DMA Form 1

DEFENSE MINERALS ADMINISTRATION
Control Slip

CONTROLLED DOCUMENT

DMA Docket No. 1304

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

_____

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.

Routing Slip

To:	Gowen	Date	6/29/51
To:	Coordinating Committee	Date	9/5/51
To:	Oper. Com. 4624	Date	4-~~26~~ 21-52
To:	Mr. Mittenkor/4624	Date	
To:	Mails & Files/4070	Date	
To:	Code 700 Rm 4640	Date	
To:	Code 200, Rm. 4070	Date	5-26-52
To:		Date	
To:		Date	
To:		Date	
To:		Date	
To:		Date	
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To:		Date	
To:		Date	

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CONTROLLED DOCUMENT

5/26/52 gla

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

224 New Customhouse
Denver 2, Colorado

May 21, 1952

Memorandum

To: Frank E. Johnson, Chairman, Operating Committee, Defense Minerals Exploration Administration

From: Executive Officer, Field Team, Region IV

Subject: DMEA Docket 1304X, Shattuck Denn Mining Corporation, Kay Mine (Copper), Yavapai County, Arizona

We wrote the Shattuck Denn Mining Corporation as requested in your letter dated April 22, 1952. Mr. Thomas Bardon, President of the Shattuck Denn Mining Corporation, has requested that the application be closed. A copy of Mr. Bardon's letter and the brochure are enclosed.

W. H. King

W. H. King

Enclosures

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
MAY 26 1952

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

224 New Customhouse
Denver 2, Colorado

May 21, 1952

Mr. Thomas Bardon
Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

Re: DMA-1304X

Dear Mr. Bardon:

Thank you for your letter, dated May 13, 1952. Your application for exploration assistance on the Kay Mine, Yavapai County, Arizona, docket DMA 1304X, has been closed.

Very truly yours,

W. H. King

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 26 1952

JPS:[illegible]

cc: Chairman to Mgr. Gen. [illegible]
[illegible] H. Storms
Knoxville
Contract
Cairon

SHATTUCK DENN MINING CORPORATION
120 Broadway
New York 5, N. Y.

COPY

May 13, 1952

Mr. W. H. King
Defense Minerals Administration
224 New Customhouse
Denver, Colorado

Re: Kay Mine (Arizona)

Dear Mr. King:

Replying to your letter of March 9, 1952, we see no reason why you should not consider as closed our application for exploration assistance in the case of the above-mentioned mine. We have discontinued all activity at the Kay property and have relinquished our lease and option on it.

Yours very truly,

s/ Thomas Bardon

President

TB:twp

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 26 1952

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

224 New Customhouse
Denver 2, Colorado

May 21, 1952

Memorandum

To: Frank E. Johnson, Chairman, Operating Committee, Defense Minerals Exploration Administration

From: Executive Officer, Field Team, Region IV

Subject: DMEA Docket 130bX, Shattuck Denn Mining Corporation, Kay Mine (Copper), Yavapai County, Arizona

We wrote the Shattuck Denn Mining Corporation as requested in your letter dated April 22, 1952. Mr. Thomas Lardon, President of the Shattuck Denn Mining Corporation, has requested that the application be closed. A copy of Mr. Lardon's letter and the brochure are enclosures.

W. H. King
W. H. King

Enclosures

WHK:fb

cc: [illegible] Mittendorf, [illegible]
[illegible]
[illegible]
Contract
[illegible]
[illegible]

DEPARTMENT OF THE INTERIOR
Defense [illegible] Administration
MAY 26 1952

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

224 New Customhouse
Denver 2, Colorado

May 21, 1952

Mr. Thomas Bardon
Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

Re: DMA-1304X

Dear Mr. Bardon:

Thank you for your letter, dated May 13, 1952. Your application for exploration assistance on the Kay Mine, Yavapai County, Arizona, docket DMA 1304X, has been closed.

Very truly yours,

W. H. King

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

JFS:fwo

cc: Chairman to Oper. Comm. DMA
W. H. Storms
Koschmann
Contract
Caron

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

224 New Customhouse
Denver 2, Colorado

May 21, 1952

Memorandum

To: Frank E. Johnson, Chairman, Operating Committee, Defense Minerals Exploration Administration

From: Executive Officer, Field Team, Region IV

Subject: DMEA Docket 1304X, Shattuck Denn Mining Corporation, Kay Mine (Copper), Yavapai County, Arizona

We wrote the Shattuck Denn Mining Corporation as requested in your letter dated April 22, 1952. Mr. Thomas Bardon, President of the Shattuck Denn Mining Corporation, has requested that the application be closed. A copy of Mr. Bardon's letter and the brochure are enclosed.

W. H. King

W. H. King

Enclosures

JPS:fwo

cc: C. O. Mittendorf, Actg
Admin., DMEA
R. R. Storms
Contract
Koschmann
Chron

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 26 1952

700
FILE COPY
SURNAME:

Ellis
Ault

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

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

Re: Docket No. DMA-1304X (Copper)
Shattuck Denn Mining Corporation
Kay Copper Mine
Yavapai County, Arizona

Dear Mr. East:

Reference is made to your memorandum of February 19, 1952, to Mr. Mittendorf, with which you enclosed copy of letter from Mr. Thomas Bardon, President of the above company, dated November 14, 1951, requesting you to defer a field team examination of the property because of negotiations pending at that time which might result in the application being amended or withdrawn. We note that the docket was placed in your inactive file.

Inasmuch as this docket is carried on the Washington office records as a referral to the Region for a field team examination, it is suggested that you make further inquiry of Mr. Bardon as to the present status of the negotiations, and that he also be informed the docket will be closed within a specified period of time if the corporation is not interested in processing the application. Thereafter, if the docket is to be closed, it should be returned to the Washington office. Of course, if the application is to be revised, our records will continue to show it as referred to the field team for an examination.

Sincerely yours,

(signed) FRANK E. JOHNSON (GLB)

Chairman, Operating Committee

APPROVED:

J. H. Hedges (GLB)
For Bureau of Mines

T. P. Thayer (GLB)
For Geological Survey

GLAult/EWEllis/gla 4-18-52
cc to: Adm. Reading File
Docket
Messrs. C. H. Johnson, Rm. 3621
Ned Nelson, Rm. 4216 GSA Bldg.
Ellis

2/25/52 gla

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

224 New Customhouse
Denver 2, Colorado

February 19, 1952

FEB 20 1952

Memorandum

To: C. O. Mittendorf, Acting Administrator, Defense Minerals Exploration Administration

From: Field Team, Region IV

Subject: Docket DMEA 1304X, Shattuck Denn Mining Corporation, Kay Copper Mine, Yavapai County, Arizona, and Docket DMA 1699X, Thomas Conway, Durango, Colorado (Copper) Mining Claims in Iaplata County. Your memorandum of February 12, 1952.

In accordance with the request contained in a letter dated November 14, 1951, from Mr. Thomas Bardon, President, Shattuck Denn Mining Company, DMA Docket 1304X, Kay Copper Mine, Yavapai County, Arizona, was placed in our inactive files. A copy of Mr. Bardon's letter is attached for your files.

Our Colorado field office was informed by telephone on October 30, 1951, by Mr. Thomas Conway that his property, Docket DMA 1699x, was inaccessible because of early snow at extremely high altitude. Mr. Conway also stated that he could not participate financially to the extent required by the application. He stated that he would inform Mr. Tom Lyons of the situation, but we have no information to indicate that he has done so.

The docket was placed in our inactive files pending further information or request by the applicant.

W. H. King
W. H. King, for J. H. East, Jr.

A. H. Koschmann
A. H. Koschmann

Enclosure

SHATTUCK DENN MINING CORPORATION
120 Broadway
New York 5, N. Y.

/
C
O
P
Y
/

November 14, 1951

Mr. J. H. East, Jr.
Executive Officer
DMA Field Team Region IV
224 New Customhouse Building
Denver 2, Colorado

Re: Docket DMA No. 1304X

Dear Mr. East:

Since writing you on October 31 in regard to a field examination of the Kay mine in connection with our application for exploration funds, we have reached a point in negotiations with another mining company which make it advisable to defer the examination which the DMA Field Team would ordinarily make.

If our negotiations with this mining company are concluded, our application for Government funds might be amended or possibly withdrawn. In any event, we are continuing our work at the Kay mine and a deferment of your examination will not in any way adversely affect the interests of the Government or of ourselves.

As soon as the above-mentioned negotiations are concluded, we will again communicate with you in regard to your field examination.

Yours very truly,

/s/ Thomas Bardon

President

EB:op

DMA-1304X

700
FILE COPY
Surname:

Ellen Thayer

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
WASHINGTON 25, D. C.

FEB 1 2 1952

Mr. J. W. East, Jr.
Executive Officer, DMEA Field Team IV
224 Customhouse Building
Denver 2, Colorado

Re: Docket No. DMA-1304X (Copper)
Shattuck Denn Mining Corporation
Kay Copper Mine, Yavapai County, Arizona
and
Docket No. DMA-1699X (Copper)
Thomas Conway, Durango, Colorado
Mining claims in Laplata County

Dear Mr. East:

The monthly reports submitted by your office for December and January have greatly assisted our Commodity Divisions in keeping records current on applications being investigated by the Field. The Rare and Miscellaneous Metals Division, however, has noted that no reference was made in either of these reports to the above captioned applications which, according to our records, were referred to Region IV on September 14, 1951, and October 17, 1951, respectively. There have been no inquiries to this office from any source regarding these dockets since that time, but it would be helpful to be informed at your convenience, the status of these applications.

Sincerely yours,

G. D. Mittendorf

ACTING Chairman, Operating Committee

APPROVED:
J. H. Hedges
For Bureau of Mines

Q. P. Thayer
For Geological Survey

EWEllis/gla 2-7-52
cc to: Adm. Reading File
Dockets (2) DMEA-1304X DMA-1699X
Messrs. Johnson, C. H. Rm. 3621
Nelson, Ned Rm. 4216 GSA
Ellis

E.P.T. 2/12/52

316 FILE COPY
SURNAME:

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

OCT 30 1951

G. E. P.

Mr. Thomas Bardon, President
Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

Re: Docket No. DMA-1304X

Dear Mr. Bardon:

This is to acknowledge your letter of October 25, 1951 addressed to Mr. Tom Lyon requesting the status of your application.

We wish to inform you that your application for exploration aid was sent to the Defense Minerals Administration, Field Team Region IV, on September 12, 1951 for further study as indicated by an enclosed copy of the letter notifying you of this referral. Evidently this letter was lost in the mail.

Very truly yours,

J. B. Gowen

J. B. Gowen, Chief
Copper Branch

9710130

Enclosure

RVWaugh:es
10/29/51

Copy to: Adm. Reading File
Executive Officer, RegionIV
Copper Branch
DMA Files

DEFENSE MINERALS
ADMINISTRATION
WASHINGTON, D. C.
OCT 26 10 17 AM '51

SHATTUCK DENN MINING CORPORATION
120 BROADWAY
NEW YORK 5, N. Y.

THOMAS BARDON
PRESIDENT

October 25, 1951

Mr. Tom Lyon, Director
Supply Division
U.S. Department of the Interior
Defense Minerals Administration
Washington 25, D.C.

Re: Docket DMA No. 1304X

Dear Mr. Lyon:

We would very much appreciate any information you can give us regarding our application for aid in connection with the exploration of the Kay Mine in Yavapai County, Arizona. The application was submitted on Form MF-103 on May 24, 1951 but with the exception of formal acknowledgments from your agency, we have received nothing to indicate approval or disapproval of the application.

Since the application was sent to Mr. Cowen of the Copper Branch of the Defense Minerals Administration, a copy of this letter is being sent to him.

Very truly yours,

SHATTUCK DENN MINING CORPORATION

By Thomas Bardon
President

TB:twp
cc: Mr. Justin B. Cowen, Chief, Copper Branch
Defense Minerals Administration
Room 3423 - New Interior Building
Washington 25, D.C.

OFFICIAL FILE COPY

To	Init.	Date
210		

310

FILE COPY
SURNAME:

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

A.E.C.

Waugh
Gowen
Johnson
Mayer
Wood

SEP 14 1951

Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

Re: Docket DMA No. 1304X

Gentlemen:

This is to inform you that your application for aid for an exploration project has been referred to the field team for further study. You will hear from Mr. J. H. East, ~~Jr., Executive Officer,~~ DMA Field Team Region IV, 224 New Customhouse Building, Denver 2, Colorado or one of his staff when they are ready to visit your porperty.

