE
8-18-54
(date)

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

By T. M. Romslo,[1] and John N. Faick[2] and L. Bryner[2]

The Upshot mine in Yavapai County, Ariz. was examined for the Defense Minerals Exploration Administration in connection with an application by the St. Anthony Mining Co. for Governmental participation in a proposed exploratory project. The examination, carried out under docket DMEA-3328, was made to determine if Governmental aid was warranted. The project, designed to test for copper-lead-zinc ores, consisted of repairs to existing buildings, construction of additional structures, improvement of roads, diamond drilling of about 8,000 feet of holes, sinking a 600-foot shaft, and drifting from the shaft. The cost of the project was estimated at $100,000.00.

Property presently held by the St. Anthony Mining Co. probably first was explored between 1890 and 1910. The exploratory work, consisting of numerous shallow surface explorations and a 910-foot Pentland shaft from which some drifting was done, failed to encounter significant concentrations of ore. The property then was essentially inactive to 1948. From 1948 to 1950, the Upshot mine was developed by a new 308-foot shaft, 600 feet of drifting, and 90 feet of raising. Fifty tons of ore reportedly were produced. The grade of the ore is unknown. The property then was idle until March 29, 1954 when a diamond drilling program was started. To July 16, 1954, 4 holes had been completed.

1/ Mining Engineer, Bureau of Mines
2/ Geologists, U. S. Geological Survey

In the project area, a belt of chloritic and sericitic schist contains numerous discontinuous quartz lenses. Ore mineralization is associated with some of the quartz lenses, which are confined to an area about 50 feet wide and extending several hundred feet to the north and south of the Upshot shaft. The lenses are a few inches to 6 feet wide, and a few feet to 150 feet in outcrop length. The attitude of the lenses diverges slightly from the foliation of the schist that strikes north-south and dips almost vertically.

Sulphide mineralization occurs mainly in thin lenses of silicified schist close to the quartz lenses. Probably the most extensive of these lenses have been explored by the Upshot mine. Specimens of this silicified schist from the 40-foot level, the only accessible level,were found to contain pyrite, chalcopyrite, sphalerite, arsenopyrite, covellite, and tennanite. Fine-grained muscovite and limonite were present in fractures. Three samples taken across the vein zone on the 40 level showed an average total copper, lead and zinc content of about one percent. The average width of the mineralized zone is 3.1 feet.

Each of the 4 diamond drill holes crosscut the zone of potential ore mineralization. Much of the core contained minor amounts of disseminated pyrite in schist. Veinlets of pyrite in schist were present in one of the holes. Other sulfide minerals

appeared to be confined to a few specks of chalcopyrite at widely scattered places. No ore mineralization was present in quartz that was encountered in all the holes.

Assays of samples from surface and underground workings submitted with the application were found to be worthless because the locations and widths were not given and were not obtainable during the examination of the property. The analyses of cores and sludges, presented to the examining engineers, also were found worthless because acceptable methods of sampling were not utilized. The assays of possibly a few inches of selected core were reported as representative of intervals up to 10 feet in length. Sludge assays were made of samples composed of a concentrate containing essentially all of the heavy minerals and a minor amount of the lighter weight components.

Denial of the request for Governmental aid in the proposed exploration of the Upshot property is recommended because rather extensive surface and underground explorations have encountered little or no ore, and additional exploratory work cannot be expected to yield more favorable results.

ST. ANTHONY MINING COMPANY
UPSHOT MINE

(COPPER, LEAD, ZINC)

YAVAPAI COUNTY, ARIZONA
DMEA 3328

GEOLOGY

By
J. N. Faick and Leonid Bryner
Geologists
U.S.Geological Survey

Reviewed by
DMEA OPERATING COMMITTEE
8-18-54
(date)

ST. ANTHONY MINING COMPANY
UPSHOT MINE

(COPPER, LEAD, ZINC)

YAVAPAI COUNTY, ARIZONA
DMEA 3328

CONTENTS

	Page
INTRODUCTION	1
GENERAL GEOLOGY	2
GEOLOGY OF THE UPSHOT MINE	2
ORE RESERVES	6
CONCLUSIONS AND RECOMMENDATIONS	7

ILLUSTRATIONS

Figure 1 - Location map	See Engineering Report	
Figure 2 - Claim map	See Engineering Report	
Figure 3 - Geologic Map and Sections Upshot Mine Yavapai Co., Arizona	Following page	2

INTRODUCTION

In an application to the Defense Minerals Exploration Administration, dated April 10, 1954, Roy J. Gunther, president of the St. Anthony Mining Company, requested government participation in an estimated $100,000 expenditure to explore for copper and lead at the Upshot mine.

The property included in this application lies in the west half of section 16 and the east half of section 17, T. 12 N. and R. 1 E., Yavapai County, Arizona (fig. 1).

To reach the property drive north on State highway 69 1.0 mile from the bridge on the north edge of Mayer, and turn left on a dirt road. This road is 1.2 miles long and leads directly to the main workings from which the rest of the property is easily accessible by foot. The rolling hills and shallow draws here lie at an elevation of from 4600 to 4800 feet. Not much of the ground is free of scrub oak.

This property is covered by the following unpatented claims: Blackburn Nos. 1 to 6, Copper Gulch and Copper Gulch No. 1 (fig. 2). They are under lease to the applicant company.

An examination of the property was made during July 13, 14, and 15 by T. M. Romslo of the Bureau of Mines, and J. N. Faick and Leonid Bryner of the Geological Survey. A. J. Sullivan, representing the applicant, was present during the examination. All accessible parts of the main workings, and the surface geology in the area proposed for exploration were examined, and 2456 feet of diamond drill core in Holes No. 1, 4, 5 and 6 was logged. The following report is based on this work. The report contains a description of the geology near the Upshot mine and an evaluation of its potentialities in copper, lead and zinc.

GENERAL GEOLOGY

The Upshot mine is well within an extensive area of the older pre-Cambrian Yavapai schist. In the mine area the Yavapai consists of chloritic and sericitic schist and greenstone. The schist appears to be made up predominantly of chlorite but it contains scattered grains of magnetite. The original bedding apparently corresponds approximately to the schistosity. The greenstone has a chloritic ground mass and contains feldspar phenocrysts that are crudely rounded or flattened, but foliation is less developed in it than in the micaceous schist. This greenstone may be the meta-andesite flow rock described by Creasey [1/]. The greenstone crops out as a narrow belt in the schist, though its contact with the schist could not be traced with assurance. Both rocks have a fairly consistent N-NE strike and a very steep to vertical dip (fig. 3).

The geology of the mine area and the geology of some of the nearby mines is described by Lindgren [2/].

GEOLOGY OF THE UPSHOT MINE

The Upshot mine and the nearby workings are in a belt of sub-parallel, nearly vertical quartz lenses trending N-NE but which are slightly divergent to the enclosing schist (fig. 3). These lenses range from a few inches to 6 feet thick, and from a few to 150 feet in outcrop length. They are not persistent along the strike (see fig. 3) nor do they persist to great depths. Core obtained from 4 diamond drill holes indicates that the veins pinch out or branch into

---

1/ Creasey, S.C., Iron King Mine, Yavapai County, Arizona; Arizona Bureau of Mines, Geological Series No.18, Bulletin No.156,p.115,1950.

2/ Lindgren, Waldemar, "Ore Deposits of the Jerome and Bradshaw Mountains Quadrangles, Arizona", U.S.Geol.Survey Bull. 782, pp. 126-145, 1926.

numerous veinlets at depths less than 350 feet vertically below the surface. Core taken down dip from the lenses at depths of 160 to 350 feet (see fig. 3) contains quartz veinlets which are usually less than 3 inches thick, and in a few intervals of core 2 or 3 feet long, schist with interstitial quartz was penetrated by the holes. Interstitial quartz and quartz veinlets persist to depths of at least 550 feet. Quartz generally does not exceed 10 percent of the core, although in a few places it amounts to as much as 50 percent. At the surface the quartz has many limonite-stained cavities but no relic sulphide minerals were recognized. The cavities are lined with serrate edges and these probably represent spaces once filled by some other mineral, probably ferriginous carbonate, which has since been removed by leaching. As seen underground and in the drill core, the texture of the quartz is coarsely crystalline and massive but contains no open cavities or drusy surfaces. Tourmaline, which occurs as needles and as small masses, is relatively abundant in the quartz. The quartz apparently is a type formed at relatively high temperature and pressure. It is possible, however, that some of the quartz present interstitially or as veinlets in the schist may be of a different age than the quartz lenses.

Calcite and ankerite are abundant constituents of the rock in and near the zone of quartz lenses. Both minerals occur interstitially and in veinlets. Calcite is considerably more abundant than ankerite. Some of the ankerite appears to have been altered to limonite.

The schist zone containing the quartz lenses was subjected to weak sulphide mineralization, and small amounts of pyrite, sphalerite and traces of chalcopyrite occur in the schist, but these sulfides

are commonly very close to the quartz. Sulphides are present in the 40 level of the mine (fig. 3) and in most of the drill core from more than about 60 to 90 feet below the surface. On the 40 level the sulphides occur in lens-like veins not more than a third of a foot in thickness except in the few places where they coalesce. Generally, however, the lenticular veins are separate and conformable to the surrounding schist. A specimen of this vein material from the face at U.S.B.M. Sample 11414 and from the back of the drift 20 feet from the north end of the level (fig. 3) were examined microscopically by LaMar G. Evans of the Bureau of Mines. Pyrite, chalcopyrite, sphalerite, arsenopyrite, covellite, and tennantite, all in a quartz gangue, were identified. Fractures in the specimens contained fine-grained muscovite and limonite.

Pyrite in exceedingly minute quantities is erratically disseminated through most of the drill core (fig. 3). Intermittent stringers of pyrite along planes of schistosity were seen in the core of hole No. 1 at a hole depth of 595 to 615 feet. This slight concentration of pyrite was the richest showing seen in all the drill core. Chalcopyrite, which is very rare, is closely associated with the pyrite. Other sulphides were not recognized in the core.

The thin sulphide lenses on the 40 level are not present in diamond drill core 300 feet vertically below this level and along the projected dip of these lenses. No sulphides or copper oxides were seen at the surface, presumably because of oxidation and leaching.

Weak bleaching of the schist is a widespread feature in the drill core at depths of from 200 to 300 feet below the surface (fig. 3). Sericite is a common constituent of the rock in the bleached zone. This bleaching probably results from hydrothermal action.

Minor structural details suggest that the quartz lenses are localized along a shear zone in the schist. Although the belt roughly corresponds to schistosity it cuts across it at a very small angle. On the 40 level there is further evidence of shearing. Thin seams of gouge are present in both walls of the north end of the drift. The schist at the north end of the drift is contorted in such a way as to indicate an upward displacement west of the gouge in the west wall. Fault gouge was also found in a few places in the drill core.

The mineralized zones at the Upshot property are in part similar to those described by Lindgren [1/] as "pyritic replacement" deposits, and partly resemble his description of "Pre-Cambrian gold-quartz veins". The sulphide suite at the Upshot mine is characteristic of the pyritic replacements of the vicinity except for the lack of galena. On the other hand, lenticular quartz veins containing tourmaline are characteristic of the pre-Cambrian gold-quartz vein type of deposit. Possibly the Upshot deposit is a combination of the two types, in which the gold and silver values are in the quartz veins and the sulphide values are in the replaced schist. One indication that the gold and silver values are in the quartz veins is contained in U.S.B.M. sample 11415. Of the three samples taken on the 40 level this is the

---

1/ Lindgren, Op. cit. pp. 32-35, 37-39.

only one that cut a quartz vein and it showed considerably higher values in gold and silver than the other two samples.

ORE RESERVES

According to A. J. Sullivan of the St. Anthony Mining Co., about 50 tons of ore were shipped from this deposit. If the 308-foot shaft, and the 690 feet of drifting and raising attributed to this mine had all yielded ore, the tonnage produced from this mine would have greatly exceeded 50 tons. So it is clear that a relatively small proportion of the rock mined was shipped as ore. The half ton or so of high-grade zinc-copper ore piled near the shaft probably represents sorted ore from the mine. Sullivan was unable to give figures on the grade of the shipments, and the assays in the loan application do not appear to be reliable (see Engineering report). Furthermore the workings are flooded to within 30 feet of the 40 level. The estimate of grade of reserves therefore is based on samples taken by the examiners on the 40 level. The location of these samples is shown in figure 3, and the assay returns from the Bureau of Mines Laboratory are as follows:

	Sample Width	Au Oz/Ton	Ag Oz/ton	Pb o/o	Cu o/o	Zn o/o
Sample No. 11413	3.2	Tr	0.05	0.25	0.06	0.1
" No. 11414	1.9	Tr	0.05	0.30	0.75	1.3
" No. 11415	4.2	0.02	0.25	0.25	0.25	0.1

Drilling showed that the disseminated sulphides in the drilled ground are almost entirely pyrite that is much too sparsely distributed to be considered low grade ore of any kind. Indicated reserves based on a strike length of 75 feet and the above sample widths in the 40-level drift would amount to about 2 tons of

mineralized material averaging 0.5 o/o Zn., 0.4 o/o Cu. and 0.3 o/o Pb. per foot of depth. It is likely that vein material of this grade extends half way to the 100 level or 30 feet below the 40 level. Indicated reserves calculated on this basis would amount to about 60 tons. Another 60 tons might reasonably be inferred here. About 160 feet north of the main shaft there is a 40-foot shaft which is inaccessible. Mineralized material in the walls of this shaft appears similar to vein material in the walls of the main shaft. There is about one ton of oxidized ore piled near the collar of the 40-foot shaft. This shaft, therefore, may have penetrated another body of mineralized material similar to that exposed by the 40 level of the main shaft, but the existence of such a body can only be inferred. Inferred reserves for the two shafts, therefore, are estimated as 120 tons, and total reserves of both classes at 180 tons. The grade of this material, as shown by assays given on page 6 of this report, is much too low to constitute ore.

CONCLUSIONS AND RECOMMENDATIONS

This is a small low grade deposit. Diamond drilling shows that the veins feather out at a depth of less than 350 feet. Other lenses of mineralized rock such as that opened by the 40-level might be found if the schist zone containing the quartz lenses is explored intensively along its strike but the size and grade of the known deposits do not warrant exploration. Geological conditions at the Upshot mine are unfavorable for the existence of ore in significant amounts. It is recommended, therefore, that the application for Government aid in exploration be denied.

DMEA-3328, ST. ANTHONY MINING COMPANY
UPSHOT COPPER-LEAD-ZINC MINE
Big Bug Mining District
Yavapai County, Arizona

Engineering Report

By T. M. Romslo
Mining Engineer
U. S. Bureau of Mines

July 1954

Reviewed by
DMEA OPERATING COMMITTEE
8-18-54
(date)

DMEA-3328, ST. ANTHONY MINING COMPANY
UPSHOT COPPER-LEAD-ZINC MINE
BIG BUG MINING DISTRICT
YAVAPAI COUNTY, ARIZONA

CONTENTS

Engineering report	Page
Introduction	1
Location, accessibility and physical features	1
History and production	2
Property and ownership	3
Geology of the deposit	4
Ore reserves	5
Present status	6
Conclusions	9

ILLUSTRATIONS

Figure		Following page
1	Location map	1
2	Claim map	3
3	Geologic map and sections	See Geologic Report

INTRODUCTION

The Upshot mine in Yavapai County, Ariz. was examined for the Defense Minerals Exploration Administration in connection with an application for Governmental assistance by the St. Anthony Mining Co. The examination was carried out under docket DMEA-3328. It was made to determine if Governmental participation in the applicant's proposed exploratory project for copper ore was warranted. The proposed project, costing an estimated $100,000.00, consisted of repairs to existing buildings, construction of additional structures, improvement of roads, diamond drilling of about 10 holes for a total of 8,000 feet, sinking a 600-foot shaft, and drifting from the shaft.

The examination, confined mainly to the area of proposed diamond drilling, was carried out July 15 and 16, 1954 by J. N. Faick and L. Bryner, geologists of the U. S. Geological Survey, and T. M. Romslo, mining engineer, U. S. Bureau of Mines. A. J. Sullivan, vice-president of the St. Anthony Mining Co., was present during the examination.

LOCATION, ACCESSIBILITY AND PHYSICAL FEATURES

The Upshot mine is approximately 2.5 air-miles northwest of Mayer, a village on State Highway 69 and a branch line of the Atchison, Topeka and Santa Fe Railroad (figure 1). It is accessible from Mayer by traveling 1.5 miles northwesterly on the highway and thence 1.2 miles westerly on a winding graded road that terminates at the Upshot mine.

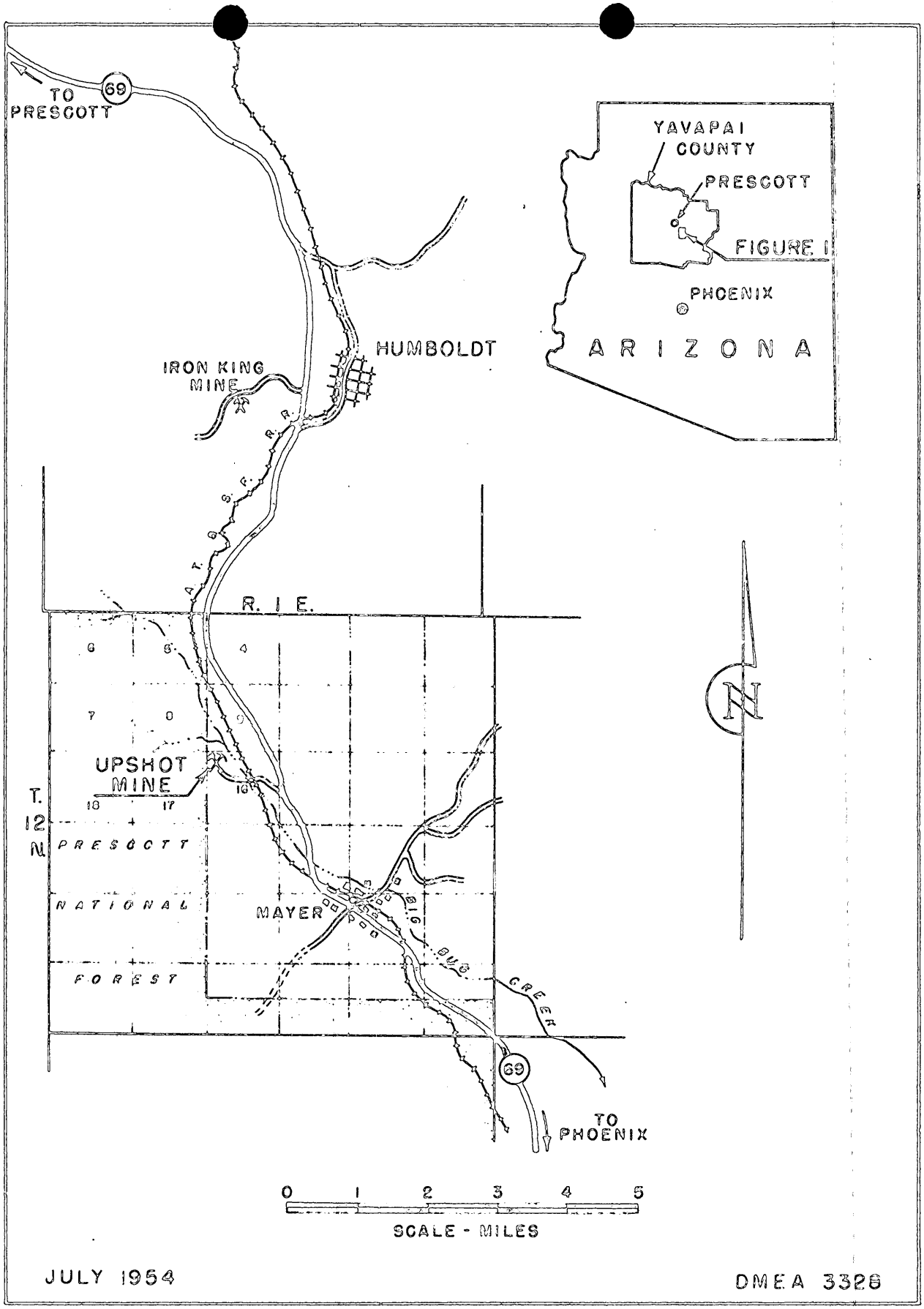


FIGURE 1. - LOCATION MAP - UPSHOT MINE
ST. ANTHONY MINING COMPANY YAVAPAI COUNTY, ARIZONA

The mine is situated in the foothills of the northeastern slope of the Bradshaw Mountains. The mine area at an average altitude of about 4,640 feet consists of rolling hills with gentle to moderately steep slopes. Maximum relief is in the order of 100 feet. Drainage is southwesterly to Big Bug Creek, an intermittent stream.

Vegetation consists mainly of forage grasses, manzanita, and scrub oak.

Summers are hot and winters are mild. Precipitation, averaging about 13 inches annually, occurs as heavy summer rainstorms and light falls of snow and rain during the winter.

HISTORY AND PRODUCTION

Little is known about the early history of the property held by the St. Anthony Mining Co. Shallow pits and shafts in the proposed diamond drilling area probably were put down between 1890 and 1910. During that period, extensive operations were conducted at the Pentland mine. The Pentland property, about 1,200 feet west of the Upshot shaft, was reportedly explored by a 910-foot shaft from which some drifting was done. It yielded little or no ore and has been inactive probably since about 1910.

There was little or no activity on the property from 1910 to 1948 when some of the claims were relocated by R. H. Blackburn and wife, F. M. Dake and wife, and A. J. Sullivan. Sullivan started sinking the vertical 2-compartment Upshot shaft in 1948. To early

in 1950, when operations were terminated, the shaft had been sunk to a depth of 308 feet and a total of about 600 feet of drifting and 90 feet of raising had been done. Sullivan reported that a total of 50 tons of ore of unknown grade was produced. The property was inactive from 1950 to early in 1954 when it was acquired by the St. Anthony Mining Co. The company started diamond drilling on the property on March 29, 1954 and had completed 4 holes to July 16, 1954.

PROPERTY AND OWNERSHIP

Property held by the St. Anthony Mining Co. comprises a group of 20 lode mining claims in secs. 8, 9, 16 and 17, T. 12 N., R. 1 E., Big Bug mining district, Yavapai County, Ariz. (figures 1 and 2). Data submitted by the company shows that 6 of the claims were acquired under mineral leases with the State Land Department. Two of the claims are held under a lease agreement with A. J. Sullivan, vice president of the company. According to Sullivan, the remaining 12 "staked-out" claims were recently acquired by the company.

The St. Anthony Mining Co. is an Arizona corporation. Its mailing address is 3525 Watson Road, St. Louis, Mo. Officers of the corporation are: Roy J. Gunther, President, Kerhonkson, N. Y.; A. J. Sullivan, vice-president, 1208 N. Oak Leaf Drive, Phoenix, Ariz.; and Robert J. King, Secretary and Treasurer, 39 Ridgemoor Drive, Clayton, Mo.

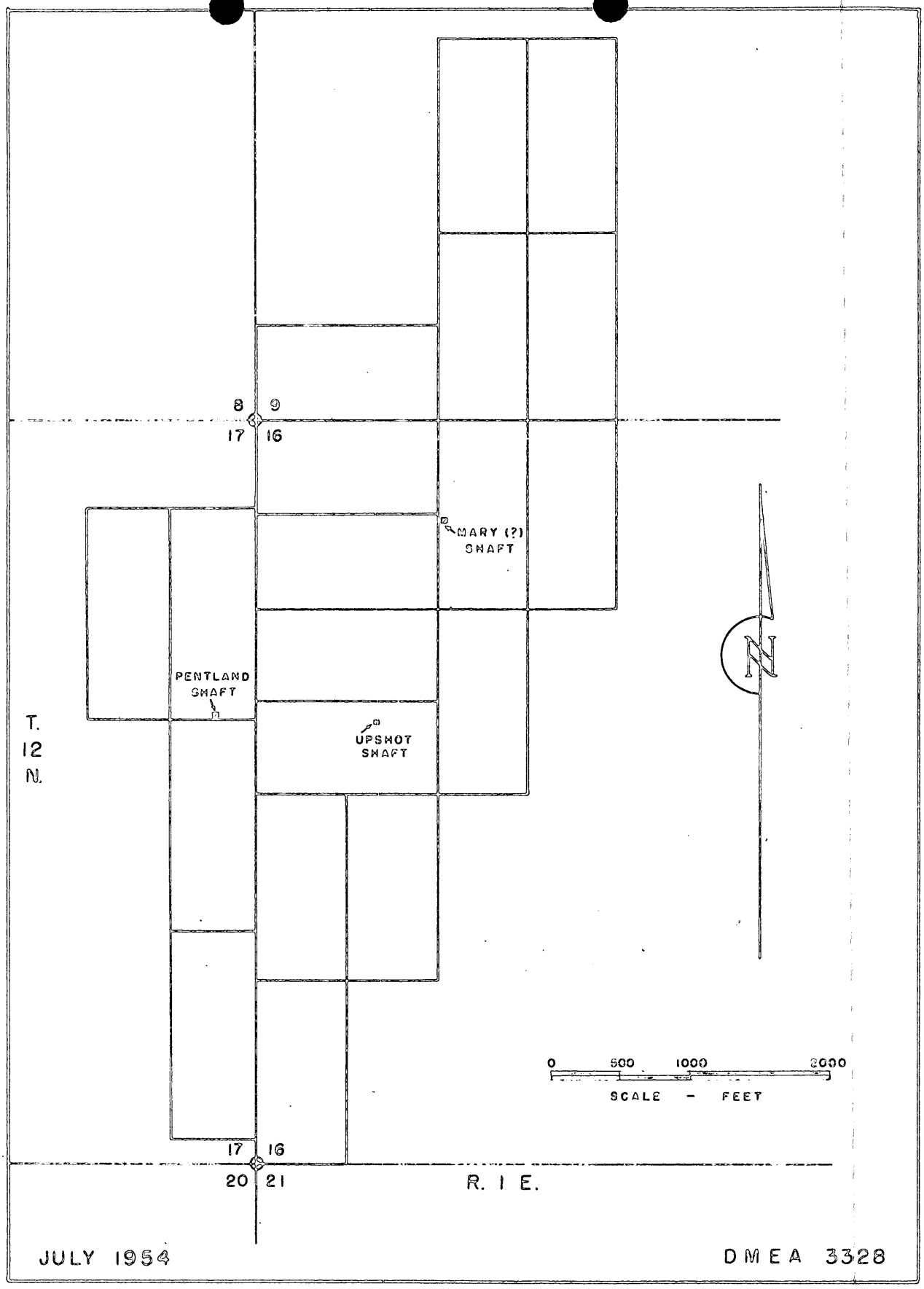


FIGURE 2. - CLAIM MAP UPSHOT MINE
ST. ANTHONY MINING COMPANY YAVAPAI COUNTY, ARIZONA

GEOLOGY OF THE DEPOSIT

Chloritic and sericitic schist and greenstone, rocks of the pre-Cambrian Yavapai formation, crop out extensively in and adjacent to the proposed project area (figure 3). The schist, composed mainly of chlorite, contains scattered grains of magnetite. The greenstone, possibly a meta-andesite flow rock, has a chloritic ground mass containing phenocrysts of feldspar. Both rocks strike nearly north-south and dip almost vertically.

Ore mineralization is associated with a few of numerous discontinuous quartz lenses that crop out in the schist. The quartz lenses are confined to an area averaging about 50 feet wide and extending several hundred feet to the north and south of the Upshot shaft. They are a few inches to 6 feet thick, and a few feet to 150 feet in outcrop length. Their attitude diverges slightly from that of the enclosing schist. The quartz, normally massive and free of open cavities, contains tourmaline as needles and blebs. Quartz containing limonite-stained cavities occurs at a few small zones of weak gossan that have been explored by shallow pits and the Upshot shaft.

The Upshot mine has explored one of the most extensive zones containing iron-stained quartz (figure 3). Specimens of vein material from the 40-foot level were examined by LaMar Evans, petrographer, U. S. Bureau of Mines, Tucson, Ariz. They were found to contain pyrite, chalcopyrite, sphalerite, arsenopyrite, covellite, and tennanite in a quartz gangue. Fine-grained muscovite

and limonite was present in fractures. The specimens probably were representative of lens-like veinlets ranging up to possibly 0.4 feet thick. The greatest concentration of mineralized quartz is confined to a zone about 20 feet long with a maximum width of 1.9 feet. A sample taken across this zone assayed 0.75 percent copper, 0.30 percent lead, 1.3 percent zinc, a trace of gold and 0.05 ounce of silver per ton. The assays of other samples from the 40 level follows:

		Ounces/ton		Percent		
Location	Length (Ft.)	Gold	Silver	Copper	Lead	Zinc
North face	3.2	Tr	0.05	0.06	0.25	0.1
South face	4.2	0.02	0.25	0.25	0.25	0.1

Each of the 4 diamond drill holes crosscut the zone of potential ore mineralization (figure 3). All of the core was logged by the examining engineers. Minor amounts of fine-grained pyrite were found as disseminations in most of the core. Pyrite also occurred sparingly at 595 to 615 feet in hole 1 as veinlets along planes of schistosity. Other sulphides appeared to be confined to a few specks of chalcopyrite that were present at widely scattered places. Sulfide mineralization was confined to the schist.

ORE RESERVES

The deposit contains no measured ore reserves.

Indicated reserves have been estimated at 60 tons of rock containing about one percent combined copper, lead, and zinc and trace amounts of gold and silver. Inferred reserves of similar

grade material have been estimated at 120 tons. Neither the indicated nor inferred reserves constitute ore because of the minor degree and extent of mineralization.

PRESENT STATUS

Buildings and Equipment

Structures in the proposed project area are confined to a 30-foot high headframe at the Upshot shaft and 2 nearby small buildings. One of the buildings is utilized as an office and change room. The other building contains a single-drum hoist, powered by a hot-head gasoline engine, and a storage room containing core from present diamond drilling operations. Other equipment in usable condition is confined to one mine car.

Underground Workings

Accessible underground workings are confined to the 40-foot level from the Upshot shaft (figure 3). Water stands in the shaft at about 30 feet below the 40-foot level. According to Sullivan, drifting from the shaft on the other levels consists of 90 feet to the north on the 100 level, 110 feet north and 40 feet south on the 200 level, and 55 feet to the north on the 300 level. Other workings consist of a raise from the 100- to the 40-foot level and a 35-foot raise from the 200 level. The position of the raise to the 40 level is shown on figure 3. The raise from the 200 level reportedly was driven from a point vertically below the other raise.

Data submitted with the application included the analyses of several samples reportedly taken on the 40- and 200-foot levels. This data proved to be worthless because the widths and locations of samples were not reported and were not obtainable during the DMEA examination.

The locations of samples taken on the 40 level of the DMEA team are shown on figure 3.

Diamond Drilling

Diamond drilling of the proposed project area was started on March 29, 1954. To July 15, 4 holes had been completed and 2 holes were in progress (figure 3). The drilling operations were being carried out by Glenn Thatcher, a contractor of good repute. Two rigs were being used, a model 12 Chicago-Pneumatic and a model 15 Sullivan. Water for drilling was pumped from the Upshot shaft and hauled by truck to the rigs. All holes were collared for AX-size drilling that was decreased to EX size at a depth between 290 and 454 feet. Core recovery has been in excess of 90 percent except in a few narrow fault zones. An acid-method survey of 2 holes by the contractor indicated that the holes flattened with depth. Substantiation of the flattening was obtained by the DMEA engineers from measurements of schistosity of the core.

The drilling program is supervised by A. J. Sullivan who furnished the DMEA examiners with a few assays of cores and sludges. The assays, reported as representing 10-foot sections of

core and 25-foot sections of sludge, were found worthless. An examination of the reportedly sampled sections of core showed little or no mineralization. Furthermore, the core had not been split and little or no core was missing from the drilled intervals. When questioned about sampling procedures, Sullivan informed the examiners that he had selected a few specimens for assay. The examiners also learned that Sullivan did not know that cores could be split for assay and that he apparently knew very little about accepted methods of sampling. The method of obtaining sludge was investigated by the writer. It was found that 1 to $1\frac{1}{2}$ pounds of sludge, saved from each 25-foot drill run, represented high-gravity material caught in the first of 2 to 4 settling tanks. The lighter weight material was partially settled out in the other tanks. Consequently, the sludges saved for analysis consisted essentially of all the ore minerals in a concentrate representing an estimated maximum of 10 percent by volume of the total drill cuttings.

The following analyses of core and sludge samples taken by Sullivan are presented as a matter of record:

Hole No.	Interval (ft.)	Type	Ounces per ton Gold	Ounces per ton Silver	Percent Copper	Percent Lead
1	550 - 575	Sludge	0.09	Tr.	1.15	0.30
1*	575 - 600	do	0.14	Tr.	1.60	0.30
5	265 - 275	Core	0.08	0.6	2.57	—
5	250 - 275	Sludge	0.01	0.2	0.95	—
6**	at 186	Core	0.08	0.2	2.10	1.00
6	175 - 200	Sludge	0.11	0.8	0.65	1.61

* The rejects of this sludge were sampled during the examination. An analysis of the sample by the U. S. Bureau of Mines gave the following results:

Sample No.	Ounces per ton Gold	Ounces per ton Silver	Percent Copper	Percent Lead	Percent Zinc
11416	0.02	0.15	0.73	0.32	1.5

** The core at 185-187 feet consisted of ½- to 1-inch pieces containing little or no visible ore mineralization. Although none of the core appeared to be missing it is possible that a few specimens may have been taken for analysis.

CONCLUSIONS AND RECOMMENDATIONS

The Upshot property has been rather extensively explored, both at the surface and at depth. Little or no ore has been encountered and there is no reason to believe that additional exploratory work will result in more favorable findings. Therefore, the request for Governmental financial participation in the proposed exploratory project should be denied.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

224 New Customhouse
Denver 2, Colorado

August 13, 1954.

Memorandum

To: Secretary to the Operating Committee

From: DMEA Field Team, Region IV

Subject: Report of Examination - DMEA Docket 3328 (Copper), St. Anthony Mining Company, Upshot Mine, Yavapai County, Arizona.

Enclosed are four copies of the report of examination on the subject property which was prepared in conformance with your request dated May 11, 1954.

The engineer examiners conclude that the St. Anthony Mining Company property has been sufficiently investigated and this previous exploration work has not disclosed any mineable deposits of copper-lead-zinc ore, and that the probability of discovering mineralization of ore grade by the proposed work of the subject application is not sufficiently promising to justify Government participation.

We concur with the findings of the examining engineers and recommend that this application be denied.

W. H. King
W. H. King

E. N. Hawkmann
for A. H. Koschmann

Enclosures

RDB:cwm

cc: Docket No. 3328
Administrator, DMEA,
WRStorms w/copy of Report of Examination
John N. Faick w/copy of Report of Examination
AHKoschmann " " " " "
DMEA " " " " "
Mining Division " " " " "
AHKoschmann
Chron.

Reviewed by
DMEA OPERATING COMMITTEE
8-18-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

August 13, 1954.

Memorandum

To: DMEA Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Engineering Report of Examination - DMEA Docket 3308 (Copper), St. Anthony Mining Company, Upshot Mine, Yavapai County, Arizona.

Enclosed are the original and eight copies of the Summary, Conclusions, and Recommendations by T. M. Romslo of the Bureau of Mines, and John H. Faick and Larry Bryner of the Geological Survey. Also enclosed are the original and eight copies of the Engineering Report of Examination by T. M. Romslo.

