OFFICE OF THE ADMINISTRATOR

DEFENSE MINERALS ADMINISTRATION WASHINGTON D.C.

JAN 21 8 16 11 '52

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

224 New Customhouse
Denver 2, Colorado

January 15, 1952

Memorandum

To: Administrator, DMEA, Attention: 210

From: Field Team, DMEA, Region IV

Subject: Final Report, DMA Docket 2159, Apex Prospect (Lead), Homer and Garnet Bates, Cochise County, Arizona, Swisshelm Mining District

Enclosed are the original and one copy of DMA Form 3b, a copy of the letter of denial to the applicant, and a copy of the Final Report pertaining to the subject docket.

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

A. H. Koschmann
A. H. Koschmann

Enclosures

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

224 New Customhouse
Denver 2, Colorado

January 15, 1952

Memorandum

To: Administrator, DMEA, Attention: 210

From: Field Team, DMEA, Region IV

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

A. H. Koschmann
A. H. Koschmann

Enclosures

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

224 New Customhouse
Denver 2, Colorado

January 15, 1952

BE

Mr. Homer Bates
630 - 12th Street
Douglas, Arizona

Re: Docket DMA-2159

Dear Mr. Bates:

Your application for government assistance in exploration work on the Apex Prospect, DMA Docket 2159, has been reviewed by the Defense Minerals Exploration Administration and a field examination made.

Based on a study of exposures and geologic data, it has been concluded that the possibility of a significant discovery through the proposed exploration work is very remote. Therefore, your application is denied.

We thank you for bringing this property to our attention.

Very truly yours,

for W. H. King
J. H. East, Jr.
Field Team, Region IV

cc: Administrator, DMEA, Attn: 210

A. H. Koschmann
A. H. Koschmann
Field Team, Region IV

Mining Division
Region IV

January 15, 1952

Memorandum

To: DMA Field Team, Region IV

From: Acting Chief, Mining Division, Region IV

Subject: Final Report, DMA Docket 2159, Apex Prospect (Lead), Homer and Garnet Bates, Swisshelm Mining District, Cochise County, Arizona

Enclosed are the original and 7 copies of the Engineering Report by the Bureau of Mines and the Section on Summary, Conclusions and Recommendations by the Geological Survey and Bureau of Mines examining team pertaining to the subject application.

It has been recommended that the loan be denied.

W. H. King.
W. H. King

Mining Division
Date Rec'd.
JAN 7 1952
BUREAU OF MINES
Denver, Colorado

MINING DIVISION
REGION IV

January 3, 1952

Registered

Memorandum

To . Paul T. Allaman, Denver, Colorado

From . Chief, Arizona-New Mexico Sr., Mining Div., Region IV
Tucson, Arizona

Subject . Final Report on Docket 2159A, Bates' Apex Lead Prospect, Swisshelm Mining Dustrict, Cochise County, Arizona

Enclosed are original and 7 copies of the section on Summary, Conclusions and Recommendations by C. S. Bromfield of the Geological Survey and L. E. Farnham of the Bureau of Mines, and the section on Engineering by Farnham for the above report. A separate section on Geology will be submitted by the Geological Survey.

This report has my approval.

Brochure is enclosed.

Walter W. Storms

cc P. T. Allaman (7)
Dwr-2159A
C. A. Anderson
DF

WWStorms:fr]

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

200 New Customhouse
Denver 2, Colorado

January 2, 1952

Memorandum

To: DMA Field Team, Region IV

From: A. H. Koschmann

Subject: DMA Docket 2159, Apex Prospect (Lead), Homer and Garnet Bates, Cochise County, Arizona

Enclosed are the original and 7 copies of the geologic report by C. S. Bromfield of the U. S. Geological Survey covering the above docket.

It has been recommended that the loan be denied.

A. H. Koschmann
A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (8)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

P.O.Box 4126, University Station
Tucson, Arizona

December 26, 1951

Memorandum

To: Field Team, Region IV, Denver, Colorado
Through: Mr. A. H. Koschmann

From: Mr. A. F. Shride, Tucson, Arizona

Subject: Geologic Report, DMA 2159, Apex Prospect (Lead), Homer and Garnet Bates, Cochise County, Arizona

Enclosed are the original and 7 copies of the above report by C. S. Bromfield of the Geological Survey.