Very truly yours,

SIGNED

Tom Lyon, Director
Supply Division

JF 9-14

RVWaugh:ez
9/12/51

Copy to: Adm. Reading File
Executive Officer, DMA Field Team IV
Coordinating Committee
J.B.Gowen
D.MacLaren
Files - DMA Docket

Reports & Records

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

SEP 14 1951

Mr. J. H. East, Jr.,
Bureau of Mines
224 New Customhouse Building
Denver 2, Colorado

Dear Sir:

We attach "Review of Application for Exploration Assistance"

on:

Docket No. DMA-1304X

Commodity Copper

Applicant Shattuck Denn Mining Corporation, Kay Copper Mine (Arizona)
120 Broadway, New York 5, N.Y.

Please expedite the consideration of this application with particular reference to the points raised in the attached "Review."

Very truly yours,

Chairman
Coordinating Committee

For Bureau of Mines

For Geological Survey

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

SEP 14 1951

REGIONAL DIRECTOR'S OFFICE
REGION IV
SEP 17 1951
BUREAU OF MINES
DENVER, COLORADO

Mr. J. H. East, Jr.,
Bureau of Mines
224 New Customhouse Building
Denver 2, Colorado

Dear Sir:

We attach "Review of Application for Exploration Assistance" on:

Docket No. DMA-1304X

Commodity Copper

Applicant Shattuck Denn Mining Corporation, Kay Copper Mine (Arizona)
120 Broadway, New York 5, N.Y.

Please expedite the consideration of this application with particular reference to the points raised in the attached "Review."

Very truly yours,

Tom Lyon
Chairman
Coordinating Committee

Lowell B. Moon
For Bureau of Mines

T. P. Thayer
For Geological Survey

6/5/51

Defense Minerals Administration

Review of Application for Exploration Assistance

Docket No. 1304X

Commodity Copper

Total Amount $158984

Govt. Participation 50%

1. Name and Address of Applicant Shattuck-Denn Mining Company. 120 Broadway, New York 5 N.Y.

2. Location of Property Kay Mine, Tip Top Mining District, Secs. 4 and 9, T. 8 N. R. 2 E. Yavapai County, Arizona

3. Mineral or metal Copper Is it listed in Section 9 of MO-5? Yes

If not, application will be rejected.

4. Geologic probability of discovery—based on data in application (question #16, 17, 18, 20 and 22)*

Mines or Survey reports, etc., do you rate chances:

a) Good Appear to be but should be checked.

b) Poor May be eligible production loan

c) None

d) Don't know—needs field examination Yes

e) Is there an alternative and favorable project? (If so, attach an explanation)

5. Is the applicant's right to the property clearly stated? Yes (question 5, 6, 7)*

6. If applicant is a lessee, is a copy of the lease attached?

Does the lease have sufficient time to run to cover a future productive period? Yes

*question numbers are those of MF-103

7. Are subordination agreements necessary? Yes

a) MF-201? _____

b) MF-202 ✓

8. From the data presented, does the proposed project appear feasible from the point of view of:

a) Available manpower Yes

b) Equipment and supplies Yes
(Question 14 plus general knowledge of availability)*

c) Accessibility (question 12)* Yes

d) Water (question 13)* Yes

e) Power (question 13)* Yes

Is a field check needed on any of these points? No

9. Does the experience of the applicant appear to be adequate to assure that he can properly conduct the proposed project? (question 4)* Yes

Is a field check needed on this point? No

10. Exhibit A. (questions 21 and 22)*

a) Is the project adequately described? No. Costs are not sufficiently itemized

If not, are there sufficient data given so that you can describe the project? _____ If so, attach a draft.

b) Is there an adequate map or sketch of the proposed work? Yes

c) Is the proposed work "exploration" under the definition of Section 8, MO-5? ~~Not all of it~~ Yes

If not, what part of it is? _____

Is this part a worthwhile exploration project? _____

d) Are the cost estimates detailed? Not sufficiently

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data? Yes If so, attach a draft.

e) Are the cost estimates reasonable? Questionable See 13 e).

f) Should more information be requested from applicant? Yes

g) Is a field examination necessary to complete Exhibit A? Yes

11. Exhibit B (question 23-d)*

a) Is it applicable? No

b) If so, are sufficient data furnished? _____ If so, attach a draft.

c) Is a field check needed? _____

12. Exhibit C (question 23-e, f and g)*

a) Is it applicable? e and g are

b) Sufficient data? No If so, attach a draft.

c) Are rents and charges reasonable? Do not know

d) Is a field check needed? Yes

13. Exhibit D (question 23-a, b)*

a) Are there sufficient data? Yes

b) Is the schedule adequate for the work proposed? Yes

c) Is the schedule excessive for the work proposed? No

d) Are the proposed wages and salaries reasonable? Yes

e) Is a field check needed? Yes, The proportion of surface, shaft and pumpmen ~~appears to be out of line~~ to men underground working directly on the project appears to be out of line.

14. Exhibit E (question 23-c)*

a) Is it applicable? Yes

b) Sufficient data? Yes

c) Reasonable? ~~Yes~~ probably

d) Field check needed? Should be done.

15. In your judgment, can the proposed work be done in the proposed time? Yes

(All exploration must be completed within two years)

16. If field examination is not needed, attach your recommendation.

17. If field examination is needed, do you have any special instructions for the field team not indicated by your answers to the foregoing question? This project is a borderline case where a part of the costs may be chargeable to production. It is possible that ore reserves may at this time be sufficiently well established to justify a production loan. It is requested that the Field Team investigate the immediate production possibilities as well as for exploration. It may have very good possibilities for production during 1952-1953.

Reviewed by: J B Gowen
D H Wachsen
C Johnson

Date Sept 6/51

INT.-DUP. SEC., WASH., D.C. 99009

DMA1304X

EXHIBIT A.

21. The applicant proposes to drive northward a maximum of 500 ft. from the north face of the 800 level. If ore is found then it should be further delineated by a short program of diamond drilling.

Vertical prospecting is proposed by means of a raise from the 1000 level to the 8th level and from the 8th level to the 6th if found, if ore is found. Two raises would also provide ventilation for the north ends of the 10th to 18th levels.

If the 6th level proves to be a waste level, and ore is found on the 8th level, it is proposed to winch the muck to the 15th level and scram from the 15th level to the 12th level, this to block sufficient reserve to justify a mill - 12 months.

LABOR	90576.00
SUPERVISOR	7800.00
REPAIRS	400.00
DRILLING EQUIPMENT	1500.00
Rental of OWNERS EQUIPMENT	12000.00
SUPPLIES	16,524.00
POWER	17,400.00
INSTALLATION OF COMPRESSOR	1000.00
COMP, INSURANCE, SOCIAL SECURITY TAXES	11,784.00
	$158,984.00

23 d. Not applicable

e. DRILLING EQUIPMENT 1500.00

f. Not applicable.

g. RENTAL OF OWNERS EQUIPMENT @ $1000/Mo 12000.00

h. TIMBER, POWDER, WELDING, RODS, REPAIRS, ETC 16524.00

DMA 13048

i. POWER	17400.00
INSTALLATION OF COMPRESSOR	1000.00
COMP. INSURANCE, SOCIAL SECURITY TAXES	11784.00
a. With a miner's base rate of $11.60/day, an average wage rate of $12.12 plus average shift differential, 32¢ plus 14% overtime. Average 17½ men 12 months	90576.00
b. SUPERVISOR $500/Mo plus.	7800.00
c REPAIRS TO BUNK HOUSE	400.00

PATENTED CLAIMS
KAY COPPER COMPANY
Scale 1" = 500'
Copied 3/25/60 HAM
Buckeye
Fra
Agua
W J Martin Patented
Road
Marietta
Skidoo
Diorite
S.E. Ext. Marietta
Skidoo Fraction
April #1
April
Harriet
April #2
Shaft

ROUGH DRAFT
JBGowen:rw
9-7-51

Docket No. DMA-1304X
Commodity-Copper

A. Name and Address of Applicant:

Shattuck Denn Mining Corporation
120 Broadway, New York, New York

B. Location of Deposit:

Kay Copper Mine
Yavapai County, Arizona

C. Conclusions as to:

1. Pertinence

The project is pertinent to the copper program

2. The project is technically feasible

3. Requirements are available

4. Government Aid for an Exploration Project on a 50 percent participation basis

5. Applicant is competent being a successful copper mine operator

D. Recommendations:

It is recommended that the application for exploration assistance in the amount of $76,492 be approved, and that a contract with the applicant be signed.

E. The Kay mine is developed by two shafts, Nos. 1 and 2, and several thousand feet of drifts and crosscuts. No. 1 shaft is an ~~xxxxxx~~ incline shaft sunk to the 600 foot level with drifts and crosscuts developing Nos. 1 and 2 ore bodies. No. 4 shaft is a

vertical shaft sunk to the 1200 level. Drifts, crosscuts and a winge to the 1500 foot level, and several dd holes expose several ore occurrences, none of which is sufficiently developed to block out ore for mining.

The applicant has unwatered the mine to the 1200 level and has repaired No. 1 shaft to the 600 level since October, 1950.

It is proposed by the applicant to advance the 800 level north in No. 1 ore body, to explore and develop the downward extension of that ore body beneath the 600 ~~xxxx~~ level sill. Further exploration of this ore body by diamond drilling from the new work is foreseen but cannot be definitely delineated before the level work is completed.

If the 800 level exploration should expose commercial ore it ~~p~~ is proposed to raise in that ore body from the 1000 level to the 800 and thence to the 600 to provide ventilation for the north end of the mine.

Should the 800 level expose commercial ore in No. 1 ore body it is also proposed to unwater the mine to the 1500 level and explore various ore exposures on the 1 200 and 1500 levels in an endeavor to develop sufficient reserves in the mine to justify the installation of a mill.

F. The proposal is feasible and might result in an additional and continued production of copper over a period of several years at market or under the market costs.

G. 1. Reserves estimated at

Measured	99,300	40% copper
Indicated	39,400	" "
Inferred	76,000	" "
	81,000	3% copper
Total	296,700	in No. 1 and No. 2 ore bodies.

Assay plan maps indicate that the estimate is reasonable.

From the great number of substantial ore exposures ~~i~~ underground it is probable from a geological standpoint that a well planned exploration program might develop sufficient ore to make the Kay mine a substantial copper producer.

2. Rate of production dependent upon the results of exploration.

3. Mining methods not yet worked out.

4. Metall~~i~~urgical tests have been satisfactory.

5. Smelters in vicinity.

6. Time schedule is included in report and is logical, requiring one year to complete the project.

H. ~~I~~ 1. Equipment and facilities ~~fa~~ sufficient for the exploration project are installed or available at the mine.

2. No new equipment needed.

3. No access roads necessary. Transportation facilities are adequate. ~~XXXX~~

4. Manpower is available and adequate.

5. Adequate power is available at the mine.

I. 1. If ore reserve estimates are accepted this project could be recommended for a production loan for the full amount of the estimated cost of the projected exploration program.

2. It is believed the amount requested is adequate for the maximum program, but might be revised downward in case of negative results of exploration work. The applicant has not a detailed list with location of individual places such as drifts, crosscuts, raises, diamond drill holes, probably because the project cannot be completely and definitely delineated before the mine workings are geologically mapped and check sampled; and the preliminary exploration work completed.

J. Applicant is competent to carry out project, being a successful copper mine operator.

K. No correspondence to date other than original application.

Docket No 2012 13047

764 Draft Gowin. (2 space) Copper.

Name and Address of Applicant

A. Shattuck Denn Mining Corporation
120 Broadway, New York, N.Y.

B. Location of Deposit
Ray Copper Mine
Yavapai County, Arizona.

C. Conclusions as to
1. Pertinance.
The project is pertinent to the Copper program.
2. The project is technically feasible
3. Requirements are available.
4. Government Aid for an Exploration Project on a 50 percent participation basis.
5. Applicant is competent being a successful copper mine operator.

D. Recommendations.
It is recommended that the application for exploration assistance in the amount of $76492 be approved, and that a contract with the applicant be signed.

E. The Ray mine is developed by two shafts, Nos. 1 and 2, and several thousand feet of drifts and crosscuts. No. 1 Shaft is an incline shaft reach to the 600 foot level with

drifts and crosscuts developing Nos 1 and 2 orebodies. No 4 shaft is a vertical shaft sunk to the 1200 level. Drifts, crosscuts and a winze to the 1500 foot level, and several ore occurrences, none of which is sufficiently developed to block out ore for mining.

The applicant has unwatered the mine to the 1200 level and has repaired No 1 shaft to the 600 level since October, 1950.