The applicant requested $100,000.00 to explore the St. Anthony property by means of diamond drilling, shaft sinking and drifting and to provide for the rehabilitation of existing surface buildings and the construction of additional surface facilities.

The examining team found that the possibilities of developing mineable deposits of copper, lead, zinc ore on this property have been sufficiently investigated and have proven that a small amount of mineralization exists but it is definitely not of ore grade.

We concur in their conclusions that this application be denied.

W. H. King

W. H. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
8-18-54
(date)

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Defense Minerals Exploration Administration
Denver Federal Center
Denver 2, Colorado

August 9, 1954

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Keschmann

Subject: DMEA Docket 3328, St. Anthony Mining Company, Upshot Mine (copper, lead, zinc), Yavapai County, Arizona

Enclosed are 9 copies of a geologic report by J. H. Faick and Larry Bryner of the U. S. Geological Survey covering the above docket.

Mr. Faick concludes that although small lenses of low grade copper-lead-zinc ore might be found by the proposed exploration, geologic conditions at the Upshot mine are unfavorable for the existence of ore in significant amounts. He therefore recommends denial of the application for exploration assistance.

E. M. Hackman
for A. H. Keschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (9)

Reviewed
DMEA OPERATING COMMITTEE
8-18-54
(date)

July 29, 1954

MEMORANDUM:

To : W. H. King, Chief, Mining Division, Region IV

From : Chief, Mining Methods Br., Mining Div., Region IV

Subject : Report on Docket DMEA-3328, St. Anthony Mining Co.'s Upshot Copper-Lead-Zinc Mine, Big Bug Mining District, Yavapai County, Ariz.

Enclosed are original and 8 copies of the section on Summary, Conclusions and Recommendations by T. M. Rosale of the Bureau of Mines, and John N. Faick and L. Bryner of the Geological Survey, and the section on Engineering by Rosale. A separate section on Geology will be submitted by the Geological Survey.

The applicant now is diamond drilling the Upshot deposit and has found little or no mineralization. As there seems to be little chance of finding any significant quantity of copper-lead-zinc ore by additional exploratory work, the examiners have recommended denial of Governmental exploration assistance. I concur with this recommendation.

Brochure is enclosed.

Walter R. Storms

Walter R. Storms

CC W. H. King (8)
J. N. Faick
DMEA-3328
DF

WRStorms:frj

Reviewed by
DMEA OPERATING COMMITTEE
8-18-54
(date)

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Box 4126 University Station

Tucson, Arizona

July 29, 1954

Memorandum

To: Mr. A. E. Koschman

From: J. N. Faick

Subject: St. Anthony Mining Company, Upshot Mine (Copper,Lead,Zinc)
Yavapai County, Arizona DMEA 3328

Enclosed are the original and 8 copies of a report by J. N. Faick and Larry Bryner of a field examination of the above subject.

The report recommends denial of the application for Government assistance because Geological conditions at the Upshot mine are unfavorable for the existence of ore in significant amounts.

John N. Faick

JNF:ms

cc. Koschman (3)
Storms

Reviewed by
DMEA OPERATING COMMITTEE
8-18-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA-3328, St. Anthony Mining Company

Upshot Copper-Lead-Zinc Mine

Big Bug Mining District

Yavapai County, Arizona

T. M. Remsle, Mining Engineer
U. S. Bureau of Mines

John N. Faick and L. Bryner, Geologists
U. S. Geological Survey

July 1954

8-18-54
(OMC)

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

By T. M. Romslo[1/], and John N. Faick[2/] and L. Bryner[2/]

The Upshot mine in Yavapai County, Ariz. was examined for the Defense Minerals Exploration Administration in connection with an application by the St. Anthony Mining Co. for Governmental participation in a proposed exploratory project. The examination, carried out under docket DMEA-2128, was made to determine if Governmental aid was warranted. The project, designed to test for copper-lead-zinc ores, consisted of repairs to existing buildings, construction of additional structures, improvement of roads, diamond drilling of about 8,000 feet of holes, sinking a 600-foot shaft, and drifting from the shaft. The cost of the project was estimated at $100,000.00.

Property presently held by the St. Anthony Mining Co. probably first was explored between 1890 and 1910. The exploratory work, consisting of numerous shallow surface explorations and a 210-foot Pentland shaft from which some drifting was done, failed to encounter significant concentrations of ore. The property then was essentially inactive to 1948. From 1948 to 1950, the Upshot mine was developed by a new 308-foot shaft, 600 feet of drifting, and 90 feet of raising. Fifty tons of ore reportedly were produced. The grade of the ore is unknown. The property then was idle until March 29, 1954 when a diamond drilling program was started. To July 16, 1954, 4 holes had been completed.

1/ Mining Engineer, Bureau of Mines
2/ Geologists, U. S. Geological Survey

In the project area, a belt of chloritic and sericitic schist contains numerous discontinuous quartz lenses. Ore mineralization is associated with some of the quartz lenses, which are confined to an area about 30 feet wide and extending several hundred feet to the north and south of the Upshot shaft. The lenses are a few inches to 6 feet wide, and a few feet to 150 feet in outcrop length. The attitude of the lenses diverges slightly from the foliation of the schist that strikes north-south and dips almost vertically.

Sulphide mineralization occurs mainly in thin lenses of silicified schist close to the quartz lenses. Probably the most extensive of these lenses have been explored by the Upshot mine. Specimens of this silicified schist from the 40-foot level, the only accessible level, were found to contain pyrite, chalcopyrite, sphalerite, arsenopyrite, covellite, and tennanite. Fine-grained muscovite and limonite were present in fractures. Three samples taken across the vein zone on the 40 level showed an average total copper, lead and zinc content of about one percent. The average width of the mineralized zone is 3.1 feet.

Each of the 4 diamond drill holes crosscut the zone of potential ore mineralization. Much of the core contained minor amounts of disseminated pyrite in schist. Veinlets of pyrite in schist were present in one of the holes. Other sulfide minerals

appeared to be confined to a few specks of chalcopyrite at widely scattered places. No ore mineralization was present in quartz that was encountered in all the holes.

Assays of samples from surface and underground workings submitted with the application were found to be worthless because the locations and widths were not given and were not obtainable during the examination of the property. The analyses of cores and sludges, presented to the examining engineers, also were found worthless because acceptable methods of sampling were not utilized. The assays of possibly a few inches of selected core were reported as representative of intervals up to 10 feet in length. Sludge assays were made of samples composed of a concentrate containing essentially all of the heavy minerals and a minor amount of the lighter weight components.

Denial of the request for Governmental aid in the proposed exploration of the Upshot property is recommended because rather extensive surface and underground explorations have encountered little or no ore, and additional exploratory work cannot be expected to yield more favorable results.

ST. ANTHONY MINING COMPANY
UPSHOT MINE

(COPPER, LEAD, ZINC)

YAVAPAI COUNTY, ARIZONA
DMEA 3328

GEOLOGY

By
J. N. Fuick and Leonid Bryner
Geologists
U.S.Geological Survey

Reviewed by
DMEA OPERATING COMMITTEE
8-18-54
(date)

ST. ANTHONY MINING COMPANY
UPSHOT MINE

(COPPER, LEAD, ZINC)

YAVAPAI COUNTY, ARIZONA
DMEA 3328

CONTENTS

	Page
INTRODUCTION	1
GENERAL GEOLOGY	2
GEOLOGY OF THE UPSHOT MINE	2
ORE RESERVES	6
CONCLUSIONS AND RECOMMENDATIONS	7

ILLUSTRATIONS

Figure 1 - Location map	See Engineering Report	
Figure 2 - Claim map	See Engineering Report	
Figure 3 - Geologic Map and Sections Upshot Mine Yavapai Co., Arizona	Following page	2

INTRODUCTION

In an application to the Defense Minerals Exploration Administration, dated April 10, 1954, Roy J. Gunther, president of the St. Anthony Mining Company, requested government participation in an estimated $100,000 expenditure to explore for copper and lead at the Upshot mine.

The property included in this application lies in the west half of section 16 and the east half of section 17, T. 12 N. and R. 1 E., Yavapai County, Arizona (fig. 1).

To reach the property drive north on State highway 69 1.0 mile from the bridge on the north edge of Mayer, and turn left on a dirt road. This road is 1.2 miles long and leads directly to the main workings from which the rest of the property is easily accessible by foot. The rolling hills and shallow draws here lie at an elevation of from 4600 to 4800 feet. Not much of the ground is free of scrub oak.

This property is covered by the following unpatented claims: Blackburn Nos. 1 to 6, Copper Gulch and Copper Gulch No. 1 (fig. 2). They are under lease to the applicant company.

An examination of the property was made during July 13, 14, and 15 by T. M. Romalo of the Bureau of Mines, and J. H. Faick and Leonid Bryner of the Geological Survey. L. J. Sullivan, representing the applicant, was present during the examination. All accessible parts of the main workings, and the surface geology in the area proposed for exploration were examined, and 2450 feet of diamond drill core in Holes No. 1, 4, 5 and 6 was logged. The following report is based on this work. The report contains a description of the geology near the Upshot mine and an evaluation of its potentialities in copper, lead and zinc.

GENERAL GEOLOGY

The Upshot mine is well within an extensive area of the older pre-Cambrian Yavapai schist. In the mine area the Yavapai consists of chloritic and sericitic schist and greenstone. The schist appears to be made up predominantly of chlorite but it contains scattered grains of magnetite. The original bedding apparently corresponds approximately to the schistosity. The greenstone has a chloritic ground mass and contains feldspar phenocrysts that are crudely rounded or flattened, but foliation is less developed in it than in the micaceous schist. This greenstone may be the meta-andesite flow rock described by Creasey [1]. The greenstone crops out as a narrow belt in the schist, though its contact with the schist could not be traced with assurance. Both rocks have a fairly consistent N-NE strike and a very steep to vertical dip (fig. 3).

The geology of the mine area and the geology of some of the nearby mines is described by Lindgren [2].

GEOLOGY OF THE UPSHOT MINE

The Upshot mine and the nearby workings are in a belt of sub-parallel, nearly vertical quartz lenses trending N-NE but which are slightly divergent to the enclosing schist (fig. 3). These lenses range from a few inches to 6 feet thick, and from a few to 150 feet in outcrop length. They are not persistent along the strike (see fig. 3) nor do they persist to great depths. Core obtained from 4 diamond drill holes indicates that the veins pinch out or branch into

---

1/ Creasey, S.C., Iron King Mine, Yavapai County, Arizona; Arizona Bureau of Mines, Geological Series No.18, Bulletin No.156, p.115, 1950.

2/ Lindgren, Waldemar, 'Ore Deposits of the Jerome and Bradshaw Mountains Quadrangles, Arizona', U.S.Geol.Survey Bull. 782, pp. 126-145, 1926.

numerous veinlets at depths less than 350 feet vertically below the surface. Core taken down dip from the lenses at depths of 160 to 350 feet (see fig. 3) contains quartz veinlets which are usually less than 3 inches thick, and in a few intervals of core 2 or 3 feet long, schist with interstitial quartz was penetrated by the holes. Interstitial quartz and quartz veinlets persist to depths of at least 550 feet. Quartz generally does not exceed 10 percent of the core, although in a few places it amounts to as much as 30 percent. At the surface the quartz has many limonite-stained cavities but no relic sulphide minerals were recognized. The cavities are lined with serrate edges and these probably represent spaces once filled by some other mineral, probably ferriginous carbonate, which has since been removed by leaching. As seen underground and in the drill core, the texture of the quartz is coarsely crystalline and massive but contains no open cavities or drusy surfaces. Tourmaline, which occurs as needles and as small masses, is relatively abundant in the quartz. The quartz apparently is a type formed at relatively high temperature and pressure. It is possible, however, that some of the quartz present interstitially or as veinlets in the schist may be of a different age than the quartz lenses.

Calcite and ankerite are abundant constituents of the rock in and near the zone of quartz lenses. Both minerals occur interstitially and in veinlets. Calcite is considerably more abundant than ankerite. Some of the ankerite appears to have been altered to limonite.

The schist zone containing the quartz lenses was subjected to weak sulphide mineralization, and small amounts of pyrite, sphalerite and traces of chalcopyrite occur in the schist, but these sulfides

are commonly very close to the quartz. Sulphides are present in the 40 level of the mine (fig. 3) and in most of the drill core from more than about 60 to 90 feet below the surface. On the 40 level the sulphides occur in lens-like veins not more than a third of a foot in thickness except in the few places where they coalesce. Generally, however, the lenticular veins are separate and conformable to the surrounding schist. A specimen of this vein material from the face at U.S.B.M. Sample 11414 and from the back of the drift 20 feet from the north end of the level (fig. 3) were examined microscopically by LaMar G. Evans of the Bureau of Mines. Pyrite, chalcopyrite, sphalerite, arsenopyrite, covellite, and tennantite, all in a quartz gangue, were identified. Fractures in the specimens contained fine-grained muscovite and limonite.

Pyrite in exceedingly minute quantities is erratically disseminated through most of the drill core (fig. 3). Intermittent stringers of pyrite along planes of schistosity were seen in the core of hole No. 1 at a hole depth of 595 to 615 feet. This slight concentration of pyrite was the richest showing seen in all the drill core. Chalcopyrite, which is very rare, is closely associated with the pyrite. Other sulphides were not recognized in the core.

The thin sulphide lenses on the 40 level are not present in diamond drill core 300 feet vertically below this level and along the projected dip of these lenses. No sulphides or copper oxides were seen at the surface, presumably because of oxidation and leaching.

Weak bleaching of the schist is a widespread feature in the drill core at depths of from 200 to 300 feet below the surface (fig. 3). Sericite is a common constituent of the rock in the bleached zone. This bleaching probably results from hydrothermal action.

Minor structural details suggest that the quartz lenses are localized along a shear zone in the schist. Although the belt roughly corresponds to schistosity it cuts across it at a very small angle. On the 40 level there is further evidence of shearing. Thin seams of gouge are present in both walls of the north end of the drift. The schist at the north end of the drift is contorted in such a way as to indicate an upward displacement west of the gouge in the west wall. Fault gouge was also found in a few places in the drill core.

The mineralized zones at the Upshot property are in part similar to those described by Lindgren [1/] as "pyritic replacement" deposits, and partly resemble his description of "Pre-Cambrian gold-quartz veins". The sulphide suite at the Upshot mine is characteristic of the pyritic replacements of the vicinity except for the lack of galena. On the other hand, lenticular quartz veins containing tourmaline are characteristic of the pre-Cambrian gold-quartz vein type of deposit. Possibly the Upshot deposit is a combination of the two types, in which the gold and silver values are in the quartz veins and the sulphide values are in the replaced schist. One indication that the gold and silver values are in the quartz veins is contained in U.S.B.M. sample 11415. Of the three samples taken on the 40 level this is the

---

1/ Lindgren, Op. cit. pp. 32-35, 37-39.

only one that cut a quartz vein and it showed considerably higher values in gold and silver than the other two samples.

ORE RESERVES

According to A. J. Sullivan of the St. Anthony Mining Co., about 50 tons of ore were shipped from this deposit. If the 308-foot shaft, and the 690 feet of drifting and raising attributed to this mine had all yielded ore, the tonnage produced from this mine would have greatly exceeded 50 tons. So it is clear that a relatively small proportion of the rock mined was shipped as ore. The half ton or so of high-grade zinc-copper ore piled near the shaft probably represents sorted ore from the mine. Sullivan was unable to give figures on the grade of the shipments, and the assays in the loan application do not appear to be reliable (see Engineering report). Furthermore the workings are flooded to within 30 feet of the 40 level. The estimate of grade of reserves therefore is based on samples taken by the examiners on the 40 level. The location of these samples is shown in figure 3, and the assay returns from the Bureau of Mines Laboratory are as follows:

	Sample Width	Au Oz/Ton	Ag Oz/ton	Pb o/o	Cu o/o	Zn o/o
Sample No. 11413	3.2	Tr	0.05	0.25	0.06	0.1
No. 11414	1.9	Tr	0.05	0.30	0.75	1.3
No. 11415	4.2	0.02	0.25	0.25	0.25	0.1

Drilling showed that the disseminated sulphides in the drilled ground are almost entirely pyrite that is much too sparsely distributed to be considered low grade ore of any kind. Indicated reserves based on a strike length of 75 feet and the above sample widths in the 40-level drift would amount to about 2 tons of

mineralized material averaging 0.5 o/o Zn., 0.4 o/o Cu. and 0.3 o/o Pb. per foot of depth. It is likely that vein material of this grade extends half way to the 100 level or 30 feet below the 40 level. Indicated reserves calculated on this basis would amount to about 60 tons. Another 60 tons might reasonably be inferred here. About 160 feet north of the main shaft there is a 40-foot shaft which is inaccessible. Mineralized material in the walls of this shaft appears similar to vein material in the walls of the main shaft. There is about one ton of oxidized ore piled near the collar of the 40-foot shaft. This shaft, therefore, may have penetrated another body of mineralized material similar to that exposed by the 40 level of the main shaft, but the existence of such a body can only be inferred. Inferred reserves for the two shafts, therefore, are estimated as 120 tons, and total reserves of both classes at 180 tons. The grade of this material, as shown by assays given on page 6 of this report, is much too low to constitute ore.

CONCLUSIONS AND RECOMMENDATIONS

This is a small low grade deposit. Diamond drilling shows that the veins feather out at a depth of less than 350 feet. Other lenses of mineralized rock such as that opened by the 40-level might be found if the schist zone containing the quartz lenses is explored intensively along its strike but the size and grade of the known deposits do not warrant exploration. Geological conditions at the Upshot mine are unfavorable for the existence of ore in significant amounts. It is recommended, therefore, that the application for Government aid in exploration be denied.

DMA-3328, ST. ANTHONY MINING COMPANY
UPSHOT COPPER-LEAD-ZINC MINE
Big Bug Mining District
Yavapai County, Arizona

Engineering Report

By T. M. Romslo
Mining Engineer
U. S. Bureau of Mines

July 1954

DMSA-3328, ST. ANTHONY MINING COMPANY
UPSHOT COPPER-LEAD-ZINC MINE
BIG BUG MINING DISTRICT
YAVAPAI COUNTY, ARIZONA

CONTENTS

Engineering report	Page
Introduction	1
Location, accessibility and physical features	1
History and production	2
Property and ownership	3
Geology of the deposit	4
Ore reserves	5
Present status	6
Conclusions	9

ILLUSTRATIONS

Figure		Following page
1	Location map	1
2	Claim map	3
3	Geologic map and sections	See Geologic Report

INTRODUCTION

The Upshot mine in Yavapai County, Ariz. was examined for the Defense Minerals Exploration Administration in connection with an application for Governmental assistance by the St. Anthony Mining Co. The examination was carried out under docket DMEA-1328. It was made to determine if Governmental participation in the applicant's proposed exploratory project for copper ore was warranted. The proposed project, costing an estimated $100,000.00, consisted of repairs to existing buildings, construction of additional structures, improvement of roads, diamond drilling of about 10 holes for a total of 8,000 feet, sinking a 600-foot shaft, and drifting from the shaft.

The examination, confined mainly to the area of proposed diamond drilling, was carried out July 15 and 16, 1954 by J. N. Faick and L. Bryner, geologists of the U. S. Geological Survey, and T. M. Ramale, mining engineer, U. S. Bureau of Mines. A. J. Sullivan, vice-president of the St. Anthony Mining Co., was present during the examination.

LOCATION, ACCESSIBILITY AND PHYSICAL FEATURES

The Upshot mine is approximately 2.5 air-miles northwest of Mayer, a village on State Highway 69 and a branch line of the Atchison, Topeka and Santa Fe Railroad (figure 1). It is accessible from Mayer by traveling 1.3 miles northwesterly on the highway and thence 1.2 miles westerly on a winding graded road that terminates at the Upshot mine.

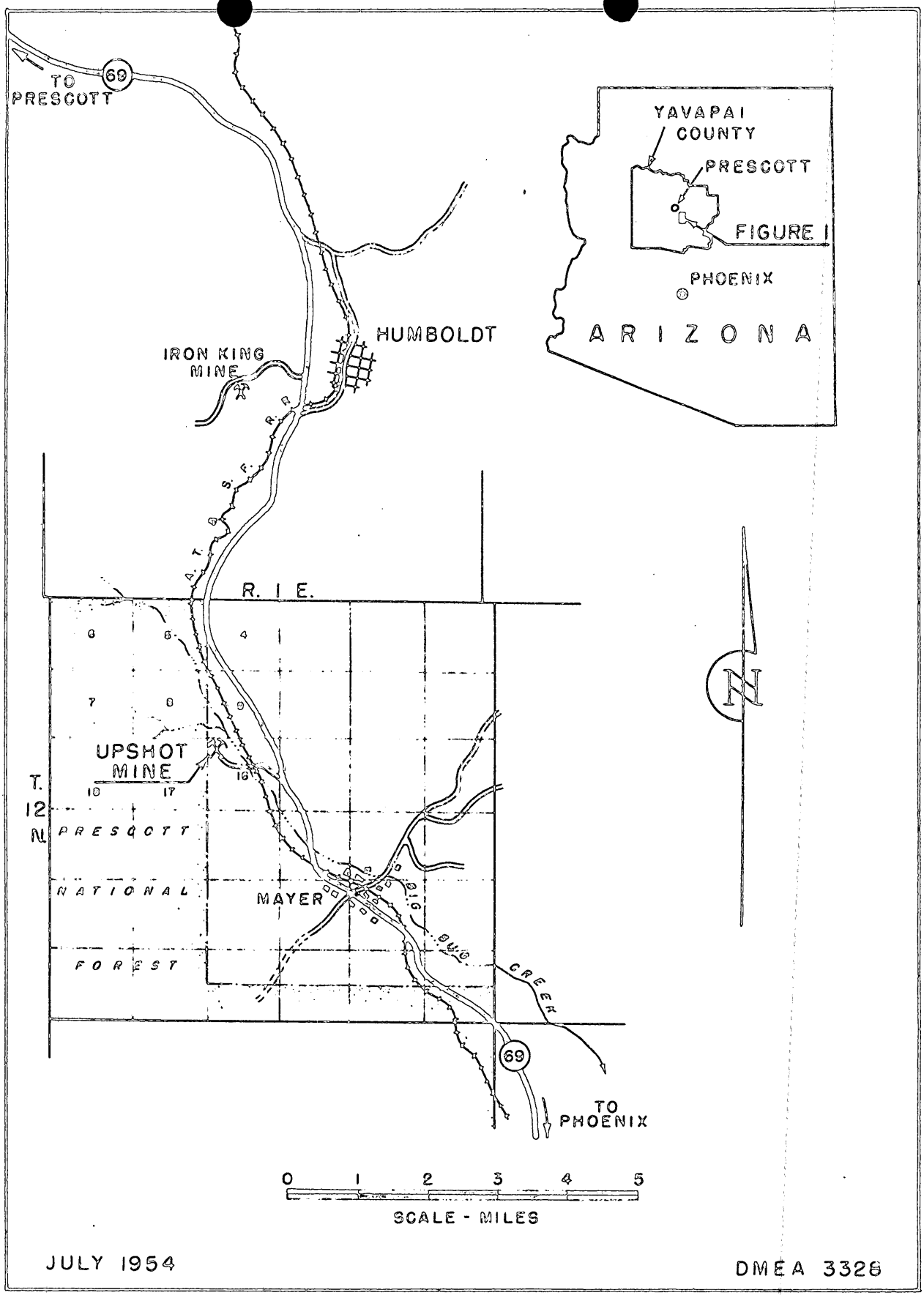


FIGURE 1. - LOCATION MAP - UPSHOT MINE
ST. ANTHONY MINING COMPANY YAVAPAI COUNTY, ARIZONA

The mine is situated in the foothills of the northeastern slope of the Bradshaw Mountains. The mine area at an average altitude of about 4,640 feet consists of rolling hills with gentle to moderately steep slopes. Maximum relief is in the order of 100 feet. Drainage is southwesterly to Big Bug Creek, an intermittent stream.

Vegetation consists mainly of forage grasses, manzanita, and scrub oak.

Summers are hot and winters are mild. Precipitation, averaging about 13 inches annually, occurs as heavy summer rainstorms and light falls of snow and rain during the winter.

HISTORY AND PRODUCTION

Little is known about the early history of the property held by the St. Anthony Mining Co. Shallow pits and shafts in the proposed diamond drilling area probably were put down between 1890 and 1910. During that period, extensive operations were conducted at the Pentland mine. The Pentland property, about 1,200 feet west of the Upshot shaft, was reportedly explored by a 510-foot shaft from which some drifting was done. It yielded little or no ore and has been inactive probably since about 1910.

There was little or no activity on the property from 1910 to 1948 when some of the claims were relocated by R. M. Blackburn and wife, F. M. Duke and wife, and A. J. Sullivan. Sullivan started sinking the vertical 3-compartment Upshot shaft in 1948. To early

in 1950, when operations were terminated, the shaft had been sunk to a depth of 300 feet and a total of about 600 feet of drifting and 90 feet of raising had been done. Sullivan reported that a total of 50 tons of ore of unknown grade was produced. The property was inactive from 1950 to early in 1954 when it was acquired by the St. Anthony Mining Co. The company started diamond drilling on the property on March 20, 1954 and had completed 4 holes to July 16, 1954.

PROPERTY AND OWNERSHIP

Property held by the St. Anthony Mining Co. comprises a group of 30 lode mining claims in secs. 8, 9, 16 and 17, T. 12 N., R. 1 E., Big Bug mining district, Yavapai County, Ariz. (figures 1 and 2). Data submitted by the company shows that 6 of the claims were acquired under mineral leases with the State Land Department. Two of the claims are held under a lease agreement with A. J. Sullivan, vice president of the company. According to Sullivan, the remaining 12 "staked-out" claims were recently acquired by the company.

The St. Anthony Mining Co. is an Arizona corporation. Its mailing address is 1525 Watson Road, St. Louis, Mo. Officers of the corporation are: Ray J. Gunther, President, Kerhonkson, N. Y.; A. J. Sullivan, vice-president, 1202 N. Oak Leaf Drive, Phoenix, Ariz.; and Robert J. King, Secretary and Treasurer, 39 Ridgemoor Drive, Clayton, Mo.

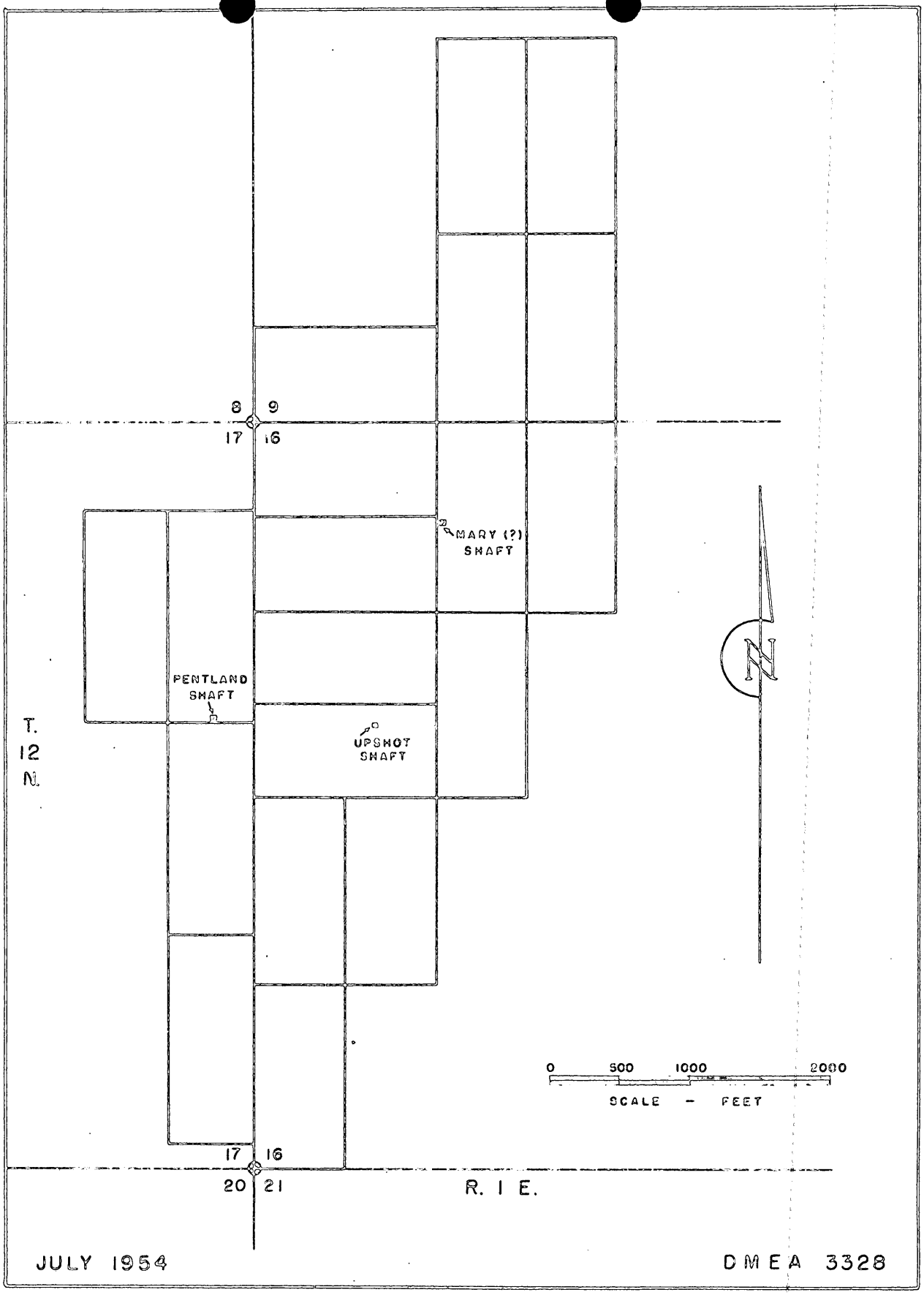


FIGURE 2. - CLAIM MAP UPSHOT MINE
ST. ANTHONY MINING COMPANY YAVAPAI COUNTY, ARIZONA

GEOLOGY OF THE DEPOSIT

Chloritic and sericitic schist and greenstone, rocks of the pre-Cambrian Yavapai formation, crop out extensively in and adjacent to the proposed project area (figure 3). The schist, composed mainly of chlorite, contains scattered grains of magnetite. The greenstone, possibly a meta-andesite flow rock, has a chloritic ground mass containing phenocrysts of feldspar. Both rocks strike nearly north-south and dip almost vertically.

Ore mineralization is associated with a few of numerous discontinuous quartz lenses that crop out in the schist. The quartz lenses are confined to an area averaging about 50 feet wide and extending several hundred feet to the north and south of the Upshot shaft. They are a few inches to 6 feet thick, and a few feet to 150 feet in outcrop length. Their attitude diverges slightly from that of the enclosing schist. The quartz, normally massive and free of open cavities, contains tourmaline as needles and blebs. Quartz containing limonite-stained cavities occurs at a few small zones of weak gossan that have been explored by shallow pits and the Upshot shaft.

The Upshot mine has explored one of the most extensive zones containing iron-stained quartz (figure 3). Specimens of vein material from the 40-foot level were examined by Lester Evans, petrographer, U. S. Bureau of Mines, Tucson, Ariz. They were found to contain pyrite, chalcopyrite, sphalerite, arsenopyrite, covellite, and tennantite in a quartz gangue. Fine-grained muscovite

and limonite was present in fractures. The specimens probably were representative of lens-like veinlets ranging up to possibly 0.4 feet thick. The greatest concentration of mineralized quartz is confined to a zone about 20 feet long with a maximum width of 1.9 feet. A sample taken across this zone assayed 0.75 percent copper, 0.30 percent lead, 1.3 percent zinc, a trace of gold and 0.05 ounce of silver per ton. The assays of other samples from the 40 level follows:

Location	Length (Ft.)	Ounces/ton Gold	Ounces/ton Silver	Percent Copper	Percent Lead	Percent Zinc
North face	3.2	Tr	0.05	0.06	0.25	0.1
South face	4.2	0.02	0.25	0.25	0.25	0.1

Each of the 4 diamond drill holes encountered the zone of potential ore mineralization (figure 3). All of the core was logged by the examining engineers. Minor amounts of fine-grained pyrite were found as disseminations in most of the core. Pyrite also occurred sparingly at 595 to 615 feet in hole 1 as veinlets along planes of schistosity. Other sulphides appeared to be confined to a few specks of chalcopyrite that were present at widely scattered places. Sulfide mineralization was confined to the schist.

ORE RESERVES

The deposit contains no measured ore reserves.

Indicated reserves have been estimated at 60 tons of rock containing about one percent combined copper, lead, and zinc and trace amounts of gold and silver. Inferred reserves of similar

grade material have been estimated at 120 tons. Neither the indicated nor inferred reserves constitute ore because of the minor degree and extent of mineralization.

PRESENT STATUS

Buildings and Equipment

Structures in the proposed project area are confined to a 30-foot high headframe at the Upshot shaft and 2 nearby small buildings. One of the buildings is utilized as an office and change room. The other building contains a single-drum hoist, powered by a hot-head gasoline engine, and a storage room containing core from present diamond drilling operations. Other equipment in usable condition is confined to one mine car.

Underground Workings

Accessible underground workings are confined to the 40-foot level from the Upshot shaft (figure 3). Water stands in the shaft at about 30 feet below the 40-foot level. According to Sullivan, drifting from the shaft on the other levels consists of 90 feet to the north on the 100 level, 110 feet north and 40 feet south on the 200 level, and 55 feet to the north on the 300 level. Other workings consist of a raise from the 100- to the 40-foot level and a 35-foot raise from the 200 level. The position of the raise to the 40 level is shown on figure 3. The raise from the 200 level reportedly was driven from a point vertically below the other raise.

Data submitted with the application included the analyses of several samples reportedly taken on the 40- and 200-foot levels. This data proved to be worthless because the widths and locations of samples were not reported and were not obtainable during the BMSA examination.

The locations of samples taken on the 40 level of the BMSA team are shown on figure 3.

Diamond Drilling

Diamond drilling of the proposed project area was started on March 20, 1954. To July 14, 4 holes had been completed and 2 holes were in progress (figure 3). The drilling operations were being carried out by Glenn Thatcher, a contractor of good repute. Two rigs were being used, a model 12 Chicago-Pneumatic and a model 15 Sullivan. Water for drilling was pumped from the Upshot shaft and hauled by truck to the rigs. All holes were cellared for AX-size drilling that was decreased to EX size at a depth between 290 and 454 feet. Core recovery has been in excess of 90 percent except in a few narrow fault zones. An acid-method survey of 2 holes by the contractor indicated that the holes flattened with depth. Substantiation of the flattening was obtained by the BMSA engineers from measurements of schistosity of the core.

The drilling program is supervised by A. J. Sullivan who furnished the BMSA examiners with a few assays of cores and dissings. The assays, reported as representing 10-foot sections of

core and 25-foot sections of sludge, were found worthless. An examination of the reportedly sampled sections of core showed little or no mineralization. Furthermore, the core had not been split and little or no core was missing from the drilled intervals. When questioned about sampling procedures, Sullivan informed the examiners that he had selected a few specimens for assay. The examiners also learned that Sullivan did not know that cores could be split for assay and that he apparently knew very little about accepted methods of sampling. The method of obtaining sludge was investigated by the writer. It was found that 1 to 1½ pounds of sludge, saved from each 25-foot drill run, represented high-gravity material caught in the first of 2 to 4 settling tanks. The lighter weight material was partially decanted out in the other tanks. Consequently, the sludges saved for analysis consisted essentially of all the ore minerals in a concentrate representing an estimated maximum of 10 percent by volume of the total drill cuttings.