This report and the conclusion that the exploration loan should be denied have my approval.

A. F. Shride
Acting District Supervisor
Arizona-New Mexico

Enclosures 8

UNITED STATES
DEPARTMENT OF THE INTERIOR
OSCAR L. CHAPMAN, SECRETARY

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMA-2159X, Bates' Apex Lead Prospect

Swisshelm Mining District, Cochise County, Arizona

C. S. Bromfield, Geologist
U. S. Geological Survey

L. L. Farnham, Mining Engineer
U. S. Bureau of Mines

January 1952

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

By C. S. Bromfield[1] and L. L. Farnham[2]

In June 1951, Homer and Garnet Bates applied to the Defense Minerals Administration for an exploration loan of $3,000. This sum later was changed to a request for $6,000. The application was docketed as DMA-2159X. The requested loan was for the purpose of driving an adit to explore an area lying below several surface exposures of lead mineralization. The property was visited by the DMA Team during the week of December 3, 1951.

The applicants' property is situated in Cochise County in the small and relatively unimportant Swisshelm mining district of Southeastern Arizona.

The Apex claims now held by the applicants were located in 1936. Since that time the property has produced about 30 tons of ore containing between 12 and 15 percent lead, and about $10 a ton in gold and silver.

The ore occurred in small scattered irregular masses of mineralization that had replaced certain limestone beds at the points of intersecting fractures. In the largest of these occurrences about 20 tons of ore was found in a pod-shaped body of heavy iron-stained gossan that had replaced the limestone adjacent to a cross fracture. The ore body had an average breadth of 5 feet, a thickness of 3 feet, and extended down the dip about 20 feet before the lead content suddenly terminated. In another isolated spot of similar mineralization about

---

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

10 tons of ore had been found during the course of driving 25 feet of adit. The value of the ore recovered in these small ore bodies fell far short of returning the costs of production.

The first stage of the work proposed by the applicants was drifting on the most persistent cross-fracture exposed on the property. Samples taken along the outcrop of this fissure showed only traces of gold, silver, and lead. There was no surface evidence to indicate that any replacement ore bodies occurred in the beds adjacent to this fracture. The second stage depended upon failure of the first step. If no ore was found in Stage 1, the adit bearing was to be changed and the adit driven in another direction.

Both stages of the proposed exploration work would remain within the same limestone beds as exposed on the surface. Thus there is no reason to expect that new or more favorable conditions would be encountered by any of the proposed work. Apparently the best that might be reasonably expected to result from the proposed work would be to find recurrences of the small non-persistent pods of mineralization such as those found on the surface.

Therefore, as no ore bodies of value have been found on the property and there appears little likelihood that further exploration would disclose any significant amounts of ore, it is recommended that the application for the loan be denied.

APEX LEAD PROSPECT
COCHISE COUNTY, ARIZONA
DMA 2159

Geology

By Calvin S. Bromfield
Geologist, U. S. Geological Survey

APEX LEAD PROSPECT
COCHISE COUNTY, ARIZONA
DMA 2159

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Fig. 1	Location Map	See Engineering Report
Fig. 2	Claim Map	" " "

GENERAL GEOLOGY

The four claims of Homer and Garnet Bates are located in the extreme northeastern portion of the Swisshelm Mountains in the Swisshelm district, Cochise County, Arizona.

Rocks

In the northern Swisshelm Mountains the stratigraphic sequence includes Upper Cambrian Bolsa quartzite, Abrigo formation, and Copper Queen limestone; Devonian Martin limestone; Mississippian Escabrosa limestone; Pennsylvanian Naco limestone; Permian limestones and shales; and the Cretaceous Bisbee group, including the Glance and Morita formations. This sedimentary sequence totals somewhat over 5000 feet in thickness.

Intruding the Cretaceous and older rocks is granite which is thought to be Late Cretaceous to early Tertiary in age. Later than the granite is a flat tabular mass of diorite porphyry which has been intruded along a thrust plane and forms a small outcrop in the area. Bordering the northeastern edge of the district are Tertiary rhyolitic flows.