It is proposed by the applicant to advance the 800 level north in No 1 orebody to explore and develop the downward extension of that orebody beneath the 600 level sill. Further exploration of this orebody by diamond drilling from the new work is foreseen but cannot be definitely delineated before the level work is completed.

If the 800 level exploration showed ore commercial ore it is proposed to raise in that orebody from the 1000 level to the 800 and thence to the 600 to provide ventilation for the north end of the mine.

Should the 800 level exploration commercial ore in No 1 orebody it is also proposed to unwater the mine to the 1500 level and to explore various ore exposures on the 1200 and 1500 levels in an endeavor to develop sufficient reserves in the mine.

to justify the installation of a mill.

F. The proposal is feasible and ~~fair in the~~ might result in an additional and continuous production of copper over a period of several years at market or under the market costs.

G. 1. Reserves estimated at

Measured	99 300	4% copper
Indicated	39 400	" "
Inferred	76 000	" "
	81 000	3% copper
Total	296 700	in No 1 and No 2 orebodies.

Assay from maps indicate that the estimate is reasonable

From the great number of substantial ore experiences underground it is probable from a geological standpoint that just a well planned exploration program might develop sufficient ore to make the property a substantial copper producer.

2. Rate of production ~~not yet~~ dependent upon the results of exploration.

3. Mining methods not yet worked out.

4. Metallurgical tests have been satisfactory.

5. Smelters in vicinity

6. Time schedule is ~~about~~ included in report and is logical, requiring one year to complete project.

H. 1. Equipment and facilities sufficient for the exploration project are installed or available at the mine.
2. No new equipment needed.
3. No access roads are necessary. Transportation facilities are adequate.
4. Manpower is available and adequate.
5. Adequate power is available at the mine.

I. 1. If our reserve estimates are accepted this project could be recommended for a production loan for the full amount of the estimated cost of the projected exploration program.
2. It is believed the amount requested is adequate for the maximum program, but might be revised downward in case of negative results of exploration work. The applicant has not a detailed list with locations of underground places such as drifts, crosscuts raises, diamond drill holes, probably because the project cannot be completely and definitely delineated before the mine workings are geologically mapped and ~~[illegible]~~ check sampled, and the preliminary exploration work completed.

J. Applicant is competent to carry out project, being a successful operating mining operation.

K. No correspondence to date other than original application.

FILE COPY
SURNAME:

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

June 5, 1951

Mr. Thos. Bardon
President
Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

Subject: DMA-1304X
Re: Exploration Loan
Kay Copper Mine

My dear Mr. Bardon:

Receipt is acknowledged of your application and attachments of May 29, 1951 for an exploration loan under the Defense Production Act of 1950.

The application was assigned Docket Number DMA-1304X and was referred to Mr. J. B. Gowen, Chief, Copper Branch on May 29, 1951.

In any future correspondence relating to your application, kindly refer to DMA-1304X.

Sincerely yours,

LANDON F. STROBEL js

Landon F. Strobel
Executive Secretary

LFSTROBEL:js
cc: Strobel-2
√Files
Gowen
Lyon

Mr. Gowen
1254

SHATTUCK DENN MINING CORPORATION

120 BROADWAY

NEW YORK 5, N. Y.

THOMAS BARDON
PRESIDENT

May 24, 1951

Mr. Justin B. Gowen, Chief, Copper Branch
Defense Minerals Administration
Room 3423 New Interior Building
Washington 25, D. C.

Dear Mr. Gowen:

We are sending you today, under separate cover, our Application on Form MF-103 in reference to the Kay Mine, a copper property, in Yavapai County, Arizona.

If there is any further information you wish to have about this property, please so advise me at the above address.

Yours very truly,

Thomas Bardon

Thomas Bardon
President

TB:op

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 28 1951
LANDON F. STROBEL
Executive Secretary

May 8, 1951

Mr. Thomas Bardon
President
[redacted]
New York 5, New York

Dear Mr. Bardon:

Your letter of May 2, 1951, addressed to Mr. Julian W. Feiss, has been referred to this office for reply.

Complying with the request contained in your letter, there are enclosed five copies of Form MP-800 and five copies of Form MP-802.

Should you have further questions with respect to filing your application, you may refer your inquiry to Mr. Justin S. Gowen, Chief, Copper Branch, Defense Minerals Administration, Room 1423 New Interior Building, Washington 25, D. C.

Sincerely yours,

LANDON F. STROBEL
JHB.

LANDON F. STROBEL
Executive Secretary

Enclosures 10

LFSTROBEL:hb

Copy to: Administrator's Reading File
L. F. Strobel ✓
Files

April 24, 1951

Mr. Thomas Bardon
President
Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

Dear Mr. Bardon:

Complying with the request contained in your letter of April 13, 1951, there are enclosed ten copies of Form NF-103 and a copy of NO-5. Applications should be submitted in accordance with the instructions set forth in Section 3 of NO-5.

Should you have further questions in connection with this program, please feel free to contact this office.

Very truly yours,

JULIAN W. FEISS

JULIAN W. FEISS
Assistant to the Administrator

Enclosures 11

LFStrobel:cmb

Copies to: Administrator's Reading File
L. F. Strobel
Files

February 17, 1951

Mr. Thomas Barden, President
Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

Dear Mr. Barden:

This will acknowledge and thank you for your letter of January 31 with further reference to your concentrating mill at Globe, Arizona, which now is idle and is available for the treatment of ores produced by mines in the vicinity under any program initiated by DMA. We also have read with interest the newspaper story concerning the advance of $4,250,000 to the Newmont Mining Company through RFC for the exploration and development of mineral deposits in Africa, to be repaid in metals if and when projects prove successful.

We hope that within the next few days we shall be able to announce approval of a DMA program for the exploration and development of mineral deposits in this country which will prove helpful to the mines in Arizona.

Very truly yours,

OTTO KIRCHER, Chief
Lead-Zinc Branch

O KIRCHER/ms

cc: Mr. Vote
Mr. McKnight
Mr. Herres
Mr. Strobel
2 copies Executive Officer Field Team
Region IV Denver, Colo.
Files

January 22, 1951

Mr. Thomas Jordon, President
Shattuck Denn Mining Corporation
120 Broadway
New York 5, N. Y.

Dear Mr. Jordon:

Mr. Boyd has asked me to reply to your letter of January 11 to him regarding the availability of your firm's Bisbee, Arizona flotation mill for the treatment of custom ores should the need arise.

The Defense Minerals Administration program under the Defense Production Act has not progressed far enough to accurately appraise the milling requirements for zinc-lead ores in the Bisbee area. However, on the basis of the large number of applications for aid received from owners and operators of mining properties in southern Arizona and New Mexico, it seems quite likely that an increased output of zinc-lead ore in that area can be expected. I am pleased to know of the availability of your mill to treat new production resulting from the Government's program of expanding the zinc and lead productive capacity and I thank you for your cooperation in bringing the matter to our attention.

Very truly yours,

Otto Herres,
Chief, Lead Zinc Supply Branch

HRWCTH/ks
cc:
Mr. Hote
Mr. McKnight
Mr. Herres
Mr. Strobel
2 copies to Executive Officer, Regional Field Term IV, Denver, Colo.
Files

LANDON F. S.

SHATTUCK DENN MINING CORPORATION

120 BROADWAY

NEW YORK 5, N. Y.

THOMAS BARDON
PRESIDENT

January 11, 1951

Mr. James Boyd, Administrator
Defense Minerals Administration
Bureau of Mines
Department of Interior
Washington 25, D. C.

JAN 15 6 20 PM '51

Dear Mr. Boyd:

1-16-51
Memos for reply

Recently I received a letter from you referring to the shortage of zinc and urging us as producers of that metal to produce at maximum capacity. You also assured us that the DMA stands ready at all times to assist us in production problems. The zinc production of this company now comes entirely from our Iron King mine at Humboldt, Arizona, but we also have an idle concentrating mill at Bisbee, Arizona. The Bisbee mill was erected to treat lead-zinc ores produced from our own mines in the Bisbee area, and following the exhaustion of such ores the mill operated for a period upon custom ores obtained from various mines in that area. However, the sharp drop in metal prices which occurred in 1949 shut off the supplies of ore and the plant has been shut down since that time. I am mentioning our Bisbee mill at this time in connection with what was said in your letter and what is said in the latest bulletin of the American Mining Congress. The latter statement refers to the plans of DMA which contemplates assistance to private industry in the operation of plants and mills where raw ore can be brought for treatment and the establishment of ore dumps at such plants. This program is designed especially to assist small mines and encourage production from them.

Our Bisbee mill would be well adapted for use in any such program. It can treat up to 300 tons of ore per day and can produce lead, zinc or copper concentrates. The mill and its facilities have been kept in good condition, and there is ample storage space for an ore dump of the kind mentioned. Subject only to a possible man power shortage, we would be glad to manage and administer, as the Government's agent or on any other mutually satisfactory basis, not only an ore dump but also reopen the mill to treat ores collected at that point. As you know, Bisbee is a well established mining district with facilities for this sort of an operation, and there are numerous small mines in Arizona, New Mexico, Sonora and other parts of Mexico which are within reasonable shipping distance and which might resume production pursuant to the Government's program of encouraging the reopening of such mines.

Yours very truly,

Thomas Bardon
President

TB:op

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. DMA 1304X

Date received 5-29-51

Participation

SHATTUCK DENN MINING CORPORATION
120 Broadway
New York 5, N. Y.

Name and address of applicant

Date May 24, 1951

FILL IN THIS BLOCK

Date of application May 24, 1951

Estimated cost $158,984

Mineral or metal Copper

Percentage of Government participation 50

Location of mine Yavapai County, Arizona

Date of filing MF-100

DMA Docket Number, if available 1304X

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation?
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.
*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.
*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.
*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.
*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.
15. State in detail how the ore could be shipped and how and where milled.
*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.
*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.
19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?
21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.
22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.
24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

SHATTUCK DENN MINING CORPORATION
(Name of company)

By Thomas Bardon
(Signature of authorized official)

May 24, 1951
(Date)

President
(Title)

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.

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

CORPORATION
BROADWAY
NEW YORK 5, N. Y.

May 24, 1951

Mr. Justin B. Gowen, Chief, Copper Branch
Defense Minerals Administration
Room 3423 New Interior Building
Washington 25, D. C.

Dear Mr. Gowen:

We are sending you today, under separate cover, our Application on Form MR-103 in reference to the Kay Mine, a copper property, in Yavapai County, Arizona.

If there is any further information you wish to have about this property, please so advise me at the above address.

Yours very truly,

Thomas Bardon

Thomas Bardon
President

TB:op

1. The applicant is a corporation organized under the laws of Delaware and duly qualified to do business in Arizona.

2. Not applicable

3. The names and addresses of the officers are:

President	Thomas Bardon, 120 Broadway New York 5, N. Y.
Vice President	S. S. Shattuck, Bisbee, Arizona
Asst. Vice President	R. J. Higgins, Sellwood Building Duluth, Minnesota
Secretary-Treasurer	Norman E. LaMond, 120 Broadway New York 5, N. Y.

The names and addresses of the directors, in addition to the four officers mentioned above who are also directors, are:

Warren Bicknell, Jr.	3866 Carnegie Avenue Cleveland 15, Ohio
Austin Jenner	First National Bank Chicago, Illinois
Andrew Oliver	120 Broadway New York 5, N. Y.

The names and addresses of the five largest stockholders of record as of April 23, 1951 are:

Thomas Bardon
120 Broadway, New York, N. Y.

Merrill, Lynch, Pierce, Fenner & Beane
70 Pine St., New York, N. Y.

Francis I. duPont & Co.
1 Wall St., New York, N. Y.

S. S. Shattuck, Trustee u/w of
L. C. Shattuck
Box 507, Bisbee, Arizona

Belle Bardon Quayle
c/o Cleveland Trust Co.
Cleveland, Ohio

4. The applicant, with its predecessor companies, has been in the mining business for 47 years and has owned, and has operated or is now operating, copper, lead, zinc and fluorspar mines and mills which have produced and are now producing large quantities of those minerals. The project which is the subject of this application will be managed under the supervision of the above-named corporate officers and will be directly in charge of

H. F. Mills, Manager of the applicant's Iron King mine situated at Humboldt, Arizona, about 45 miles distant from the project and currently mining and milling approximately 600 tons per day of lead-zinc-copper-gold-silver ore. Copies of applicant's annual report for 1950 are enclosed herewith.

5. Applicant is the lessee and optionee.

6. Not applicable.

7. Copy of applicant's lease is attached hereto. Also attached is copy of applicant's contract with Black Canyon Copper Company, former lessee of the property. Both agreements are in good standing.