The following analyses of core and sludge samples taken by Sullivan are presented as a matter of record:

Hole No.	Interval (ft.)	Type	Ounces per ton Gold	Ounces per ton Silver	Percent Copper	Percent Lead
1	325 - 375	Sludge	0.09	Tr.	1.15	0.30
1*	375 - 600	do	0.14	Tr.	1.60	0.30
5	255 - 275	Core	0.08	0.6	2.57	—
5	250 - 275	Sludge	0.01	0.3	0.95	—
6**	at 186	Core	0.08	0.2	2.10	1.00
6	175 - 200	Sludge	0.11	0.8	0.65	1.61

* The rejects of this sludge were sampled during the examination. An analysis of the sample by the U. S. Bureau of Mines gave the following results:

Sample No.	Ounces per ton Gold	Ounces per ton Silver	Percent Copper	Percent Lead	Percent Zinc
11416	0.05	0.15	0.73	0.32	1.8

** The core at 185-187 feet consisted of ½- to 1-inch pieces containing little or no visible ore mineralization. Although none of the core appeared to be missing it is possible that a few specimens may have been taken for analysis.

CONCLUSIONS AND RECOMMENDATIONS

The Upshot property has been rather extensively explored, both at the surface and at depth. Little or no ore has been encountered and there is no reason to believe that additional exploratory work will result in more favorable findings. Therefore, the request for Governmental financial participation in the proposed exploratory project should be denied.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

224 New Customhouse
Denver 2, Colorado

August 6, 1954.

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA-3328 (Copper), St. Anthony Mining Company, Upshot Mine, Yavapai County, Arizona.

Reference is made to your teletype dated August 6, 1954 requesting information regarding the status of Docket No. DMEA-3328.

An engineering report recommending denial of the application is in this office. The geologic report recommending denial will be in this office Monday, August 9, 1954. The reports will be combined and the complete report of examination forwarded to your office.

John F. Shaw
For W. H. King

File Copy
Surname
J. W. Alt,
Newcomb
Hedges
Selfridge
Mutterdoy

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

AUG 6 1954

J/Alt/bjl, Rm. 4058, Ext. 3669

T E L E T Y P E

Base Metals, DMEA, Interior

[redacted]

1A7A01(01)Revolving Fund, Defense Production Act, Interior(allocated Working Fund to Office of Secy.)

Date:

To: W. H. King, Executive Officer, DMEA Field Team, Region IV, Denver, Colorado

Please advise regarding status of application DMEA-3328, St. Anthony Mining Company.

George C. Selfridge
Chairman, Operating Committee

(written 8/6/54)

Copy to: Docket
Admr. R. File
Op. Committee
Base Metals
Mr. Gildersleeve
Mr. Bishop
Chron.

SENT
AUG 6 1954
Clerical Service Section

R.C.S.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

224 New Customhouse
Denver 2, Colorado

August 2, 1954

Docket

Betty

Mr. R. J. King, Jr., Secretary-Treasurer
St. Anthony Mining Company
3525 Watson Road
St. Louis 9, Mo.

Re: Docket No. DMEA 3328

Dear Mr. King:

Reference is made to your letter dated July 31, 1954 regarding the application of the St. Anthony Mining Company for exploration assistance, Docket No. 3328.

We have received the engineering report, however, we have not received the geologic report from the Survey member of the examining team.

These reports will be sent to Washington, and you will receive notice of final action on your application direct from Mr. Mittendorf's office in Washington, D. C.

Very truly yours,

W H King

W. H. King
Executive Officer
DMEA Field Team
Region IV

JFS:es

cc: Docket
Mittendorf
Chron.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

May 18, 1954

Memorandum

To: W. R. Griswold, DMEA

From: C. H. Johnson, Bureau of Mines

Subject: DMEA-3328 (Copper) St. Anthony Mining Company, Upshot prospect, Yavapai County, Arizona

I have reviewed this application, and am glad to concur in referral to the field, if that is your wish. The project is not adequately described or justified. It is unlikely that such a large expenditure can be justified, but unless the examining engineer's (Ritter) report is wholly discredited, a copper showing of some interest has been opened up. The Bureau of Mines has no information on the property unless concealed under some earlier name.

The application is returned herewith.

C. H. Johnson

C. H. Johnson

Copy to - Mr. Newcomb, USGS
Minerals Division
C. H. Johnson
Files

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

May 18, 1954

Memorandum

To: W. R. Griswold, DMEA

From: C. H. Johnson, Bureau of Mines

Subject: DMEA-3328 (Copper) St. Anthony Mining Company, Upshot prospect, Navajo County, Arizona

I have reviewed this application, and am glad to concur in referral to the field, if that is your wish. The project is not adequately described or justified. It is unlikely that such a large expenditure can be justified, but unless the examining engineer's (Ritter) report is wholly discredited, a copper showing of some interest has been opened up. The Bureau of Mines has no information on the property unless concealed under some earlier name.

The application is returned herewith.

C. H. Johnson

C. H. Johnson

CHJohnson:ks

Copy to - Mr. Newcomb, USGS
Minerals Division
C. H. Johnson
Files

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

May 18, 1954

Memorandum

To: W. R. Griswold, DMEA

From: C. H. Johnson, Bureau of Mines

Subject: DMEA-3328 (Copper) St. Anthony Mining Company, Upshot prospect, Yavapai County, Arizona

I have reviewed this application, and am glad to concur in referral to the field, if that is your wish. The project is not adequately described or justified. It is unlikely that such a large expenditure can be justified, but unless the examining engineer's (Ritter) report is wholly discredited, a copper showing of some interest has been opened up. The Bureau of Mines has no information on the property unless concealed under some earlier name.

The application is returned herewith.

C. H. Johnson

C. H. Johnson

CHJohnson:kn

Copy to - Mr. Beaucob, USGS
Minerals Division
C. H. Johnson
Files

File Copy
Surname

J.W. Alt
Irving
Selfridge
Johnson

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

MAY 11 1954

Mr. W. H. King, Executive Officer
DMEA Field Team, Region IV
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA-3328 (Copper)
St. Anthony Mining Company
Urshot Mine
Yavapai County, Arizona

Dear Mr. King:

A review of the cited application, of which you have a copy, indicates that examination of the property is necessary. Will you please have such an examination made and submit your report and recommendations to us.

On the map submitted by the Applicant, some of the drilling that is proposed is not on property that is at present leased by the company.

Maps showing the undereground workings and proposed work should be submitted. The location of this work should be shown on the property map.

Also lacking is the size of the shaft and of the drifts. These are essential in determining the costs.

The Applicant's costs for drifting and shaft sinking are not separated and appear to be high.

We have only attempted to point out some of the items that we consider to be essential and realize that the usual Field Team examination is necessary.

Enclosed is a copy of the Commodity members' comments and recommendation for a Field Team examination.

Sincerely yours,

George C. Selfridge (JWS)
Chairman, Operating Committee

JWAlt/bjl (5/10/54)
Copy to: Docket
Admr. R. File
Op. Committee
Base Metals
Mr. Kinkel
Mr. Bishop
Chron.

Enclosure

APPROVED:

J. H. Hedges (JWS)
Member, Bureau of Mines

T. P. Thayer (JWS)
Member, Geological Survey

R.C.G.

File Copy
Surname
J. W. Alt.
Thayer
Hedges
Selfridge
Y. E. Johnson

500

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

MAY 11 1954

Mr. Roy J. Gunther, President
St. Anthony Mining Company
3525 Watson Road
St. Louis, Missouri

Re: Docket No. DMEA-3328 (Copper)
Upshot Mine
Yavapai County, Arizona

Dear Mr. Gunther:

Your application for Government assistance to explore the property of the St. Anthony Mining Company, Docket No. DMEA-3328, has been reviewed by the Base Metals Division of the Defense Minerals Exploration Administration, and has been referred for field examination to:

Mr. W. H. King, Executive Officer
DMEA Field Team, Region IV
224 New Customhouse Building
Denver 2, Colorado

The Regional Office will contact you at an early date if an examination is to be made. Any assistance that you may give the members of the Field Team during the examination will be appreciated.

Sincerely yours,

C. O. Mittendorf (for)

Administrator

JWAlt/bjl (5/10/54)

Copy to: Docket
Admr. R. File
Op. Committee
Base Metals
Mr. Kinkel
Mr. Bishop
Region IV (2)
Chron.

R.C.B.

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

May 5, 1954

Memorandum

To: Mr. W. R. Griswold

From: E. L. Newcomb

Subject: Review of application

Re: DMEA-3328
Upshot Mine
Big Bug District
Yavapai County, Arizona
$100,000
Copper

The applicant proposes to explore a copper-bearing vein zone by diamond drilling 10 inclined holes to an average depth of 800 feet. If the diamond drilling results are favorable, he plans to deepen the Upshot shaft 300 feet to a depth of about 600 feet and to drift on the vein zone.

The old workings on the property consist mainly of a 300-foot shaft and 40,100 and 200 level drifts. At present the mine is flooded to a point above the 40 level shaft station.

Past production is unknown, but it probably was negligible and limited to ore obtained from shaft sinking and drifting.

Reserves have been estimated by the applicant to be about 2,000 tons of 5-10 per cent copper ore containing small amounts of associated lead, gold and silver.

The assay results included in the Ritter report do not indicate the width of the samples, nor are they plotted on an appropriate assay map. In general, the report provides very little information in support of the proposed project.

The Upshot mine is in the Yavapai schist of pre-Cambrian age. Much of area in the Big Bug district is within a widespread belt of the Yavapai. There are numerous mines and prospects in the district, but the only important producer in 1950 was the Iron King mine which is about 5.5 miles north of the Upshot. However, most of the production was in lead, zinc, gold, and silver, with copper only a very small part of the total metal content. A number of mine dumps within 1-2 miles of the Upshot contain copper mineralization in chloritic schist; but recorded production for most of these properties is unknown.

We do not have any specific information about the applicant's property. As the old workings are flooded, an appraisal of the feasibility of the proposed work will have to be based mainly on an examination of surface exposures unless the applicant can supply more data about the mineralization and nature of the deposit in the lower workings. It is possible that a more limited drilling program may be justified, if the applicant can provide more data or the field team has favorable information on the property.

I recommend that the application be referred to the field team for their consideration and recommendations.

I concur in this recommendation
C J Johnson 5/6/54

E. L. Newcomb

E. L. Newcomb
Geologist

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

April 29, 1954

Memorandum

To: Executive Officer, DMEA Field Team, Region IV

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number

There is listed below the assigned docket number to an application recently received from Region IV.

DMEA - 3328 St. Anthony Mining Co.

Robert E. Adams,
Chief, Operation's Control
and Statistics Division

April 29, 1954

St. Anthony Mining Co.
3525 Watson Road
St. Louis, Missouri

Subject: DMEA-3328
Re: Exploration Assistance
Upshot Mine

Gentlemen:

The receipt of your application dated April 10, 1954 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-3328 and referred to the Base Metals Division.

Kindly refer to DMEA-3328 in any future correspondence relating to your application.

Sincerely yours,

Robert E. Adams
Chief, Operation's Control
and Statistics Division

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

224 New Customhouse
Denver 2, Colorado

April 23, 1954

Memorandum

To: C. O. Mittendorf, Administrator

From: Executive Officer, DMEA Field Team, Region IV

Subject: Copper application of St. Anthony Mining Company, Upshot Mine, Yavapai County, Arizona

Enclosed are three copies of the subject application in the amount of $100,000.00.

One copy is being retained in this office.

W. H. King

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

224 New Customhouse
Denver 2, Colorado

April 23, 1954

Memorandum

To: C. O. Mittendorf, Administrator

From: Executive Officer, DMEA Field Team, Region IV

Subject: Copper application of St. Anthony Mining Company, Upshot Mine, Yavapai County, Arizona

Enclosed are three copies of the subject application in the amount of $100,000.00.

One copy is being retained in this office.

W. H. King

W. H. King

Enclosures

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

Minerals Administration
RECEIVED
APR 29 1954

April 10, 1954

Executive Officer DMEA
New Customhouse Building
Denver 2, Colorado

Dear Sir:

Please find attached our application on form MP-103 for aid in an exploration project, pursuant to DMEA order 1, under the Defense Production Act of 1950 as amended April 1954.

As indicated, the proposed work of exploration is estimated to cost $100,000.00 and therefore would respectfully ask for a loan under the above provisions of DMEA order 1 of $50,000.00.

We have started our proposed work and therefore hope to get an early answer. All of the enclosures may be kept by you for your files.

If we can give you further information, please be free to call us.

Yours very truly,

ST. ANTHONY MINING COMPANY

Roy J. Gunther

Roy J. Gunther
President

RJG:jo
Encls.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Form Approved.
Budget Bureau No. 42-R1035.2.

APPLICATION FOR AID IN AN EXPLORATION PROJECT, PURSUANT TO DMEA ORDER 1, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 29 1954

Not to be filled in by applicant

Docket No. 3328
Metal or Mineral Copper
Date Received
Estimated Cost $100,000
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: ST. ANTHONY MINING COMPANY, an Arizona Corporation, 3525 Watson Road, St. Louis, Mo.

(*b*) If other than an individual, add to your name above whether a corporation, partnership, etc., and the name of the State in which incorporated or otherwise organized. An Arizona Corporation

(*c*) If a corporation, add to above statement, titles, names and addresses of officers. See attached paper

(*d*) If a partnership, add to the above statement the names and addresses of all partners. A Corporation

2. *General.*—Read DMEA Order 1, "Government Aid in Defense Exploration Projects," before completing this application. Submit this application and all accompanying papers in quadruplicate (four copies), with your name and address on each sheet of the application and on all accompanying papers. Where sufficient space is not provided on the form for all required information, state it on an accompanying paper, with a reference in each case to the instruction to which it refers by number. Comply with all applicable instructions; or, if not applicable, so state. File the application with Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest field executive officer thereof. See attached paper.

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract Our property lies primarily in Sec. 16 T12 R1E in Yapavai County, Arizona. See accompanying map of claims in Sec. 16 as well as ajoining claims and those under option.

(*b*) State any mine name by which the property is known. Upshot Mine

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Lessee of State and Government land.

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property. Copies of leases are attached.

(*e*) If you own the land, describe any liens or encumbrances on it Do not own land.

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. See attached paper.

4. *Physical description.*—(*a*) Describe in detail any mining or exploration operations which have been or now are being conducted upon the land, including existing mine workings and production facilities. State your interest, if any, in such operations. Also describe accessibility of mine workings for examination purposes. See attached paper.

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. See attached paper.

(*c*) Describe the geologic features of the property, including mineralization, type of deposit (vein, bedded, etc.), and your reasons for wishing to explore. Illustrate with maps or sketches. Send with your application (but not necessarily as a part of it) any geologic or engineering report, assay maps, or other technologic information you may have, indicating on each whether you require its return to you. See attached paper.

(*d*) State the facts with respect to the accessibility of the project: Access roads, distances to shipping, supply and residence points. See attached paper.

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power. See attached paper.

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore Copper, there are also Lead, Silver and Gold in lesser quantities.

(*b*) Describe fully the proposed work, including a map or sketch of the property showing a plan (and cross sections if needed) of any present mine workings, and the location of the proposed exploration work as related to such features as contacts, veins, ore-bearing beds, etc. See attached paper.

(*c*) The work will start within 1 days and be completed within 18 months from the date of an exploration project contract.

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations. See attached paper.

6. *Estimate of costs.*—Furnish a detailed estimate of the costs of the proposed work (you will have to use a separate sheet) under the following headings. Add the totals under all headings to give the estimated total cost of the project: See attached paper.

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.). See attached paper.

(*b*) *Labor, supervision, consultants.*—Include an itemized schedule of numbers, classes and rates of wages, salaries or fees for necessary labor, supervision and engineering and geological consultants. See attached paper.

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel. See attached paper.

(*d*) *Operating equipment.*—Furnish an itemized list of any operating equipment to be rented, purchased, or which is owned and will be furnished by the Operator, with the estimated rental, purchase price, or suggested use-allowance based on present value, as the case may be. See attached paper.

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project. See attached paper.

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project. See attached paper.

(*g*) *Miscellaneous.*—Furnish a detailed list showing the cost of repairs to and maintenance of operating equipment (not including initial rehabilitation or repairs of the Operator's equipment), analytical work, accounting, workmen's compensation and employers' liability insurance, and payroll taxes. See attached paper.

(*h*) *Contingencies.*—Give an estimate of any necessary allowances for contingencies not included in the costs stated above. See attached paper.

NOTE.—No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs. None

7. (*a*) Are you prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation (Sec. 7, DMEA No. 1)? Yes

(*b*) How do you propose to furnish your share of the costs?

[X] Money [X] Use of equipment owned by you [ ] Other

Explain in detail on acompanying paper. See attached paper.

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief.

Dated April 10, 1954

ST. ANTHONY MINING COMPANY, 3525 Watson Road
(Applicant) St. Louis, Mo.

By [signature]
President

[signature]
Secretary-Treasurer

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

U. S. GOVERNMENT PRINTING OFFICE 16—66551-1

Form MF-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3585 WATSON ROAD
ST. LOUIS, MO.

U. S. Department of the Interior
Defense Minerals Exploration Administration

Defense Minerals Administration
RECEIVED
SEP 1954

1.(a) See Application
1.(b) See Application
1.(c) St. Anthony Mining Company, an Arizona Corporation
Roy J. Gunther, President - Kerhonkson, New York
A. J. Sullivan, Vice President - 2808 N. Oak Leaf Drive, Phoenix, Arizona
Robert J. King, Secretary & Treasurer - 39 Ridgemoor Drive, Clayton, Mo.
1.(d) See Application

2. Copies of this order have been read and all information has been taken into consideration and is applicable.

3.(a) See Application
3.(b) See Application
3.(c) See Application
3.(d) See Application
3.(e) See Application
3.(f)

4.(a) The discovery of the ore was made in 1948 by A. J. Sullivan, our Vice President. Soon thereafter he proceeded to stake out the claims we now lease - assessment work was done on all claims which included prospect shafts of dimension 6' x 6' x 8' deep. Later on these were deepened into the seam of ore on Claim Blackburn #1. A drift was driven along the seam some 50' into the side of the hill and a wing sunk to a depth of 40'. Here the ore looks very good. On Blackburn No. 2 the prospect hole was sunk to a depth of 40' and again the ore showing is excellent. On Blackburn No. 4 a channel was cut into the hill at right angles to the seams and shows good mineralization. Also on Blackburn No. 4 the prospect hole was deepened to 25' and mineralization was good. On Blackburn No. 2 it was decided that a drift be cut into the hill side on a parallel seam and the showing here is very good.

With all these prospects being a good indication of ore for commercial use at depth, A. J. Sullivan then set up to sink the Upshot Shaft. Equipment was purchased, a dry house, hoist house, shops and head frame were constructed and the sinking of the shaft was begun.

At 40' a drift was driven some 50" into the seam and he found the seam to be some 2' in width showing good copper ore. At 100' a similar drift was driven about 90' into the seam. Here the seam had widened to 3' and the grade of ore was even better. It was decided to raise between levels to see if the ore were solid. This was done and the ore discovered runs from one level to the other.

At 200' another drift was driven into the ore seam and here the seam had widened to 4' and shows fine quality.

Form MY-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3545 WATSON ROAD
ST. LOUIS, MO.

4.(a)
(Cont'd.)

By this time Sullivan had spent most of his money but thought to continue on slowly. He sunk the shaft to a point 308' in depth and had to shut down for lack of funds.

Several tries were made to interest people into this work but all were failures. Then after some time, A. J. Sullivan wrote me to try again to interest people. I made a trip down to Phoenix, heard his story, looked over the property and decided to do something about it. I have now formed a Corporation known as the ST. ANTHONY MINING CORPORATION with 7 members, each of which have put up enough money to purchase the leases in the name of our Company and have enough money to start a Diamond drilling program. We feel it will take some 10 holes of 800'± to properly determine the ore bodies for commercial use. We have a signed contract with the T. L. Thatcher Co. for the beginning of this program.

At present the shaft has filled with water to a point above the 40' level and therefore is inaccessible.

4.(b) The only production of ore from the mine took place as the drifts and raises were being done, as all this work was in ore. The ore reserves, as the mine now stands, shows some 2000 tons in place. This is the amount of ore showing in the drifts and raises. The quality is a good grade of copper ore Chalcopyrite and Calcocite running between 5 - 10% copper. There are also present Lead, Gold and Silver.

4.(c) The property is located in the Big Bug Mining District and is adjacent to the Big Bug Creek where the placer operations took place many years ago. The terrain is hilly and is covered with brush and some small scrub oak trees. There are evident many seams of mineralization. Four of the seams show quartz at the surface from 12"-24" in width. The seams are all parallel and run N. 21°-30' E. The ore is in vertical veins. A complete report made by Mr. Wm. S. Ritter, a Mining Engineer of Stanford University, accompanies this application. This report gives the geological features of the property. Our reasons for wishing to explore this property are as follows:

1. We believe the property contains copper ore of commercial quantities.

2. We have the personnel and "know how" to properly explore and to set up a modern mining and milling operation.

3. We intend to operate the property for the purpose of producing Commercial Copper ore and at the same time expand to a large mining business.

Form NP-105
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

4.(e) REPORT ON THE UPSHOT MINE

LOCATION:

The UPSHOT MINE, consisting of one patented and five mining claims lies in the Big Bug Mining District, Yavapai County, Arizona. The property is reached by going North out of Phoenix, Arizona on the Black Canyon Highway to Mayer. North of Mayer one and one-half miles the road leading to the property takes off. West one and one-half miles on this road brings you to the workings. These roads are in good shape the year around.

GEOLOGY:

There is one vein system on the property consisting of several parallel veins. On the eastern edge of the property is the western edge of a granite body. West of the granite is a large diorite dyke running north and south, and approximately sixty (60) feet in width.

On the western side of the diorite dyke concurring in the following named manner is the vein system of the property. A quartz vein with excellent surface outcroppings, which gives evidence of having good gold value. Next is the vein being worked on at present. This vein outcrops for nearly twenty five hundred (2,500) feet on the surface. Mineralization in this vein consists of gold, silver, chalcopyrite, and lead. West of this vein lies two other parallel veins showing similar mineralization. On the western edge of the property is a large prophyry dyke that has not been investigated to any extent.

The strike of this vein system is approximately due north. Dip of the vein is almost vertical.

PRESENT DEVELOPMENT:

Present working on the property are on the second vein west of the diorite dykes. This is distance of about 100 feet. From the surface a shaft has been sunk to a depth of 200 feet. At 40 feet from the surface, 100 feet, and 200 feet drifts have been driven. The 40 feet level extends to the north 60 feet. On the 100 feet level the drift extends 90 feet to the north, and at the 200 feet level drifts extend to the north and south. The northern drift is 110 feet long and the southern drift is 50 feet long.

On the 100 feet level 35 feet from the shaft a raise has been driven to the 40 foot level. A small stope continues above the 40 foot level. On the 200 feet level a raise has been started, and is now 35 feet from the floor. When this work is finished, it will give a secondary access to the mine.

An exploratory crosscut has been sent 35 feet to the west from the 100 foot level. This crosscut is in fault gouge, and has yet to penetrate the width of the gouge.

At the 200 foot level the slightly inclined shaft lies approximately 12 feet west of the vein. All of the above work has been carried out on ore.

ORE RESERVES:

Width of the vein now being worked at the surface is Two (2) feet. On the 100 feet level this width has held between good walls. By the time the vein has reached the 200 feet level the width has increased to Three (3) feet and shows excellent signs of continuing to widen. The walls are slowly pitching outward on the lowest level. At present there are 2,000 tons of ore blocked out in the mine.

Form MF-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3585 WATSON ROAD
ST. LOUIS, MO.

ASSAY VALUES

These assay values were taken from the present workings:

From the 40 feet level to the 100 feet level.

AU.	AG.	CU.	PB.
$29.40	$3.06	3.15%	0

200 feet level in stops.

AU.	AG.	CU.	PB.
$22.40	$5.94	4.33%	2.20%

Bottom of 200 feet drift.

AU.	AG.	CU.	PB.
$29.85	$4.85	5.30%	6.70%

The open values below are taken along the vein being worked running north from the shaft. The samples were taken from pits dug at approximately 100 foot intervals.

Running north the samples taken are numbered beginning with No. 1.

	AU.	AG.	CU.	PB.
1	$49.70	$2.34	4.20%	0
2	$65.10	$2.88	3.10%	1.20%
3	$52.85	$2.47	2.40%	0
4	$29.40	$1.49	2.10%	4.80%
5	$47.95	$2.56	2.7%	0

In further developing the Upshot Mine it is my opinion that the shaft should be deepened to at least the 600 feet level. At each 100 feet level drifts should be run to the north and south. The drifts to the north should be the longer so that later on a new shaft can be sunk connecting all of the drifts. It is also recommended that at each level crosscuts should be started so that after larger ore reserves are developed, these crosscuts can be extended to intercept the parallel veins and work them from depths. With this plan of development the depths of the vein will be proven, and will warrant the installation of a mill on the property.

SURFACE EQUIPMENT

There are two buildings on the property. One is used for a change house and mess hall, and the other houses the hoisting equipment. On the head frame is an automatic dumping device that increases the efficiency of ore haulage. There is also the usual equipment

Form MP-103
Revised April 1952

ST. ANTHONY MINING COMPANY
5585 WATSON ROAD
ST. LOUIS, MO.

of a well run mine such as compressor, ore car, tracks, spare timber, etc.

SUMMARY:

In my opinion the suggested development work is justified and should be done. The present work has shown that the mineralization is strong and may well reach to considerable depth. There is good water for milling purposes, and can be developed at shallow depth with small expense. Taking all these facts into consideration the UPSHOT MINE should develop in its future large quantities of commercial ore.

Respectfully submitted

William C. Ritter
Mining Engineer, Stanford '43.

Form MP-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

4.(d) The property is located just 3/4" of a mile west of U. S. Route 69, a good highway, 1½ miles North of Mayer and 25 miles South of Prescott. New Highway 69 is under construction and will be completed into Prescott by this Fall. This new road is still only 3/4 of a mile from the shaft. The A.T. and S.F. Railroad has a line just 2000' from the shaft and will gladly build a siding at this point.

The towns of Mayer, Humbolt and Prescott can be used as residence points for this mine.

Supplies are available in these towns.

4.(e) Materials and Supplies are available at Prescott, 25 miles to the North, or in Phoenix, 75 miles to the South.

Men are available in this area as the Iron King Mines at Humbolt have little trouble in getting men.

Smelters are located at several points within the State and are not too distant. There is talk of building a new smelter at Prescott.

Equipment for mining and milling can be obtained in Phoenix, 75 miles to the South, or Prescott, 25 miles to the North.

Water is available in quantity in the shaft or in Grapevine Creek.

Power sufficient to operate mine and mill is just 3600' Northeast of shaft.

5.(a) See Application
5.(b) The proposed work is to determine the size of ore body. We feel that since the ore has been contacted in seams from the shaft, diamond drilling from the surface, with inclined holes, will determine more economically the size and quality of the ore body. We propose therefore to diamond drill some 10 holes to a depth of 800' contacting 3 seams at the 300' and 600' levels. These holes, as proposed, are shown on the accompanying map. To the North of the most Northern hole is an old shaft. This was sunk to a depth of 211' and contacted a very good grade of ore. Work in this shaft was stopped when the brother of the owner was killed in a celebration over finding the copper ore.

In addition to the Diamond Drilling, it is proposed that we sink the Upshet Shaft to a depth of 600' and drive drifts further into the ore. This will be necessary to properly determine the final operation, location of final shaft, mill, etc.

5.(c) See Application
5.(d) 1. General Manager and President of the Company, Roy J. Gunther, will direct the work of exploration and operation of property. Background as follows:

Graduate Engineer - Missouri School of Mines & Metallurgy 1927

1929 - 1933 - Mining Engineer for the St. Joseph Lead Company, Flat River District Desloge Division.

Form MP-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

3.(d) Cont'd. 1936 to present time, General Superintendent and Engineer for the Frazier-Davis Construction Company in shaft and tunnel work.

Projects of Note:

Buffalo, New York - 6 shafts, 3 miles of tunnel in rock and lined with concrete.
Newburgh, New York - 4 - 1000' shafts lined with concrete, Board of Water Supply, City of New York Delaware Aqueduct.
Mt. Kisco, New York - 2 - 600' shafts lined with concrete, Board of Water Supply, City of New York Delaware Aqueduct.
Carmel, New York - 2 shafts 400' deep and 7.8 miles of 15' diameter tunnel lined with concrete, Board of Water Supply, City of New York Delaware Aqueduct.
Valhalla, New York - finish Delaware Aqueduct, line 1 shaft 300' deep, install all machines for operation of 85 miles of aqueduct. * Board of Water Supply, City of New York.
Grahamsville, New York - 1 shaft 400' deep, 6 miles of tunnel 10' lined with concrete, large Intake Chamber and Power House. - Board of Water Supply, City of New York.
Morgantown, Pa. - at present sinking 2 - 3000' shafts, one 17'-6" finish, 1 - 21'6" finish, including drifts into iron ore body. Set all head frames, equipment necessary to start mining operations. 50% complete as of now.

2. Supervisor: for the exploratory work will be A. J. Sullivan, Vice President. Sullivan has been in mining, tunnel work, shaft work for the past 25 years. He is the discoverer of claims and performed the present mining work on claims. He has done consulting work for mining companies in this area and has prospected areas for ore for several other companies.

3. Advisors in the purchase and operating equipment will be (1) Aaron Cohen, a member of the Corporation, graduate Civil Engineer N.Y.U. 1921, 30 years experience in tunnel and shaft operations. (2) Russell Teghman, a member of the Corporation, graduate Mech. Engineer Washington University 1927 - 25 years experience in mining and milling equipment

4. Business and office: - will be our Secretary and Treasurer, Robert J. King. M. U. 1952. Law Experience State Rep. of Mo. and a business man.

5. Counsel: Law Firm of Gavil & Wilmer, Heard Building, Phoenix, Arizona. Mr. Mark Wilmer, agent for St. Anthony Mining Company.

Form MP-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3585 WATSON ROAD
ST. LOUIS, MO.

Estimate of Costs

	No. of Units	Unit Cost	Unit	Total Cost
6.(a) Contracts				
1. Diamond Drilling contract with T. E. Thatcher of Tucson, Arizona	8000	5.50	Ft.	44,000.00
2. Core Boxes	500	.30	ea.	150.00
3. Assay of Core & Sludge	250	3.40	sample	850.00
Total for (a)				45000.00
6.(b) Labor Supervision, Consultants time, etc.				
1. Labor of Diamond Drilling - Supervision	4	350.00	month	1400.00
2. Eng. Work				
1. Surveyor	10	50.00	day	500.00
2 Helpers	10	25.00	day	500.00
3. Labor of shaft sinking 292' required	292	50.00	Ft.	14,600.00
4. Labor of Driving exploration Drifts	300	30.00	Ft.	9000.00
5. Labor of Plant Set-up				
Compressor				50.00
Blower				50.00
Hoist				100.00
Muck Bin				100.00
Shop Equipment				50.00
6. Replace timbering in old shaft	300	3.00	Ft.	900.00
			Sub-total	27250.00

Form MF-105
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, Mo.

6.(b)
(Cont'd.)

	No. of Units	Unit Cost	Unit	Total Cost
			Brought Fwd.	$7250.00
7. Mining Engineer while sinking shaft and driving Drifts	4	500.00	month	2000.00
8. Trips by President of Corp., to mine	3	500.00	each	1500.00
			Total for (b)	10750.00

6.(c) Operating Materials and Supplies

1. Surveying				
Stakes	50	30.00	each	15.00
Sledge Hammers	2	5.00	each	10.00
Note Books	2	3.00	each	6.00
Chain	1	30.00	each	30.00
Axe	1	10.00	each	10.00
Knife	1	5.00	each	5.00
Hatchet	1	5.00	each	5.00
Plumbob	2	5.00	each	10.00
Plumbob String	1	2.00	reel	2.00
Office supplies, paper, etc.	1	20.00	each	20.00
2. Small tools and supplies, materials for drifting and shaft sinking				
Drill Steel	1000	.30	#	300.00
Bits	144	.50	each	72.00
Hose	500	1.50	Ft.	750.00
Valves and fittings	50	2.00	each	100.00
Sledge Hammers	6	5.00	each	30.00
Picks	12	5.00	each	60.00
Shovels	12	4.00	each	48.00
Pipe wrenches	6	4.00	each	24.00
Crescent wrenches	4	4.00	each	16.00
Boots	24	8.00	each	192.00
Hard Hats	24	10.00	each	240.00
Bars (crow)	6	4.00	each	24.00
Gads	6	3.00	each	18.00
Blasting Machine	1	25.00	each	25.00
			Sub-total	2012.00

Form MF-103
Revised April 1952

ST ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

6.(e)
(Cont'd.)

	No. of Units	Unit Cost	Unit	Total Cost
			Brought Fwd.	2012.00
Dynamite	5000	.20	#	1000.00
Caps	2000	.20	each	400.00
Lead Wire	2000	.05	Ft.	50.00
Pipe 2" (for air & water)	4000	.30	Ft.	1200.00
Fittings	100	.30	each	30.00
Drill Oil	50	.50	gal.	25.00
Underground Rail	800	.50	Ft.	400.00
Railroad Ties	200	.50	each	100.00
Spikes	100	.10	#	10.00
Spike Hammer	2	5.00	each	10.00
Spike Bars	2	4.00	each	8.00
Cross cut saws	2	5.00	each	10.00
Timber	10000	.08	bd. ft.	800.00
Bolts & Nuts	300	.50	each	150.00
Lumber	10000	.10	bd. ft.	1000.00
Gasoline	1000	.25	gal.	250.00
Diesel Fuel	500	.15	gal.	75.00
Motor Oil	200	1.00	gal.	200.00
Nails	200	.10	#	20.00
Hand saws	2	10.00	each	20.00
Claw Hammers	4	5.00	each	20.00
Nail Bar	2	2.00	each	4.00
Level	2	5.00	each	10.00
Cement	200	1.00	bag	200.00
Roofing paper	10	10.00	roll	100.00
Repair parts for Jack Hammers	4	50.00	each	200.00
Repair parts for other Hammers	12	10.00	each	120.00
Cable for Hoist	1000	.40	Ft.	400.00
Shaft Hooks	3	25.00	each	75.00
Slings	12	5.00	each	60.00
			Total for (e)	8999.00

Form MF-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

6.(d) Operating Equipment	No. of Units	Unit Cost	Unit	Total Cost
Transit Rental	1	50.00	month	50.00
Jeep Rental	6	200.00	month	1200.00
Bull Dozer Rental	1	500.00	month	500.00
500' air compressor	6	500.00	month	3000.00
Pumps (2)	6	50.00	month	600.00
Gasoline Hoist	6	250.00	month	1500.00
Shaft Buckets (2)	4	50.00	month	400.00
Elec. Generator	4	50.00	month	200.00
Blower	6	50.00	month	300.00
Chipping Hammer	3	25.00	month	75.00
Jack Hammers (5)	6	30.00	month	900.00
Muck Car (2)	4	25.00	month	200.00
Air Auger	4	20.00	month	80.00
Chain Saw (air)	4	20.00	month	80.00
			Total for (d)	9085.00

6.(e) Rehabilitation and Repairs	
Repair of Buildings on property Dry House, Hoist House and shop	500.00
Total for (e)	500.00

6.(f) New Buildings, Improvements, Installations	
Build Head Frame	1500.00
Wiring for lights	100.00
Improve Roads	500.00
Storage shed for ware	500.00
Total for (f)	2600.00

6.(g) Miscellaneous Repair of Equipment	
Compressor	100.00
Hoist	100.00
Bull Dozer	100.00
Pumps	50.00
Jeep	100.00
Blower	50.00
Sub-total	500.00

Form MP-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

6.(g) (Cont'd.)	No. of Units	Unit Cost	Unit	Total Cost
			Brought Fwd.	500.00
Office Work 1 Man	2	300.00	month	600.00
W. C. and Payroll Taxes 10% of Labor Item b)	30750	10%		3075.00
Liability Insurance	6	50.00	month	300.00
Expenses of trips to mine by President	3	500.00	each	1500.00
			Total for (g)	5975.00

6.(h) Contingencies 0.00

a.	45000.00
b.	30750.00
c.	8959.00
d.	9085.00
e.	500.00
f.	2600.00
g.	5975.00
h.	0.00
Grand Total -	$102869.00

Assume - $100,000.00

Request Loan of - $ 50,000.00

7.(a) See Application

7.(b) We propose to furnish our share of the cost by cash. We have in our account at the Bank of Douglas, Phoenix, Arizona $22000.00. This amount will be increased as we progress.