Structure

The rocks of the northern end of the Swisshelm Mountains are in the form of a gentle northerly plunging anticline. On the east flank of this anticline, where the Swisshelm district lies, the Cambrian sedimentary rocks dip northeasterly at approximately 45°. The crest of the anticline lies along the northern crest of the mountains and the axis of this anticline is intruded by the post-Cretaceous granite.

Complicating the east flank of the anticline in the Swisshelm district are several low-angle thrusts which fault Devonian, and later Paleozoic rocks of northwesterly strike over the northeasterly dipping Cambrian rocks. Imbricate structures are developed. Along one of these flat thrust planes a tabular diorite porphyry body is intruded. Northerly and northeasterly faults and fissures are developed.

ORE DEPOSITS

Two properties, the Chance and the Scribner, have been responsible for most of the relatively small production of the Swisshelm district. All of the known production has come from replacement lead bodies in Pennsylvanian Naco limestone. The ore, consisting largely of galena and cerrusite is localized in favorable limestone beds by northwesterly to northeasterly trending fissures and it occurs immediately above the tabular diorite porphyry intrusive. The replacement bodies attain maximum sizes approaching 10 to 20 feet in height, 50 feet in width, and 100 feet in length. No exploratory openings have penetrated the thin tabular mass of diorite porphyry, but it was stated that diamond drilling failed to reveal any important mineralization below this igneous body.

The four claims of the applicant lie approximately one-half mile north-northwest of the Chance and Scribner mines. The outcropping rocks are largely Devonian Martin limestone and massive cliff forming Mississippian Escabrosa limestone with northwesterly strike and moderate southwesterly dip. According to a map by Loring[1] several thrust faults traverse the Apex area forming imbricate structures.

1/ Loring, W. B., Geology and Ore Deposits of the Mountain Queen Area, Northern Swisshelm Mountains, Cochise County, Arizona: Univ. of Arizona Thesis, 1947.

In addition fissures and faults of generally northeasterly trend are present. The Naco limestone which contains the lead replacement bodies on the nearby Chance and Scribner properties is not present in the Apex area.

All of the applicants exploratory workings are located on the Apex No. 1 claim.

Two small replacement masses of lead ore have been found by the applicant on this claim. One of these masses yielded approximately 20 tons of ore. According to Homer Bates 3 tons of this averaged about 20 percent lead, and the remainder averaged 10-12 percent lead. This ore was localized at the intersection of a narrow, nearly vertical fissure and a low-angle fault. The low-angle fault appears to be a bedding plane fault but is slightly transgressive of bedding. The vertical fault strikes N. 40° E. and the low-angle fault strikes N. 50° W. and dips 20° SW. The orebody occurred entirely above the low-angle fault and in its maximum dimensions had a width of 6 feet, a thickness of 3 to 4 feet, and a length of 20 feet. Its long dimension was along the vertical intersecting fissure. Below the low-angle fault the vertical fissure has only knife edge thickness and only a few scattered specks of galena were found.

The other pod of ore found on the Apex No. 1 claim yielded 10 tons of ore averaging 10 to 12 percent lead. This occurrence was along an indefinitely defined steeply dipping calcite filled fissure. No control other than the fissure itself was apparent. The applicant has driven an adit 25 feet along this fissure (fig. 2). All the ore was extracted during this drifting and the vein as observed by the examining team consisted of barren coarsely crystallized calcite, with some red iron oxides.

The applicants have expended the majority of their efforts in exploring a prominent northeasterly trending vertical fault which can be traced for at least 500 feet on the surface. One 60 foot adit, two pits, and a 23 foot vertical shaft are distributed along the fault (fig. 2). The fault crosses a northwesterly ridge and the workings from the lower 60 foot adit to the 23 foot shaft on the crest of the ridge cover a vertical interval of approximately 150 feet. The lower adit reveals a fault zone 2 to 3 feet wide consisting of cominuted wall rock with a small amount of red to yellow iron oxides. In the two pits (sample 1 and sample 2, fig. 2) along the fault above the adit the break contains gouge, some red and yellow iron oxides, and irregular masses of coarse calcite. The fault has a 3 foot gouge zone. Locally iron oxide pseudomorphs after pyrite can be observed. In the shaft on the crest of the hill the vein has the same character. A few small crystals of wulfenite (?) were observed. Three samples taken by the writers confirmed the visual observation of the vein's barren nature.