8. Applicant's financial statements will be found in the copies of its annual report submitted herewith.

9. Applicant is prepared to invest $79,492.00 in the proposed project, which is sufficient to pay its part of the cost of the project as estimated in Question 23.

MAY LEASE

10 - Real property consists of 10 contiguous patented claims in Sections 4 and 9, Township 8N R2East, located in Tip Top Mining District.

See enclosed claim map

11 - The mine is and has been known as the Kay Copper Mine.

12 - The mine is 40 miles north of Phoenix, less than one mile off the Black Canyon highway, which is paved from Phoenix to a point 20 miles north of the Key. It is 40 miles south of the Iron King Mine, also on the Black Canyon Highway. Glendale and Phoenix are suitable shipping points. Also the Blue Bell siding at Mayer on the A. T. & S. Fe is 30 miles north of the Key.

13 - The mine makes over 100 GPM of water suitable for milling. The Agua Fria River crosses the property and excellent domestic water is obtained from the gravels of the stream.

Power is purchased from the Northern Arizona Light and Power Company under the P3 Schedule. At present about 60000 KWH per month is used at a cost of 2.16¢ per KWH. If the load increases to 225 KW power can be purchased under the P4 Schedule at a cost of about 1½¢ per KWH.

14 - Present facilities are as follows:

Buildings - Hoist - compressor house
Small change house at #1 shaft
Small warehouse
3 dwellings

Machinery & Equipment -

Wood headframe at #1 shaft
Steel headframe for #4 shaft
50 HP S. D. hoist at #1
100 HP D. D. hoist at #4
1 25 HP sinking pump
1 50 HP sinking pump
1 100 HP station pump
2 50 HP station pumps
1 75 HP station pump
1 30 HP 4-stage horizontal pump
1 Single drum tugger
1 Stoper
1 Gas hoist powered by Ford motor
1 Wilson electric welder
1 DC generator for mine lamps
2 150 KVA Allis transformers 2200-440V
mine telephones
4 Ventilating fans
1 230 ft. portable compressor
8" steel ventilating pipe
5" water line pipe
3 conductor power cables down #1 and #4 shafts
6 mine cars
2 mine cages

Available: 1 100 HP 600 ft. electric compressor

15 - Only a limited amount of ore could be shipped to smelters or to the American Smelting and Refining mill at Deming. Most of the ore should be milled on the property because of high transportation costs.

A series of 12 tests have been run on a sample of ore obtained from the 5th level which assayed 7.75 Cu.

A grind of 85% minus 200 mesh is indicated as being necessary and mine water gave results as good as fresh water. A recovery of 54% of the gold, 58% of the silver, and 88% of the copper in a concentrate assaying 25.1% copper is indicated. A Ph of 9.0 gave optimum results and this was obtained by use of 1.5# lime per ton.

16 - A. See attached report by John Foss dated March 27, 1937 for past history.

In February of 1949 the Black Canyon Copper Company leased the mine from the owners and unwatered #1 shaft workings down to the 500 level by means of a pump in #4 shaft. The 5th level from #1 shaft was partly reopened and some good copper ore shipped from production from a raise being driven from the 500' to the 350' level. The venture was under-financed and because of exhaustion of funds they entered into a deal with Shattuck Denn whereby Shattuck Denn obtained a new lease from the owners together with certain obligations to be paid by Shattuck Denn to Black Canyon.

B. There are no nearby properties; the nearest past producer, the Grizzly mine, is several miles southeast.

C. See attached reports by:

E. H. Lundquist	Oct. 13, 1920
John Foss	Mar. 20, 1920
John Foss	Apr. 21, 1921
Arthur Jenks	Apr. 4, 1923

Dr. Walter Harvey Weed made a lengthy report in August, 1925; available for inspection but not included in this application.

17 - Mine not in production.

FOREWARD

The following information is presented herewith as a general compilation of data dealing with the nature and extent of certain Ore Reserves at the Kay Mine, Canon, Arizona.

The reports of five competent Mining Engineers, carefully kept maps, assay records, tonnage estimates and geologic records testify to the presence of an area of Proven Ore of sizeable proportions, available for mining at a good margin of profit with copper at 12 cents per pount or more.

While past history need not be considered in connection with the fact that this proven tonnage now offers an inviting opportunity, some historical explanation may be of interest here.

One and one-half Million dollars have been spent in an ambitious endeavor to make the Kay property one of the big mines of the country. A privately owned railroad, smelter, townsite, etc. were envisioned in the plans of the earlier owners. Over-capitalization, stock market operations, excessive expenditures, a failing copper market and pressing debts, ended a campaign that gained a wide reputation. But, in aiming for tonnages of great magnitude, there was contemporaneously developed a good moderate sized mine which, under properly proportioned scale of operations, can now be worked conservatively at a good profit.

Prior to 1918, the Kay property was attracting attention as a promising prospect. With limited capital it was being slowly developed by its owner, S. J. Tribolet, of Phoenix, Arizona. This may be referred to as the first or initial stage of operation.

Following this, experienced eastern mining interests took over the property, and quietly conducted an intelligent program of exploration and development. It was during this period (the second period) that the now well known #1 Ore Body was developed. It was with this organization that the writer was employed, first as Engineer and Geologist, and later as Superintendent. All of the Proven Ore Reserves of the Kay Mine, and most of the estimated Probable tonnage, was developed during this time. As the company's engineer, the writer personally surveyed all the available workings in what is now known as the #1 shaft, and also systematically sampled and assayed the extensive system of drifting and cross-cutting of #1 Ore Body, as well as #2 Ore Body, and such intervening areas of mineralization as were deemed of importance.

All of the sampling, and assaying, was carefully cross-checked by the writer, and later again checked on two separate occasions respectively by Arthur W. Jenks, and C. H. James, well known mining engineers.

In 1922, after the expenditure of over $600,000, and the

establishment of Kay as a mine of moderate proportions and promising possibilities, by the interests mentioned above, it became advisable to enlist outside capital for the purpose of undertaking actual producing operations.

Under the new operators, the following or third period of operation, against the will of some of the former members of the preceding period who had given up control, instead of entering into production, evolved into an overly ambitious campaign of over-capitalization, heavy expenditures, stock selling, and attendant difficulties. Some new occurrences of ore were uncovered in the new 3 compartment shaft, southwest of #1 workings, but were not developed sufficiently to warrant estimation of ore reserves in connection therewith, with any degree of accuracy. While occasional new lenses, and possible ore bodies on the 800, 1200 and 1500 levels of #4 Shaft, offer interesting possibilities, no consideration whatever is given them herein, in measuring the actual profits that can now be realized in re-opening the Kay Mine.

We are concerned here, for the present at least, with only Ore Reserves of Proven character, which are available for immediate mining without the necessity of further development, excepting un-watering and reconditioning of the workings.

The third period of operation, just mentioned, ended in an over-capitalized company with dissipated funds, followed by debts, labor liens and tax liens, and accumulating internal difficulties, followed also by the recent period of low metal prices. Operations ceased, and the property has since remained idle.

Eventually the patented mineral claims and improvements thereon, and some of the equipment, were acquired through Sheriff's Sale, and Tax Titles, by the parties now holding title to same.

This brings us down to the present moment, with the copper market back to profitable levels, with well informed opinion and world and market conditions indicating that present prices will be maintained, sufficiently long to cover mining of the presently known ore reserves. With an important amount of gold and silver (now also at a level above old prices) in the ore, and 12 cent copper offering a good margin of profit, and a Proven Ore Reserve available for ready mining operations, the entire enterprise is one of decided merit. On a capital investment of approximately $50,000, the estimated Net Profit on proven tonnage is $323,000 and $556,000 on proven and probable tonnage, copper at 12 cents per pound. An outline of estimated returns, costs, and profits follows at the end of this summary.

PLAN OF OPERATION

It is advisable, in order to take advantage of present market prices that a production schedule be established at the highest economic rate compatible with existing Proven Ore reserves.

Dewatering to the 500 level should be started as early as possible and pushed rapidly to completion. During dewatering operations, some few final mill tests in connection with grinding limits can be completed. Required milling procedure has already been adequately determined through carefully conducted tests.

Installation of necessary hoisting and air equipment can likewise be carried on, and some reconditioning of #1 Shaft will also be required.

It is proposed to use a 50 ton mill as the first unit. This may be increased with mill units of 50 ton rating as conditions warrant and until the economic capacity is reached. All unnecessary expense in mill construction, such as elaborate housing etc. will be eliminated. Most of the grinding equipment will be purchased second hand from a reliable source already arranged. Gravity tables and flotation cells will of course be new.

The first mill unit can be installed and operating within 60 days. Stoping operations can be commenced immediately thereafter.

It is proposed to place the operation of the property under the charge of L. E. Foster, E. M., who is well qualified to direct actual mining and milling operations. Mr. Foster is a graduate of the Michigan College of Mines, 1903, and from 1915 to 1935 acted in the capacity of consulting engineer for the Phelps Dodge Corporation, Copper Queen Branch, Bisbee, Arizona. He was also Chief Engineer and Assistant Superintendent of Chino Copper Company, now a branch of the Nevada Consolidated Copper Corporation, Santa Rita, New Mexico, and otherwise has had considerable experience in mining and milling operations.

Mr. John R. Poss, E. M., who was engineer and geologist and later superintendent of the company during the development of the ore reserves of #1 Shaft, will be consulted during re-opening, production and development operations. Mr. Poss, a graduate of Michigan College of Mines, 1916, was formerly Efficiency Engineer and Geologist for Hancock Consolidated Mining Company of northern Michigan, a property then mining 1200 tons daily, and was later on the staff of Utah Consolidated Mining Company. His intimate knowledge of the ore reserves and nature of the ore occurrence of the Kay Mine will be of assistance here.

Additional Tonnage

In considering this operation only in the light of proven ore preserves, little mention has been given to the many other occurrences of ore which, considering their characteristic habits, should develop additional tonnage of important proportions.

Practically all of the Proven Tonnage occupies the segment north of the fault (see Level Plan). That there is quite a little additional tonnage in the upper levels on the south side of the fault seem

most likely. In fact, the largest part of the #1 ore body seems to be south of the fault, - as testified by an apparent 120 feet of length on the 600 level.

Also, some 30 feet in the footwall of the #1 ore body, there occurs in four separate places, one on the 500 level, and three on the 600 level, another lens approximately 20 feet in width, which where cross-cut averages 3% copper, and $2.50 in gold and silver. This lens is generally referred to as #2 Ore Body. Its exact extent has not been determined. It has not been sufficiently opened up to classify as Proven Ore in the usually accepted sense. Neither has it been included here in estimates of returns. It comes under the heading of Possible Ore, but knowing the characteristics of the Kay mineralization, the writer feels safe in assuring this as an additional source of sizeable tonnage.

On the north side of the #1 Shaft, on the 500 level, in one place only, there has been cut 12½ feet of ore that averages over its width, a little over 3% copper. It should likewise produce some additional tonnage, readily available for immediate stoping.

Several other lenses of apparently interesting proportions have been exposed in the workings of the newer 3 compartment vertical Shaft (#4), southwest of the #1 workings, on the 800, 1200, and 1500 levels. Although no systematic development work was done on these lenses, and estimates of tonnages cannot be calculated, they do most likely represent other ore bodies. These later lenses added to the known ore reserves of #1 workings, were apparently the basis for the assertion on the part of operators of the "third period", that the Kay ore reserves had reached a valuation of $26,714,000 (letter to Stockholders under date of March 29, 1927, quoting A. Spencer Cragoe's report, and signed by James J. Godfrey). No inference, however, is made here that any such reserves exist. Insufficient development work has been done on these lenses to justify such computations. However, the occurrence and possibilities of these lenses are worthy of consideration, and will quite likely prove to be sources of new and additional tonnage of an extent as yet undetermined.

Thus, in considering only the possibilities of profit from Proven Tonnage, some importance may be attached to consideration of Probable Tonnage, and Possible Tonnage, for quite certainly some portions of these areas will provide additional tonnage to augment Proven Tonnage estimates.

From the table of estimates of Return, it can be seen that with relatively little initial capital investment, a net profit of $323,000 is assured, considering lowest estimates of tonnage and low metal prices, while with reasonable additions thereto from the Probable Ore area, the net profit can conservatively attain a figure of $556,000 with copper at 12 cents, to $931,000 with copper at 15 cents. That even these figures by no means limit other possibilities of the Kay Mine in other sections of the property where lenses have been exposed,

is an additional feature lending further merit to the enterprise.

Dated March 27, 1937.