DUPLICATE

Type of Lease LODE Lease No. 47220-S

State Land Department

STATE OF ARIZONA

MINERAL LEASE

This lease made and entered into this 6th day of June, 19 50, by and between the State Land Department, party of the first part, hereinafter called the lessor, by reason of the authority vested in it by the Arizona Code Annotated, 1939, as amended, and RALPH H. BLACKBURN AND FRANK M. DAKE, MAYER, ARIZONA party of the second part, hereinafter called the lessee.

W I T N E S S E T H :

The lessor has this day leased to the said lessee, for and in consideration of the rental, royalties, covenants, stipulations and conditions hereinafter contained, and hereby agreed to be paid, observed and performed by the said lessee, for the purpose of extracting and shipping ores and mineral substances from or under the following land to-wit:

Name & Number of Claim	Description	Section	Township	Range	Acreage	Grant	Amount
Blackburn No. 1	In W½ Lot 6	1[illegible]	12N	1[illegible]	20	S	

containing 20 acres, more or less, with a total annual rental of SIXTEEN AND 00/100 DOLLARS

TO HAVE AND TO HOLD the same for the period ending the 4th day of June, 19 70.

This lease confers on the lessee the right:

1. To extract and ship minerals, mineral compounds and mineral aggregates, herein also called "minerals" or "ore", from the property above set forth located within planes drawn vertically downward through the exterior boundary lines of each claim;
2. To use so much of the surface as may be required for purposes incident to mining; and
3. Of ingress to and egress from other state lands, whether or not leased for purposes other than mining.

The lessee hereby agrees to pay or cause to be paid to the State Land Commissioner, annually in advance, a rental of $15.00 per annum for each claim or fraction thereof, which shall be credited upon the royalties hereinafter provided, which may become due during such year.

The lessee further agrees to pay as royalty 5% of the net value of the minerals produced from the leased premises, which net value shall be the gross value after processing, if processing is necessary for commercial use, less the actual cost of transportation from the place of production to the place of processing, less costs of processing and taxes, if any, levied and paid upon the production thereof. In the case of minerals not processed for commercial use, the net value shall be the gross proceeds, or gross value at the place of sale or use, less the actual cost of transportation from place of production to the place of sale or use, less taxes, if any, levied and paid upon the production thereof.

5. the amount of taxes levied and paid upon the production of the minerals.

The lessee shall at all times conduct operations in a workmanlike manner, protect all mines and deposits, and not commit nor suffer any waste upon the land. He shall not use nor permit the use of said lands and premises for any other purpose than as herein authorized, and at the expiration of this lease he shall return the premises to the owner in as good condition as received.

3. of ingress to and egress from other state lands, whether or not leased for purposes other than mining.

The lessee hereby agrees to pay or cause to be paid to the State Land Commissioner for the use and benefit of the leased lands, annually in advance, a rental of Fifteen ($15.00) Dollars per annum for each claim, or fraction thereof.

The lessee further agrees to pay as royalty five per cent of the net smelter or mint returns received from ores or mineral substances produced from the claim or claims. The net smelter or mint returns shall be deemed to be the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale, less the actual cost of transportation from the source of production to the place of treatment and sale, less smelter and other customs treatment charges and penalties, and less taxes, if any, levied and paid upon the production of minerals.

So that the state may be properly advised of the removal of ores and mineral substances from the lands involved in this lease, the lessee agrees to file with the State Land Commissioner, within twenty (20) days after the removal of any such ores or mineral substances, an authenticated statement of the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale.

The lessee agrees to pay all royalties under this lease to the State Land Commissioner within twenty (20) days after the close of each month within which the minerals were extracted; such payments will be accompanied by a sworn statement showing:

1. the amount of ore mined during the preceding month;
2. the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale;
3. the actual cost of transportation from the source of production to the place of treatment and sale;
4. the smelter and other customs treatment charges and penalties; and
5. the amount of taxes levied and paid upon the production of the minerals.

The lessee shall at all times conduct operations in a workmanlike manner, protect all mines and deposits, and not commit nor suffer any waste upon the land. He shall not use nor permit the use of said lands and premises for any other purpose than as herein authorized, and at the expiration of this lease he shall return the premises to the owner in as good condition as received.

The lessee shall keep an accurate account of said operations showing the amount of mineral mined or extracted and all mineral shipped, smelted, used, or disposed of, the cost of such operations, and the gross value of the output of the minerals at the mine. The State Land Commissioner and other proper representatives of the department shall have the right at all times during the existence of this lease, and for six months thereafter, to make such reasonable examinations of the papers and books of account of the said lessee and of the mines as may be necessary to obtain all information desired.

This lease confers the right to the lessee to construct necessary improvements, including the installation of necessary machinery and equipment, with the right to remove the same upon the expiration, termination, or abandonment of the lease, if all monies owing to the state under the terms of this lease have been paid. There is hereby created a lien on all implements, tools, movable machinery, and other personal chattels belonging to the lessee and used in the mining operations, and upon all minerals obtained from the land leased herein, as security for the payment of all monies owed the state under the terms of this lease.

The lessee agrees that, should he sell, mortgage, or assign this lease, it will be without prejudice to the state, and that such transaction shall not become effective until a copy thereof is filed with the State Land Commissioner and his written consent thereto secured.

The lessee may, however, surrender the lease for cancellation with the consent of the lessor, and all royalties and other obligations due and accrued to date of completion of application for cancellation, in addition to a fee of One ($1.00) Dollar, must be paid and discharged before such an applicantion for cancellation will be considered, provided that, if the lease has been recorded, the lessee or assignee shall execute a release, record the same in the proper recording office and file the release with the State Land Commissioner. An application for cancellation will be considered as completed on the date such application is filed in the office of the State Land Commissioner provided the foregoing requirements have been fully observed.

In the event of failure or neglect of the lessee to perform any obligation under this lease, the lessor shall have the right at any time to cancel this lease unless, within thirty (30) days after notice specifying the terms and conditions violated, the lessee shall correct such failure and make good any loss caused thereby.

The lessee agrees to perform the annual labor, as required by the laws of the United States, upon each claim, commencing at the expiration of one year from the date of location, and that he will furnish proof of such annual labor to the State Land Commissioner.

The lessee agrees to fence all shafts, prospect holes, adits, tunnels and other dangerous mine workings for the protection of livestock.

This lease is made and accepted subject to existing law and any laws hereafter enacted, also to the regulations relative to such leases heretofore or hereafter prescribed by the lessor; and in no event shall the state or the lessor be liable in damages or otherwise under the provisions hereof.

The lessee shall not keep livestock of any kind on the lands leased herein except by permission from the State Land Commissioner at such rates as may from time to time be established.

The lessee has the right, under this lease, to the cutting and use of timber and stone upon the claim, not otherwise appropriated, for fuel, construction of necessary improvements, or for drains, roadways, tramways, supports, or other necessary purposes; provided, that nothing herein contained shall be construed to permit the cutting of timber for any purpose without the written consent of the State Land Commissioner.

It is understood and agreed that this lease is made subject to all legally established rights of way herefore granted or that may hereafter be granted over and across such land; and the lessee agrees to respect the property rights of all persons lawfully upon the demised premises.

It is expressly understood and agreed that there is reserved to the state the right to lease, under existing law or laws hereafter enacted, so much of the surface of the lands covered by this lease as is not actually used or necessary for mining purposes.

The obligations and agreements hereinbefore expressed shall extend to and be binding upon the successors in interest of the parties hereto.

IN WITNESS WHEREOF, the lessor has caused these presents to be signed by the legal representative of the State Land Department, at Phoenix, Arizona, and the lessee has hereunto affixed his signature at the place and on the day and year first above written.

STATE LAND DEPARTMENT

By .....
State Land Commissioner.

(SEAL)

By .....
Deputy State Land Commissioner.

(Sign Here) .....

.....
Party of the Second Part

This lease is issued in duplicate.

ASSIGNMENT OF LEASE

Phoenix, Arizona April 12, 1954

The application of Ralph H. Blackburn & Ercel Blackburn, his wife & Frank M. Dake & Inga F. Dake, his wife for permission to assign Lease No. M-47220 and the application of Anthony J. Sullivan, a married man for the assumption of said Lease, having been duly considered this 12th day of April, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47220 and all rights thereunder be and are hereby transferred to the said Anthony J. Sullivan, 1208 N. Oak Leaf Drive, Phoenix, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona April 12, 1954

The application of Anthony J. Sullivan, & Mary Sullivan, his wife for permission to assign Lease No. M-47220 and the application of St. Anthony Mining Co., a corporation for the assumption of said Lease, having been duly considered this 12th day of April, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47220 and all rights thereunder be and are hereby transferred to the said St. Anthony Mining Company, 703 Heard Bldg., Phoenix, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona

The application of

for permission to assign Lease No. and the application of

for the assumption of said Lease, having been duly considered this day of , 19 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. and all rights thereunder be and are hereby transferred to the said

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona

The application of

for permission to assign Lease No. and the application of

for the assumption of said Lease, having been duly considered this day of , 19 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. and all rights thereunder be and are hereby transferred to the said

State Land Commissioner.

By

Deputy State Land Commissioner.

Phoenix, Arizona April 25, 1951

The application of Ralph H. Blackburn and Ercell G. Blackburn, his wife & Frank M. Dake for permission to assign Lease No. 47220-S and the application of Upshot Mines, Inc., a corporation for the assumption of said Lease, having been duly considered this 25th day of April, 1951 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47220-S and all rights thereunder be and are hereby transferred to the said Upshot Mines, Inc., c/o Joseph P. Ralston, 514 Title & Trust Bldg., Phoenix, Arizona

ORIGINAL RETURNED

State Land Commissioner.

By Deputy State Land Commissioner.

Written in: MRS

Checked by:

Date Mailed: 8/24/53

ASSIGNMENT OF LEASE

Phoenix, Arizona August 24, 1953

The application of Upshot Mines, Inc., an Arizona corporation for permission to assign Lease No. and the application of Ralph H. Blackburn and Frank M. Dake for the assumption of said Lease, having been duly considered this 24th day of August, 1953 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47220 and all rights thereunder be and are hereby transferred to the said Ralph H. Blackburn and Frank M. Dake, Mayer, Arizona

State Land Commissioner.

By Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona February 10, 1954

The application of Ralph H. Blackburn and Ercel Blackburn, husband and wife and Frank M. Dake and Inga F. Dake, his wife and the application of Anthony J. Sullivan for permission to assign Lease No. 47220-S for the assumption of said Lease, having been duly considered this day of February, 1954 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47220-S and all rights thereunder be and are hereby transferred to the said Anthony J. Sullivan

State Land Commissioner.

By Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona February 12, 1954

The application of Anthony J. Sullivan and Mary Sullivan, his wife, for permission to assign Lease No. 47220-S and the application of St. Anthony Mining Co. a corporation, for the assumption of said Lease, having been duly considered this day of February, 1954 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47220-S and all rights thereunder be and are hereby transferred to the said St. Anthony Mining Co.

State Land Commissioner.

By Deputy State Land Commissioner.

ORIGINAL

Type of Lease 47176- Lease No. 47176-S

State Land Department

STATE OF ARIZONA

MINERAL LEASE

This lease made and entered into this 16th day of May, 19 50, by and between the State Land Department, party of the first part, hereinafter called the lessor, by reason of the authority vested in it by the Arizona Code Annotated, 1939, as amended, and RALPH K. BLACKBURN & FRANK M. DAKE Mayer, Arizona party of the second part, hereinafter called the lessee.

W I T N E S S E T H :

The lessor has this day leased to the said lessee, for and in consideration of the rental, royalties, covenants, stipulations and conditions hereinafter contained, and hereby agreed to be paid, observed and performed by the said lessee, for the purpose of extracting and shipping ores and mineral substances from or under the following land to-wit:

Name & Number of Claim	Description	Section	Township	Range	Acreage	Grant	Amount
Blackburn No. 2	S½SW¼NW¼	16	12N	1E	20	S	

containing 20 acres, more or less, with a total annual rental of FIFTEEN AND 00/100 DOLLARS

TO HAVE AND TO HOLD the same for the period ending the 15th day of May, 19 70.

This lease confers the right to the lessee:

1. to extract and ship ores and mineral substances from the property, above set forth, located within planes drawn vertically through the exterior boundary lines thereof;
2. to use so much of the surface as may be required incident to mining; and
3. of ingress to and egress from other state lands, whether or not leased for purposes other than mining.

The lessee hereby agrees to pay or cause to be paid to the State Land Commissioner for the use and benefit of the leased lands, annually in advance, a rental of Fifteen ($15.00) Dollars per annum for each claim, or fraction thereof.

The lessee further agrees to pay as royalty five per cent of the net smelter or mint returns received from ores or mineral substances produced from the claim or claims. The net smelter or mint returns shall be deemed to be the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale, less the actual cost of transportation from the source of production to the place of treatment and sale, less smelter and other customs treatment charges and penalties, and less taxes, if any, levied and paid upon the production of minerals.

So that the state may be properly advised of the removal of ores and mineral substances from the lands involved in this lease, the lessee agrees to file with the State Land Commissioner, within twenty (20) days after the removal of any such ores or mineral substances, an authenticated statement of the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale.

The lessee agrees to pay all royalties under this lease to the State Land Commissioner within twenty (20) days after the close of each month within which the minerals were extracted; such payments will be accompanied by a sworn statement showing:

1. the amount of ore mined during the preceding month;
2. the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale;
3. the actual cost of transportation from the source of production to the place of treatment and sale;
4. the smelter and other customs treatment charges and penalties; and
5. the amount of taxes levied and paid upon the production of the minerals.

The lessee shall at all times conduct operations in a workmanlike manner, protect all mines and deposits, and not commit nor suffer any waste upon the land. He shall not use nor permit the use of said lands and premises for any other purpose than as herein authorized, and at the expiration of this lease he shall return the premises to the owner in as good condition as received.

The lessee shall keep an accurate account of said operations showing the amount of mineral mined or extracted and all mineral shipped, smelted, used, or disposed of, the cost of such operations, and the gross value of the output of the minerals at the mine. The State Land Commissioner and other proper representatives of the department shall have the right at all times during the existence of this lease, and for six months thereafter, to make such reasonable examinations of the papers and books of account of the said lessee and of the mines as may be necessary to obtain all information desired.

This lease confers the right to the lessee to construct necessary improvements, including the installation of necessary machinery and equipment, with the right to remove the same upon the expiration, termination, or abandonment of the lease, if all monies owing to the state under the terms of this lease have been paid. There is hereby created a lien on all implements, tools, movable machinery, and other personal chattels belonging to the lessee and used in the mining operations, and upon all minerals obtained from the land leased herein, as security for the payment of all monies owed the state under the terms of this lease.

The lessee agrees that, should he sell, mortgage, or assign this lease, it will be without prejudice to the state, and that such transaction shall not become effective until a copy thereof is filed with the State Land Commissioner and his written consent thereto secured.

The lessee may, however, surrender the lease for cancellation with the consent of the lessor, and all royalties and other obligations due and accrued to date of completion of application for cancellation, in addition to a fee of One ($1.00) Dollar, must be paid and discharged before such an applicantion for cancellation will be considered, provided that, if the lease has been recorded, the lessee or assignee shall execute a release, record the same in the proper recording office and file the release with the State Land Commissioner. An application for cancellation will be considered as completed on the date such application is filed in the office of the State Land Commissioner provided the foregoing requirements have been fully observed.

In the event of failure or neglect of the lessee to perform any obligation under this lease, the lessor shall have the right at any time to cancel this lease unless, within thirty (30) days after notice specifying the terms and conditions violated, the lessee shall correct such failure and make good any loss caused thereby.

The lessee agrees to perform the annual labor, as required by the laws of the United States, upon each claim, commencing at the expiration of one year from the date of location, and that he will furnish proof of such annual labor to the State Land Commissioner.

The lessee agrees to fence all shafts, prospect holes, adits, tunnels and other dangerous mine workings for the protection of livestock.

This lease is made and accepted subject to existing law and any laws hereafter enacted, also to the regulations relative to such leases heretofore or hereafter prescribed by the lessor; and in no event shall the state or the lessor be liable in damages or otherwise under the provisions hereof.

The lessee shall not keep livestock of any kind on the lands leased herein except by permission from the State Land Commissioner at such rates as may from time to time be established.

The lessee has the right, under this lease, to the cutting and use of timber and stone upon the claim, not otherwise appropriated, for fuel, construction of necessary improvements, or for drains, roadways, tramways, supports, or other necessary purposes; provided, that nothing herein contained shall be construed to permit the cutting of timber for any purpose without the written consent of the State Land Commissioner.

It is understood and agreed that this lease is made subject to all legally established rights of way herefore granted or that may hereafter be granted over and across such land; and the lessee agrees to respect the property rights of all persons lawfully upon the demised premises.

It is expressly understood and agreed that there is reserved to the state the right to lease, under existing law or laws hereafter enacted, so much of the surface of the lands covered by this lease as is not actually used or necessary for mining purposes.

The obligations and agreements hereinbefore expressed shall extend to and be binding upon the successors in interest of the parties hereto.

IN WITNESS WHEREOF, the lessor has caused these presents to be signed by the legal representative of the State Land Department, at Phoenix, Arizona, and the lessee has hereunto affixed his signature at the place and on the day and year first above written.

STATE LAND DEPARTMENT

By ..... State Land Commissioner.

(SEAL)

By ..... Deputy State Land Commissioner.

(Sign Here) Ralph H. Blackburn

Frank M. Drake
Party of the Second Part

This lease is issued in duplicate.

ASSIGNMENT OF LEASE

Phoenix, Arizona April 12, 1954

The application of Ralph H. & Ercel Blackburn, husband & wife, & Frank M. & Inga F. Dake, his wife for permission to assign Lease No. M-47176 and the application of Anthony J. Sullivan, a married man for the assumption of said Lease, having been duly considered this 12th day of April, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47176 and all rights thereunder be and are hereby transferred to the said Anthony J. Sullivan, 1208 N. Oak Leaf Drive, Phoenix, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona April 12, 1954

The application of Anthony J. Sullivan & Mary Sullivan, his wife for permission to assign Lease No. M-47176 and the application of St. Anthony Mining Co., a corporation for the assumption of said Lease, having been duly considered this 12th day of April, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47176 and all rights thereunder be and are hereby transferred to the said St. Anthony Mining Company, 703 Heard Bldg., Phoenix, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona

The application of

for permission to assign Lease No. and the application of

for the assumption of said Lease, having been duly considered this day of, 19 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. and all rights thereunder be and are hereby transferred to the said

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona

The application of

for permission to assign Lease No. and the application of

for the assumption of said Lease, having been duly considered this day of, 19 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. and all rights thereunder be and are hereby transferred to the said

State Land Commissioner.

By

Deputy State Land Commissioner.

Phoenix, Arizona April 25, 1951

The application of Ralph H. Blackburn and Ercell G. Blackburn, his wife & Frank M. Dake for permission to assign Lease No. 47176-S and the application of Upshot Mines, Inc., a corporation for the assumption of said Lease, having been duly considered this 25th day of April, 19 51 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47176-S and all rights thereunder be and are hereby transferred to the said Upshot Mines, Inc., c/o Joseph P. Ralston, 514 Title & Trust Bldg., Phoenix, Arizona

State Land Commissioner.

By Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona August 24, 1953

The application of Upshot Mines, Inc., an Arizona corporation for permission to assign Lease No. M-47176 and the application of Ralph H. Blackburn and Frank M. Dake for the assumption of said Lease, having been duly considered this 24th day of August, 19 53 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47176 and all rights thereunder be and are hereby transferred to the said Ralph H. Blackburn and Frank M. Dake, Mayer, Arizona

State Land Commissioner.

By Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona February 10, 1954

The application of Ralph H. Blackburn and Ercell G. Blackburn, his wife, and Frank M. Dake and Inga F. Dake, his wife, for permission to assign Lease No. 47176-S and the application of Anthony J. Sullivan for the assumption of said Lease, having been duly considered this day of February, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47176-S and all rights thereunder be and are hereby transferred to the said Anthony J. Sullivan

State Land Commissioner.

By Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona February 12, 1954

The application of Anthony J. Sullivan and Mary Sullivan, his wife for permission to assign Lease No. 47176-S and the application of St. Anthony Mining Co. a corporation for the assumption of said Lease, having been duly considered this day of February, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47505-S and all rights thereunder be and are hereby transferred to the said St. Anthony Mining Co.

State Land Commissioner.

By Deputy State Land Commissioner.

ORIGINAL

Type of Lease Lode Lease No. 47505 S

State Land Department

STATE OF ARIZONA

MINERAL LEASE

This lease made and entered into this 8th day of January, 19 51, by and between the State Land Department, party of the first part, hereinafter called the lessor, by reason of the authority vested in it by the Arizona Code Annotated, 1939, as amended, and RALPH H. BLACKBURN AND FRANK M DAKE, Mayer, Ariz. party of the second part, hereinafter called the lessee.

W I T N E S S E T H :

The lessor has this day leased to the said lessee, for and in consideration of the rental, royalties, covenants, stipulations and conditions hereinafter contained, and hereby agreed to be paid, observed and performed by the said lessee, for the purpose of extracting and shipping ores and mineral substances from or under the following land to-wit:

Name & Number of Claim	Description	Section	Township	Range	Acreage	Grant	Amount
See Insert Sheet for description							

containing 80 acres, more or less, with a total annual rental of SIXTY AND 00/100 ($60.00)

TO HAVE AND TO HOLD the same for the period ending the 7th day of January, 1971

This lease confers on the lessee the right:

1. To extract and ship minerals, mineral compounds and mineral aggregates, herein also called "minerals" or "ore", from the property above set forth located within planes drawn vertically downward through the exterior boundary lines of each claim;
2. To use so much of the surface as may be required for purposes incident to mining; and
3. Of ingress to and egress from other state lands, whether or not leased for purposes other than mining.

The lessee hereby agrees to pay or cause to be paid to the State Land Commissioner, annually in advance, a rental of $15.00 per annum for each claim or fraction thereof, which shall be credited upon the royalties hereinafter provided, which may become due during such year.

The lessee further agrees to pay as royalty 5% of the net value of the minerals produced from the leased premises, which net value shall be the gross value after processing, if processing is necessary for commercial use, less the actual cost of transportation from the place of production to the place of processing, less costs of processing and taxes, if any, levied and paid upon the production thereof. In the case of minerals not processed for commercial use, the net value shall be the gross proceeds, or gross value at the place of sale or use, less the actual cost of transportation from place of production to the place of sale or use, less taxes, if any, levied and paid upon the production thereof.

3. of ingress to and egress from other state lands, whether or not leased for purposes other than mining.

The lessee hereby agrees to pay or cause to be paid to the State Land Commissioner for the use and benefit of the leased lands, annually in advance, a rental of Fifteen ($15.00) Dollars per annum for each claim, or fraction thereof.

The lessee further agrees to pay as royalty five per cent of the net smelter or mint returns received from ores or mineral substances produced from the claim or claims. The net smelter or mint returns shall be deemed to be the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale, less the actual cost of transportation from the source of production to the place of treatment and sale, less smelter and other customs treatment charges and penalties, and less taxes, if any, levied and paid upon the production of minerals.

So that the state may be properly advised of the removal of ores and mineral substances from the lands involved in this lease, the lessee agrees to file with the State Land Commissioner, within twenty (20) days after the removal of any such ores or mineral substances, an authenticated statement of the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale.

The lessee agrees to pay all royalties under this lease to the State Land Commissioner within twenty (20) days after the close of each month within which the minerals were extracted; such payments will be accompanied by a sworn statement showing:

1. the amount of ore mined during the preceding month;
2. the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale;
3. the actual cost of transportation from the source of production to the place of treatment and sale;
4. the smelter and other customs treatment charges and penalties; and
5. the amount of taxes levied and paid upon the production of the minerals.

The lessee shall at all times conduct operations in a workmanlike manner, protect all mines and deposits, and not commit nor suffer any waste upon the land. He shall not use nor permit the use of said lands and premises for any other purpose than as herein authorized, and at the expiration of this lease he shall return the premises to the owner in as good condition as received.

STATE LAND DEPARTMENT

PHOENIX, ARIZONA

SUPPLEMENT TO
LEASE NO. 47505
5

RALPH H. BLACKBURN ET AL

MAYER, ARIZONA

SHEET _____ OF _____ SHEETS

GR.	DESCRIPTION	SEC.	TWP.	RANGE		ACREAGE	IMP.
[illegible]	W½SE¼NW¼	16	12 N	1 E		20.00	
[illegible]	NE¼SW¼NW¼	16	12 N	1 E		20.00	
[illegible]	NW¼SW¼NW¼	16	12 N	1 E		20.00	
	NE¼NW¼NW¼	16	12 N	1 E		20.00	

Ralph H. Blackburn

Frank M. Dabe

SIGNATURE OF LESSEE

DATE

James A. Bunger

STATE LAND COMMISSIONER

1-27-51

DATE

The lessee shall keep an accurate account of said operations showing the amount of mineral mined or extracted and all mineral shipped, smelted, used, or disposed of, the cost of such operations, and the gross value of the output of the minerals at the mine. The State Land Commissioner and other proper representatives of the department shall have the right at all times during the existence of this lease, and for six months thereafter, to make such reasonable examinations of the papers and books of account of the said lessee and of the mines as may be necessary to obtain all information desired.

This lease confers the right to the lessee to construct necessary improvements, including the installation of necessary machinery and equipment, with the right to remove the same upon the expiration, termination, or abandonment of the lease, if all monies owing to the state under the terms of this lease have been paid. There is hereby created a lien on all implements, tools, movable machinery, and other personal chattels belonging to the lessee and used in the mining operations, and upon all minerals obtained from the land leased herein, as security for the payment of all monies owed the state under the terms of this lease.

The lessee agrees that, should he sell, mortgage, or assign this lease, it will be without prejudice to the state, and that such transaction shall not become effective until a copy thereof is filed with the State Land Commissioner and his written consent thereto secured.

The lessee may, however, surrender the lease for cancellation with the consent of the lessor, and all royalties and other obligations due and accrued to date of completion of application for cancellation, in addition to a fee of One ($1.00) Dollar, must be paid and discharged before such an applicantion for cancellation will be considered, provided that, if the lease has been recorded, the lessee or assignee shall execute a release, record the same in the proper recording office and file the release with the State Land Commissioner. An application for cancellation will be considered as completed on the date such application is filed in the office of the State Land Commissioner provided the foregoing requirements have been fully observed.

In the event of failure or neglect of the lessee to perform any obligation under this lease, the lessor shall have the right at any time to cancel this lease unless, within thirty (30) days after notice specifying the terms and conditions violated, the lessee shall correct such failure and make good any loss caused thereby.

The lessee agrees to perform the annual labor, as required by the laws of the United States, upon each claim, commencing at the expiration of one year from the date of location, and that he will furnish proof of such annual labor to the State Land Commissioner.

The lessee agrees to fence all shafts, prospect holes, adits, tunnels and other dangerous mine workings for the protection of livestock.

This lease is made and accepted subject to existing law and any laws hereafter enacted, also to the regulations relative to such leases heretofore or hereafter prescribed by the lessor; and in no event shall the state or the lessor be liable in damages or otherwise under the provisions hereof.

The lessee shall not keep livestock of any kind on the lands leased herein except by permission from the State Land Commissioner at such rates as may from time to time be established.

The lessee has the right, under this lease, to the cutting and use of timber and stone upon the claim, not otherwise appropriated, for fuel, construction of necessary improvements, or for drains, roadways, tramways, supports, or other necessary purposes; provided, that nothing herein contained shall be construed to permit the cutting of timber for any purpose without the written consent of the State Land Commissioner.

It is understood and agreed that this lease is made subject to all legally established rights of way herefore granted or that may hereafter be granted over and across such land; and the lessee agrees to respect the property rights of all persons lawfully upon the demised premises.

It is expressly understood and agreed that there is reserved to the state the right to lease, under existing law or laws hereafter enacted, so much of the surface of the lands covered by this lease as is not actually used or necessary for mining purposes.

The obligations and agreements hereinbefore expressed shall extend to and be binding upon the successors in interest of the parties hereto.

IN WITNESS WHEREOF, the lessor has caused these presents to be signed by the legal representative of the State Land Department, at Phoenix, Arizona, and the lessee has hereunto affixed his signature at the place and on the day and year first above written.

STATE LAND DEPARTMENT

By .....
State Land Commissioner.

(SEAL)

By James P. Burger
Deputy State Land Commissioner.

(Sign Here) Ralph H. B. Lockburn

Frank M. Drake
Party of the Second Part

This lease is issued in duplicate.

ASSIGNMENT OF LEASE

Phoenix, Arizona April 12, 1954

The application of Ralph H. & Ercel Blackburn, husband & wife & Frank M. & Inga F. Dake, (husband & wife for permission to assign Lease No. M-47505 and the application of Anthony J. Sullivan, a married man for the assumption of said Lease, having been duly considered this 12th day of April, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47505 and all rights thereunder be and are hereby transferred to the said Anthony J. Sullivan, 1208 N. Oak Leaf Dr., Phoenix, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona April 12, 1954

The application of Anthony J. Sullivan & Mary Sullivan, his wife for permission to assign Lease No. M-47505 and the application of St. Anthony Mining Co., a corporation for the assumption of said Lease, having been duly considered this 12th day of April, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47505 and all rights thereunder be and are hereby transferred to the said St. Anthony Mining Company, Phoenix, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona

The application of

for permission to assign Lease No. and the application of

for the assumption of said Lease, having been duly considered this day of , 19 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. and all rights thereunder be and are hereby transferred to the said

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona

The application of

for permission to assign Lease No. and the application of

for the assumption of said Lease, having been duly considered this day of , 19 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. and all rights thereunder be and are hereby transferred to the said

State Land Commissioner.

By

Deputy State Land Commissioner.

Phoenix, Arizona April 25, 1951

The application of Ralph H.Blackburn and Ercell G. Blackburn,his wife & Frank M. Dake for permission to assign Lease No. 47505-S and the application of Upshot Mines, Inc., a corporation for the assumption of said Lease, having been duly considered this 25th day of April, 19 51 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47505-S and all rights thereunder be and are hereby transferred to the said Upshot Mines, Inc., c/o Joseph P. Ralston, 514 Title & Trust Bldg., Phoenix, Arizone

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona August 24, 1953

The application of Upshot Mines, Inc., an Arizona corporation for permission to assign Lease No. M-47505 and the application of Ralph H. Blackburn and Frank M. Dake for the assumption of said Lease, having been duly considered this 24th day of August, 19 53 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47505 and all rights thereunder be and are hereby transferred to the said Ralph H. Blackburn and Frank M. Dake, Mayer, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona February 10, 1954

The application of Ralph H. Blackburn and Ercell G. Blackburn, his wife, and Frank M. Dake and Inga F. Dake, his wife, for permission to assign Lease No. 47505-S and the application of Anthony J. Sullivan for the assumption of said Lease, having been duly considered this day of February, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47505S and all rights thereunder be and are hereby transferred to the said Anthony J. Sullivan

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona February 12, 1954

The application of Anthony J. Sullivan and Mary Sullivan, his wife, for permission to assign Lease No. 47505-S and the application of St. Anthony Mining Co. a corporation for the assumption of said Lease, having been duly considered this day of February, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47505-S and all rights thereunder be and are hereby transferred to the said St. Anthony Mining Co.

State Land Commissioner.

By

Deputy State Land Commissioner.

WESTERN UNION

SA084 LB002
L. PTA 009 DL PD_ PRESCOTT ARIZ. 13 944 AMM

ROY GUNTHER
%) 5052 OLEATHA AVE. ST.L.

MINING DEED. R D TERRELL TO A SULLIVAN DATED FEB. 10, 1954 BOOK 29 OFFICIAL RECORDS PAGES 65-66 CONVEYING COPPER GULCH MINING CLAIM AND COPPER GULCH NO. 1. MINING DEED A SULLIVAN TO ST. ANTHONY MINING CO. DATED FEB. 12, 1954 RECORDED APRIL 10, 1954 BOOK 29 OFFICIAL RECORDS PAGES 67-68 CONVEYING COPPER GULCH AND COPPER GULCH NO. 1 MINING CLAIMS.

GRACE CHAPMAN COUNTY RECORDER

COPY

MINING DEED

THIS INDENTURE, made the 12th day of February, 1954, by and between A. SULLIVAN, also known as ANTHONY J. SULLIVAN, of the State of Arizona, first party, and ST. ANTHONY MINING CO., a corporation, of the same place, second party,

W I T N E S S E T H:

That the said first party, for and in consideration of the sum of Ten Dollars ($10), lawful money of the United States of America, to him in hand paid by the said second party, the receipt whereof is hereby acknowledged, has granted, bargained, sold, remised, released and forever quitclaimed, and by these presents does grant, bargain, sell, remise, release, and forever quitclaim unto the said second party, and to its successors and assigns all those certain unpatented mining claims located in the Big Bug Mining District as indicated, Yavapai County, Arizona, the location notices of which are recorded in the Office of the County Recorder of said County in Books and pages as follows:

Name of Claim	Book	Page
Copper Gulch	156	488
Copper Gulch No. 1	156	489

TOGETHER with all the dips, spurs, and angles, and also all the metals, ores, gold and silver-bearing quartz, rock and earth therein; and all the rights, privileges and franchises thereto incident, appendant and appurtenant, or therewith usually had and enjoyed; and also, all and singular the tenements, hereditaments and appurtenances thereto

belonging, and otherwise appertaining, and the rents, issues and profits thereof, and also all the estate, right, title, interest, property, possession, claim and demand whatsoever, as well in law as in equity, of the said first party, of, in or to the said premises and every part and parcel thereto with the appurtenances.

TO HAVE AND TO HOLD, all and singular, the said premises, together with the appurtenances and privileges thereunto incident, unto the said second party, its successors and assigns forever.

IN WITNESS WHEREOF, the said first party has hereunto set his hand the day and year first above written.

A. Sullivan

A. Sullivan, also known as Anthony J. Sullivan

STATE OF ARIZONA)
County of Maricopa) ss.

Before me, the undersigned Notary Public, on this day personally appeared A. SULLIVAN, also known as Anthony J. Sullivan, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged that he executed the same for the purposes and consideration therein expressed.

GIVEN under my hand seal of office this 12th day of February, 1954.