(Signed) John R. Foss, M. M.

L. E. FOSTER

Mining Engineer

Aug. 2, 1937.

Mr. John R. Poss
Lake Arrowhead, California.

Dear Mr. Poss:

I note that you did not call attention to the possibility of getting considerable profit from handling the dump material in the old Kay mine shaft dumps, in your report on the Kay Copper. During the operations of the Kay Copper Company and Corporation there was very little ore shipped, - records show a total of about 500 tons, practically all of which was stoped in the #1 shaft area for bulk test sampling. The ore taken out during progress of development work was placed on the mine dumps with very little attempt at segregation as to grades or keeping it clean.

From surveys and preliminary sampling it would appear that there is an indicated tonnage of milling ore available in the dumps as follows:-

#1 Dump -	2,200 Tons	@ 2.10% Copper
#4 Dump -	17,500 "	@ 1.30% "

Samples were taken from small headlings dug into the sides of the dumps and from pot holes in the tops. No trench samples were taken.

Figuring conservatively as to costs with a small mill unit to handle material from dumps, roughing on tables and cleaning with flotation, there should be a net operative profit of over $30,000.00 in them. There are small areas in the #4 dump that will run as high as 5.0% copper, which were not taken into the above figures.

Trench sampling and digging test pits in tops of dumps would soon prove just what the possibilities of profits from dumps are, as a check on original sampling.

Also note that you do not call any attention to the fact that commercial ore was developed on the 1,000, 1,200, and 1,500' levels of the #4 shaft, and that diamond-drill holes driven

from the 1,500' level proved ore at a depth of 1,700 to 1,800', demonstrating the continuation of the ore bodies at depth. The ore was strong and showed the most consistent good values of any level showings in the Kay. Copper assays ran up to over 8% on average in sections and in places gold assays ran as high as 1.0 oz. on the 1,500'

Indications point to the possibility of blocking out hundred of thousands of tons of commercial ore at depth in the Kay mine, and in valuing the property this should be taken into consideration.

Considerable stress has been laid on the ore-bodies in the #1 shaft as they in so far as they have been developed show a very profitable venture due to ore actually being blocked out. But in viewing the proposition, sight must not be lost of the fact that it has been demonstrated that the #1 shaft ore-bodies continue downward and other ore-bodies have been shown to exist to a depth of 1,800'. In view of the geologic structure, the fact that the ore-bodies or deposits are mesothermal, and developments all ready made there is no reason why we cannot anticipate that the ore-bodies will continue to a much greater depth than known at this time.

Regards,

Yours sincerely,

Signed: L. E. Foster
L. E. Foster
P. O. Box #776
Phoenix, Arizona

JOHN R. POSS

SUMMARY REPORT

March 20, 1920

SUMMARY REPORT OF THE PROPERTY OF
THE KAY COPPER COMPANY.

LOCATION.

The property of the Kay Copper Company is situated on the main road between Phoenix and Prescott, in Yavapai County, Arizona. It lies on the Agua Fria River, three miles north of the Yavapai-Maricopa County line. Turkey, 22 miles away, is the nearest shipping point.

The holdings of the company comprise 41 mining claims aggregating 750 acres and an adjoining tract of land of 670 acres, purchased for townsite and mill purposes. The latter acreage lies in a fertile valley bordered on one side by the Agua Fria River.

GEOLOGY:

The property lies in a Pre-Cambrian schist belt, which extends north and south along the eastern edge of a large granite mass known as the Bradshaw Mountains. Northward, included in this belt, are the mines near Mayer, the Blue Bell Mine, the Arizona Binghampton, the De Soto and still further north the mines of Jerome. Although there are many features of similarity, each represents various types of mineralization.

Two distinct phases of schist are found on the Kay Copper Company's property. A schisted quartz porphyry thus far has proven to be the most favorable phase, although some promising schewings are found in the chloritic or greenstone schists.

Worthy of attention, is the presence of a large diorite mass, younger and less disturbed than the schists, but pre-mineral, the northern edge of which cuts across the quartz porphyry schist at an angle of 30 degrees. This is a favorable structural condition, undoubtedly having some influence on impounding and concentrating the primary mineral solutions.

ORE OCCURANCE.

The ore occurs as a replacement of the quartz porphyry. Primary chalcopyrite and pyrite, banded and disseminated in the schist, form the ore bodies. Some are lenticular in shape, showing increased width as depth is attained, while one explored by the diamond drill has indications of having the shape of a large irregular mass of heavily mineralized schist. Two distinct systems of thrust faulting has resulted in displacement of the ore bodies on a small scale, a fact which limited the development of the ore in the older workings, to one side of the fault, the faulting system at that time not having been worked out.

Post mineral diabase dikes with various dips are found throughout the formation.

DEVELOPMENT.

The main ore tonnage to date has been developed in No. 1 shaft. The main ore body lies entirely on the south side of the shaft, as can be seen by the following description of the various levels.

The Outcrop.

Iron and copper stained gossan, the largest part of which is covered by the river bed, is in a bay probably formed by erosion of the ore body.

100 Level.

Drifted south 25 feet, then crosscutted 18' both in ore.

200 Level.

The drift south extends 120 feet from the shaft.

The northern end of the ore shoot was encountered at 50 feet. From this point to the face, the drift remains in the ore body. At the face the fault was encountered and the work discontinued. Cross-cutting exposed a width of 20 feet of ore.

250, 300, and 350 Levels.

As on the 200 level the south drifts is each case extended to, and then along the ore body until the fault was reached then the work discontinued. Cross sections of the ore body on these levels give an average of 4.8% copper. The south drift on the 350 level was extended across the fault and the displaced ore partially developed, the face remaining in ore.

500 Level.

The south drift encountered the ore body at 60 feet and drifted along it to the fault. Crosscutting showed a width of 30 feet averaging 5.4% copper. Further drifting was done on the opposite side of the fault along the faulted portion, for 60 feet, the face remaining in ore.

600 Level.

The main development work has been done on this level. The ore body was reached by a south drift at 130 feet from the shaft. Crosscutting showed a width of 32 feet, averaging 4% copper. A length of 50 feet was shown on the north side of the fault. 130 feet of drifting was done along the displaced portion south of the fault, thus exposing a total length of 180 feet. The southern end is still undetermined, as the face is still in the ore body. Crosscutting from the drift was done by short diamond drill holes and revealed a width of 40 feet.

At one place on the 500, and at four places on the 600, another ore body 20 feet east and in the footwall of the main ore body was opened by crosscuts. This lens shows an average width of 15 feet of 3% copper. The extreme

north and south crosscuts signify a length of 180 feet. The zone between these ore bodies shows increasing mineralization with depth and it is probable that they may merge to form one ore body.

Considerable work has also been done on the north side of the shaft on the various levels, but mainly on the 600 level. Several smaller but promising lenses were cut, and with further development may yield additional tonnage.

DIAMOND DRILLING.

From the 600 level, 3000 feet of diamond drilling was done, thirteen holes in all were drilled, two of which were inclined at 45° to cut both the main ore body and also the foot lens, 120 feet below the 600 level. The presence of the two ore bodies at that depth was satisfactorily determined.

A flat hole was also drilled 300 feet eastward, across the river, to intersect a promising surface showing. At 250 feet a 60 foot heavily mineralized zone was cut. Several other zones of promising character were shown and practically the entire hole revealed fair mineralization.

An inclined hole from surface was then drilled across this same section, cutting the 60 foot zone at a depth of 300 feet. This hole likewise showed very promising mineralization through its entire depth.

In all, about 3500 feet of drifting and crosscutting and 3000 feet of diamond drilling has been done in No. 1 shaft.

No. 3 shaft, located some 2100 feet north of No. 1 shaft, was sunk to a depth of 530 feet in chloritic schist. About 360 feet of drifting has been done, disclosing from 3 to 4 feet of 3% ore. This zone is but slightly explored and is worthy of attention at a later date.

A new vertical, three compartment shaft called No. 4 is being sunk. It has reached a depth of 130 feet and will continue to the 1000 level. A crosscut from this point will explore the territory cut by the east drill holes and also the lower extension of the two ore bodies from No. 1 shaft.

The shaft is at present, and has been from a depth of 65 feet, in well mineralized quartz porphyry schist.

The equipment of the plant consists of a 25 HP Western Hoist, and two 300 cubic foot Chicago Pneumatic air compressors, and five Ingersoll-Rand-BCR-430 jack hammer drills.

The new shaft is located three quarters of a mile from the fossil Creek power line. A permanent plant, electrically driven, will shortly replace the present equipment.

ORE RESERVES.

Approximately 215,000 tons of 4% ore in the main ore body and a conservative estimate of 81,000 tons of 3% ore in the foot lens, making a total of 296,000 tons are in sight to date. Throughout the ore bodies an average value of $3.00 in gold plus silver (silver @ $1.00 per oz) is found. With copper at 20¢ per pound, the total value of the above tonnage amounts to $5,300,000.

CONCLUSION.

Because of the fact that the mineralization solutions came from moderate to great depth, and that all of the ore is entirely primary in character, depth to the ore bodies is reasonably assured.

The diamond drill holes eastward disclosed a very large area of well mineralized ground, and it can be confidently expected that a large, although possibly lower grade, tonnage can be developed there. This large area lies close to the diorite mass, and it is in this locality that the most favorable signs of impounding and concentrating of the mineral solutions are found. The new No. 4 shaft, together with crosscuts from it, will test this promising zone.

Respectfully submitted

(Signed) John R. Poss, E. M.

Note: The above figure of 296,000 Tons of ore "in sight" is composed of the following:

PROVEN ORE

Blocks 1, 2, 3, 4, 5 (N. of Fault)	-	60,900 Tons
Blocks "A" & "B" (400 & 600 levels S. of fault)	-	38,400 Tons
Total	-	99,300 Tons

PROBABLE ORE

Lateral extensions of 85,200,300 & 350 Level comparable with one-half the developed length on 600 level.	39,400 Tons

POSSIBLE ORE

Indicated extension 120 feet below 600 level, by diamond drill holes	76,000 Tons
#2 Ore Body (Footwall lens) Xcut on 500 Level and four points on 600 Level.	81,000 Tons
Total	296,700 Tons

JOHN R. POSS

SUPPLEMENTAL REPORT

April 21, 1921

Phoenix, Arizona
April 24, 1921

SUPPLEMENT

to

KAY COPPER COMPANY SUMMARY REPORT.

INSTALLATIONS.

Since my summary report of the property of the Kay Copper Company was submitted on March 20th last year, a branch power line from the main Fossil Creek (or Sycamore) line has been installed. An electrically driven 75 horse-power, 500 foot compressor and a 112 horsepower double drum hoist have also been put in place and are now operating. With the two semi-diesel compressors previously used, the total air capacity is now a little over 1000 feet. A new electrical triplex pump, capacity 200 gallons per minute at a 500 foot head is also to be installed shortly on the 500 level.

DEVELOPMENT.

The new vertical (#4) shaft to date has been sunk to a depth of 426 feet. A constant but low grade mineralization was present in the shaft to a depth of 212 feet. From 135 to 212 feet a parallel fault system was passed through, the block beneath the fault showing but very little mineralization. The condition continued to a depth of 331 feet where a contact of a belt of blue chloritic schist was reached. The contact dips across the shaft at an angle of 76 degrees and for that reason the shaft crosscuts the blue schist very gradually.

The appearance of the blue schist was immediately attended by some mineralization, which as the shaft deepened became stronger.

First of importance was the appearance of fair amounts of gray copper (Tetrahedrite) replacing the schist in the form of small bands parallel to theschistocity, a condition previously rarely seen. Occasional small streaks of chalcopyrite were noticed as the shaft deepened further, until at a depth of 354 feet, a narrow zone of 18 inches showed fairly heavy replacement of the blue schist over that width, averaging 3% copper.

At 383 feet the 18 inch zone widened to 4 feet becoming lower in grade over the wider section assaying 1.52% copper. At 396 feet the zone showed a width of 7 feet, 4 feet of which assays 1.65% and 3 feet, 1.03% copper. The section at 404 feet shows 9 feet in width, 5 feet assaying 1.85%, the remaining 4 feet, 1.0%.

Another new occurrence is the presence of bornite, found along small seams and fractures, as an enrichment, within the chalcopyrite. As the shaft gets deeper, more bornite in this form is noticeable.

The mineralization as a whole has been somewhat stronger on the

south side of the shaft, while on the north side more quartz has been evident. It is of common occurrence with ore bodies in the schist belt to find considerable quartz on the ends of the lenses. It is, therefore, considering other evidence to be mentioned later, quite probable that an ore lens is to be found just south of the shaft at this point. A station will be cut at 458 feet and a drift sump, driven south, to be used as a sump for the new electrical station pump, will help to determine this question. This level (called the 500) will at some later date be connected with the 500 level, #1 shaft. After completion of the station and sump, sinking is to be resumed.

SUMMARY.

Before drawing my conclusions as to the possibilities of the newly encountered blue schist belt, it will enable one to more clearly and accurately consider the question if a general description of the structure and ore occurrence at the Kay be briefly given.

First of prime importance are the proper structural conditions; some sort of a catch basin for the mineralizing solutions as they ascend, penetrating the schist from below. This is pre-supposing the previous existence of the mineral solutions, an assumption which is justified by the presence of a large and fairly intensely mineralized area. That the solutions have come from below, given off the large intrusive Bradshaw granite mass and its outlying phases, is generally accepted. The comparatively open, sheared character of the schist render countless channels fo r the circulation of the solutions.

The so called catch basin, in which these solutions have been impounded, at the Kay, is formed by a relatively impervious intrusive diorite mass, itself a part of the pre-Cambrian complex, but less disturbed and more massive, dipping so as to form a hanging-wall to the basin thereby forming a barrier for ascending solutions, and crossing the schist at an angle of 30 degrees tending to dam also lateral solutions.

Replacement has taken place in this basin in the form of roughly elliptical shaped chimney, with its long axis parallel to the strike of the diorite, the chimney itself being of comparatively low grade and composed largely of iron pyrite. In this area occur the copper ore bodies representing a stage of mineralization later than the iron. worthy of notice; as the result of a microscopic examination of various types of mineralization at the Kay, is the absence of high temperature minerals, indicating that the development work thus far is probably in the upper or intermediate zone of deposition. The ore lenses exposed so far also show the tendency to increase in width as depth is attained.

Two types of schist, a schisted quartz-porphyry, or white sericite schist, as it is called, and a blue chloritic schist, are known to have undergone replacement. Most of the work done so far has been in the sericite schist, although some work was done at #3 shaft in the blue schist, which shows indication of being a possible source of additional tonnage, though apparently small, due undoubtedly to not being under the influence of the diorite and its accompanying basin.

Although mineralization on a large and intensive scale sufficient to result in the formation of two known bodies of ore, with indications of others, is found in the white sericite schist, the blue chloritic schist, less siliceous, is undoubtedly more favorable to replacement. As can be seen by the accompanying plan and cross sections sketches, #1 shaft, in which practically all the ore to date has been developed, lies entirely within the white sericite schist zone, which in itself presents ample opportunity to develop a large tonnage of ore of from 3 to 4% grade.

The presence of the adjoining zone of blue schist, in which it is quite probable the main mineral area extends, only lends additional promise and another decidedly attractive field for exploration. As a matter of interest and worthy of notice in this connection, is the mode of occurrence at the United Verde mine at Jerome, at the other end of the Bradshaw range, where structural conditions are practically identical with those found at the Kay, but where all the mineralization of importance is found in a blue to black chloritic schist, only the lower grade and siliceous ore being found in the adjacent schisted quartz-porphyry.

Owing to the fact that the blue chloritic schist belt at the Kay, is almost entirely concealed by old river wash, in drawing conclusions in regard to the possibilities of that belt, one must judge partly by comparison. With the white sericite or quartz-porphyry schist so well mineralized, the blue schist, in the same locality and under the same impounding influence of the diorite, and being of a more easily replaced type, presents decidedly favorable conditions for the extension of the known ore zone, laterally. Any possible outcrops of ore lenses are covered by 30 feet of overburden, which accounts for the fact that little or no work or attention was directed to that area.

In view of the fact that the position of the new shaft, as can be seen by the plan sketch, is, while in one sense in a central position for future exploratory work westward, probably near the north eastern limit of the main mineral area, together with the occurrence of stronger mineralization on the south side, with more quartz on the north side of the shaft, it is reasonable to assume that the mineralization so far encountered is but the northern tip of heavier mineralization, or an ore lens, laying just south of the shaft. Due to the general rake south of the ends of the ore lenses in this locality, it may be expected that as the vertical shaft deepens it will leave entirely the tip of any ore occurrence present to date.

A very attractive oxidized iron outcrop, apparently in the blue schist belt south of the shaft and near the diorite contact, lends additional promise to this belt.

It is felt that the small amount of development to date in the blue schist is quite encouraging, and in view of its favorable location adjacent to a known mineralized zone, the sericite schist belt, and its apparently being a part of the main basin, together with its being of an easily replaceable type, and the usual satisfactory results obtained in this type of schist elsewhere under the same conditions, induces me to urge very strongly that this belt be explored completely.

Respectfully submitted

(Signed) John R. Poss, B. S. E. M.

ARTHUR W. JENKS

REPORT

April 4, 1923

DATA EXTRACTED FROM MY REPORT TO BE USED

IN PROSPECTUS

* * * * * * *

The Kay property is in the southern portion of a broad belt of schists, which extend northerly as far as Jerome, where the United Verde is in this same formation. To the east of the schist belt, there is a series of diorite and other eruptive rocks, while on the west, the granite of the Bradshaw Mountains appears.

The ores occur as lens parallel to the schists and replace portions of these schists. The particular strata at the Kay property most favorable for replacement and ore deposition are the chloritic schists, dark green or black in color. At the Arizona Binghampton, six miles northeast of Mayer, the ore also occurs in dark green schists. They have encountered large lenses of ore and stoping has extended to the 6th level. The Blue Bell Mine, south of Mayer, has also produced a large amount of ore, stated to me by their former manager to have been a million tons of about 3-1/4%. The grade in the Arizona Binghampton is similar.

At Jerome, the United Verde ore is chalcopyrite, occuring black chloritic schists. Their ores have been proven to go very deep, in fact, their 16th level is one of the best they have had and much better than the ones immediately above.

The United Verde deposit is a chimney about 12 acres in cross-section of which 3 acres is ore on the 16th level. The ores at the Kay are entirely sulphide, mainly copper pyrites, but with some gray copper. These occur in sheets or lenses parallel to the northerly-southerly direction of the schists; in fact, they themselves are layers of schists replaced by these sulphides.

Extensive investigations have established the primary character of the copper pyrites and gray copper; thus the copper minerals are not a secondary enrichment, which would disappear in depth. There have been several stages of mineralization, the copper pyrite being distinctly later than the iron pyrite. A very favorable feature is the persistence in depth of the lenses of ore so far encountered. They have maintained their length, a good width, and payable values. Gray copper occurs at various depths, but especially at the lower levels. A specimen selected because its principal valuable mineral was gray copper gave:

Copper	10.65%
Gold	0.11 oz. per ton
Silver	6.09 oz. per ton

these assays indicate that the gray copper may be the mineral mainly responsible for the silver content of the ores.

The principal workings are those connected with the inclined #1 shaft,

which the former owners sunk to the 350 foot level, while the Kay Copper Company continued the development from that shaft to the 5th and 6th levels and sunk the vertical #4 shaft to the 8th level and have done crosscutting and drifting therefrom.

Using mainly the assays and measurements given on the maps of the Company, the developed ore reserves of the property are calculated as follows:

POSITIVE ORE

70,793 tons
Averaging 5.01% copper, and $2.34 gold and silver.
The contents thereof are 7,157 pounds of copper with a gross value of $1,002,078 plus $165,963 in gold and silver.

PROBABLE ORE

103,476 tons
Averaging 3.59% copper and $2.00 gold and silver.
The contents thereof are 7,438,080 pounds of copper with a gross value of $1,041,331 plus $206.952 in gold and silver.

The only ores taken into consideration are those reached by the #1 shaft. The downward extension wasassumed to reach 250 feet below the 6th level; as the ore has continued in the form of a lens from near the surface to the 6th level and is wide at the 6th level, the assumption appears safe.

The company's records show 470 tons of shipped; these averaged copper 9.04%, silver 1.14 oz. per ton, gold 0.068 oz per ton. At the present price of silver, the gross precious metal content is $2.50 or 28¢ to each per cent of copper.

No ore has been shipped from below the 350 foot level. In 1917, from that level, a final carload of 31 tons was shipped, which ran copper 13.35%, silver 1.36 oz per ton; gold 0.08 oz per ton. Therefore, this shipment yielded $2.96 in gold and silver, or 22¢ to each per cent of copper.

The diamond drilling so far done has been satisfactory only in the way of locating changes of formation and locating mineralized areas. But due to the fact that many seams were encountered, and to the fact that the rock itself occurs in thin plates, the proportion of core recovered was altogether too small; the sludge and some pieces of core gave very favorable indications.

The Electric Power Sub-station is three quarters of a mile from the new shaft. The cost of power is now excessive, about 3-1/3¢ per kilowatt-hour. With the good auto road, it may now be possible to utilize fuel oil as a source of energy.

For the future, diamond drilling is recommended in various places. At #3 shaft from several points; in the 8th level in shaft #4; and easterly from points near the Agua Fria River to cut beneath the promising irony outcrop near the river.

By means of differential flotation, many properties are now making a separation between iron pyrites and copper pyrites, and there is every reason to suppose that this separation can be made in the case of Kay ores, thus permitting the production of concentrate much higher in copper than would be possible by ordinary wet concentration.

The tonnage of ore shipped from #1 shaft and the good assays thereof, are very encouraging. There is every probability that much similar ore remains exposed below, when that shaft is unwatered.

The general geological similarities between the United Verde, Arizona Binghampton, and Kay are strong; that is there are similar probabilities of ore deposition.

Water abundant for all concentration purposes is flowing in the Agua Fria River, flowing across the property, which river will furnish an ample supply of water, even in the driest seasons.

I have endeavored to give the facts concisely. In conclusion, I will say that I believe the development of the property to be a legitimate mining venture; that it is a very promising property and that it will, upon development, make a mine.

(Signed) Arthur W. Jenks.

New York
April 4, 1923

E. H. LUNDQUIST

REPORT

October 13, 1930

PHOENIX, ARIZONA
October 13, 1930

A COMPARATIVE ESTIMATE OF ORE RESERVES IN THE KAY COPPER MINE, LOCATED AT CANYON, ARIZONA, AS COMPILED FROM MAPS AND AVAILABLE RECORDS.

- - - - - - -

At the time the mine closed down 1928-29, the total ore reserves were apparently not estimated or brought up to date, therefore it is necessary to be extremely conservative in accepting the partially completed records of the more recent work.

The accompanying report by Mr. John R. Poss, E. M. can without doubt, be accepted in its entirety as covering what is known as the Number One ore body, extending from the 600 level to the surface and developed from the #1 shaft. Subsequent work included the sinking of three other shafts, one #4 which was sunk to the 1200 level. The 1500 level is reached by a winze sunk from the 1200 level and is the present bottom of the mine. The #2 shaft reached a depth of 180 feet and some ore is reported here though not taken in account in the estimate and not connected with the general workings. #3 shaft is located some 2000 feet north of #1 shaft and is 520 feet in depth. There is ore developed on several levels from this shaft but not considered in estimate nor are these workings connected with main workings as yet, though a drift has been driven from #4 s haft on the 1200 level to a point under them.

The #1 ore body includes 215,000 tons that will average 4% copper and $1.00 gold per ton, and 81,000 tons averaging 3% copper and $1.00 per ton making a total of $2,502,000.00, assuming copper at 10 cents a pound. There is some silver in all the ore but this is not considered in estimate.

As indicated on the accompanying vertical section map, the ore bodies continue down to the 1,000 and beyond. From the 600 to the 1,000 the values shown are somewhat lower than those above the 800 and below the 1,000 level.

In view of this, this block of ore will not be considered.

From the 1,000 to the 1,500 level, a block of ore 60 feet long by 5 feet in width on the 1,000 level by 170 feet long and 5 feet wide on the 1,500 level, this 5' width assumed shows the actual width sampled in drift, although drill holes etc. indicate many times this width. This block will provide 23,500 tons that will average 3.1% copper, and $1.00 per ton, totaling $169,200.00, and each additional foot in width that is given to this block on the above basis will increase the value $33,840.00.

The total value on a basis of 10 cents copper and $1.00 per ton gold is as shown above $2,671,200.00. It may be well to mention that the ore on the 1,500 level and above will probably mine 25 feet instead of 5 feet as assumed, and as indicated on map the drill holes below the 1,500 level show a width and value of 20-25 feet and 6.08% copper respectively, and gold values increasing to $3.00 per ton. Besides this, considerable lead ore is coming in on the lower levels that carries very good silver and gold values. All of this shows a constantly increasing metal content and size of ore bodies as depth is gained.