Notary Public

My commission expires:

June 16, 1955

QUITCLAIM DEED

THIS INDENTURE, made the 10th day of February, 1954, by and between L. S. TIRRILL, of the State of Arizona, first party, and L. SMITH, of the same place, second party.

WITNESSETH:

That the said first party, for and in consideration of the sum of Three Thousand ($3,000.00) Dollars, lawful money of the United States of America, to him in hand paid by the said second party, the receipt whereof is hereby acknowledged, has granted, bargained, sold, remised, released and forever quit-claimed, and by these presents does grant, bargain, sell, remise, release, and forever quit-claim unto the said second party, and to his heirs and assigns all those certain unpatented mining claims located in the Big Bug Mining District as indicated, Yavapai County, Arizona, the location notices of which are recorded in the Office of the County Recorder of said County in Books and pages as follows:

Name of Claim	Book	Page
Copper Gulch	156	488
Copper Gulch No. 1	156	489

TOGETHER with all the dips, spurs, and angles, and also all the metals, ores, gold and silver-bearing quartz, rock and earth therein; and all the rights, privileges and franchises thereto incident, appendant and appurtenant, or therewith usually had and enjoyed; and also, all and singular the tenements, hereditaments and appurtenances thereto belonging, and otherwise appertaining, and the rents, issues and profits thereof, and also all the estate, right, title, interest, property, possession, claim and demand whatsoever, as well in law as in equity, of the said first party, of, in or to the said premises and every part and parcel thereto with the appurtenances.

TO HAVE AND TO HOLD, all and singular, the said premises, together with the appurtenances and privileges thereunto incident, unto the said second party, his heirs and assigns forever.

IN WITNESS WHEREOF, the said first party has hereunto set his hand the day and year first above written.

R. D. Terrell

STATE OF ARIZONA)
) ss
County of Yavapai)

Before me, the undersigned Notary Public, on this day personally appeared R. D. TERRELL, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged that he executed the same for the purposes and consideration therein expressed.

GIVEN under my hand and seal of office this 5th day of February, 1954.

J. J. Slamon
Notary Public

My Commission Expires:
MY COMMISSION EXPIRES SEPT. 2 16 54
_____:

ST. ANTHONY MINING COMPANY
3585 WATSON ROAD
ST. LOUIS, MO.

Domestic Minerals Administration
RECEIVED
APR 29 1954

April 10, 1954

Executive Officer DMEA
224 New Customhouse Building
Denver 2, Colorado

Dear Sir:

Please find attached our application on form MF-103 for aid in an exploration project, pursuant to DMEA order 1, under the Defense Production Act of 1950 as amended April 1954.

As indicated, the proposed work of exploration is estimated to cost $100,000.00 and therefore would respectfully ask for a loan under the above provisions of DMEA order 1 of $50,000.00.

We have started our proposed work and therefore hope to get an early answer. All of the enclosures may be kept by you for your files.

If we can give you further information, please be free to call us.

Yours very truly,

ST. ANTHONY MINING COMPANY

Roy J. Gunther

Roy J. Gunther
President

RJG:jo
Encls.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Form Approved.
Budget Bureau No. 42-R1035.2.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 29 1954

APPLICATION FOR AID IN AN EXPLORATION PROJECT, PURSUANT TO DMEA ORDER 1, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

Not to be filled in by applicant

Docket No. 3328
Metal or Mineral Copper
Date Received
Estimated Cost $100,000
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: ST. ANTHONY MINING COMPANY, an Arizona Corporation, 3525 Watson Road, St. Louis, Mo.

(*b*) If other than an individual, add to your name above whether a corporation, partnership, etc., and the name of the State in which incorporated or otherwise organized. An Arizona Corporation

(*c*) If a corporation, add to above statement, titles, names and addresses of officers. See attached paper

(*d*) If a partnership, add to the above statement the names and addresses of all partners. A Corporation

2. *General.*—Read DMEA Order 1, "Government Aid in Defense Exploration Projects," before completing this application. Submit this application and all accompanying papers in quadruplicate (four copies), with your name and address on each sheet of the application and on all accompanying papers. Where sufficient space is not provided on the form for all required information, state it on an accompanying paper, with a reference in each case to the instruction to which it refers by number. Comply with all applicable instructions; or, if not applicable, so state. File the application with Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest field executive officer thereof. See attached paper.

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract Our property lies primarily in Sec. 16 T12 R13 in Yapavai County, Arizona. See accompanying map of claims in Sec. 16 as well as adjoining claims and those under option.

(*b*) State any mine name by which the property is known. Upshot Mine

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Lessee of State and Government land.

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property. Copies of leases are attached.

(*e*) If you own the land, describe any liens or encumbrances on it Do not own land.

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. See attached paper.

4. *Physical description.*—(*a*) Describe in detail any mining or exploration operations which have been or now are being conducted upon the land, including existing mine workings and production facilities. State your interest, if any, in such operations. Also describe accessibility of mine workings for examination purposes. See attached paper.

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. See attached paper.

(*c*) Describe the geologic features of the property, including mineralization, type of deposit (vein, bedded, etc.), and your reasons for wishing to explore. Illustrate with maps or sketches. Send with your application (but not necessarily as a part of it) any geologic or engineering report, assay maps, or other technologic information you may have, indicating on each whether you require its return to you. See attached paper.

(*d*) State the facts with respect to the accessibility of the project: Access roads, distances to shipping, supply and residence points. See attached paper.

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power. See attached paper.

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore Copper, there are also Lead, Silver and Gold in lesser quantities.

(*b*) Describe fully the proposed work, including a map or sketch of the property showing a plan (and cross sections if needed) of any present mine workings, and the location of the proposed exploration work as related to such features as contacts, veins, ore-bearing beds, etc. See attached paper.

(*c*) The work will start within 1 days and be completed within 10 months from the date of an exploration project contract.

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations. See attached paper.

6. *Estimate of costs.*—Furnish a detailed estimate of the costs of the proposed work (you will have to use a separate sheet) under the following headings. Add the totals under all headings to give the estimated total cost of the project: See attached paper.

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.). See attached paper.

(*b*) *Labor, supervision, consultants.*—Include an itemized schedule of numbers, classes and rates of wages, salaries or fees for necessary labor, supervision and engineering and geological consultants. See attached paper.

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel. See attached paper.

(*d*) *Operating equipment.*—Furnish an itemized list of any operating equipment to be rented, purchased, or which is owned and will be furnished by the Operator, with the estimated rental, purchase price, or suggested use-allowance based on present value, as the case may be. See attached paper.

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project. See attached paper.

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project. See attached paper.

(*g*) *Miscellaneous.*—Furnish a detailed list showing the cost of repairs to and maintenance of operating equipment (not including initial rehabilitation or repairs of the Operator's equipment), analytical work, accounting, workmen's compensation and employers' liability insurance, and payroll taxes. See attached paper.

(*h*) *Contingencies.*—Give an estimate of any necessary allowances for contingencies not included in the costs stated above. See attached paper.

NOTE.—No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs. None

7. (*a*) Are you prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation (Sec. 7, DMEA No. 1)? Yes

(*b*) How do you propose to furnish your share of the costs?

[X] Money [X] Use of equipment owned by you [ ] Other

Explain in detail on acompanying paper. See attached paper.

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief.

Dated April 10, 1954

ST. ANTHONY MINING COMPANY, 3525 Watson Road St. Louis, Mo.
(Applicant)

By [signature]
President

[signature]
Secretary-Treasurer

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

U. S. GOVERNMENT PRINTING OFFICE 16—66551-1

Form MP-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

U. S. Department of the Interior
Defense Minerals Exploration Administration

Defense Minerals Administration
RECEIVED
29 1951

1.(a) See Application
1.(b) See Application
1.(c) St. Anthony Mining Company, an Arizona Corporation
Roy J. Gunther, President - Kerhonkson, New York
A. J. Sullivan, Vice President - 1208 N. Oak Leaf Drive, Phoenix, Arizona
Robert J. King, Secretary & Treasurer - 39 Ridgemoor Drive, Clayton, Mo.
1.(d) See Application

2. Copies of this order have been read and all information has been taken into consideration and is applicable.

3.(a) See Application
3.(b) See Application
3.(c) See Application
3.(d) See Application
3.(e) See Application
3.(f) SEE MINERAL LEASES AND TELEGRAM (ATTACHED)

4.(a) The discovery of the ore was made in 1948 by A. J. Sullivan, our Vice President. Soon thereafter he proceeded to stake out the claims we now lease - assessment work was done on all claims which included prospect shafts of dimension 6' x 8' x 8' deep. Later on these were deepened into the seams of ore on Claim Blackburn #1. A drift was driven along the seam some 50' into the side of the hill and a wince sunk to a depth of 40'. Here the ore looks very good. On Blackburn No. 2 the prospect hole was sunk to a depth of 40' and again the ore showing is excellent. On Blackburn No. 4 a channel was cut into the hill at right angles to the seams and shows good mineralization. Also on Blackburn No. 4 the prospect hole was deepened to 25' and mineralization was good. On Blackburn No. 2 it was decided that a drift be cut into the hill side on a parallel seam and the showing here is very good.

With all these prospects being a good indication of ore for commercial use at depth, A. J. Sullivan then set up to sink the Upshot Shaft. Equipment was purchased, a dry house, hoist house, shops and head frame were constructed and the sinking of the shaft was begun.

At 40' a drift was driven some 50" into the seam and he found the seam to be some 2' in width showing good copper ore. At 100' a similar drift was driven about 90' into the seam. Here the seam had widened to 3' and the grade of ore was even better. It was decided to raise between levels to see if the ore were solid. This was done and the ore discovered runs from one level to the other.

At 200' another drift was driven into the ore seam and here the seam had widened to 4' and shows fine quality.

Form MP-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

4.(a)
(Cont'd.)
By this time Sullivan had spent most of his money but thought to continue on slowly. He sunk the shaft to a point 308' in depth and had to shut down for lack of funds.

Several tries were made to interest people into this work but all were failures. Then after some time, A. J. Sullivan wrote me to try again to interest people. I made a trip down to Phoenix, heard his story, looked over the property and decided to do something about it. I have now formed a Corporation known as the ST. ANTHONY MINING CORPORATION with 7 members, each of which have put up enough money to purchase the leases in the name of our Company and have enough money to start a Diamond drilling program. We feel it will take some 10 holes of 800' to properly determine the ore bodies for commercial use. We have a signed contract with the T. E. Thatcher Co. for the beginning of this program.

At present the shaft has filled with water to a point above the 40' level and therefore is inaccessible.

4.(b) The only production of ore from the mine took place as the drifts and raises were being done, as all this work was in ore. The ore reserves, as the mine now stands, shows some 2000 tons in place. This is the amount of ore showing in the drifts and raises. The quality is a good grade of copper ore Chalcopyrite and Calcocite running between 5 - 10% copper. There are also present Lead, Gold and Silver.

4.(c) The property is located in the Big Bug Mining District and is adjacent to the Big Bug Creek where the placer operations took place many years ago. The terrain is hilly and is covered with brush and some small scrub oak trees. There are evident many seams of mineralization. Four of the seams show quartz at the surface from 12"-24" in width. The seams are all parallel and run N. 21°-30' E. The ore is in vertical veins. A complete report made by Mr. Wm. C. Ritter, a Mining Engineer of Stanford University, accompanies this application. This report gives the geological features of the property. Our reasons for wishing to explore this property are as follows:

1. We believe the property contains copper ore of commercial quantities.

2. We have the personnel and "know how" to properly explore and to set up a modern mining and milling operation.

3. We intend to operate the property for the purpose of producing Commercial Copper ore and at the same time expand to a large mining business.

-2A

Form NP-103
Revised April 1952

Date?

ST. ANTHONY MINING COMPANY
3525 NATSON ROAD
ST. LOUIS, MO.

4.(e) EXPORT ON THE UPSHOT MINE

LOCATION:

The UPSHOT MINE, consisting of one patented and five mining claims lies in the Big Bug Mining District, Yavapai County, Arizona. The property is reached by going North out of Phoenix, Arizona on the Black Canyon Highway to Mayer. North of Mayer one and one-half miles the road leading to the property takes off. West one and one-half miles on this road brings you to the workings. These roads are in good shape the year around.

GEOLOGY:

There is one vein system on the property consisting of several parallel veins. On the eastern edge of the property is the western edge of a granite body. West of the granite is a large diorite dyke running north and south, and approximately sixty (60) feet in width.

On the western side of the diorite dyke occurring in the following named manner is the vein system of the property. A quartz vein with excellent surface outcroppings, which gives evidence of having good gold value. Next is the vein being worked on at present. This vein outcrops for nearly twenty five hundred (2,500) feet on the surface. Mineralization in this vein consists of gold, silver, chalcopyrite, and lead. West of this vein lies two other parallel veins showing similar mineralization. On the western edge of the property is a large porphyry dyke that has not been investigated to any extent.

The strike of this vein system is approximately due north. Dip of the vein is almost vertical.

PRESENT DEVELOPMENT:

Present working on the property are on the second vein west of the diorite dykes. This is distance of about 100 feet. From the surface a shaft has been sunk to a depth of 200 feet. At 40 feet from the surface, 100 feet, and 200 feet drifts have been driven. The 40 feet level extends to the north 60 feet. On the 100 foot level the drift extends 90 feet to the north, and at the 200 foot level drifts extend to the north and south. The northern drift is 110 feet long and the southern drift is 50 feet long.

On the 100 feet level 35 feet from the shaft a raise has been driven to the 40 foot level. A small stope continues above the 40 foot level. On the 200 foot level a raise has been started, and is now 35 feet from the floor. When this work is finished, it will give a secondary access to the mine.

An exploratory crosscut has been sent 35 feet to the west from the 100 foot level. This crosscut is in fault gouge, and has yet to penetrate the width of the gouge.

At the 200 foot level the slightly inclined shaft lies approximately 12 feet west of the vein. All of the above work has been carried out on ore.

ORE RESERVES:

Width of the vein now being worked at the surface is Two (2) feet. On the 100 foot level this width has held between good walls. By the time the vein has reached the 200 foot level the width has increased to Three (3) feet and shows excellent signs of continuing to widen. The walls are slowly pitching outward on the lowest level. At present there are 2,000 tons of ore blocked out in the mine.

Form MP-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

ASSAY VALUES

These assay values were taken from the present workings:

From the 40 feet level to the 100 feet level.

AU.	AG.	CU.	PB.
$29.40	$3.06	3.15%	0

200 feet level in stope.

AU.	AG.	CU.	PB.
$22.40	$5.94	4.33%	2.20%

Bottom of 200 feet drift.

AU.	AG.	CU.	PB.
$29.85	$4.85	5.30%	6.70%

The apex values below are taken along the vein being worked running north from the shaft. The samples were taken from pits dug at approximately 100 feet intervals.

Running north the samples taken are numbered beginning with No. 1.

	AU.	AG.	CU.	PB.
1	$49.70	$2.34	4.20%	0
2	$65.10	$2.86	3.10%	1.20%
3	$32.05	$2.47	2.40%	0
4	$29.40	$1.49	2.10%	4.80%
5	$47.95	$2.56	2.7%	0

In furtherdeveloping the Upshot Mine it is my opinion that the shaft should be deepened to at least the 600 feet level. At each 100 feet level drifts should be run to the north and south. The drifts to the north should be the longer so that later on a new shaft can be sunk connecting all of the drifts. It is also recommended that at each level crosscuts should be started so that after larger ore reserves are developed, these crosscuts can be extended to intercept the parallel veins and work them from depths. With this plan of development the depths of the vein will be proven, and will warrant the installation of a mill on the property.

SURFACE EQUIPMENT

There are two buildings on the property. One is used for a change house and mess hall, and the other houses the hoisting equipment. On the head frame is an automatic dumping device that increases the efficiency of ore haulage. There is also the usual equipment

Form MF-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3585 WATSON ROAD
ST. LOUIS, MO.

of a well run mine such as compressor, ore car, tracks, spare timber, etc.

SUMMARY:

In my opinion the suggested development work is justified and should be done. The present work has shown that the mineralization is strong and may well reach to considerable depth. There is good water for milling purposes, and can be developed at shallow depth with small expense. Taking all these facts into consideration the UPSHOT MINE should develop in its future large quantities of commercial ore.

Respectfully submitted

William C. Ritter
Mining Engineer, Stanford '43.

Form MP-105
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

4.(d) The property is located just 3/4" of a mile west of U. S. Route 69, a good highway, 1½ miles North of Mayer and 25 miles South of Prescott. New Highway 69 is under construction and will be completed into Prescott by this Fall. This new road is still only 3/4 of a mile from the shaft. The A.T. and S.F. Railroad has a line just 2000' from the shaft and will gladly build a siding at this point.

The towns of Mayer, Humbolt and Prescott can be used as residence points for this mine.

Supplies are available in these towns.

4.(e) Materials and Supplies are available at Prescott, 25 miles to the North, or in Phoenix, 75 miles to the South.

Men are available in this area as the Iron King Mines at Humbolt have little trouble in getting men.

Smelters are located at several points within the State and are not too distant. There is talk of building a new smelter at Prescott.

Equipment for mining and milling can be obtained in Phoenix, 75 miles to the South, or Prescott, 25 miles to the North.

Water is available in quantity in the shaft or in Grapevine Creek.

Power sufficient to operate mine and mill is just 3600' Northeast of shaft.

5.(a) See Application
5.(b) The proposed work is to determine the size of ore body. We feel that since the ore has been contacted in seams from the shaft, diamond drilling from the surface, with inclined holes, will determine more economically the size and quality of the ore body. We propose therefore to diamond drill some 10 holes to a depth of 800' contacting 3 seams at the 300' and 600' levels. These holes, as proposed, are shown on the accompanying map. To the North of the most Northern hole is an old shaft. This was sunk to a depth of 211' and contacted a very good grade of ore. Work in this shaft was stopped when the brother of the owner was killed in a celebration over finding the copper ore.

In addition to the Diamond Drilling, it is proposed that we sink the Upshot Shaft to a depth of 600' and drive drifts further into the ore. This will be necessary to properly determine the final operation, location of final shaft, mill, etc.

5.(c) See Application
5.(d) 1. General Manager and President of the Company, Roy J. Gunther, will direct the work of exploration and operation of property. Background as follows:

Graduate Engineer - Missouri School of Mines & Metallurgy 1927

1929 - 1933 - Mining Engineer for the St. Joseph Lead Company, Flat River District Desloge Division.

Form MP-103
Revised April 1952

ST. ANTHONY MINING COMPANY
5525 WATSON ROAD
ST. LOUIS, MO.

5.(d) Cont'd. 1956 to present time, General Superintendent and Engineer for the Frazier-Davis Construction Company in shaft and tunnel work.

Projects of Note:

Buffalo, New York - 6 shafts, 3 miles of tunnel in rock and lined with concrete.
Newburgh, New York - 4 - 1000' shafts lined with concrete, Board of Water Supply, City of New York Delaware Aqueduct.
Mt. Kisco, New York - 2 - 600' shafts lined with concrete, Board of Water Supply, City of New York Delaware Aqueduct.
Carmel, New York - 2 shafts 400' deep and 7.8 miles of 15' diameter tunnel lined with concrete, Board of Water Supply, City of New York Delaware Aqueduct.
Valhalla, New York - finish Delaware Aqueduct, line 1 shaft 300' deep, install all machines for operation of 85 miles of aqueduct. * Board of Water Supply, City of New York.
Grahamsville, New York - 1 shaft 400' deep, 6 miles of tunnel 10' lined with concrete, large Intake Chamber and Power House. - Board of Water Supply, City of New York.
Morgantown, Pa. - at present sinking 2 - 3000' shafts, one 17'-6" finish, 1 - 21'6" finish, including drifts into iron ore body. Set all head frames, equipment necessary to start mining operations. 50% complete on of now.

2. Supervisor: for the exploratory work will be A. J. Sullivan, Vice President. Sullivan has been in mining, tunnel work, shaft work for the past 25 years. He is the discoverer of claims and performed the present mining work on claims. He has done consulting work for mining companies in this area and has prospected areas for ore for several other companies.

3. Advisors in the purchase and operating equipment will be (1) Aaron Cohen, a member of the Corporation, graduate Civil Engineer N.Y.U. 1921, 30 years experience in tunnel and shaft operations. (2) Russell Sandman, a member of the Corporation, graduate Mech. Engineer Washington University 1927 - 25 years experience in mining and milling equipment

4. Business and office: - will be our Secretary and Treasurer, Robert J. King. M. U. 1932. Law Experience State Rep. of Mo. and a business man.

5. Counsel: Law Firm of Snell & Wilmer, Heard Building, Phoenix, Arizona. Mr. Mark Wilmer, agent for St. Anthony Mining Company.

Form MP-105
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

Estimate of Costs

	No. of Units	Unit Cost	Unit	Total Cost
6.(a) Contracts				
1. Diamond Drilling contract with T. E. Thatcher of Tucson, Arizona	8000	5.50	Ft.	44000.00
2. Core Boxes	500	.30	ea.	150.00
3. Assay of Core & Sludge	250	3.40	sample	850.00
Total for (a)				45000.00
6.(b) Labor Supervision, Consultants time, etc.				
1. Labor of Diamond Drilling - Supervision	4	350.00	month	1400.00
2. Eng. Work				
1. Surveyor	10	50.00	day	500.00
2 Helpers	16	25.00	day	500.00
3. Labor of shaft sinking 292' required	292	50.00	Ft.	14600.00
4. Labor of Driving exploration Drifts	300	30.00	Ft.	9000.00
5. Labor of Plant Set-up				
Compressor				50.00
Blower				50.00
Hoist				100.00
Muck Bin				100.00
Shop Equipment				50.00
6. Replace timbering in old shaft	300	3.00	Ft.	900.00
			Sub-total	27250.00

Form MF-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, Mo.

6.(b)
(Cont'd.)

	No. of Units	Unit Cost	Unit	Total Cost
			Brought Fwd.	27250.00
7. Mining Engineer while sinking shaft and driving Drifts	4	500.00	month	2000.00
8. Trips by President of Corp., to mine	3	500.00	each	1500.00
			Total for (b)	30750.00

6.(c) Operating Materials and Supplies

1. Surveying				
Stakes	50	.30	each	15.00
Sledge Hammers	2	5.00	each	10.00
Note Books	2	3.00	each	6.00
Chain	1	30.00	each	30.00
Axe	1	10.00	each	10.00
Knife	1	5.00	each	5.00
Hatchet	1	5.00	each	5.00
Plumbob	2	5.00	each	10.00
Plumbob String	1	2.00	reel	2.00
Office supplies, paper, etc.	1	20.00	each	20.00
2. Small tools and supplies, materials for drifting and shaft sinking				
Drill Steel	1000	.30	#	300.00
Bits	144	.50	each	72.00
Hose	500	1.50	Ft.	750.00
Valves and fittings	50	2.00	each	100.00
Sledge Hammers	6	5.00	each	30.00
Picks	12	5.00	each	60.00
Shovels	12	4.00	each	48.00
Pipe wrenches	6	4.00	each	24.00
Crescent wrenches	4	4.00	each	16.00
Boots	24	8.00	each	192.00
Hard Hats	24	10.00	each	240.00
Bars (crow)	6	4.00	each	24.00
Gads	6	3.00	each	18.00
Blasting Machine	1	25.00	each	25.00
			Sub-total	2012.00

Form MP-103
Revised April 1952

ST ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

6.(e)
(Cont'd.)

	No. of Units	Unit Cost	Unit	Total Cost
			Brought Fwd.	2012.00
Dynamite	5000	.20	#	1000.00
Caps	2000	.20	each	400.00
Lead Wire	2000	.05	ft.	50.00
Pipe 2" (for air & water)	4000	.30	ft.	1200.00
Fittings	100	.30	each	30.00
Drill Oil	50	.50	gal.	25.00
Underground Rail	800	.50	ft.	400.00
Railroad Ties	200	.50	each	100.00
Spikes	100	.10	#	10.00
Spike Hammer	2	5.00	each	10.00
Spike Bars	2	4.00	each	8.00
Cross cut saws	2	5.00	each	10.00
Timber	10000	.08	bd. ft.	800.00
Bolts & Nuts	300	.50	each	150.00
Lumber	10000	.10	bd. ft.	1000.00
Gasoline	1000	.25	gal.	250.00
Diesel Fuel	500	.15	gal.	75.00
Motor Oil	200	1.00	gal.	200.00
Nails	200	.10	#	20.00
Hand saws	2	10.00	each	20.00
Claw Hammers	4	5.00	each	20.00
Nail Bar	2	2.00	each	4.00
Level	2	5.00	each	10.00
Cement	200	1.00	bag	200.00
Roofing paper	10	10.00	roll	100.00
Repair parts for Jack Hammers	4	50.00	each	200.00
Repair parts for other Hammers	12	10.00	each	120.00
Cable for Hoist	1000	.40	ft.	400.00
Shaft Hooks	3	25.00	each	75.00
Slings	12	5.00	each	60.00
			Total for (e)	8959.00

Form MP-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

6.(d) Operating Equipment	No. of Units	Unit Cost	Unit	Total Cost
Transit Rental	1	50.00	month	50.00
Jeep Rental	6	200.00	month	1200.00
Bull Dozer Rental	1	500.00	month	500.00
500' air compressor	6	500.00	month	3000.00
Pumps (2)	6	50.00	month	600.00
Gasoline Hoist	6	250.00	month	1500.00
Shaft Buckets (2)	4	50.00	month	400.00
Elec. Generator	4	50.00	month	200.00
Blower	6	50.00	month	300.00
Chipping Hammer	3	25.00	month	75.00
Jack Hammers (5)	6	50.00	month	900.00
Muck Car (2)	4	25.00	month	200.00
Air Auger	4	20.00	month	80.00
Chain Saw (air)	4	20.00	month	80.00
			Total for (d)	9085.00

6.(e) Rehabilitation and Repairs

Repair of Buildings on property Dry House, Hoist House and shop		500.00
	Total for (e)	500.00

6.(f) New Buildings, Improvements, Installations

Build Head Frame		1500.00
Wiring for lights		100.00
Improve Roads		500.00
Storage shed for bars		500.00
	Total for (f)	2600.00

6.(g) Miscellaneous
Repair of Equipment

Compressor		100.00
Hoist		100.00
Bull Dozer		100.00
Pumps		50.00
Jeep		100.00
Blower		50.00
	Sub-total	500.00

Form MP-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3585 WATSON ROAD
ST. LOUIS, MO.

6.(g) (Cont'd.)	No. of Units	Unit Cost	Unit	Total Cost
			Brought Fwd.	500.00
Office Work 1 Man	2	300.00	month	600.00
W. C. and Payroll Taxes 10% of Labor Item b)	30750	10%		3075.00
Liability Insurance	6	50.00	month	300.00
Expenses of trips to mine by President	3	500.00	each	1500.00
			Total for (g)	5975.00

6.(h) Contingencies 0.00

a.	45000.00
b.	30750.00
c.	6950.00
d.	9085.00
e.	500.00
f.	2600.00
g.	5975.00
h.	0.00
Grand Total -	$102860.00

Assume - $100,000.00

Request Loan of - $ 50,000.00

7.(a) See Application
7.(b) We propose to furnish our share of the cost by cash. We have in our account at the Bank of Douglas, Phoenix, Arizona $22000.00. This amount will be increased as we progress.

DUPLICATE

Type of Lease LODE

Lease No. 47220-S

State Land Department

STATE OF ARIZONA

MINERAL LEASE

This lease made and entered into this 5th day of June, 19.50, by and between the State Land Department, party of the first part, hereinafter called the lessor, by reason of the authority vested in it by the Arizona Code Annotated, 1939, as amended, and RALPH H. BLACKBURN AND FRANK M. DAKE, PAYSON, ARIZONA party of the second part, hereinafter called the lessee.

W I T N E S S E T H :

The lessor has this day leased to the said lessee, for and in consideration of the rental, royalties, covenants, stipulations and conditions hereinafter contained, and hereby agreed to be paid, observed and performed by the said lessee, for the purpose of extracting and shipping ores and mineral substances from or under the following land to-wit:

Name & Number of Claim	Description	Section	Township	Range	Acreage	Grant	Amount
Blackburn No. 1	In W½ Lot 5	1	12N	14	20	S	

containing 20 acres, more or less, with a total annual rental of SIXTEEN AND 00/100 DOLLARS

TO HAVE AND TO HOLD the same for the period ending the 4th day of June, 19 70.

This lease confers on the lessee the right:

1. To extract and ship minerals, mineral compounds and mineral aggregates, herein also called "minerals" or "ore", from the property above set forth located within planes drawn vertically downward through the exterior boundary lines of each claim;
2. To use so much of the surface as may be required for purposes incident to mining; and
3. Of ingress to and egress from other state lands, whether or not leased for purposes other than mining.

The lessee hereby agrees to pay or cause to be paid to the State Land Commissioner, annually in advance, a rental of $15.00 per annum for each claim or fraction thereof, which shall be credited upon the royalties hereinafter provided, which may become due during such year.

The lessee further agrees to pay as royalty 5% of the net value of the minerals produced from the leased premises, which net value shall be the gross value after processing, if processing is necessary for commercial use, less the actual cost of transportation from the place of production to the place of processing, less costs of processing and taxes, if any, levied and paid upon the production thereof. In the case of minerals not processed for commercial use, the net value shall be the gross proceeds, or gross value at the place of sale or use, less the actual cost of transportation from place of production to the place of sale or use, less taxes, if any, levied and paid upon the production thereof.

5. the amount of taxes levied and paid upon the production of the minerals.

The lessee shall at all times conduct operations in a workmanlike manner, protect all mines and deposits, and not commit nor suffer any waste upon the land. He shall not use nor permit the use of said lands and premises for any other purpose than as herein authorized, and at the expiration of this lease he shall return the premises to the owner in as good condition as received.

3. of ingress to and egress from other state lands, whether or not leased for purposes other than mining.

The lessee hereby agrees to pay or cause to be paid to the State Land Commissioner for the use and benefit of the leased lands, annually in advance, a rental of Fifteen ($15.00) Dollars per annum for each claim, or fraction thereof.

The lessee further agrees to pay as royalty five per cent of the net smelter or mint returns received from ores or mineral substances produced from the claim or claims. The net smelter or mint returns shall be deemed to be the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale, less the actual cost of transportation from the source of production to the place of treatment and sale, less smelter and other customs treatment charges and penalties, and less taxes, if any, levied and paid upon the production of minerals.

So that the state may be properly advised of the removal of ores and mineral substances from the lands involved in this lease, the lessee agrees to file with the State Land Commissioner, within twenty (20) days after the removal of any such ores or mineral substances, an authenticated statement of the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale.

The lessee agrees to pay all royalties under this lease to the State Land Commissioner within twenty (20) days after the close of each month within which the minerals were extracted; such payments will be accompanied by a sworn statement showing:

1. the amount of ore mined during the preceding month;
2. the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale;
3. the actual cost of transportation from the source of production to the place of treatment and sale;
4. the smelter and other customs treatment charges and penalties; and
5. the amount of taxes levied and paid upon the production of the minerals.

The lessee shall at all times conduct operations in a workmanlike manner, protect all mines and deposits, and not commit nor suffer any waste upon the land. He shall not use nor permit the use of said lands and premises for any other purpose than as herein authorized, and at the expiration of this lease he shall return the premises to the owner in as good condition as received.

The lessee shall keep an accurate account of said operations showing the amount of mineral mined or extracted and all mineral shipped, smelted, used, or disposed of, the cost of such operations, and the gross value of the output of the minerals at the mine. The State Land Commissioner and other proper representatives of the department shall have the right at all times during the existence of this lease, and for six months thereafter, to make such reasonable examinations of the papers and books of account of the said lessee and of the mines as may be necessary to obtain all information desired.

This lease confers the right to the lessee to construct necessary improvements, including the installation of necessary machinery and equipment, with the right to remove the same upon the expiration, termination, or abandonment of the lease, if all monies owing to the state under the terms of this lease have been paid. There is hereby created a lien on all implements, tools, movable machinery, and other personal chattels belonging to the lessee and used in the mining operations, and upon all minerals obtained from the land leased herein, as security for the payment of all monies owed the state under the terms of this lease.

The lessee agrees that, should he sell, mortgage, or assign this lease, it will be without prejudice to the state, and that such transaction shall not become effective until a copy thereof is filed with the State Land Commissioner and his written consent thereto secured.

The lessee may, however, surrender the lease for cancellation with the consent of the lessor, and all royalties and other obligations due and accrued to date of completion of application for cancellation, in addition to a fee of One ($1.00) Dollar, must be paid and discharged before such an applicantion for cancellation will be considered, provided that, if the lease has been recorded, the lessee or assignee shall execute a release, record the same in the proper recording office and file the release with the State Land Commissioner. An application for cancellation will be considered as completed on the date such application is filed in the office of the State Land Commissioner provided the foregoing requirements have been fully observed.

In the event of failure or neglect of the lessee to perform any obligation under this lease, the lessor shall have the right at any time to cancel this lease unless, within thirty (30) days after notice specifying the terms and conditions violated, the lessee shall correct such failure and make good any loss caused thereby.

The lessee agrees to perform the annual labor, as required by the laws of the United States, upon each claim, commencing at the expiration of one year from the date of location, and that he will furnish proof of such annual labor to the State Land Commissioner.

The lessee agrees to fence all shafts, prospect holes, adits, tunnels and other dangerous mine workings for the protection of livestock.

This lease is made and accepted subject to existing law and any laws hereafter enacted, also to the regulations relative to such leases heretofore or hereafter prescribed by the lessor; and in no event shall the state or the lessor be liable in damages or otherwise under the provisions hereof.

The lessee shall not keep livestock of any kind on the lands leased herein except by permission from the State Land Commissioner at such rates as may from time to time be established.

The lessee has the right, under this lease, to the cutting and use of timber and stone upon the claim, not otherwise appropriated, for fuel, construction of necessary improvements, or for drains, roadways, tramways, supports, or other necessary purposes; provided, that nothing herein contained shall be construed to permit the cutting of timber for any purpose without the written consent of the State Land Commissioner.

It is understood and agreed that this lease is made subject to all legally established rights of way herefore granted or that may hereafter be granted over and across such land; and the lessee agrees to respect the property rights of all persons lawfully upon the demised premises.

It is expressly understood and agreed that there is reserved to the state the right to lease, under existing law or laws hereafter enacted, so much of the surface of the lands covered by this lease as is not actually used or necessary for mining purposes.

The obligations and agreements hereinbefore expressed shall extend to and be binding upon the successors in interest of the parties hereto.

IN WITNESS WHEREOF, the lessor has caused these presents to be signed by the legal representative of the State Land Department, at Phoenix, Arizona, and the lessee has hereunto affixed his signature at the place and on the day and year first above written.

STATE LAND DEPARTMENT

By ..... State Land Commissioner.

(SEAL)

By ..... Deputy State Land Commissioner.

(Sign Here) .....

.....
Party of the Second Part

This lease is issued in duplicate.

ASSIGNMENT OF LEASE

Phoenix, Arizona April 12, 1954

The application of Ralph H. Blackburn & Ercel Blackburn, his wife & Frank M. Dake & Inga F. Dake, his wife for permission to assign Lease No. M-47220 and the application of Anthony J. Sullivan, a married man for the assumption of said Lease, having been duly considered this 12th day of April, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47220 and all rights thereunder be and are hereby transferred to the said Anthony J. Sullivan, 1208 N. Oak Leaf Drive, Phoenix, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona April 12, 1954

The application of Anthony J. Sullivan, & Mary Sullivan, his wife for permission to assign Lease No. M-47220 and the application of St. Anthony Mining Co., a corporation for the assumption of said Lease, having been duly considered this 12th day of April, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47220 and all rights thereunder be and are hereby transferred to the said St. Anthony Mining Company, 703 Heard Bldg., Phoenix, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona

The application of

for permission to assign Lease No. and the application of

for the assumption of said Lease, having been duly considered this day of, 19 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. and all rights thereunder be and are hereby transferred to the said

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona

The application of

for permission to assign Lease No. and the application of

for the assumption of said Lease, having been duly considered this day of, 19 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. and all rights thereunder be and are hereby transferred to the said

State Land Commissioner.