Respectfully submitted

(Signed) E. H. Lundquist

18 - A. The ore as now exposed consists of chalcopyrite in long narrow lenses in Pre-cambrian fissile chloritic and sericite schist.

Three principal ore shoots have been drifted on; the #1 shaft ore shoot, apparently continuous down to the 6th or bottom level, the North west shoot exposed on the 1500 and 1000 ft. levels, and the South ore shoot on the 15th and 1350 levels.

Mr. T. S. Dovey in his letters to the management, under date of Sept. 9, 1926, describes the south ore body as then 102 feet long assaying 5.10% copper, $1.00 in gold, and .88 silver, with a width at the cross cut of 15 feet assaying 4.9% copper.

The north ore body, under date of August 9th, showed a length of 165 feet with an average assay of 4.69 copper, with a width at the 1527 W X-cut of 14 feet.

This north ore shoot was diamond drilled in 1928 at greater depth by holes No. 88 and 89. Hole 89 was drilled N 75 W 6.52° dip and showed core assays of:

378-388	5.11% copper	with corresponding sludge sample
388-396	3.50	

Hole 88 was drilled from the same cross cut S 75 W dip 49° and showed core assays of 2.92%, 4.34% and 11.96% copper, with no logged distances given.

Drill Hole 81 from the 1515 W X-cut S 35° E dip 45° showed 3% copper from 272-284, a true width of 9 feet of ore.

B. Maps enclosed:

1 Claim map
2 Assay plan of ore shoots on 1500, 1350 and 1000' levels
3 General plan showing workings from #1 shaft with summary of estimates of ore in this shoot
4 Plan of workings from #4 shaft
5 12th level plan
6 15th level plan
7 Mine cross-section

C. No tonnage estimates are made in this application because no development work has been done above or below the levels.

				Ag.	Au.
The 1506 N ore body	length	200 ft.	Aver. Grade 5.71 Cu.	0.6	.03
1508 S ore body	"	150	3.75	negligible	
1350 S ore body	"	120	3.43	"	
1000 N ore body	"	90	3.36	1.0	.14

19 - Shattuck Denn started unwatering and rehabilitating #4 shaft late in October, 1950. The mine is now unwatered to the 12th level. No. 1 shaft has been cleaned out between the 5th and 6th level and the 6th level has been retimbered.

A small amount of natural ventilation is obtained by air descending #1 shaft to the main raise, down this raise to the 8th level, escaping through #4 shaft. When the 12th level is completely unwatered and the 6th level rehabilitated, it is expected that ventilation will be adequate.

The Kay Mine was first opened about the time of World War I. A few years later it was acquired by the Kay Copper Company. The stock of that corporation was widely distributed by promotional methods and large sums of money were obtained from stockholders. While these funds were spent in what now appears to have been an extravagant manner, the expenditures nevertheless accomplished a great deal of underground work. No. 4 shaft, or the main shaft, was sunk to a depth of 1,200 feet. Later a winze was sunk from the 12th level to a depth of 1,500 feet. Much lateral development was done. Apparently very little effort was made in this period to produce or ship ore, perhaps for the reason that those in control of the property were more interested in selling stock than in production. These practices gave the company and the mine a bad name. Following the financial panic of 1929, the company's funds were exhausted and the property was abandoned.

About 1936 the property was examined by Mr. L. E. Foster, a mining engineer now employed by the Kennecott Copper Company at Silver City, New Mexico. Mr. Foster carefully assembled all of the available data and he, with the other present owners and lessors, acquired the mining claims, which had previously been patented, at a tax sale. Later these owners entered into a contract for the sale of the property to the Black Canyon Copper Company. The latter was insufficiently financed and in 1950 entered into a contract with Shattuck Denn Mining Corporation by which Shattuck Denn acquired all Black Canyon's rights in the property. A copy of this contract is submitted herewith. About the same time, Mr. Foster and the other owners entered into a lease and option directly with Shattuck Denn. A copy of this lease is also submitted herewith.

Our investigations of this property and the statements and exhibits submitted herewith indicate that the Kay Mine is very well adapted to the purposes of MO-5. We have unwatered the mine but find that its exploration would involve an expenditure probably in excess of what might be justified on a strictly commercial basis. We were, therefore, in doubt as to whether we would continue the exploration program at the time MO-5 was published. However, with governmental assistance contemplated in MO-5, we are willing to expend 50% of the funds necessary to complete the exploration.

The project may be summarized as follows:

1. Apparently reliable records and reports of competent engineers indicate the existence of orebodies which did not support a stock promotion in 1920's, but which under today's conditions may produce substantial quantities of copper at a reasonable cost.

2. No metallurgical problems are involved. Our tests show that the ore will concentrate readily and there is ample copper smelting capacity in Arizona to treat the concentrates.

3. There are no serious water problems. The mine was partially filled with water during a long period of idleness, but it is now pumped out to a depth of 1,200 feet and the flow of new water is small. It can be handled with ordinary pumping equipment. The mine water is suitable for and may be sufficient for milling purposes, but if more water is needed for milling, it is readily obtainable from the bed of the river crossing the property.

4. No power plant or transmission lines are necessary. Ample power is obtainable from public utilities and the line is already installed.

5. No access or other roads are necessary. The mine is situated less than one-half mile from a paved highway.

6. No special labor problems exist. The mine is less than an hour's drive from Phoenix, and is also near a number of smaller towns in which mining labor is ordinarily available.

7. Services such as supplies, repairs, assaying and accounting will be obtained from our Iron King Mine, which is a well equipped enterprise now mining and milling 600 tons of ore daily. The Iron King is about 45 miles north of the Kay. Driving time, by truck or car, is approximately one hour.

8. The amount of "dead work", such as roads, power lines and shafts, is negligible. The mine is already opened up and adequately equipped for any work short of actual extraction of ore on a commercial scale. Any money spent from now on will go directly to exploratory and development work, such work to consist of checking the existence of ore reserves already reported and a comparatively limited amount of new openings designed to enlarge such orebodies. Overhead expense is negligible.

9. Climate permits all-year operations.

10. Transportation problems are absent. Because water, power, etc. are available at the mine, transportation of the ore would not be necessary, and concentrates can be trucked to railroad at moderate cost.

11. Because of the work already done at the mine by the Kay Copper Company, by Mr. Foster and the other owners, the Black Canyon Copper Company, and by Shattuck Denn Mining Corporation during the past few months, the time necessary to prove the mine is short. One year from the date of this application should be ample, and it is quite possible the program would be concluded somewhat earlier. This time element is highly favorable, in our opinion, and in rather striking contrast to the years which are usually necessary to test the potentialities of any mining prospect.

20 - Chalcopyrite, carrying some precious metals.

Occurrence varies from massive to sheetings and disseminations in the schist.

21 - The proposed exploration is for the purpose of trying to locate the downward extension of #1 shaft ore shoot by driving northward a maximum of 500 feet from the north face of the 800 level. If ore is found here it should be further delineated by a short program of diamond drilling.

No vertical exploratory work has been done in the Kay mine. Vertical prospecting is proposed by means of a raise from the 10th level to the 8th level, and from the 6th level #1 ore body if found, to the 6th level. These raises will also provide ventilation for the north ends of the 10th and 8th levels.

If the 6th level ore proves to be as represented, and ore is found on the 8th level, it is proposed to unwater the mine to the 15th level and raise from the 15th level to the 12th level, to try to block sufficient reserves to justify a mill. The ore shoots on the 15th level, based on the maps, are larger and stronger than those on the upper levels.

See schedule of operations, Page 24

22 — See enclosed maps.

As stated in 19-C, ore now indicated in plan only on the levels, must be proved by vertical work for estimate of tonnage.

23 - A.	With a miner's base rate of $11.60 per day, the average wage rate is $12.22, plus average shift differential, 32¢, plus 14% overtime. Average 17½ men 12 months	90576.00
B.	Supervisor $500 per month plus car expense	7800.00
C.	Repairs to bunk house	400.00
D.	None	-
E.	Drilling equipment	1500.00
F.	None	-
G.	$1000 per month	12000.00
H.	Timber, powder, welding rods, repairs, etc.	16524.00
I.	Power	17400.00
	Installation of compressor	1000.00
	Comp. insurance, social security taxes	11784.00
		$ 158984.00

24 - See Schedule attached

Schedule + Estimate of Cost - Kay Copper. Arizona

Date	Re-open 600 Level Man Tmb Expl.	Drift 800 Lev. M T P	Unwater to 1500 L. M. Tm P.	Rehabilitate 1500 L. M. T. P.	Raise 10 to 8 M T P	Raise 8 to 6 M T. P.	Raise 15 to 12 M T. P.	Hoist Mechanic Electrician Men	Super Surface + Sampler Pumps	Supplies	Power	Force	# Payroll	Total
June 51	2 $300 -	2 $100 $250						5 1 1	1 2 2	$1500	1200	16	7000	9700
July	2 300 -	2 100 250						5 1 1	1 2 2	1500	1200	16	7000	9700
Aug	-	2 100 250	$3-300 -		2 300 150			6 1 1	1 2 3	1600	1500	21	9200	12,300
Sept		2 300 250	3 300		2 300 150			6 1 1	1 2 3	1500	1500	21	9200	12,200
Oct		2 300 250	—	2 300 -	2 300 150			6 1 1	1 2 3	1600	1500	20	8800	11900
Nov.				2 300 -	2 300 150			6 1 1	1 2 3	1400	1500	18	8000	10900
Dec.						2 300 150	3 300 150	6 1 1	1 2 3	1300	1500	19	8400	11200
Jan.	Diamond Drill					2 300 150	3 300 150	6 1 1	1 2 3	1300	1500	19	8400	11200
Feb	2 1000					2 300 150	3 300 150	4 1 1	1 2 3	2200	1500	19	8400	12100
Mar	2 1000					2 300 150	3 300 150	4 1 1	1 2 3	2200	1500	19	8400	12100
Apr.	2 1000			2		—	3 300 150	4 1 1	1 2 3	2000	1500	19	8400	11900
May.							3 300 150	4 1 1	1 2 3	1500	1500	15	7000	10000
										19600	17400	Av. 18½	98,200	135,200
								Social Security, Unemployment, Comp. Ins.						11784
								Rental S.D. Equipment						12000
												Total		$158,984

5/1/51 N. T. Wills

SHATTUCK DENN MINING CORPORATION

ANNUAL REPORT

FOR THE YEAR

1950

SHATTUCK DENN MINING CORPORATION

INCORPORATED UNDER THE LAWS OF DELAWARE, MAY 20, 1925

CAPITAL STOCK

AUTHORIZED	1,000,000 SHARES, PAR VALUE $5 EACH
ISSUED	799,416 SHARES, PAR VALUE $5 EACH

DIRECTORS

THOMAS BARDON	NEW YORK, N. Y.
WARREN BICKNELL, JR.	CLEVELAND, O.
R. J. HIGGINS	DULUTH, MINN.
AUSTIN JENNER	CHICAGO, ILL.
NORMAN E. LA MOND	NEW YORK, N. Y.
ANDREW OLIVER	NEW YORK, N. Y.
S. S. SHATTUCK	BISBEE, ARIZ.

OFFICERS AND STAFF

THOMAS BARDON	*President*
S. S. SHATTUCK	*Vice President*
R. J. HIGGINS	*Assistant Vice President*
NORMAN E. LA MOND	*Secretary and Treasurer*
R. H. COCHRAN, JR.	*Assistant Secretary*
H. F. MILLS	*Manager, Iron King Branch*
G. A. WARNER	*Manager, Zuni Milling Co.*
T. W. NEWELL	*Superintendent, Denn Branch*

TRANSFER AGENT

GUARANTY TRUST COMPANY OF NEW YORK

REGISTRAR

BANKERS TRUST COMPANY, NEW YORK

GENERAL OFFICE

120 BROADWAY, NEW YORK 5, N. Y.

MINE OFFICES

DENN BRANCH	BISBEE, ARIZONA
IRON KING BRANCH	HUMBOLDT, ARIZONA
ZUNI MILLING COMPANY	ALBUQUERQUE, NEW MEXICO

SHATTUCK DENN MINING CORPORATION

120 BROADWAY

NEW YORK 5, N. Y.

DIRECTORS' REPORT

To the Stockholders:

In 1950, 221,701 tons of ore were treated at the Company's plants from ores produced at its mines and purchased for processing. Production of metals and minerals was 6,163,967 pounds of lead, 16,862,255 pounds of zinc, 213,052 pounds of copper, 19,431 ounces of gold, 697,482 ounces of silver and 9,556 tons of fluorspar.

Net income of the Company and wholly-owned subsidiaries in 1950 was $627,658.30 after all charges including depletion and estimated income taxes.

Three distributions totalling $399,409.50 were paid to stockholders during 1950, as follows:

May 10, 1950 — 10¢ per share
October 20, 1950 — 15¢ per share
December 20, 1950 — 25¢ per share

The Company's financial statements, certified by Messrs. Pogson, Peloubet & Co., independent Certified Public Accountants, are being submitted herewith. Supplementary to such statements we present the following figures:

INCOME from —	
Lead, zinc, copper, gold, silver and fluorspar	$4,881,474.76
Rents, royalties and fees	3,013.50
Sales of surplus supplies and equipment, less cost thereof	19,563.03
Dividends and interest	7,406.28
Miscellaneous	13,970.29
	$4,925,427.86
COSTS of —	
Smelting, refining and transportation of ores and concentrates	$1,736,908.51
Purchased ores	48,199.29
Supplies	497,830.94
Power, water, etc.	127,873.60
Wages	925,213.90
Severance pay	44,475.86
Salaries—staff and clerical	66,025.61
Salaries—President, Vice President and Secretary-Treasurer	31,700.00
Miscellaneous taxes and insurance	175,681.25
Exploration and experimentation	77,087.68
Legal and auditing	12,025.07
Rents and royalties	43,098.52
Decrease in inventories	63,291.50
Federal and State income taxes—estimated	250,000.00
Miscellaneous	43,592.34
	$4,143,004.07

Not included in the foregoing tabulation are 1950 expenditures for plant and equipment, amounting to $89,629.11, or an additional $500,000.00 invested in U. S. Government securities.

The Company's principal mine, the Iron King, situated at Humboldt, Arizona, was operated without major interruptions and the tonnage of ore handled exceeded that of any previous year. Operating earnings were higher than in 1949. Metal prices in 1950 were approximately the same as in the previous year. The average market price of lead in 1950 was 13.296¢ per pound compared with 15.364¢ in 1949, and the corresponding zinc prices were 13.866¢ and 12.144¢. Gold and silver prices were unchanged. The ore extracted came principally from the tenth and eleventh levels of the mine. The main shaft was sunk 243 additional feet to a depth of 1,713 feet. The twelfth and thirteenth levels are being prepared for stoping and stations have been cut on the fourteenth and fifteenth levels.

With qualifications of a minor nature, it can be said that each succeeding level of the Iron King mine has produced more ore than any of the higher levels. The grade of the ore has remained much the same but on the whole has shown slight improvement with depth.

The demand for acid grade fluorspar improved in 1950 and there was a moderate rise in the market price of that commodity. The output of the Company's fluorspar subsidiary, Zuni Milling Company, with mine and mill located in New Mexico, was increased. The mill used by Zuni is rented from Shattuck Denn Mining Corporation which acquired it from the Government, completing payment of the purchase price in 1950. The Munitions Board, the governmental agency in charge of the stockpiling of strategic and critical materials, has authorized purchases of acid grade fluorspar for stockpiling, and at this writing negotiations are under way for the sale of a part of Zuni's production for that purpose. Orders from other purchasers have increased also and it now appears that Zuni's business in 1951 should be larger than in any recent years. It might be mentioned here that acid grade fluorspar, through its derivatives such as hydrofluoric acid, is used principally in the manufacture of aluminum, refrigerants and high-octane gasoline, and for that reason the demand is materially affected by the government's defense program.

Disposal of the Company's property in the Bisbee, Arizona, district remaining after the sale of the Denn mine, continued in 1950 and has been largely completed, with the exception of the concentrating mill. This mill was closed in 1949 by reason of the closing of many of the small mines in the vicinity which had been sending their ores to it for sale and treatment. It is hoped that mining activity, under the stimulus of somewhat higher metal prices and governmental programs, may revive sufficiently to justify the resumption of custom milling operations at this plant.

Late in 1950 an option was taken on the Kay mine situated in Arizona about forty miles south of the Iron King mine. The Kay was opened in the 1920's to a depth of 1,500 feet and considerable lateral work was done. Many of the records of this work were lost and scattered during a long period of idleness, but there are indications that the results were not wholly negative and the property is now being unwatered to permit an examination of underground conditions.

The concentration of bastnasite ore for the recovery of its content of rare earths (cerium, gadolinium, lanthanum, etc.) was carried on experimentally to establish the feasibility of such concentration, but no commercial application has been possible because a supply of suitable ore has not been available. In accordance with an arrangement made with the organizers of a Mexican corporation which is planning to develop certain of the resources of the southern part of Lower California, Mexico, we are making a preliminary survey of the mineral possibilities of that area and have also acquired a small interest in the securities of the Mexican corporation. A number of other mining properties were examined. Certain metallurgical processes were investigated and considerable experimental work was done. Particular attention has been given to the possibilities of increasing the recoveries of the five metals — lead, zinc, copper, gold and silver — in the Iron King ores. These efforts will continue, and we hope that improved recoveries will ultimately be attained.

The negotiations for the sale of the assets of the 79 Lead-Copper Company, mentioned in last year's report, were concluded and that company received 92,739 shares of the stock of Vulcan Silver-Lead Corporation in exchange for virtually all of 79's assets. The Vulcan stock is being distributed to the 79 stockholders and, in the latter capacity, Shattuck Denn has received 55,399 shares of such stock, or 3.69% of the outstanding stock of Vulcan, which owns a property in the Coeur d'Alene district of Idaho. This property is being developed from a 2,900-foot shaft and the work, to date, indicates that important ore deposits may be discovered. In the balance sheet and the income account published herewith this transaction is reflected by charging off the difference between all but $1.00 of the cost of the 79 stock and the market value of the Vulcan stock at time of its receipt, resulting in the loss of $51,782.28 shown as a deduction from 1950 income. The market value of the Vulcan stock at time of its receipt was $95,563.28. However, after the Vulcan stock was received its market value increased and on December 31, 1950 was approximately $77,000 more than the value at the time of its receipt.

There were no operations at the Abril mine, situated near Tombstone, Arizona, during the year but on February 1, 1951 the property was leased and it is probable that the lessee will ship ore from the property this year and will also, under the terms of the lease, carry on development work which will further explore that property. The Scales mine near Strawberry Valley, California, was also closed during the year but negotiations to lease it are now in progress and should result in exploratory work during the summer of 1951.

For the Board of Directors,

THOMAS BARDON,
President.

SHATTUCK DENN MIN

CONSOLIDATED BALANCE SH

ASSETS

CURRENT ASSETS:			
Cash		$ 955,462.47	
U. S. Government securities, at par value (at market quotations $802,893.29)		800,000.00	
Accounts receivable		522,150.33	
Ores and concentrates, at lower of cost or market		30,124.99	
Supplies, at cost		200,627.55	
Unexpired insurance and other prepaid expenses		13,538.66	$2,521,904.00
INVESTMENTS:			
In subsidiary company—not consolidated		$ 1.00	
Vulcan Silver-Lead Corporation stock, at cost (at market quotations $173,121.88)		95,563.28	
Other, at cost		58,500.00	154,064.28
PROPERTY, PLANT AND EQUIPMENT (see note A):			
Mines, mining claims and leaseholds	$ 963,499.82		
Less accumulated depletion	414,731.59	$ 548,768.23	
Buildings, machinery and equipment	$1,122,862.46		
Less accumulated depreciation	657,728.16	465,134.30	1,013,902.53
DEFERRED CHARGES:			
Exploration and development			40,504.22
			$3,730,375.03

See explanatory notes

IN CORPORATION

IEET — DECEMBER 31, 1950

LIABILITIES AND CAPITAL

CURRENT LIABILITIES:		
Accounts payable and miscellaneous accrued expenses	$ 120,663.94	
Wages accrued	61,141.04	
Federal and State income taxes accrued	263,332.54	
Other taxes accrued	38,558.27	$ 483,695.79
CAPITAL:		
Capital stock:		
Authorized—1,000,000 shares of $5.00 par value each		
Issued and outstanding—799,416 shares	$3,997,080.00	
Deficit (see note B)—per Statement of Consolidated Deficit	750,400.76	3,246,679.24
		$3,730,375.03

attached hereto.

SHATTUCK DENN MINING CORPORATION

STATEMENT OF CONSOLIDATED INCOME

YEAR ENDED DECEMBER 31, 1950

Income:		
Sales value of metals in concentrates and sales of fluorspar		$4,881,474.76
Less charges for smelting, refining and freight		1,677,943.90
Sales of concentrates and fluorspar		$3,203,530.86
Interest earned and dividends received		7,406.28
		$3,210,937.14
Costs and expenses:		
Operating expenses, development, maintenance, repairs, general and administrative expenses, and taxes other than income taxes	$2,101,425.67	
Deduction for depreciation	93,488.41	
Exploration and experimentation	77,087.68	
Loss on investment in 79 Lead-Copper Company	51,782.28	
Deduction for depletion	9,494.80	2,333,278.84
		$ 877,658.30
Federal and State income taxes—estimated (no excess profits tax indicated)		250,000.00
CONSOLIDATED NET INCOME of the year 1950		$ 627,658.30

STATEMENT OF CONSOLIDATED DEFICIT

YEAR ENDED DECEMBER 31, 1950

Consolidated Deficit December 31, 1949		$ 978,649.56
Reduction of consolidated deficit:		
Consolidated Net Income of the year 1950	$ 627,658.30	
Less distributions to stockholders in the year 1950 ($.50 per share)	399,409.50	228,248.80
CONSOLIDATED DEFICIT December 31, 1950 (see note B), per Consolidated Balance Sheet		$ 750,400.76

See explanatory notes attached hereto.

SHATTUCK DENN MINING CORPORATION

NOTES TO FINANCIAL STATEMENTS

NOTE A—BASIS OF VALUATION OF MINING PROPERTIES AND PLANT

Mines, mining claims and leaseholds and plant and equipment are carried in the Balance Sheet at cost to the Company or its predecessors. As the cost of the Iron King mine, the principal producing property of the Company, is completely offset by accumulated depletion, the net value of this mine shown in the Balance Sheet is zero.

No representation is made that the amounts included in the Balance Sheet for mining properties and buildings, machinery and equipment, either before or after deducting depletion or depreciation represent current or realizable values.

NOTE B—DEFICIT

The balance of deficit at December 31, 1950 includes the following:

Paid-in surplus October 31, 1925*, as adjusted		$4,318,110.71
Deficit at December 31, 1936 charged paid-in surplus in accordance with resolution of Board of Directors:		
Net Income through 1936, before deducting depletion	$ 54,214.72	
Depletion through 1936	1,126,259.99	1,072,045.27
Paid-in surplus December 31, 1936 (less deficit at that date)		$3,246,065.44
Net Income since 1936, before deducting depletion		4,417,835.08
		$7,663,900.52
Less:		
Depletion since 1936	$2,710,814.02	
Decreases resulting from sale of and from write-off of mining properties	3,686,449.51	
Distributions to stockholders since 1936	2,017,037.75	8,414,301.28
Deficit December 31, 1950, per Consolidated Balance Sheet		$ 750,400.76

*Date of merger of Shattuck Arizona Copper Company and Denn-Arizona Copper Company into Shattuck Denn Mining Corporation.

POGSON, PELOUBET & CO.
CERTIFIED PUBLIC ACCOUNTANTS

NEW YORK
MAURICE E. PELOUBET
LEWIS M. NORTON
SIDNEY W. PELOUBET
HOWARD L. GUYETT
CRAWFORD C. HALSEY
FRANK E. SMALL

EL PASO
PERCY W. POGSON
PERCY W. POGSON, JR.

CABLE ADDRESS "CERTIFIED" NEW YORK

AGENT
EUROPE-KEMP, CHATTERIS & CO.
LONDON

25 BROADWAY, NEW YORK 4, N. Y.

To the Board of Directors,
Shattuck Denn Mining Corporation,
120 Broadway,
New York 5, N. Y.

We have examined the Consolidated Balance Sheet of Shattuck Denn Mining Corporation and its 100 per cent owned subsidiaries as of December 31, 1950 and the related Statements of Consolidated Income and Consolidated Deficit for the year ended that date. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying Consolidated Balance Sheet and Statements of Consolidated Income and Consolidated Deficit, together with the explanatory notes, present fairly the financial position of Shattuck Denn Mining Corporation and its consolidated subsidiaries at December 31, 1950, and the results of their operations for the year ended that date, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

POGSON, PELOUBET & CO.,
Certified Public Accountants.

New York, March 7, 1951.