By

Deputy State Land Commissioner.

Phoenix, Arizona April 25, 1951

The application of Ralph H. Blackburn and Ercell G. Blackburn, his wife & Frank M. Dake for permission to assign Lease No. 47220-S and the application of Upshot Mines, Inc., a corporation for the assumption of said Lease, having been duly considered this 25th day of April, 1951 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47220-S and all rights thereunder be and are hereby transferred to the said Upshot Mines, Inc., c/o Joseph P. Ralston, 514 Title & Trust Bldg., Phoenix, Arizona

ORIGINAL RETURNED

State Land Commissioner.

By Deputy State Land Commissioner.

Written by: MKS

Checked by:

Date Mailed: 8/24/53

ASSIGNMENT OF LEASE

Phoenix, Arizona August 24, 1953

The application of Upshot Mines, Inc., an Arizona corporation for permission to assign Lease No. and the application of Ralph H. Blackburn and Frank M. Dake for the assumption of said Lease, having been duly considered this 24th day of August, 1953 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47220 and all rights thereunder be and are hereby transferred to the said Ralph H. Blackburn and Frank M. Dake, Mayer, Arizona

State Land Commissioner.

By Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona February 10, 1954

The application of Ralph H. Blackburn and Ercel Blackburn, husband and wife and Frank M. Dake and Inga F. Dake, his wife and the application of Anthony J. Sullivan for permission to assign Lease No. 47220-S for the assumption of said Lease, having been duly considered this day of February, 1954 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47220-S and all rights thereunder be and are hereby transferred to the said Anthony J. Sullivan

State Land Commissioner.

By Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona February 12, 1954

The application of Anthony J. Sullivan and Mary Sullivan, his wife, for permission to assign Lease No. 47220-S and the application of St. Anthony Mining Co. a corporation, for the assumption of said Lease, having been duly considered this day of February, 1954 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47220-S and all rights thereunder be and are hereby transferred to the said St. Anthony Mining Co.

State Land Commissioner.

By Deputy State Land Commissioner.

ORIGINAL

Type of Lease 47176- Lease No. 47176-S

State Land Department

STATE OF ARIZONA

MINERAL LEASE

This lease made and entered into this 16th day of May, 19 50, by and between the State Land Department, party of the first part, hereinafter called the lessor, by reason of the authority vested in it by the Arizona Code Annotated, 1939, as amended, and RALPH H. BLACKBURN & FRANK M. DAKE Mayer, Arizona party of the second part, hereinafter called the lessee.

W I T N E S S E T H :

The lessor has this day leased to the said lessee, for and in consideration of the rental, royalties, covenants, stipulations and conditions hereinafter contained, and hereby agreed to be paid, observed and performed by the said lessee, for the purpose of extracting and shipping ores and mineral substances from or under the following land to-wit:

Name & Number of Claim	Description	Section	Township	Range	Acreage	Grant	Amount
Blackburn No. 2	S½SW NW	16	12N	1E	20.	S	

containing 20 acres, more or less, with a total annual rental of FIFTEEN AND 00/100 DOLLARS

TO HAVE AND TO HOLD the same for the period ending the 15th day of May, 19 70.

This lease confers the right to the lessee:

1. to extract and ship ores and mineral substances from the property, above set forth, located within planes drawn vertically through the exterior boundary lines thereof;
2. to use so much of the surface as may be required incident to mining; and
3. of ingress to and egress from other state lands, whether or not leased for purposes other than mining.

The lessee hereby agrees to pay or cause to be paid to the State Land Commissioner for the use and benefit of the leased lands, annually in advance, a rental of Fifteen ($15.00) Dollars per annum for each claim, or fraction thereof.

The lessee further agrees to pay as royalty five per cent of the net smelter or mint returns received from ores or mineral substances produced from the claim or claims. The net smelter or mint returns shall be deemed to be the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale, less the actual cost of transportation from the source of production to the place of treatment and sale, less smelter and other customs treatment charges and penalties, and less taxes, if any, levied and paid upon the production of minerals.

So that the state may be properly advised of the removal of ores and mineral substances from the lands involved in this lease, the lessee agrees to file with the State Land Commissioner, within twenty (20) days after the removal of any such ores or mineral substances, an authenticated statement of the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale.

The lessee agrees to pay all royalties under this lease to the State Land Commissioner within twenty (20) days after the close of each month within which the minerals were extracted; such payments will be accompanied by a sworn statement showing:

1. the amount of ore mined during the preceding month;
2. the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale;
3. the actual cost of transportation from the source of production to the place of treatment and sale;
4. the smelter and other customs treatment charges and penalties; and
5. the amount of taxes levied and paid upon the production of the minerals.

The lessee shall at all times conduct operations in a workmanlike manner, protect all mines and deposits, and not commit nor suffer any waste upon the land. He shall not use nor permit the use of said lands and premises for any other purpose than as herein authorized, and at the expiration of this lease he shall return the premises to the owner in as good condition as received.

The lessee shall keep an accurate account of said operations showing the amount of mineral mined or extracted and all mineral shipped, smelted, used, or disposed of, the cost of such operations, and the gross value of the output of the minerals at the mine. The State Land Commissioner and other proper representatives of the department shall have the right at all times during the existence of this lease, and for six months thereafter, to make such reasonable examinations of the papers and books of account of the said lessee and of the mines as may be necessary to obtain all information desired.

This lease confers the right to the lessee to construct necessary improvements, including the installation of necessary machinery and equipment, with the right to remove the same upon the expiration, termination, or abandonment of the lease, if all monies owing to the state under the terms of this lease have been paid. There is hereby created a lien on all implements, tools, movable machinery, and other personal chattels belonging to the lessee and used in the mining operations, and upon all minerals obtained from the land leased herein, as security for the payment of all monies owed the state under the terms of this lease.

The lessee agrees that, should he sell, mortgage, or assign this lease, it will be without prejudice to the state, and that such transaction shall not become effective until a copy thereof is filed with the State Land Commissioner and his written consent thereto secured.

The lessee may, however, surrender the lease for cancellation with the consent of the lessor, and all royalties and other obligations due and accrued to date of completion of application for cancellation, in addition to a fee of One ($1.00) Dollar, must be paid and discharged before such an applicantion for cancellation will be considered, provided that, if the lease has been recorded, the lessee or assignee shall execute a release, record the same in the proper recording office and file the release with the State Land Commissioner. An application for cancellation will be considered as completed on the date such application is filed in the office of the State Land Commissioner provided the foregoing requirements have been fully observed.

In the event of failure or neglect of the lessee to perform any obligation under this lease, the lessor shall have the right at any time to cancel this lease unless, within thirty (30) days after notice specifying the terms and conditions violated, the lessee shall correct such failure and make good any loss caused thereby.

The lessee agrees to perform the annual labor, as required by the laws of the United States, upon each claim, commencing at the expiration of one year from the date of location, and that he will furnish proof of such annual labor to the State Land Commissioner.

The lessee agrees to fence all shafts, prospect holes, adits, tunnels and other dangerous mine workings for the protection of livestock.

This lease is made and accepted subject to existing law and any laws hereafter enacted, also to the regulations relative to such leases heretofore or hereafter prescribed by the lessor; and in no event shall the state or the lessor be liable in damages or otherwise under the provisions hereof.

The lessee shall not keep livestock of any kind on the lands leased herein except by permission from the State Land Commissioner at such rates as may from time to time be established.

The lessee has the right, under this lease, to the cutting and use of timber and stone upon the claim, not otherwise appropriated, for fuel, construction of necessary improvements, or for drains, roadways, tramways, supports, or other necessary purposes; provided, that nothing herein contained shall be construed to permit the cutting of timber for any purpose without the written consent of the State Land Commissioner.

It is understood and agreed that this lease is made subject to all legally established rights of way herefore granted or that may hereafter be granted over and across such land; and the lessee agrees to respect the property rights of all persons lawfully upon the demised premises.

It is expressly understood and agreed that there is reserved to the state the right to lease, under existing law or laws hereafter enacted, so much of the surface of the lands covered by this lease as is not actually used or necessary for mining purposes.

The obligations and agreements hereinbefore expressed shall extend to and be binding upon the successors in interest of the parties hereto.

IN WITNESS WHEREOF, the lessor has caused these presents to be signed by the legal representative of the State Land Department, at Phoenix, Arizona, and the lessee has hereunto affixed his signature at the place and on the day and year first above written.

STATE LAND DEPARTMENT

By ..... State Land Commissioner.

(SEAL)

By ..... Deputy State Land Commissioner.

(Sign Here) Ralph H. Blackburn

Frank M. Drake
Party of the Second Part

This lease is issued in duplicate.

ASSIGNMENT OF LEASE

Phoenix, Arizona April 12, 1954

The application of Ralph H. & Ercel Blackburn, husband & wife, & Frank M. & Inga F. Dake, his wife for permission to assign Lease No. M-47176 and the application of Anthony J. Sullivan, a married man for the assumption of said Lease, having been duly considered this 12th day of April, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47176 and all rights thereunder be and are hereby transferred to the said Anthony J. Sullivan, 1208 N. Oak Leaf Drive, Phoenix, Arizona

State Land Commissioner.

By Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona April 12, 1954

The application of Anthony J. Sullivan & Mary Sullivan, his wife for permission to assign Lease No. M-47176 and the application of St. Anthony Mining Co., a corporation for the assumption of said Lease, having been duly considered this 12th day of April, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47176 and all rights thereunder be and are hereby transferred to the said St. Anthony Mining Company, 703 Heard Bldg., Phoenix, Arizona

State Land Commissioner.

By Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona

The application of

for permission to assign Lease No. and the application of

for the assumption of said Lease, having been duly considered this day of , 19 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. and all rights thereunder be and are hereby transferred to the said

State Land Commissioner.

By Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona

The application of

for permission to assign Lease No. and the application of

for the assumption of said Lease, having been duly considered this day of , 19 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. and all rights thereunder be and are hereby transferred to the said

State Land Commissioner.

By Deputy State Land Commissioner.

Phoenix, Arizona April 25, 1951

The application of Ralph H. Blackburn and Ercell G. Blackburn, his wife & Frank M. Dake for permission to assign Lease No. 47176-S and the application of Upshot Mines, Inc., a corporation for the assumption of said Lease, having been duly considered this 25th day of April, 19 51 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47176-S and all rights thereunder be and are hereby transferred to the said Upshot Mines, Inc., c/o Joseph P. Ralston, 514 Title & Trust Bldg., Phoenix, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona August 24, 1953

The application of Upshot Mines, Inc., an Arizona corporation for permission to assign Lease No. M-47176 and the application of Ralph H. Blackburn and Frank M. Dake for the assumption of said Lease, having been duly considered this 24th day of August, 19 53 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47176 and all rights thereunder be and are hereby transferred to the said Ralph H. Blackburn and Frank M. Dake, Mayer, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona February 10, 1954

The application of Ralph H. Blackburn and Ercell G. Blackburn, his wife, and Frank M. Dake and Inga F. Dake, his wife, for permission to assign Lease No. 47176-S and the application of Anthony J. Sullivan for the assumption of said Lease, having been duly considered this day of February, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47176-S and all rights thereunder be and are hereby transferred to the said Anthony J. Sullivan

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona February 12, 1954

The application of Anthony J. Sullivan and Mary Sullivan, his wife for permission to assign Lease No. 47176-S and the application of St. Anthony Mining Co. a corporation for the assumption of said Lease, having been duly considered this day of February, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47505-S and all rights thereunder be and are hereby transferred to the said St. Anthony Mining Co.

State Land Commissioner.

By

Deputy State Land Commissioner.

ORIGINAL

Type of Lease Lode Lease No. 47505 S

State Land Department

STATE OF ARIZONA

MINERAL LEASE

This lease made and entered into this 8th day of January, 19 71, by and between the State Land Department, party of the first part, hereinafter called the lessor, by reason of the authority vested in it by the Arizona Code Annotated, 1939, as amended, and RALPH R. LACKREN AND FRANK T. DAKE, Mayer, Ariz., party of the second part, hereinafter called the lessee.

W I T N E S S E T H :

The lessor has this day leased to the said lessee, for and in consideration of the rental, royalties, covenants, stipulations and conditions hereinafter contained, and hereby agreed to be paid, observed and performed by the said lessee, for the purpose of extracting and shipping ores and mineral substances from or under the following land to-wit:

Name & Number of Claim	Description	Section	Township	Range	Acreage	Grant	Amount
See Insert Sheet for description							

containing 80 acres, more or less, with a total annual rental of SIXTY AND 00/100 ($60.00)

TO HAVE AND TO HOLD the same for the period ending the 7th day of January, 1971

This lease confers on the lessee the right:

1. To extract and ship minerals, mineral compounds and mineral aggregates, herein also called "minerals" or "ore", from the property above set forth located within planes drawn vertically downward through the exterior boundary lines of each claim;
2. To use so much of the surface as may be required for purposes incident to mining; and
3. Of ingress to and egress from other state lands, whether or not leased for purposes other than mining.

The lessee hereby agrees to pay or cause to be paid to the State Land Commissioner, annually in advance, a rental of $15.00 per annum for each claim or fraction thereof, which shall be credited upon the royalties hereinafter provided, which may become due during such year.

The lessee further agrees to pay as royalty 5% of the net value of the minerals produced from the leased premises, which net value shall be the gross value after processing, if processing is necessary for commercial use, less the actual cost of transportation from the place of production to the place of processing, less costs of processing and taxes, if any, levied and paid upon the production thereof. In the case of minerals not processed for commercial use, the net value shall be the gross proceeds, or gross value at the place of sale or use, less the actual cost of transportation from place of production to the place of sale or use, less taxes, if any, levied and paid upon the production thereof.

3. of ingress to and egress from other state lands, whether or not leased for purposes other than mining.

The lessee hereby agrees to pay or cause to be paid to the State Land Commissioner for the use and benefit of the leased lands, annually in advance, a rental of Fifteen ($15.00) Dollars per annum for each claim, or fraction thereof.

The lessee further agrees to pay as royalty five per cent of the net smelter or mint returns received from ores or mineral substances produced from the claim or claims. The net smelter or mint returns shall be deemed to be the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale, less the actual cost of transportation from the source of production to the place of treatment and sale, less smelter and other customs treatment charges and penalties, and less taxes, if any, levied and paid upon the production of minerals.

So that the state may be properly advised of the removal of ores and mineral substances from the lands involved in this lease, the lessee agrees to file with the State Land Commissioner, within twenty (20) days after the removal of any such ores or mineral substances, an authenticated statement of the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale.

The lessee agrees to pay all royalties under this lease to the State Land Commissioner within twenty (20) days after the close of each month within which the minerals were extracted; such payments will be accompanied by a sworn statement showing:

1. the amount of ore mined during the preceding month;
2. the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale;
3. the actual cost of transportation from the source of production to the place of treatment and sale;
4. the smelter and other customs treatment charges and penalties; and
5. the amount of taxes levied and paid upon the production of the minerals.

The lessee shall at all times conduct operations in a workmanlike manner, protect all mines and deposits, and not commit nor suffer any waste upon the land. He shall not use nor permit the use of said lands and premises for any other purpose than as herein authorized, and at the expiration of this lease he shall return the premises to the owner in as good condition as received.

STATE LAND DEPARTMENT

PHOENIX, ARIZONA

SUPPLEMENT TO
LEASE NO. 475.05
3

RALPH H. BLACKBURN ET AL

MAYER ARIZONA

SHEET _____ OF _____ SHEETS

GR.	DESCRIPTION	SEC.	TWP.	RANGE		ACREAGE	IMP.
[illegible]	W½ SE NW	16	12 N	1 E		20.00	
[illegible]	NE SW NW	16	12 N	1 E		20.00	
[illegible]	NW NW NW	16	12 N	1 E		20.00	
[illegible]	NE NW NW	16	12 N	1 E		20.00	

Ralph H. Blackburn

(P) R ✓ Frank M. Drake — James A. Bumgardner — 1-27-51

SIGNATURE OF LESSEE — DATE — STATE LAND COMMISSIONER — DATE

The lessee shall keep an accurate account of said operations showing the amount of mineral mined or extracted and all mineral shipped, smelted, used, or disposed of, the cost of such operations, and the gross value of the output of the minerals at the mine. The State Land Commissioner and other proper representatives of the department shall have the right at all times during the existence of this lease, and for six months thereafter, to make such reasonable examinations of the papers and books of account of the said lessee and of the mines as may be necessary to obtain all information desired.

This lease confers the right to the lessee to construct necessary improvements, including the installation of necessary machinery and equipment, with the right to remove the same upon the expiration, termination, or abandonment of the lease, if all monies owing to the state under the terms of this lease have been paid. There is hereby created a lien on all implements, tools, movable machinery, and other personal chattels belonging to the lessee and used in the mining operations, and upon all minerals obtained from the land leased herein, as security for the payment of all monies owed the state under the terms of this lease.

The lessee agrees that, should he sell, mortgage, or assign this lease, it will be without prejudice to the state, and that such transaction shall not become effective until a copy thereof is filed with the State Land Commissioner and his written consent thereto secured.

The lessee may, however, surrender the lease for cancellation with the consent of the lessor, and all royalties and other obligations due and accrued to date of completion of application for cancellation, in addition to a fee of One ($1.00) Dollar, must be paid and discharged before such an applicantion for cancellation will be considered, provided that, if the lease has been recorded, the lessee or assignee shall execute a release, record the same in the proper recording office and file the release with the State Land Commissioner. An application for cancellation will be considered as completed on the date such application is filed in the office of the State Land Commissioner provided the foregoing requirements have been fully observed.

In the event of failure or neglect of the lessee to perform any obligation under this lease, the lessor shall have the right at any time to cancel this lease unless, within thirty (30) days after notice specifying the terms and conditions violated, the lessee shall correct such failure and make good any loss caused thereby.

The lessee agrees to perform the annual labor, as required by the laws of the United States, upon each claim, commencing at the expiration of one year from the date of location, and that he will furnish proof of such annual labor to the State Land Commissioner.

The lessee agrees to fence all shafts, prospect holes, adits, tunnels and other dangerous mine workings for the protection of livestock.

This lease is made and accepted subject to existing law and any laws hereafter enacted, also to the regulations relative to such leases heretofore or hereafter prescribed by the lessor; and in no event shall the state or the lessor be liable in damages or otherwise under the provisions hereof.

The lessee shall not keep livestock of any kind on the lands leased herein except by permission from the State Land Commissioner at such rates as may from time to time be established.

The lessee has the right, under this lease, to the cutting and use of timber and stone upon the claim, not otherwise appropriated, for fuel, construction of necessary improvements, or for drains, roadways, tramways, supports, or other necessary purposes; provided, that nothing herein contained shall be construed to permit the cutting of timber for any purpose without the written consent of the State Land Commissioner.

It is understood and agreed that this lease is made subject to all legally established rights of way herefore granted or that may hereafter be granted over and across such land; and the lessee agrees to respect the property rights of all persons lawfully upon the demised premises.

It is expressly understood and agreed that there is reserved to the state the right to lease, under existing law or laws hereafter enacted, so much of the surface of the lands covered by this lease as is not actually used or necessary for mining purposes.

The obligations and agreements hereinbefore expressed shall extend to and be binding upon the successors in interest of the parties hereto.

IN WITNESS WHEREOF, the lessor has caused these presents to be signed by the legal representative of the State Land Department, at Phoenix, Arizona, and the lessee has hereunto affixed his signature at the place and on the day and year first above written.

STATE LAND DEPARTMENT

By .....
State Land Commissioner.

(SEAL)

By Jann B. Burger
Deputy State Land Commissioner.

(Sign Here) Ralph H. B. Lockburn

Frank M. Drake
Party of the Second Part

This lease is issued in duplicate.

ASSIGNMENT OF LEASE

Phoenix, Arizona April 12, 1954

The application of Ralph H. & Ercel Blackburn, husband & wife & Frank M. & Inga F. Dake, (husband & wife
for permission to assign Lease No. M-47505 and the application of
Anthony J. Sullivan, a married man for the assumption of said Lease, having been
duly considered this 12th day of April, 19 54
and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47505 and all rights thereunder be and are hereby transferred to the said Anthony J. Sullivan, 1208 N. Oak Leaf Dr., Phoenix, Arizona

State Land Commissioner.

By
Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona April 12, 1954

The application of Anthony J. Sullivan & Mary Sullivan, his wife
for permission to assign Lease No. M-47505 and the application of
St. Anthony Mining Co., a corporation for the assumption of said Lease, having been
duly considered this 12th day of April, 19 54
and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47505 and all rights thereunder be and are hereby transferred to the said St. Anthony Mining Company, Phoenix, Arizona

State Land Commissioner.

By
Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona

The application of
for permission to assign Lease No. and the application of
for the assumption of said Lease, having been
duly considered this day of, 19
and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. and all rights thereunder be and are hereby transferred to the said

State Land Commissioner.

By
Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona

The application of
for permission to assign Lease No. and the application of
for the assumption of said Lease, having been
duly considered this day of, 19
and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. and all rights thereunder be and are hereby transferred to the said

State Land Commissioner.

By
Deputy State Land Commissioner.

Phoenix, Arizona April 25, 1951

The application of Ralph H. Blackburn and Ercell G. Blackburn, his wife & Frank M. Dake for permission to assign Lease No. 47505-S and the application of Upshot Mines, Inc., a corporation for the assumption of said Lease, having been duly considered this 25th day of April, 19 51 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47505-S and all rights thereunder be and are hereby transferred to the said Upshot Mines, Inc., c/o Joseph P. Ralston, 514 Title & Trust Bldg., Phoenix, Arizone

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona August 24, 1953

The application of Upshot Mines, Inc., an Arizona corporation for permission to assign Lease No. M-47505 and the application of Ralph H. Blackburn and Frank M. Dake for the assumption of said Lease, having been duly considered this 24th day of August, 19 53 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47505 and all rights thereunder be and are hereby transferred to the said Ralph H. Blackburn and Frank M. Dake, Mayer, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona February 10, 1954

The application of Ralph H. Blackburn and Ercell G. Blackburn, his wife, and Frank M. Dake and Inga F. Dake, his wife, for permission to assign Lease No. 47505-S and the application of Anthony J. Sullivan for the assumption of said Lease, having been duly considered this day of February, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47505S and all rights thereunder be and are hereby transferred to the said Anthony J. Sullivan

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona February 12, 1954

The application of Anthony J. Sullivan and Mary Sullivan, his wife, for permission to assign Lease No. 47505-S and the application of St. Anthony Mining Co. a corporation for the assumption of said Lease, having been duly considered this day of February, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47505-S and all rights thereunder be and are hereby transferred to the said St. Anthony Mining Co.

State Land Commissioner.

By

Deputy State Land Commissioner.

WESTERN UNION

SA084 LB002
L. PTA 009 DL PD_ PRESCOTT ARIZ. 13 944 AMM

ROY GUNTHER
%) 5052 OLEATHA AVE. ST.L.

MINING DEED. R D TERRELL TO A SULLIVAN DATED FEB. 10, 1954 BOOK 29 OFFICIAL RECORDS PAGES 65-66 CONVEYING COPPER GULCH MINING CLAIM AND COPPER GULCH NO. 1. MINING DEED A SULLIVAN TO ST. ANTHONY MINING CO. DATED FEB. 12, 1954 RECORDED APRIL 10, 1954 BOOK 29 OFFICIAL RECORDS PAGES 67-68 CONVEYING COPPER GULCH AND COPPER GULCH NO. 1 MINING CLAIMS.

GRACE CHAPMAN COUNTY RECORDER

MINING DEED

THIS INDENTURE, made the 12th day of February, 1954, by and between A. SULLIVAN, also known as ANTHONY J. SULLIVAN, of the State of Arizona, first party, and ST. ANTHONY MINING CO., a corporation, of the same place, second party,

W I T N E S S E T H:

That the said first party, for and in consideration of the sum of Ten Dollars ($10), lawful money of the United States of America, to him in hand paid by the said second party, the receipt whereof is hereby acknowledged, has granted, bargained, sold, remised, released and forever quitclaimed, and by these presents does grant, bargain, sell, remise, release, and forever quitclaim unto the said second party, and to its successors and assigns all those certain unpatented mining claims located in the Big Bug Mining District as indicated, Yavapai County, Arizona, the location notices of which are recorded in the Office of the County Recorder of said County in Books and pages as follows:

Name of Claim	Book	Page
Copper Gulch	156	488
Copper Gulch No. 1	156	489

TOGETHER with all the dips, spurs, and angles, and also all the metals, ores, gold and silver-bearing quartz, rock and earth therein; and all the rights, privileges and franchises thereto incident, appendant and appurtenant, or therewith usually had and enjoyed; and also, all and singular the tenements, hereditaments and appurtenances thereto

belonging, and otherwise appertaining, and the rents, issues and profits thereof, and also all the estate, right, title, interest, property, possession, claim and demand whatsoever, as well in law as in equity, of the said first party, of, in or to the said premises and every part and parcel thereto with the appurtenances.

TO HAVE AND TO HOLD, all and singular, the said premises, together with the appurtenances and privileges thereunto incident, unto the said second party, its successors and assigns forever.

IN WITNESS WHEREOF, the said first party has hereunto set his hand the day and year first above written.

A. Sullivan, also known as Anthony J. Sullivan

STATE OF ARIZONA)
County of Maricopa) ss.

Before me, the undersigned Notary Public, on this day personally appeared A. SULLIVAN, also known as Anthony J. Sullivan, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged that he executed the same for the purposes and consideration therein expressed.

GIVEN under my hand seal of office, this 12th day of February, 1954.

Notary Public

My commission expires:

June 16, 1955

QUITCLAIM DEED

THIS INDENTURE, Made the 10th day of February, 1984, between [illegible] L. L. TIRRILL, of the State of Arizona, first party, and [illegible] SHIELDS, of the same place, second party.

WITNESSETH:

That the said first party, for and in consideration of the sum of Three Thousand ($3,000.00) Dollars, lawful money of the United States of America, to him in hand paid by the said second party, the receipt whereof is hereby acknowledged, has granted, bargained, sold, remised, released and forever quit-claimed, and by these presents does grant, bargain, sell, remise, release, and forever quit-claim unto the said second party, and to his heirs and assigns all those certain unpatented mining claims located in the Big Bug Mining District as indicated, Yavapai County, Arizona, the location notices of which are recorded in the Office of the County Recorder of said County in Books and pages as follows:

Name of Claim	Book	Page
Copper Gulch	156	488
Copper Gulch No. 1	156	489

TOGETHER with all the dips, spurs, and angles, and also all the metals, ores, gold and silver-bearing quartz, rock and earth therein; and all the rights, privileges and franchises thereto incident, appendant and appurtenant, or therewith usually had and enjoyed; and also, all and singular the tenements, hereditaments and appurtenances thereto belonging, and otherwise appertaining, and the rents, issues and profits thereof, and also all the estate, right, title, interest, property, possession, claim and demand whatsoever, as well in law as in equity, of the said first party, of, in or to the said premises and every part and parcel thereto with the appurtenances.

TO HAVE AND TO HOLD, all and singular, the said premises, together with the appurtenances and privileges thereunto incident, unto the said second party, his heirs and assigns forever.

IN WITNESS WHEREOF, the said first party has hereunto set his hand the day and year first above written.

R. D. Terrell

STATE OF ARIZONA)
) ss
County of Yavapai)

Before me, the undersigned Notary Public, on this day personally appeared R. D. TERRELL, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged that he executed the same for the purposes and consideration therein expressed.

GIVEN under my hand and seal of office this 5th day of February, 1954.

J. J. Slamon
Notary Public

My Commission Expires:
MY COMMISSION EXPIRES SEPT. 2[illegible] 1954

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

Mining Division
Rec'd
APR 1954
BUREAU OF MINES
Denver, Colorado

April 10, 1954

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 29 1954

Executive Officer DMEA
224 New Customhouse Building
Denver 2, Colorado

Dear Sir:

Please find attached our application on form MF-103 for aid in an exploration project, pursuant to DMEA order 1, under the Defense Production Act of 1950 as amended April 1952.

As indicated, the proposed work of exploration is estimated to cost $100,000.00 and therefore would respectfully ask for a loan under the above provisions of DMEA order 1 of $50,000.00.

We have started our proposed work and therefore hope to get an early answer. All of the enclosures may be kept by you for your files.

If we can give you further information, please be free to call us.

Yours very truly,

ST. ANTHONY MINING COMPANY

Roy J. Gunther

Roy J. Gunther
President

RJG:je
Encls.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Form Approved.
Budget Bureau No. 42-R1035.2.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 29 1954

APPLICATION FOR AID IN AN EXPLORATION PROJECT, PURSUANT TO DMEA ORDER 1, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

Not to be filled in by applicant

Docket No. 3328
Metal or Mineral Copper
Date Received
Estimated Cost $100,000
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: ST. ANTHONY MINING COMPANY, an Arizona Corporation, 3525 Watson Road, St. Louis, Mo.

(*b*) If other than an individual, add to your name above whether a corporation, partnership, etc., and the name of the State in which incorporated or otherwise organized. An Arizona Corporation

(*c*) If a corporation, add to above statement, titles, names and addresses of officers. See attached paper

(*d*) If a partnership, add to the above statement the names and addresses of all partners. A Corporation

2. *General.*—Read DMEA Order 1, "Government Aid in Defense Exploration Projects," before completing this application. Submit this application and all accompanying papers in quadruplicate (four copies), with your name and address on each sheet of the application and on all accompanying papers. Where sufficient space is not provided on the form for all required information, state it on an accompanying paper, with a reference in each case to the instruction to which it refers by number. Comply with all applicable instructions; or, if not applicable, so state. File the application with Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest field executive officer thereof. See attached paper.

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract Our property lies primarily in Sec. 16 T12 R1E in Yapavai County, Arizona. See accompanying map of claims in Sec. 16 as well as ajoining claims and those under option.

(*b*) State any mine name by which the property is known. Upshot Mine

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Lessee of State and Government land.

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property. Copies of leases are attached.

(*e*) If you own the land, describe any liens or encumbrances on it Do not own land.

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. See attached paper.

4. *Physical description.*—(*a*) Describe in detail any mining or exploration operations which have been or now are being conducted upon the land, including existing mine workings and production facilities. State your interest, if any, in such operations. Also describe accessibility of mine workings for examination purposes. See attached paper.

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. See attached paper.

(*c*) Describe the geologic features of the property, including mineralization, type of deposit (vein, bedded, etc.), and your reasons for wishing to explore. Illustrate with maps or sketches. Send with your application (but not necessarily as a part of it) any geologic or engineering report, assay maps, or other technologic information you may have, indicating on each whether you require its return to you. See attached paper.

(*d*) State the facts with respect to the accessibility of the project: Access roads, distances to shipping, supply and residence points. See attached paper.

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power. See attached paper.

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore Copper, there are also Lead, Silver and Gold in lesser quantities.

(*b*) Describe fully the proposed work, including a map or sketch of the property showing a plan (and cross sections if needed) of any present mine workings, and the location of the proposed exploration work as related to such features as contacts, veins, ore-bearing beds, etc. See attached paper.

(*c*) The work will start within 1 days and be completed within 18 months from the date of an exploration project contract.

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations. See attached paper.

6. *Estimate of costs.*—Furnish a detailed estimate of the costs of the proposed work (you will have to use a separate sheet), under the following headings. Add the totals under all headings to give the estimated total cost of the project: See attached paper.

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.). See attached paper.

(*b*) *Labor, supervision, consultants.*—Include an itemized schedule of numbers, classes and rates of wages, salaries or fees for necessary labor, supervision and engineering and geological consultants. See attached paper.

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel. See attached paper.

(*d*) *Operating equipment.*—Furnish an itemized list of any operating equipment to be rented, purchased, or which is owned and will be furnished by the Operator, with the estimated rental, purchase price, or suggested use-allowance based on present value, as the case may be. See attached paper.

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project. See attached paper.

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project. See attached paper.

(*g*) *Miscellaneous.*—Furnish a detailed list showing the cost of repairs to and maintenance of operating equipment (not including initial rehabilitation or repairs of the Operator's equipment), analytical work, accounting, workmen's compensation and employers' liability insurance, and payroll taxes. See attached paper.

(*h*) *Contingencies.*—Give an estimate of any necessary allowances for contingencies not included in the costs stated above. See attached paper.

NOTE.—No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs. None

7. (*a*) Are you prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation (Sec. 7, DMEA No. 1)? Yes

(*b*) How do you propose to furnish your share of the costs?

[X] Money [X] Use of equipment owned by you [ ] Other

Explain in detail on acompanying paper. See attached paper.

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief.

Dated April 10, 1954

ST. ANTHONY MINING COMPANY, 3525 Watson Road
(Applicant) St. Louis, Mo.

By [signature]
President

[signature]
Secretary-Treasurer

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

U. S. GOVERNMENT PRINTING OFFICE 16—66551-1

Form MF-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

U. S. Department of the Interior
Defense Minerals Exploration Administration

Department of the Interior
Defense Minerals Exploration Administration
MAR 29 1954

1.(a) See Application
1.(b) See Application
1.(c) St. Anthony Mining Company, an Arizona Corporation
Roy J. Gunther, President - Kerhonkson, New York
A. J. Sullivan, Vice President - 1208 N. Oak Leaf Drive, Phoenix, Arizona
Robert J. King, Secretary & Treasurer - 39 Ridgemoor Drive, Clayton, Mo.
1.(d) See Application

2. Copies of this order have been read and all information has been taken into consideration and is applicable.

3.(a) See Application
3.(b) See Application
3.(c) See Application
3.(d) See Application
3.(e) See Application
3.(f) SEE MINERAL LEASES AND TELEGRAM (ATTACHED)

4.(a) The discovery of the ore was made in 1948 by A. J. Sullivan, our Vice President. Soon thereafter he proceeded to stake out the claims we now lease - assessment work was done on all claims which included prospect shafts of dimension 6' x '8 x 8' deep. Later on these were deepened into the seams of ore on Claim Blackburn #1. A drift was driven along the seam some 50' into the side of the hill and a wins sunk to a depth of 40'. Here the ore looks very good. On Blackburn No. 2 the prospect hole was sunk to a depth of 40' and again the ore showing is excellent. On Blackburn No. 4 a channel was cut into the hill at right angles to the seams and shows good mineralization. Also on Blackburn No. 4 the prospect hole was deepened to 25' and mineralization was good. On Blackburn No. 2 it was decided that a drift be cut into the hill side on a parallel seam and the showing here is very good.

With all these prospects being a good indication of ore for commercial use at depth, A. J. Sullivan then set up to sink the Upshot Shaft. Equipment was purchased, a dry house, hoist house, shops and head frame were constructed and the sinking of the shaft was begun.

At 40' a drift was driven some 50" into the seam and he found the seam to be some 2' in width showing good copper ore. At 100' a similar drift was driven about 90' into the seam. Here the seam had widened to 3' and the grade of ore was even better. It was decided to raise between levels to see if the ore were solid. This was done and the ore discovered runs from one level to the other.

At 200' another drift was driven into the ore seam and here the seam had widened to 4' and shows fine quality.

Form MF-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

4.(a)
(Cont'd.)

By this time Sullivan had spent most of his money but thought to continue on slowly. He sunk the shaft to a point 308' in depth and had to shut down for lack of funds.

Several tries were made to interest people into this work but all were failures. Then after some time, A. J. Sullivan wrote me to try again to interest people. I made a trip down to Phoenix, heard his story, looked over the property and decided to do something about it. I have now formed a Corporation known as the ST. ANTHONY MINING CORPORATION with 7 members, each of which have put up enough money to purchase the leases in the name of our Company and have enough money to start a Diamond drilling program. We feel it will take some 10 holes of 800'± to properly determine the ore bodies for commercial use. We have a signed contract with the T. E. Thatcher Co. for the beginning of this program.

At present the shaft has filled with water to a point above the 40' level and therefore is inaccessible.

4.(b) The only production of ore from the mine took place as the drifts and raises were being done, as all this work was in ore. The ore reserves, as the mine now stands, shows some 2000 tons in place. This is the amount of ore showing in the drifts and raises. The quality is a good grade of copper ore Calcopyrite and Calcacite running between 5 - 10% copper. There are also present Lead, Gold and Silver.

4.(c) The property is located in the Big Bug Mining District and is adjacent to the Big Bug Creek where the placer operations took place many years ago. The terrain is hilly and is covered with brush and some small scrub oak trees. There are evident many seams of mineralization. Four of the seams show quartz at the surface from 12"-24" in width. The seams are all parallel and run N. 21"-30' E. The ore is in vertical veins. A complete report made by Mr. Wm. C. Ritter, a Mining Engineer of Stamford University, accompanies this application. This report gives the geological features of the property. Our reasons for wishing to explore this property are as follows:

1. We believe the property contains copper ore of commercial quantities.

2. We have the personnel and "know how" to properly explore and to set up a modern mining and milling operation.

3. We intend to operate the property for the purpose of producing Commercial Copper ore and at the same time expand to a large mining business.

Form MF-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

4.(c) REPORT ON THE UPSHOT MINE

LOCATION:

The UPSHOT MINE, consisting of one patented and five mining claims lies in the Big Bug Mining District, Yavapai County, Arizona. The property is reached by going North out of Phoenix, Arizona on the Black Canyon Highway to Mayer. North of Mayer one and one-half miles the road leading to the property takes off. West one and one-half miles on this road brings you to the workings. These roads are in good shape the year around.

GEOLOGY:

There is one vein system on the property consisting of several parallel veins. On the eastern edge of the property is the western edge of a granite body. West of the granite is a large diorite dyke running north and south, and approximately sixty (60) feet in width.

On the western side of the diorite dyke concuring in the following named manner is the vein system of the property. A quarts vein with excellent surfact outcroppings, which gives evidence of having good gold value. Next is the vein being worked on at present. This vein outcrops for nearly twenty five hundred (2,500) feet on the surface. Mineralization in this vein consists of gold, silver, clahcopyrite, and lead. West of this vein lies two other parallel veins showing similar mineralization. On the western edge of the property is a large prophyry dyke that has'nt been investigated to any extent.

The strike of this vein system is approximately due north. Dip of the vein is almost vertical.

PRESENT DEVELOPMENT:

Present working on the property are on the second vein west of the diorite dykes. This is distance of about 100 feet. From the surface a shaft has been sunk to a depth of 200 feet. At 40 feet from the surface, 100 feet, and 200 feet drifts have been driven. The 40 foot level extends to the north 60 feet. On the 100 foot level the drift extends 90 feet to the north, and at the 200 foot level drifts extend to the north and south. The northern drift is 110 feet long and the southern drift is 50 feet long.

On the 100 foot level 35 feet from the shaft a raise has been driven to the 40 foot level. A small stope continues above the 40 foot level. On the 200 foot level a raise has been started, and is now 35 feet from the floor. When this work is finished, it will give a secondary access to the mine.

An exploratory crosscut has been sent 35 feet to the west from the 100 foot level. This crosscut is in fault gouge, and has yet to penetrate the width of the gouge.

At the 200 foot level the slightly inclined shaft lies approximately 12 feet west of the vein. All of the above work has been carried out on ore.

ORE RESERVES:

Width of the vein now being worked at the surface is Two (2) feet. On the 100 foot level this width has held between good walls. By the time the vein has reached the 200 foot level the width has increased to Three (3) feet and shows excellent signs of continuing to widen. The walls are slowly pitching outward on the lowest level. At present there are 2,000 tons of ore blocked out in the mine.

Form MF-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

ASSAY VALUES

These assay values were taken from the present workings:

From the 40 foot level to the 100 foot level.

AU.	AG.	CU.	PB.
$29.40	$3.06	3.15%	0

200 foot level in stops.

AU.	AG.	CU.	PB.
$22.40	$5.94	4.33%	2.20%

Bottom of 200 foot drift.

AU.	AG.	CU.	PB.
$29.85	$4.23	5.30%	8.70%

The apex values below are taken along the vein being worked running north from the shaft. The samples were taken from pits dug at approximately 100 foot intervals.

Running north the samples taken are numbered beginning with No. 1.

	AU.	AG.	CU.	PB.
1	$49.70	$2.34	4.20%	0
2	$65.10	$2.88	3.10%	1.20%
3	$52.85	$2.47	2.40%	0
4	$29.40	$1.49	2.10%	4.80%
5	$47.95	$2.56	2.7%	0

In further developing the Upshot Mine it is my opinion that the shaft should be deepened to at least the 600 foot level. At each 100 foot level drifts should be run to the north and south. The drifts to the north should be the longer so that later on a new shaft can be sunk connecting all of the drifts. It is also recommended that at each level crosscuts should be started so that after larger ore reserves are developed, these crosscuts can be extended to intercept the parallel veins and work them from depths. With this plan of development the depths of the vein will be proven, and will warrant the installation of a mill on the property.

SURFACE EQUIPMENT

There are two buildings on the property. One is used for a change house and mess hall, and the other houses the hoisting equipment. On the head frame is an automatic dumping device that increases the efficiency of ore haulage. There is also the usual equipment

Form MF-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

of a well run mine such as compressor, ore car, tracks, spare timber, etc.

SUMMARY:

In my opinion the suggested development work is justified and should be done. The present work has shown that the mineralization is strong and may well reach to considerable depth. There is good water for milling purposes, and can be developed at shallow depth with small expense. Taking all these facts into consideration the UPSHOT MINE should develop in its future large quantities of commercial ore.

Respectfully submitted

William C. Ritter
Mining Engineer, Stanford '43.

Form MF-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

4.(d) The property is located just 3/4" of a mile west of U. S. Route 69, a good highway, 1½ miles North of Mayer and 25 miles South of Prescott. New Highway 69 is under construction and will be completed into Prescott by this Fall. This new road is still only 3/4 of a mile from the shaft. The A.T. and S.F. Railroad has a line just 2000' from the shaft and will gladly build a siding at this point.

The towns of Mayer, Humbolt and Prescott can be used as residence points for this mine.

Supplies are available in these towns.

4.(e) Materials and Supplies are available at Prescott, 25 miles to the North, or in Phoenix, 75 miles to the South.

Men are available in this area as the Iron King Mines at Humbolt have little trouble in getting men.

Smelters are located at several points within the State and are not too distant. There is talk of building a new smelter at Prescott.

Equipment for mining and milling can be obtained in Phoenix, 75 miles to the South, or Prescott, 25 miles to the North.

Water is available in quantity in the shaft or in Grapevine Creek.

Power sufficient to operate mine and mill is just 3600' Northeast of shaft.

5.(a) See Application
5.(b) The proposed work is to determine the size of ore body. We feel that since the ore has been contacted in seams from the shaft, diamond drilling from the surface, with inclined holes, will determine more economically the size and quality of the ore body. We propose therefore to diamond drill some 10 holes to a depth of 800' contacting 3 seams at the 300' and 600' levels. These holes, as proposed, are shown on the accompanying map. To the North of the most Northern hole is an old shaft. This was sunk to a depth of 211' and contacted a very good grade of ore. Work in this shaft was stopped when the brother of the owner was killed in a celebration over finding the copper ore.

In addition to the Diamond Drilling, it is proposed that we sink the Upshot Shaft to a depth of 600' and drive drifts further into the ore. This will be necessary to properly determine the final operation, location of final shaft, mill, etc.

5.(c) See Application
5.(d) 1. General Manager and President of the Company, Roy J. Gunther, will direct the work of exploration and operation of property. Background as follows:

Graduate Engineer - Missouri School of Mines & Metallurgy 1927

1929 - 1933 - Mining Engineer for the St. Joseph Lead Company, Flat River District Desloge Division.

Form MF-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

5.(d) Cont'd. 1936 to present time, General Superintendent and Engineer for the Frazier-Davis Construction Company in shaft and tunnel work.

Projects of Note:

Buffalo, New York - 6 shafts, 3 miles of tunnel in rock and lined with concrete.
Newburgh, New York - 4 - 1000' shafts lined with concrete, Board of Water Supply, City of New York Delaware Aqueduct.
Mt. Kisco, New York - 2 - 600' shafts lined with concrete, Board of Water Supply, City of New York Delaware Aqueduct.
Carmel, New York - 2 shafts 400' deep and 7.8 miles of 15' diameter tunnel lined with concrete, Board of Water Supply, City of New York Delaware Aqueduct.
Valhalla, New York - finish Delaware Aqueduct, line 1 shaft 300' deep, install all machines for operation of 85 miles of aqueduct. * Board of Water Supply, City of New York.
Grahamsville, New York - 1 shaft 400' deep, 6 miles of tunnel 10' lined with concrete, large Intake Chamber and Power House. - Board of Water Supply, City of New York.
Morgantown, Pa. - at present sinking 2 - 3000' shafts, one 17'-6" finish, 1 - 21'6" finish, including drifts into iron ore body. Set all head frames, equipment necessary to start mining operations. 50% complete as of now.

2. Supervisor: for the exploratory work will be A. J. Sullivan, Vice President. Sullivan has been in mining, tunnel work, shaft work for the past 25 years. He is the discoverer of claims and performed the present mining work on claims. He has done consulting work for mining companies in this area and has prospected areas for ore for several other companies.

3. Advisors in the purchase and operating equipment will be (1) Aaron Cohen, a member of the Corporation, graduate Civil Engineer N.Y.U. 1921, 30 years experience in tunnel and shaft operations. (2) Russell Toedtman, a member of the Corporation, graduate Mech. Engineer Washington University 1927 - 25 years experience in mining and milling equipment

4. Business and office: - will be our Secretary and Treasurer, Robert J. King. M. U. 1932. Law Experience State Rep. of Mo. and a business man.

5. Counsel: Law Firm of Snell & Wilmer, Heard Building, Phoenix, Arizona. Mr. Mark Wilmer, agent for St. Anthony Mining Company.

Form MF-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

Estimate of Costs

	No. of Units	Unit Cost	Unit	Total Cost
6.(a) Contracts				
1. Diamond Drilling contract with T. E. Thatcher of Tuscon, Arizona	8000	5.50	Ft.	44000.00
2. Core Boxes	500	.30	ea.	150.00
3. Assay of Core & Sludge	250	3.40	sample	850.00
Total for (a)				45000.00
6.(b) Labor Supervision, Consultants time, etc.				
1. Labor of Diamond Drilling - Supervision	4	350.00	month	1400.00
2. Eng. Work				
1. Surveyor	10	50.00	day	500.00
2 Helpers	10	25.00	day	500.00
3. Labor of shaft sinking 292' required	292	50.00	Ft.	14600.00
4. Labor of Driving exploration Drifts	300	30.00	Ft.	9000.00
5. Labor of Plant Set-up				
Compressor				50.00
Blower				50.00
Hoist				100.00
Muck Bin				100.00
Shop Equipment				50.00
6. Replace timbering in old shaft	300	3.00	Ft.	900.00
			Sub-total	27250.00

Form MF-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, Mo.

6.(b)
(Cont'd.)

	No. of Units	Unit Cost	Unit	Total Cost
			Brought Fwd.	27250.00
7. Mining Engineer while sinking shaft and driving Drifts	4	500.00	month	2000.00
8. Trips by President of Corp., to mine	3	500.00	each	1500.00
			Total for (b)	30750.00

6.(c) Operating Materials and Supplies

1. Surveying				
Stakes	50	30.00	each	15.00
Sledge Hammers	2	5.00	each	10.00
Note Books	2	3.00	each	6.00
Chain	1	30.00	each	30.00
Axe	1	10.00	each	10.00
Knife	1	5.00	each	5.00
Hatchet	1	5.00	each	5.00
Plumbob	2	5.00	each	10.00
Plumbob String	1	2.00	reel	2.00
Office supplies, paper, etc.	1	20.00	each	20.00
2. Small tools and supplies, materials for drifting and shaft sinking				
Drill Steel	1000	.30	#	300.00
Bits	144	.50	each	72.00
Hose	500	1.50	Ft.	750.00
Valves and fittings	50	2.00	each	100.00
Sledge Hammers	6	5.00	each	30.00
Picks	12	5.00	each	60.00
Shovels	12	4.00	each	48.00
Pipe wrenches	6	4.00	each	24.00
Crescent wrenches	4	4.00	each	16.00
Boots	24	8.00	each	192.00
Hard Hats	24	10.00	each	240.00
Bars (crow)	6	4.00	each	24.00
Gads	6	3.00	each	18.00
Blasting Machine	1	25.00	each	25.00
			Sub-total	2012.00

Form MF-103
Revised April 1952

ST ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

6.(c)
(Cont'd.)

	No. of Units	Unit Cost	Unit	Total Cost
			Brought Fwd.	2012.00
Dynamite	5000	.20	#	1000.00
Caps	2000	.20	each	400.00
Lead Wire	2000	.05	Ft.	50.00
Pipe 2" (for air & water)	4000	.30	Ft.	1200.00
Fittings	100	.30	each	30.00
Drill Oil	50	.50	gal.	25.00
Underground Rail	800	.50	Ft.	400.00
Railroad Ties	200	.50	each	100.00
Spikes	100	.10	#	10.00
Spike Hammer	2	5.00	each	10.00
Spike Bars	2	4.00	each	8.00
Cross cut saws	2	5.00	each	10.00
Timber	10000	.08	bd. ft.	800.00
Bolts & Nuts	300	.50	each	150.00
Lumber	10000	.10	bd. ft.	1000.00
Gasoline	1000	.25	gal.	250.00
Diesel Fuel	500	.15	gal.	75.00
Motor Oil	200	1.00	gal.	200.00
Nails	200	.10	#	20.00
Hand saws	2	10.00	each	20.00
Claw Hammers	4	5.00	each	20.00
Nail Bar	2	2.00	each	4.00
Level	2	5.00	each	10.00
Cement	200	1.00	bag	200.00
Roofing paper	10	10.00	roll	100.00
Repair parts for Jack Hammers	4	50.00	each	200.00
Repair parts for other Hammers	12	10.00	each	120.00
Cable for Hoist	1000	.40	Ft.	400.00
Shaft Hooks	3	25.00	each	75.00
Slings	12	5.00	ea ch	60.00
			Total for (c)	8959.00

Form MF-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

6.(d) Operating Equipment	No. of Units	Unit Cost	Unit	Total Cost
Transit Rental	1	50.00	month	50.00
Jeep Rental	6	200.00	month	1200.00
Bull Dozer Rental	1	500.00	month	500.00
500' air compressor	6	500.00	month	3000.00
Pumps (2)	6	50.00	month	600.00
Gasoline Hoist	6	250.00	month	1500.00
Shaft Buckets (2)	4	50.00	month	400.00
Elec. Generator	4	50.00	month	200.00
Blower	6	50.00	month	300.00
Chipping Hammer	3	25.00	month	75.00
Jack Hammers (5)	6	30.00	month	900.00
Muck Car (2)	4	25.00	month	200.00
Air Auger	4	20.00	month	80.00
Chain Saw (air)	4	20.00	month	80.00
			Total for (d)	9085.00

6.(e) Rehabilitation and Repairs

Repair of Buildings on property Dry House, Hoist House and shop		500.00
	Total for (e)	500.00

6.(f) New Buildings, Improvements, Installations

Build Head Frame		1500.00
Wiring for lights		100.00
Improve Roads		500.00
Storage shed for core		500.00
	Total for (f)	2600.00

6.(g) Miscellaneous
Repair of Equipment

Compressor		100.00
Hoist		100.00
Bull Dozer		100.00
Pumps		50.00
Jeep		100.00
Blower		50.00
	Sub-total	500.00

Form MF-103
Revised April 1952

ST. ANTHONY MINING COMPANY
3525 WATSON ROAD
ST. LOUIS, MO.

6.(g) (Cont'd.)	No. of Units	Unit Cost	Unit	Total Cost
			Brought Fwd.	500.00
Office Work 1 Man	2	300.00	month	600.00
W. C. and Payroll Taxes 10% of Labor Item b)	30750	10%		3075.00
Liability Insurance	6	50.00	month	300.00
Expenses of trips to mine by President	3	500.00	each	1500.00
			Total for (g)	5975.00

6.(h) Contingencies 0.00

a.	45000.00
b.	30750.00
c.	8959.00
d.	9085.00
e.	500.00
f.	2600.00
g.	5975.00
h.	0.00
Grand Total -	$102869.00

Assume - $100,000.00

Request Loan of - $ 50,000.00

7.(a) See Application

7.(b) We propose to furnish our share of the cost by cash. We have in our account at the Bank of Douglas, Phoenix, Arizona $22000.00. This amount will be increased as we progress.

DUPLICATE

Type of Lease....LODE..... Lease No.....47220-S.....

State Land Department

STATE OF ARIZONA

MINERAL LEASE

This lease made and entered into this.....5th.....day of....June....., 19.50....., by and between the State Land Department, party of the first part, hereinafter called the lessor, by reason of the authority vested in it by the Arizona Code Annotated, 1939, as amended, and.....RALPH H. BLACKBURN AND.....

FRANK M. DAKE, MAYER, ARIZONA..... party of the second part, hereinafter called the lessee.

W I T N E S S E T H :

The lessor has this day leased to the said lessee, for and in consideration of the rental, royalties, covenants, stipulations and conditions hereinafter contained, and hereby agreed to be paid, observed and performed by the said lessee, for the purpose of extracting and shipping ores and mineral substances from or under the following land to-wit:

Name & Number of Claim	Description	Section	Township	Range	Acreage	Grant	Amount
Blackburn No. 1	In W½ Lot 5	1[illegible]	12N	1[illegible]	20	S	

containing.....20.....acres, more or less, with a total annual rental of....FIFTEEN AND 00/100 DOLLARS

TO HAVE AND TO HOLD the same for the period ending the.4th.....day of.....June....., 19....70.

This lease confers on the lessee the right:

1. To extract and ship minerals, mineral compounds and mineral aggregates, herein also called "minerals" or "ore", from the property above set forth located within planes drawn vertically downward through the exterior boundary lines of each claim;
2. To use so much of the surface as may be required for purposes incident to mining; and
3. Of ingress to and egress from other state lands, whether or not leased for purposes other than mining.

The lessee hereby agrees to pay or cause to be paid to the State Land Commissioner, annually in advance, a rental of $15.00 per annum for each claim or fraction thereof, which shall be credited upon the royalties hereinafter provided, which may become due during such year.

The lessee further agrees to pay as royalty 5% of the net value of the minerals produced from the leased premises, which net value shall be the gross value after processing, if processing is necessary for commercial use, less the actual cost of transportation from the place of production to the place of processing, less costs of processing and taxes, if any, levied and paid upon the production thereof. In the case of minerals not processed for commercial use, the net value shall be the gross proceeds, or gross value at the place of sale or use, less the actual cost of transportation from place of production to the place of sale or use, less taxes, if any, levied and paid upon the production thereof.

5. the amount of taxes levied and paid upon the production of the minerals.

The lessee shall at all times conduct operations in a workmanlike manner, protect all mines and deposits, and not commit nor suffer any waste upon the land. He shall not use nor permit the use of said lands and premises for any other purpose than as herein authorized, and at the expiration of this lease he shall return the premises to the owner in as good condition as received.

3. of ingress to and egress from other state lands, whether or not leased for purposes other than mining.

The lessee hereby agrees to pay or cause to be paid to the State Land Commissioner for the use and benefit of the leased lands, annually in advance, a rental of Fifteen ($15.00) Dollars per annum for each claim, or fraction thereof.

The lessee further agrees to pay as royalty five per cent of the net smelter or mint returns received from ores or mineral substances produced from the claim or claims. The net smelter or mint returns shall be deemed to be the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale, less the actual cost of transportation from the source of production to the place of treatment and sale, less smelter and other customs treatment charges and penalties, and less taxes, if any, levied and paid upon the production of minerals.

So that the state may be properly advised of the removal of ores and mineral substances from the lands involved in this lease, the lessee agrees to file with the State Land Commissioner, within twenty (20) days after the removal of any such ores or mineral substances, an authenticated statement of the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale.

The lessee agrees to pay all royalties under this lease to the State Land Commissioner within twenty (20) days after the close of each month within which the minerals were extracted; such payments will be accompanied by a sworn statement showing:

1. the amount of ore mined during the preceding month;
2. the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale;
3. the actual cost of transportation from the source of production to the place of treatment and sale;
4. the smelter and other customs treatment charges and penalties; and
5. the amount of taxes levied and paid upon the production of the minerals.

The lessee shall at all times conduct operations in a workmanlike manner, protect all mines and deposits, and not commit nor suffer any waste upon the land. He shall not use nor permit the use of said lands and premises for any other purpose than as herein authorized, and at the expiration of this lease he shall return the premises to the owner in as good condition as received.

The lessee shall keep an accurate account of said operations showing the amount of mineral mined or extracted and all mineral shipped, smelted, used, or disposed of, the cost of such operations, and the gross value of the output of the minerals at the mine. The State Land Commissioner and other proper representatives of the department shall have the right at all times during the existence of this lease, and for six months thereafter, to make such reasonable examinations of the papers and books of account of the said lessee and of the mines as may be necessary to obtain all information desired.

This lease confers the right to the lessee to construct necessary improvements, including the installation of necessary machinery and equipment, with the right to remove the same upon the expiration, termination, or abandonment of the lease, if all monies owing to the state under the terms of this lease have been paid. There is hereby created a lien on all implements, tools, movable machinery, and other personal chattels belonging to the lessee and used in the mining operations, and upon all minerals obtained from the land leased herein, as security for the payment of all monies owed the state under the terms of this lease.

The lessee agrees that, should he sell, mortgage, or assign this lease, it will be without prejudice to the state, and that such transaction shall not become effective until a copy thereof is filed with the State Land Commissioner and his written consent thereto secured.

The lessee may, however, surrender the lease for cancellation with the consent of the lessor, and all royalties and other obligations due and accrued to date of completion of application for cancellation, in addition to a fee of One ($1.00) Dollar, must be paid and discharged before such an applicantion for cancellation will be considered, provided that, if the lease has been recorded, the lessee or assignee shall execute a release, record the same in the proper recording office and file the release with the State Land Commissioner. An application for cancellation will be considered as completed on the date such application is filed in the office of the State Land Commissioner provided the foregoing requirements have been fully observed.

In the event of failure or neglect of the lessee to perform any obligation under this lease, the lessor shall have the right at any time to cancel this lease unless, within thirty (30) days after notice specifying the terms and conditions violated, the lessee shall correct such failure and make good any loss caused thereby.

The lessee agrees to perform the annual labor, as required by the laws of the United States, upon each claim, commencing at the expiration of one year from the date of location, and that he will furnish proof of such annual labor to the State Land Commissioner.

The lessee agrees to fence all shafts, prospect holes, adits, tunnels and other dangerous mine workings for the protection of livestock.

This lease is made and accepted subject to existing law and any laws hereafter enacted, also to the regulations relative to such leases heretofore or hereafter prescribed by the lessor; and in no event shall the state or the lessor be liable in damages or otherwise under the provisions hereof.

The lessee shall not keep livestock of any kind on the lands leased herein except by permission from the State Land Commissioner at such rates as may from time to time be established.

The lessee has the right, under this lease, to the cutting and use of timber and stone upon the claim, not otherwise appropriated, for fuel, construction of necessary improvements, or for drains, roadways, tramways, supports, or other necessary purposes; provided, that nothing herein contained shall be construed to permit the cutting of timber for any purpose without the written consent of the State Land Commissioner.

It is understood and agreed that this lease is made subject to all legally established rights of way herefore granted or that may hereafter be granted over and across such land; and the lessee agrees to respect the property rights of all persons lawfully upon the demised premises.

It is expressly understood and agreed that there is reserved to the state the right to lease, under existing law or laws hereafter enacted, so much of the surface of the lands covered by this lease as is not actually used or necessary for mining purposes.

The obligations and agreements hereinbefore expressed shall extend to and be binding upon the successors in interest of the parties hereto.

IN WITNESS WHEREOF, the lessor has caused these presents to be signed by the legal representative of the State Land Department, at Phoenix, Arizona, and the lessee has hereunto affixed his signature at the place and on the day and year first above written.

STATE LAND DEPARTMENT

By ..... State Land Commissioner.

(SEAL)

By ..... Deputy State Land Commissioner.

(Sign Here) .....

.....
Party of the Second Part

This lease is issued in duplicate.

ASSIGNMENT OF LEASE

Phoenix, Arizona April 12, 1954

The application of Ralph H. Blackburn & Ercel Blackburn, his wife & Frank M. Dake & Inga F. Dake, his wife for permission to assign Lease No. M-47220 and the application of Anthony J. Sullivan, a married man for the assumption of said Lease, having been duly considered this 12th day of April, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47220 and all rights thereunder be and are hereby transferred to the said Anthony J. Sullivan, 1208 N. Oak Leaf Drive, Phoenix, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona April 12, 1954

The application of Anthony J. Sullivan, & Mary Sullivan, his wife for permission to assign Lease No. M-47220 and the application of St. Anthony Mining Co., a corporation for the assumption of said Lease, having been duly considered this 12th day of April, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47220 and all rights thereunder be and are hereby transferred to the said St. Anthony Mining Company, 703 Heard Bldg., Phoenix, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona

The application of

for permission to assign Lease No. and the application of

for the assumption of said Lease, having been duly considered this day of , 19 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. and all rights thereunder be and are hereby transferred to the said

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona

The application of

for permission to assign Lease No. and the application of

for the assumption of said Lease, having been duly considered this day of , 19 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. and all rights thereunder be and are hereby transferred to the said

State Land Commissioner.

By

Deputy State Land Commissioner.

Phoenix, Arizona April 25, 1951

The application of Ralph H. Blackburn and Ercell G. Blackburn, his wife & Frank M. Dake for permission to assign Lease No. 47220-S and the application of Upshot Mines, Inc., a corporation for the assumption of said Lease, having been duly considered this 25th day of April, 1951 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47220-S and all rights thereunder be and are hereby transferred to the said Upshot Mines, Inc., c/o Joseph P. Ralston, 514 Title & Trust Bldg., Phoenix, Arizona

ORIGINAL RETURNED

State Land Commissioner.

By

Deputy State Land Commissioner.

Written by: MRS

Checked by:

Date Mailed: 8/24/53

ASSIGNMENT OF LEASE

Phoenix, Arizona August 24, 1953

The application of Upshot Mines, Inc., an Arizona corporation for permission to assign Lease No. and the application of Ralph H. Blackburn and Frank M. Dake for the assumption of said Lease, having been duly considered this 24th day of August, 1953 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47220 and all rights thereunder be and are hereby transferred to the said Ralph H. Blackburn and Frank M. Dake, Mayer, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona February 10, 1954

The application of Ralph H. Blackburn and Ercel Blackburn, husband and wife and Frank M. Dake and Inga F. Dake, his wife for permission to assign Lease No. 47220-S and the application of Anthony J. Sullivan for the assumption of said Lease, having been duly considered this day of February, 1954 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47220-S and all rights thereunder be and are hereby transferred to the said Anthony J. Sullivan

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona February 12, 1954

The application of Anthony J. Sullivan and Mary Sullivan, his wife, for permission to assign Lease No. 47220-S and the application of St. Anthony Mining Co. a corporation, for the assumption of said Lease, having been duly considered this day of February, 1954 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47220-S and all rights thereunder be and are hereby transferred to the said St. Anthony Mining Co.

State Land Commissioner.

By

Deputy State Land Commissioner.

ORIGINAL

Type of Lease 47176- Lease No. 47176-S

State Land Department

STATE OF ARIZONA

MINERAL LEASE

This lease made and entered into this 16th day of May, 19 50, by and between the State Land Department, party of the first part, hereinafter called the lessor, by reason of the authority vested in it by the Arizona Code Annotated, 1939, as amended, and RALPH H. BLACKBURN & FRANK M. DAKE Mayer, Arizona party of the second part, hereinafter called the lessee.

W I T N E S S E T H :

The lessor has this day leased to the said lessee, for and in consideration of the rental, royalties, covenants, stipulations and conditions hereinafter contained, and hereby agreed to be paid, observed and performed by the said lessee, for the purpose of extracting and shipping ores and mineral substances from or under the following land to-wit:

Name & Number of Claim	Description	Section	Township	Range	Acreage	Grant	Amount
Blackburn No. 2	S½SW¼NW¼	16	12N	1E	20.	S	

containing 20 acres, more or less, with a total annual rental of FIFTEEN AND 00/100 DOLLARS

TO HAVE AND TO HOLD the same for the period ending the 15th day of May, 19 70.

This lease confers the right to the lessee:

1. to extract and ship ores and mineral substances from the property, above set forth, located within planes drawn vertically through the exterior boundary lines thereof;
2. to use so much of the surface as may be required incident to mining; and
3. of ingress to and egress from other state lands, whether or not leased for purposes other than mining.

The lessee hereby agrees to pay or cause to be paid to the State Land Commissioner for the use and benefit of the leased lands, annually in advance, a rental of Fifteen ($15.00) Dollars per annum for each claim, or fraction thereof.

The lessee further agrees to pay as royalty five per cent of the net smelter or mint returns received from ores or mineral substances produced from the claim or claims. The net smelter or mint returns shall be deemed to be the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale, less the actual cost of transportation from the source of production to the place of treatment and sale, less smelter and other customs treatment charges and penalties, and less taxes, if any, levied and paid upon the production of minerals.

So that the state may be properly advised of the removal of ores and mineral substances from the lands involved in this lease, the lessee agrees to file with the State Land Commissioner, within twenty (20) days after the removal of any such ores or mineral substances, an authenticated statement of the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale.

The lessee agrees to pay all royalties under this lease to the State Land Commissioner within twenty (20) days after the close of each month within which the minerals were extracted; such payments will be accompanied by a sworn statement showing:

1. the amount of ore mined during the preceding month;
2. the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale;
3. the actual cost of transportation from the source of production to the place of treatment and sale;
4. the smelter and other customs treatment charges and penalties; and
5. the amount of taxes levied and paid upon the production of the minerals.

The lessee shall at all times conduct operations in a workmanlike manner, protect all mines and deposits, and not commit nor suffer any waste upon the land. He shall not use nor permit the use of said lands and premises for any other purpose than as herein authorized, and at the expiration of this lease he shall return the premises to the owner in as good condition as received.

The lessee shall keep an accurate account of said operations showing the amount of mineral mined or extracted and all mineral shipped, smelted, used, or disposed of, the cost of such operations, and the gross value of the output of the minerals at the mine. The State Land Commissioner and other proper representatives of the department shall have the right at all times during the existence of this lease, and for six months thereafter, to make such reasonable examinations of the papers and books of account of the said lessee and of the mines as may be necessary to obtain all information desired.

This lease confers the right to the lessee to construct necessary improvements, including the installation of necessary machinery and equipment, with the right to remove the same upon the expiration, termination, or abandonment of the lease, if all monies owing to the state under the terms of this lease have been paid. There is hereby created a lien on all implements, tools, movable machinery, and other personal chattels belonging to the lessee and used in the mining operations, and upon all minerals obtained from the land leased herein, as security for the payment of all monies owed the state under the terms of this lease.

The lessee agrees that, should he sell, mortgage, or assign this lease, it will be without prejudice to the state, and that such transaction shall not become effective until a copy thereof is filed with the State Land Commissioner and his written consent thereto secured.

The lessee may, however, surrender the lease for cancellation with the consent of the lessor, and all royalties and other obligations due and accrued to date of completion of application for cancellation, in addition to a fee of One ($1.00) Dollar, must be paid and discharged before such an applicantion for cancellation will be considered, provided that, if the lease has been recorded, the lessee or assignee shall execute a release, record the same in the proper recording office and file the release with the State Land Commissioner. An application for cancellation will be considered as completed on the date such application is filed in the office of the State Land Commissioner provided the foregoing requirements have been fully observed.

In the event of failure or neglect of the lessee to perform any obligation under this lease, the lessor shall have the right at any time to cancel this lease unless, within thirty (30) days after notice specifying the terms and conditions violated, the lessee shall correct such failure and make good any loss caused thereby.

The lessee agrees to perform the annual labor, as required by the laws of the United States, upon each claim, commencing at the expiration of one year from the date of location, and that he will furnish proof of such annual labor to the State Land Commissioner.

The lessee agrees to fence all shafts, prospect holes, adits, tunnels and other dangerous mine workings for the protection of livestock.

This lease is made and accepted subject to existing law and any laws hereafter enacted, also to the regulations relative to such leases heretofore or hereafter prescribed by the lessor; and in no event shall the state or the lessor be liable in damages or otherwise under the provisions hereof.

The lessee shall not keep livestock of any kind on the lands leased herein except by permission from the State Land Commissioner at such rates as may from time to time be established.

The lessee has the right, under this lease, to the cutting and use of timber and stone upon the claim, not otherwise appropriated, for fuel, construction of necessary improvements, or for drains, roadways, tramways, supports, or other necessary purposes; provided, that nothing herein contained shall be construed to permit the cutting of timber for any purpose without the written consent of the State Land Commissioner.

It is understood and agreed that this lease is made subject to all legally established rights of way herefore granted or that may hereafter be granted over and across such land; and the lessee agrees to respect the property rights of all persons lawfully upon the demised premises.

It is expressly understood and agreed that there is reserved to the state the right to lease, under existing law or laws hereafter enacted, so much of the surface of the lands covered by this lease as is not actually used or necessary for mining purposes.

The obligations and agreements hereinbefore expressed shall extend to and be binding upon the successors in interest of the parties hereto.

IN WITNESS WHEREOF, the lessor has caused these presents to be signed by the legal representative of the State Land Department, at Phoenix, Arizona, and the lessee has hereunto affixed his signature at the place and on the day and year first above written.

STATE LAND DEPARTMENT

By ..... State Land Commissioner.

(SEAL)

By ..... Deputy State Land Commissioner.

(Sign Here) Ralph H. Blackburn

Frank M. Dake
Party of the Second Part

This lease is issued in duplicate.

ASSIGNMENT OF LEASE

Phoenix, Arizona April 12, 1954

The application of Ralph H. & Ercel Blackburn, husband & wife, & Frank M. & Inga F. Dake, his wife for permission to assign Lease No. M-47176 and the application of Anthony J. Sullivan, a married man for the assumption of said Lease, having been duly considered this 12th day of April, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47176 and all rights thereunder be and are hereby transferred to the said Anthony J. Sullivan, 1208 N. Oak Leaf Drive, Phoenix, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona April 12, 1954

The application of Anthony J. Sullivan & Mary Sullivan, his wife for permission to assign Lease No. M-47176 and the application of St. Anthony Mining Co., a corporation for the assumption of said Lease, having been duly considered this 12th day of April, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47176 and all rights thereunder be and are hereby transferred to the said St. Anthony Mining Company, 703 Heard Bldg., Phoenix, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona

The application of

for permission to assign Lease No. and the application of

for the assumption of said Lease, having been duly considered this day of, 19 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. and all rights thereunder be and are hereby transferred to the said

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona

The application of

for permission to assign Lease No. and the application of

for the assumption of said Lease, having been duly considered this day of, 19 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. and all rights thereunder be and are hereby transferred to the said

State Land Commissioner.

By

Deputy State Land Commissioner.

Phoenix, Arizona April 25, 1951

The application of Ralph H. Blackburn and Ercell G. Blackburn, his wife & Frank M. Dake for permission to assign Lease No. 47176-S and the application of Upshot Mines, Inc., a corporation for the assumption of said Lease, having been duly considered this 25th day of April, 19 51 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47176-S and all rights thereunder be and are hereby transferred to the said Upshot Mines, Inc., c/o Joseph P. Ralston, 514 Title & Trust Bldg., Phoenix, Arizona

State Land Commissioner.

By Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona August 24, 1953

The application of Upshot Mines, Inc., an Arizona corporation for permission to assign Lease No. M-47176 and the application of Ralph H. Blackburn and Frank M. Dake for the assumption of said Lease, having been duly considered this 24th day of August, 19 53 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47176 and all rights thereunder be and are hereby transferred to the said Ralph H. Blackburn and Frank M. Dake, Mayer, Arizona

State Land Commissioner.

By Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona February 10, 1954

The application of Ralph H. Blackburn and Ercell G. Blackburn, his wife, and Frank M. Dake and Inga F. Dake, his wife, for permission to assign Lease No. 47176-S and the application of Anthony J. Sullivan for the assumption of said Lease, having been duly considered this day of February, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47176-S and all rights thereunder be and are hereby transferred to the said Anthony J. Sullivan

State Land Commissioner.

By Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona February 12, 1954

The application of Anthony J. Sullivan and Mary Sullivan, his wife for permission to assign Lease No. 47176-S and the application of St. Anthony Mining Co. a corporation for the assumption of said Lease, having been duly considered this day of February, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47505-S and all rights thereunder be and are hereby transferred to the said St. Anthony Mining Co.

State Land Commissioner.

By Deputy State Land Commissioner.

ORIGINAL

Type of Lease Lode Lease No. 47505 S

State Land Department

STATE OF ARIZONA

MINERAL LEASE

This lease made and entered into this 8th day of January, 19 51, by and between the State Land Department, party of the first part, hereinafter called the lessor, by reason of the authority vested in it by the Arizona Code Annotated, 1939, as amended, and RALPH H. BLACKBURN AND FRANK M DAKE, Mayer, Ariz. party of the second part, hereinafter called the lessee.

W I T N E S S E T H :

The lessor has this day leased to the said lessee, for and in consideration of the rental, royalties, covenants, stipulations and conditions hereinafter contained, and hereby agreed to be paid, observed and performed by the said lessee, for the purpose of extracting and shipping ores and mineral substances from or under the following land to-wit:

Name & Number of Claim	Description	Section	Township	Range	Acreage	Grant	Amount
See Insert Sheet for description							

containing 80 acres, more or less, with a total annual rental of SIXTY AND 00/100 ($60.00)

TO HAVE AND TO HOLD the same for the period ending the 7th day of January, 1971

This lease confers on the lessee the right:

1. To extract and ship minerals, mineral compounds and mineral aggregates, herein also called "minerals" or "ore", from the property above set forth located within planes drawn vertically downward through the exterior boundary lines of each claim;
2. To use so much of the surface as may be required for purposes incident to mining; and
3. Of ingress to and egress from other state lands, whether or not leased for purposes other than mining.

The lessee hereby agrees to pay or cause to be paid to the State Land Commissioner, annually in advance, a rental of $15.00 per annum for each claim or fraction thereof, which shall be credited upon the royalties hereinafter provided, which may become due during such year.

The lessee further agrees to pay as royalty 5% of the net value of the minerals produced from the leased premises, which net value shall be the gross value after processing, if processing is necessary for commercial use, less the actual cost of transportation from the place of production to the place of processing, less costs of processing and taxes, if any, levied and paid upon the production thereof. In the case of minerals not processed for commercial use, the net value shall be the gross proceeds, or gross value at the place of sale or use, less the actual cost of transportation from place of production to the place of sale or use, less taxes, if any, levied and paid upon the production thereof.

3. of ingress to and egress from other state lands, whether or not leased for purposes other than mining.

The lessee hereby agrees to pay or cause to be paid to the State Land Commissioner for the use and benefit of the leased lands, annually in advance, a rental of Fifteen ($15.00) Dollars per annum for each claim, or fraction thereof.

The lessee further agrees to pay as royalty five per cent of the net smelter or mint returns received from ores or mineral substances produced from the claim or claims. The net smelter or mint returns shall be deemed to be the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale, less the actual cost of transportation from the source of production to the place of treatment and sale, less smelter and other customs treatment charges and penalties, and less taxes, if any, levied and paid upon the production of minerals.

So that the state may be properly advised of the removal of ores and mineral substances from the lands involved in this lease, the lessee agrees to file with the State Land Commissioner, within twenty (20) days after the removal of any such ores or mineral substances, an authenticated statement of the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale.

The lessee agrees to pay all royalties under this lease to the State Land Commissioner within twenty (20) days after the close of each month within which the minerals were extracted; such payments will be accompanied by a sworn statement showing:

1. the amount of ore mined during the preceding month;
2. the gross values found and accounted for by the smelter, mint, or other place of customs treatment and sale;
3. the actual cost of transportation from the source of production to the place of treatment and sale;
4. the smelter and other customs treatment charges and penalties; and
5. the amount of taxes levied and paid upon the production of the minerals.

The lessee shall at all times conduct operations in a workmanlike manner, protect all mines and deposits, and not commit nor suffer any waste upon the land. He shall not use nor permit the use of said lands and premises for any other purpose than as herein authorized, and at the expiration of this lease he shall return the premises to the owner in as good condition as received.

STATE LAND DEPARTMENT

PHOENIX, ARIZONA

SUPPLEMENT TO
LEASE NO. 47505
S

RALPH H. BLACKBURN ET AL

MAYER ARIZONA

SHEET _____ OF _____ SHEETS

GR.	DESCRIPTION	SEC.	TWP.	RANGE		ACREAGE	IMP.
[illegible]	W½SE¼NW¼	16	12 N	1 E		20.00	
[illegible]	N½SW¼NW¼	16	12 N	1 E		20.00	
[illegible]	[illegible]NW¼NW¼	16	12 N	1 E		20.00	
[illegible]	N½NW¼NW¼	16	12 N	1 E		20.00	

Ralph H. Blackburn

(P) R ✓ Frank M. Drake — SIGNATURE OF LESSEE — DATE

James R. Bunger — STATE LAND COMMISSIONER — 1-27-51 — DATE

The lessee shall keep an accurate account of said operations showing the amount of mineral mined or extracted and all mineral shipped, smelted, used, or disposed of, the cost of such operations, and the gross value of the output of the minerals at the mine. The State Land Commissioner and other proper representatives of the department shall have the right at all times during the existence of this lease, and for six months thereafter, to make such reasonable examinations of the papers and books of account of the said lessee and of the mines as may be necessary to obtain all information desired.

This lease confers the right to the lessee to construct necessary improvements, including the installation of necessary machinery and equipment, with the right to remove the same upon the expiration, termination, or abandonment of the lease, if all monies owing to the state under the terms of this lease have been paid. There is hereby created a lien on all implements, tools, movable machinery, and other personal chattels belonging to the lessee and used in the mining operations, and upon all minerals obtained from the land leased herein, as security for the payment of all monies owed the state under the terms of this lease.

The lessee agrees that, should he sell, mortgage, or assign this lease, it will be without prejudice to the state, and that such transaction shall not become effective until a copy thereof is filed with the State Land Commissioner and his written consent thereto secured.

The lessee may, however, surrender the lease for cancellation with the consent of the lessor, and all royalties and other obligations due and accrued to date of completion of application for cancellation, in addition to a fee of One ($1.00) Dollar, must be paid and discharged before such an applicantion for cancellation will be considered, provided that, if the lease has been recorded, the lessee or assignee shall execute a release, record the same in the proper recording office and file the release with the State Land Commissioner. An application for cancellation will be considered as completed on the date such application is filed in the office of the State Land Commissioner provided the foregoing requirements have been fully observed.

In the event of failure or neglect of the lessee to perform any obligation under this lease, the lessor shall have the right at any time to cancel this lease unless, within thirty (30) days after notice specifying the terms and conditions violated, the lessee shall correct such failure and make good any loss caused thereby.

The lessee agrees to perform the annual labor, as required by the laws of the United States, upon each claim, commencing at the expiration of one year from the date of location, and that he will furnish proof of such annual labor to the State Land Commissioner.

The lessee agrees to fence all shafts, prospect holes, adits, tunnels and other dangerous mine workings for the protection of livestock.

This lease is made and accepted subject to existing law and any laws hereafter enacted, also to the regulations relative to such leases heretofore or hereafter prescribed by the lessor; and in no event shall the state or the lessor be liable in damages or otherwise under the provisions hereof.

The lessee shall not keep livestock of any kind on the lands leased herein except by permission from the State Land Commissioner at such rates as may from time to time be established.

The lessee has the right, under this lease, to the cutting and use of timber and stone upon the claim, not otherwise appropriated, for fuel, construction of necessary improvements, or for drains, roadways, tramways, supports, or other necessary purposes; provided, that nothing herein contained shall be construed to permit the cutting of timber for any purpose without the written consent of the State Land Commissioner.

It is understood and agreed that this lease is made subject to all legally established rights of way herefore granted or that may hereafter be granted over and across such land; and the lessee agrees to respect the property rights of all persons lawfully upon the demised premises.

It is expressly understood and agreed that there is reserved to the state the right to lease, under existing law or laws hereafter enacted, so much of the surface of the lands covered by this lease as is not actually used or necessary for mining purposes.

The obligations and agreements hereinbefore expressed shall extend to and be binding upon the successors in interest of the parties hereto.

IN WITNESS WHEREOF, the lessor has caused these presents to be signed by the legal representative of the State Land Department, at Phoenix, Arizona, and the lessee has hereunto affixed his signature at the place and on the day and year first above written.

STATE LAND DEPARTMENT

By .....
State Land Commissioner.

(SEAL)

By John P. Burger
Deputy State Land Commissioner.

(Sign Here) Ralph H. B. Lockburn

Frank M. Drake
Party of the Second Part

This lease is issued in duplicate.

ASSIGNMENT OF LEASE

Phoenix, Arizona April 12, 1954

The application of Ralph H. & Ercel Blackburn, husband & wife & Frank M. & Inga F. Dake, (husband & wife

for permission to assign Lease No. M-47505 and the application of

Anthony J. Sullivan, a married man for the assumption of said Lease, having been

duly considered this 12th day of April, 19 54

and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47505 and all rights thereunder be and are hereby transferred to the said Anthony J. Sullivan, 1208 N. Oak Leaf Dr., Phoenix, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona April 12, 1954

The application of Anthony J. Sullivan & Mary Sullivan, his wife

for permission to assign Lease No. M-47505 and the application of

St. Anthony Mining Co., a corporation for the assumption of said Lease, having been

duly considered this 12th day of April, 19 54

and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47505 and all rights thereunder be and are hereby transferred to the said St. Anthony Mining Company, Phoenix, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona

The application of

for permission to assign Lease No. and the application of

for the assumption of said Lease, having been

duly considered this day of, 19

and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. and all rights thereunder be and are hereby transferred to the said

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona

The application of

for permission to assign Lease No. and the application of

for the assumption of said Lease, having been

duly considered this day of, 19

and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. and all rights thereunder be and are hereby transferred to the said

State Land Commissioner.

By

Deputy State Land Commissioner.

Phoenix, Arizona April 25, 1951

The application of Ralph H. Blackburn and Ercell G. Blackburn, his wife & Frank M. Dake for permission to assign Lease No. 47505-S and the application of Upshot Mines, Inc., a corporation for the assumption of said Lease, having been duly considered this 25th day of April, 19 51 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47505-S and all rights thereunder be and are hereby transferred to the said Upshot Mines, Inc., c/o Joseph P. Ralston, 514 Title & Trust Bldg., Phoenix, Arizone

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona August 24, 1953

The application of Upshot Mines, Inc., an Arizona corporation for permission to assign Lease No. M-47505 and the application of Ralph H. Blackburn and Frank M. Dake for the assumption of said Lease, having been duly considered this 24th day of August, 19 53 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. M-47505 and all rights thereunder be and are hereby transferred to the said Ralph H. Blackburn and Frank M. Dake, Mayer, Arizona

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona February 10, 1954

The application of Ralph H. Blackburn and Ercell G. Blackburn, his wife, and Frank M. Dake and Inga F. Dake, his wife, for permission to assign Lease No. 47505-S and the application of Anthony J. Sullivan for the assumption of said Lease, having been duly considered this day of February, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47505S and all rights thereunder be and are hereby transferred to the said Anthony J. Sullivan

State Land Commissioner.

By

Deputy State Land Commissioner.

ASSIGNMENT OF LEASE

Phoenix, Arizona February 12, 1954

The application of Anthony J. Sullivan and Mary Sullivan, his wife, for permission to assign Lease No. 47505-S and the application of St. Anthony Mining Co. a corporation for the assumption of said Lease, having been duly considered this day of February, 19 54 and without waiver of State rights which may exist against the lease assigned, and with this consent not to be construed as initiating any new rights in assignee of lease, consent is hereby given for the assignment applied for and it is ordered that the said Lease No. 47505-S and all rights thereunder be and are hereby transferred to the said St. Anthony Mining Co.

State Land Commissioner.

By

Deputy State Land Commissioner.

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION

W. P. MARSHALL, PRESIDENT

(01)

SYMBOLS
DL=Day Letter
NL=Night Letter
LT=Int'l Letter Telegram
VLT=Int'l Victory Ltr.

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

1954 APR 13 AM 11 08

SA084 LB002

LPTA009 DL PD=PRESCOTT ARIZ 13 955AMM=

ROY GUNTHER=

5052 OLEATHA AVE STL=

MINING DEED R D TERRELL TO A SULLIVAN DATED FEB 10 1954 BOOK 29 OFFICIAL RECORDS PAGES 65-66 CONVEYING COPPER GULCH MINING CLAIM & COPPER GULCH NO 1. MINING DEED A SULLIVAN TO ST ANTHONY MINING CO DATED FEB 12 1954 RECORDED APRIL 10 1954 BOOK 29 OFFICIAL RECORDS PAGES 67-68 CONVEYING COPPER GULCH & COPPER GULCH NO 1 MINING CLAIMS=

GRACE CHAPMAN COUNTY RECORDER=

MINING DEED

THIS INDENTURE, made the 12th day of February, 1954, by and between A. SULLIVAN, also known as ANTHONY J. SULLIVAN, of the State of Arizona, first party, and ST. ANTHONY MINING CO., a corporation, of the same place, second party,

W I T N E S S E T H:

That the said first party, for and in consideration of the sum of Ten Dollars ($10), lawful money of the United States of America, to him in hand paid by the said second party, the receipt whereof is hereby acknowledged, has granted, bargained, sold, remised, released and forever quitclaimed, and by these presents does grant, bargain, sell, remise, release, and forever quitclaim unto the said second party, and to its successors and assigns all those certain unpatented mining claims located in the Big Bug Mining District as indicated, Yavapai County, Arizona, the location notices of which are recorded in the Office of the County Recorder of said County in Books and pages as follows:

Name of Claim	Book	Page
Copper Gulch	156	488
Copper Gulch No. 1	156	489

TOGETHER with all the dips, spurs, and angles, and also all the metals, ores, gold and silver-bearing quartz, rock and earth therein; and all the rights, privileges and franchises thereto incident, appendant and appurtenant, or therewith usually had and enjoyed; and also, all and singular the tenements, hereditaments and appurtenances thereto

belonging, and otherwise appertaining, and the rents, issues and profits thereof, and also all the estate, right, title, interest, property, possession, claim and demand whatsoever, as well in law as in equity, of the said first party, of, in or to the said premises and every part and parcel thereto with the appurtenances.

TO HAVE AND TO HOLD, all and singular, the said premises, together with the appurtenances and privileges thereunto incident, unto the said second party, its successors and assigns forever.

IN WITNESS WHEREOF, the said first party has hereunto set his hand the day and year first above written.

A. Sullivan

A. Sullivan, also known as Anthony J. Sullivan

STATE OF ARIZONA)
County of Maricopa) ss.

Before me, the undersigned Notary Public, on this day personally appeared A. SULLIVAN, also known as Anthony J. Sullivan, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged that he executed the same for the purposes and consideration therein expressed.

GIVEN under my hand seal of office this 12th day of February, 1954.

Notary Public

My commission expires:

June 16, 1955

[illegible] DEED

[illegible] THIS DEED, made the 10th day of February, 1954, [illegible] TURRILL, of the State of Arizona, first party, [illegible] SMITH, of the same place, second party.

[illegible]:

That the said first party, for and in consideration of the sum of Three Thousand ($3,000.00) Dollars, lawful money of the United States of America, to him in hand paid by the said second party, the receipt whereof is hereby acknowledged, has granted, bargained, sold, remised, released and forever quit-claimed, and by these presents does grant, bargain, sell, remise, release, and forever quit-claim unto the said second party, and to his heirs and assigns all those certain unpatented mining claims located in the Big Bug Mining District as indicated, Yavapai County, Arizona, the location notices of which are recorded in the Office of the County Recorder of said County in Books and pages as follows:

Name of Claim	Book	Page
Copper Gulch	156	488
Copper Gulch No. 1	156	489

TOGETHER with all the dips, spurs, and angles, and also all the metals, ores, gold and silver-bearing quartz, rock and earth therein; and all the rights, privileges and franchises thereto incident, appendant and appurtenant, or therewith usually had and enjoyed; and also, all and singular the tenements, hereditaments and appurtenances thereto belonging, and otherwise appertaining, and the rents, issues and profits thereof, and also all the estate, right, title, interest, property, possession, claim and demand whatsoever, as well in law as in equity, of the said first party, of, in or to the said premises and every part and parcel thereto with the appurtenances.

TO HAVE AND TO HOLD, all and singular, the said premises, together with the appurtenances and privileges thereunto incident, unto the said second party, his heirs and assigns forever.

IN WITNESS WHEREOF, the said first party has hereunto set his hand the day and year first above written.

R. E. Farrell

STATE OF ARIZONA)
) ss
County of Yavapai)

Before me, the undersigned Notary Public, on this day personally appeared R. E. FARRELL, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged that he executed the same for the purposes and consideration therein expressed.

GIVEN under my hand and seal of office this 5th day of February, 1954.

J. J. Slamon
Notary Public

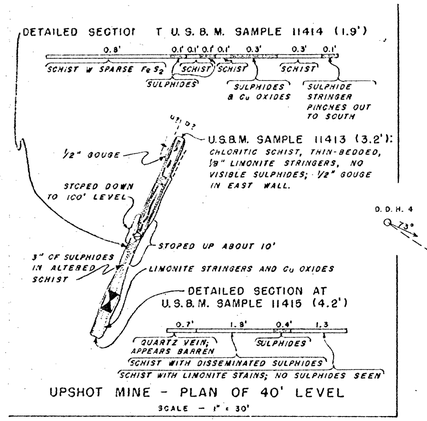
My Commission Expires:
MY COMMISSION EXPIRES SEPT. 27-16-54

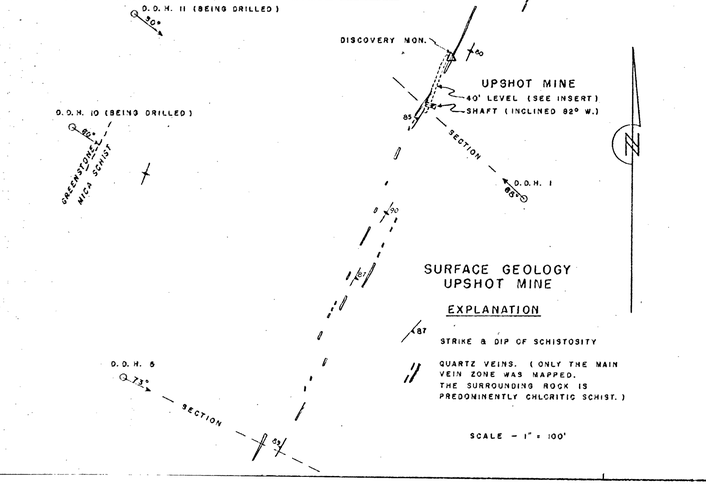
SPOKANE 2, WASHINGTON

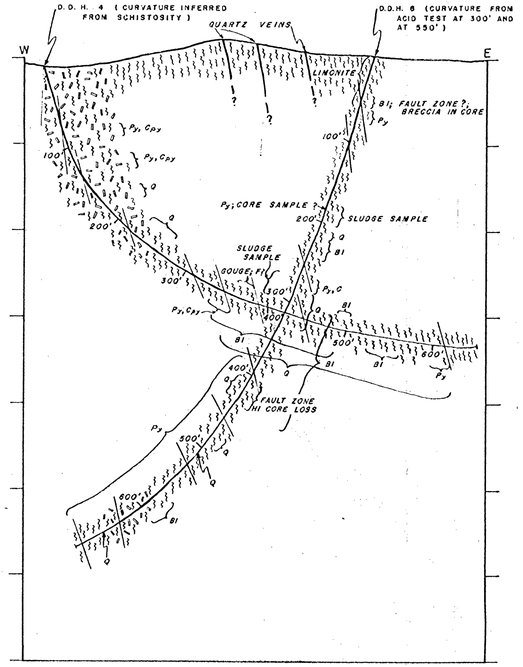
OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE TO AVOID
PAYMENT OF POSTAGE, $300
(PMGC)

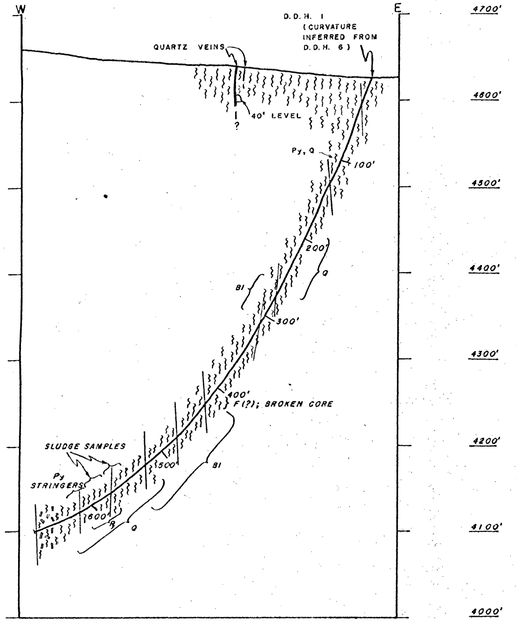
Mr. George C. Selfridge, Chairman
Operating Committee
Defense Minerals Exploration Administration
Department of the Interior
Washington 25, D. C.



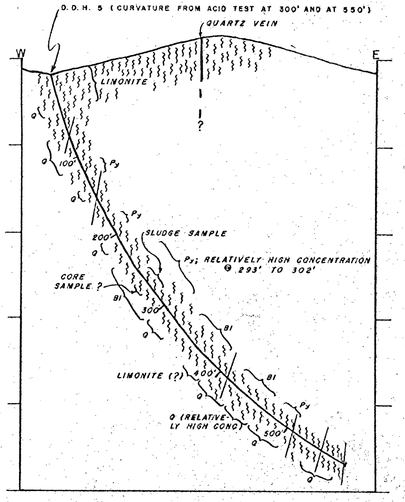




SECTION THROUGH D.D.H. 4 AND D.D.H. 6



SECTION THROUGH UPSHOT MINE AND D.D.H. 1



SECTION THROUGH D.D.H. 5

VERTICAL SECTIONS BASED ON DIAMOND DRILLING - GEOLOGY GENERALIZED

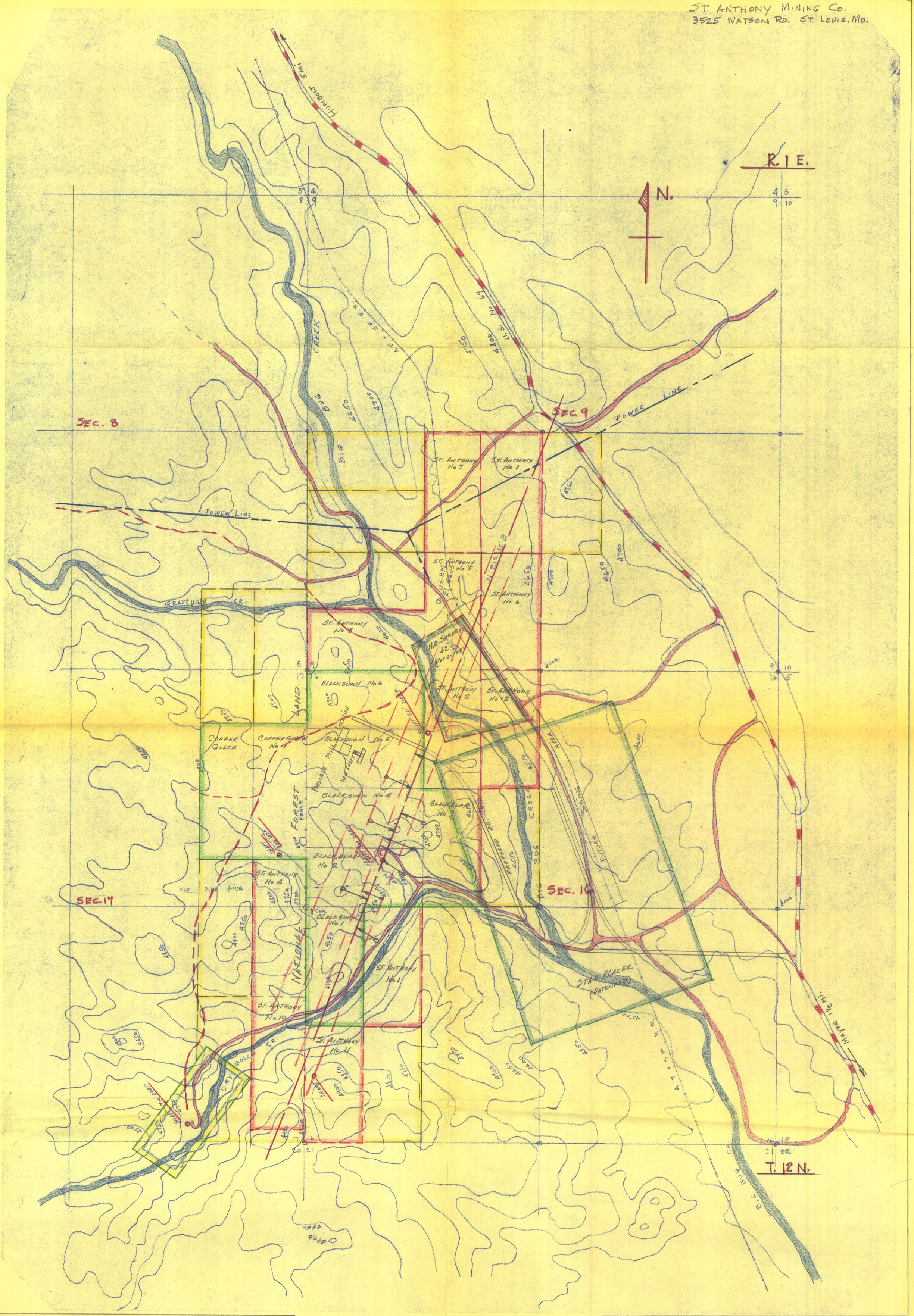
EXPLANATION

- — SCHIST AND DIP OF SCHISTOSITY. SCHIST IS CHLORITIC, GENERALLY CONTAINS CALCITE OR ANKERITE AS VEINLETS OR INTERSTITIALLY AND ALSO CONTAINS DISSEMINATED MAGNETITE.
- — GREENSTONE AND DIP OF SCHISTOSITY.
- Q — QUARTZ; MAINLY IN VEINLETS CONSTITUTING UP TO 20 % OF THE ROCK.
- Py — PYRITE; GENERALLY OF AN EXCEEDINGLY MINUTE DISSEMINATION.
- Cpy — CHALCOPYRITE; OF AN EXCEEDINGLY MINUTE DISSEMINATION.
- Bl — WEAKLY BLEACHED SCHIST; CONTAINS SOME SERICITE.

SCALE - 1" = 100'
DATUM APPROXIMATE SEA LEVEL

FIGURE 3. - GEOLOGIC MAP AND SECTIONS - UPSHOT MINE - YAVAPAI COUNTY, ARIZONA
JULY 1954 DMEA 3328

ST. ANTHONY MINING CO.
3525 WATSON RD. ST. LOUIS, MO.



KEY TO MAP

CLAIMS, AT PRESENT UNDER LEASE:
CLAIMS, STAKED OUT BEING APPLIED FOR:
CLAIMS, UNDER CONSIDERATION:
HIGHWAY U.S. 69: ROADS: OLD RDS.
POWER LINE: STREAMS: R.R.
SHAFTS: CONTOURS
ORE SEAMS:
DRILL HOLES PROPOSED:
PATENTED CLAIMS:

ST. ANTHONY MINING CO.
BIG BUG MINING DISTRICT
YAVAPAI COUNTY, ARIZ.
MAP SHOWING
CLAIMS, ROADS, STREAMS, POWER LINE, R.R.
HIGHWAY, SHAFTS, ORE SEAMS & PROPOSED
DRILL HOLES

SCALE 500'=1"
DATE: MAR. 1954
DRAWN BY R.J.G.

ST. ANTHONY MINING CO.
3525 WATSON RD. ST. LOUIS, MO.

KEY TO MAP

- CLAIMS, AT PRESENT UNDER LEASE:
- CLAIMS, STAKED OUT, BEING APPLIED FOR:
- CLAIMS, UNDER CONSIDERATION:
- HIGHWAY, U.S. 69: ROADS: OLD RDS:
- POWER LINE: STREAMS: R.R.
- SHAFTS: CONTOURS:
- ORE SEAMS:
- DRILL HOLES PROPOSED:
- PATENTED CLAIMS:

ST. ANTHONY MINING CO.
BIG BUG MINING DISTRICT
YAVAPAI COUNTY, ARIZ.
MAP SHOWING

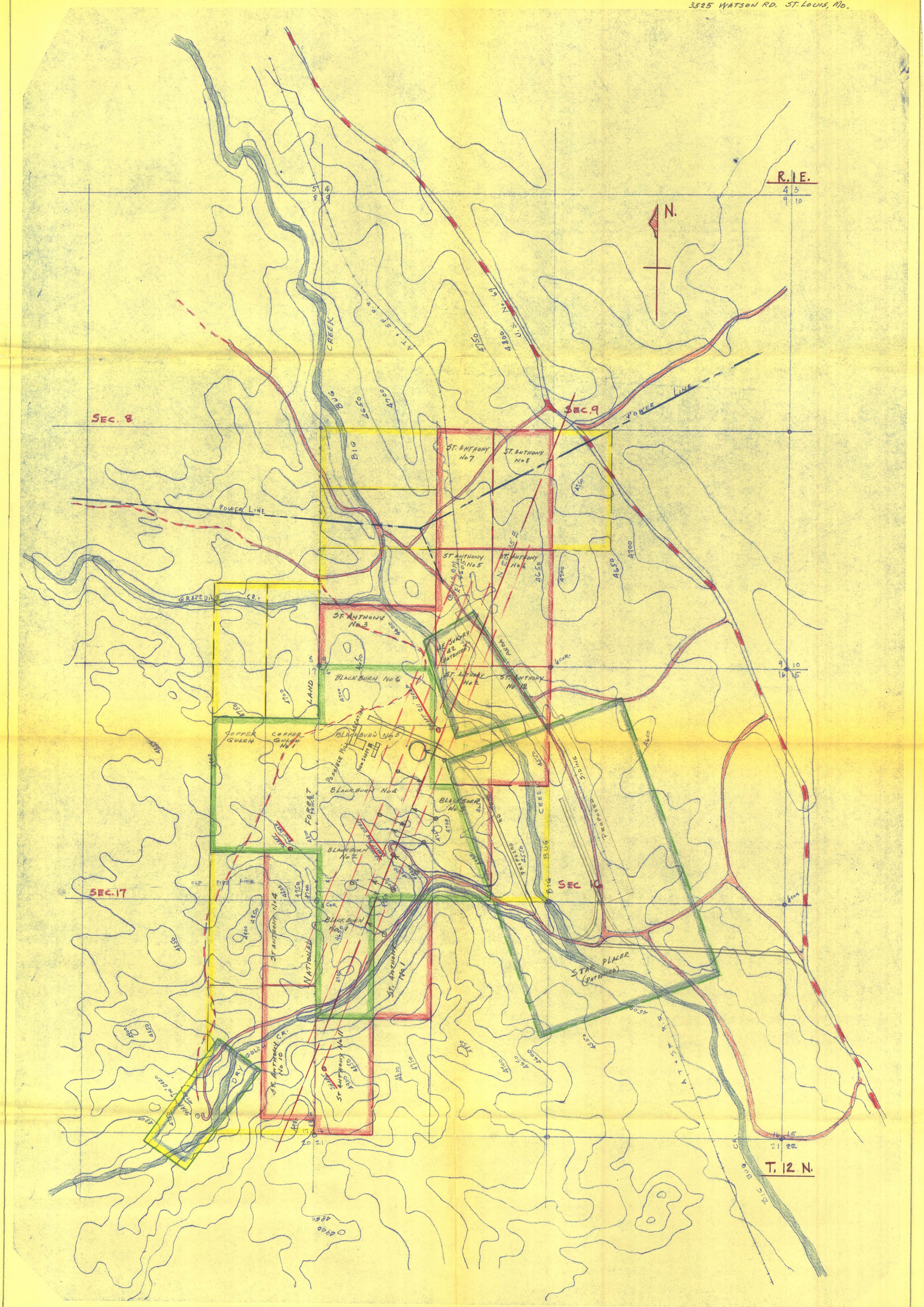
CLAIMS, ROADS, STREAMS, POWER LINE, R.R., HIGHWAY, SHAFTS, ORE SEAMS & PROPOSED DRILL-HOLES.

SCALE 500' = 1"

DATE. MAR. 1954

DRAWN BY R.J.G.

ST. ANTHONY MINING CO.
3525 WATSON RD. ST. LOUIS, MO.



KEY TO MAP

CLAIMS, AT PRESENT UNDER LEASE:
CLAIMS, STAKED OUT, BEING APPLIED FOR:
CLAIMS, UNDER CONSIDERATION:
HIGHWAY, U.S. 69: ROADS: OLD RDS:
POWER LINE: STREAMS: R.R.:
SHAFTS: CONTOURS:
ORE SEAMS:
DRILL HOLES PROPOSED:
PATENTED CLAIMS:

ST. ANTHONY MINING CO.
BIG BUG MINING DISTRICT
YAVAPAI COUNTY, ARIZ.
MAP SHOWING
CLAIMS, ROADS, STREAMS, POWER LINE, R.R., HIGHWAY, SHAFTS, ORE SEAMS, + PROPOSED DRILL HOLES

SCALE 500' = 1"
DATE: MAR. 1951
DRAWN BY R.J.G.