There is no surface evidence that any lead replacement bodies have been localized by this fault.

It is this fault that the applicants propose to explore.

EXPLORATION PROPOSAL

The applicants propose to extend the lower 60 foot adit for 200 feet along the vertical fault to intersect ore which they expect to find with depth. If ore is not encountered with this work they propose to crosscut northwest in the hope of intersecting other fissures.

Three samples were cut by the examining engineers along the vertical fault it is proposed to explore. The locations of these samples are shown on fig 2 and the results were as follows:

	Width	Gold	Silver	Lead
Sample No. 1	20 inches	Tr.	0.17	0.12
Sample No. 2	24 "	.005	0.19	0.08
Sample No. 3	18 "	Tr.	0.15	0.07

The walls of the fault are limestone, the predominant filling of the vein is calcite; under these conditions, with a reactive gangue and a reactive wall rock any primary lead minerals which might have been present would, on oxidation, be largely fixed in the oxidized zone as lead carbonate. This condition is true at the Chance and Scribner properties where cerussite is the dominant ore mineral. The lead ore is reported to have had a sulfide-carbonate ratio of 1:4. It is concluded, therefore, that the very low assay results given above reflect the general poverty of the mineralization within the fault zone. Along the strike of the fault transverse to the limestone bedding all stratigraphic horizons that would be encountered in the proposed drifting are exposed; and, thus, no new or more favorable conditions can be legitimately expected in the proposed 200 foot drift.

The proposed second phase consisting of crosscutting to the northwest is an even more hazardous undertaking. The object would be the chance of intersecting other fissures. The elevation of the proposed crosscut is too low to encounter the intersection of the flat fault and vertical fissure which localized one small pod of ore found by the applicant.

Because of the general paucity of mineralization and the insignificant nature of the explored and mined replacement pods no alternate proposal for exploring the Apex claims appears justifiable.

ORE RESERVES

There are no measured or indicated ore reserves on the Apex claims; further, there are insufficient data to estimate any inferred ores. It is possible that additional work might develop a few tens of tons of ore, but it is the writer's belief that any further discovery would be neither significant nor economic.

GEOLOGIC CONCLUSIONS

There is little to recommend the Apex claims. Both surface and underground exposures reveal only minor amounts of lead mineralization, and exposures were for all practical purposes barren. Samples taken by the examining engineers on the vein it is proposed to explore show this fact. No evidence of any replacement bodies have been found on the prominent vertical fault. Proposed drifting and crosscutting will encounter only those stratigraphic horizons now visible in outcrop, and no new or more favorable conditions can be logically expected.

Previous exploration has found only insignificant replacement pods. Further exploration might encounter other pods of like nature, but there is no geologic reason to expect larger or more significant discoveries in the areato be explored. Consequently, in light of these facts, it is recommended the loan be denied.

BATES' APEX LEAD PROSPECT
SWISSHELM MINING DISTRICT
COCHISE COUNTY, ARIZ.
DMA-2159X

Engineering Report

By L. L. Farnham, Mining Engineer
U. S. Bureau of Mines

January 1952

BATES' APEX LEAD PROSPECT
SWISSHELM MINING DISTRICT
COCHISE COUNTY, ARIZ.
DMA-2159X

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Conclusions and recommendations	7

ILLUSTRATIONS

Figure		Following page
1	Location map	1
2	Claim map	3

INTRODUCTION

Homer and Garnet Bates of Douglas, Ariz. applied to the Defense Minerals Administration for an exploration loan amounting to $3,000. This sum was changed later to a request for $6,000. The funds were to be used in further exploration of a lead-silver prospect. The application was docketed as DMA-2159X. The property was visited by the DMA team during the week of December 3, 1951.

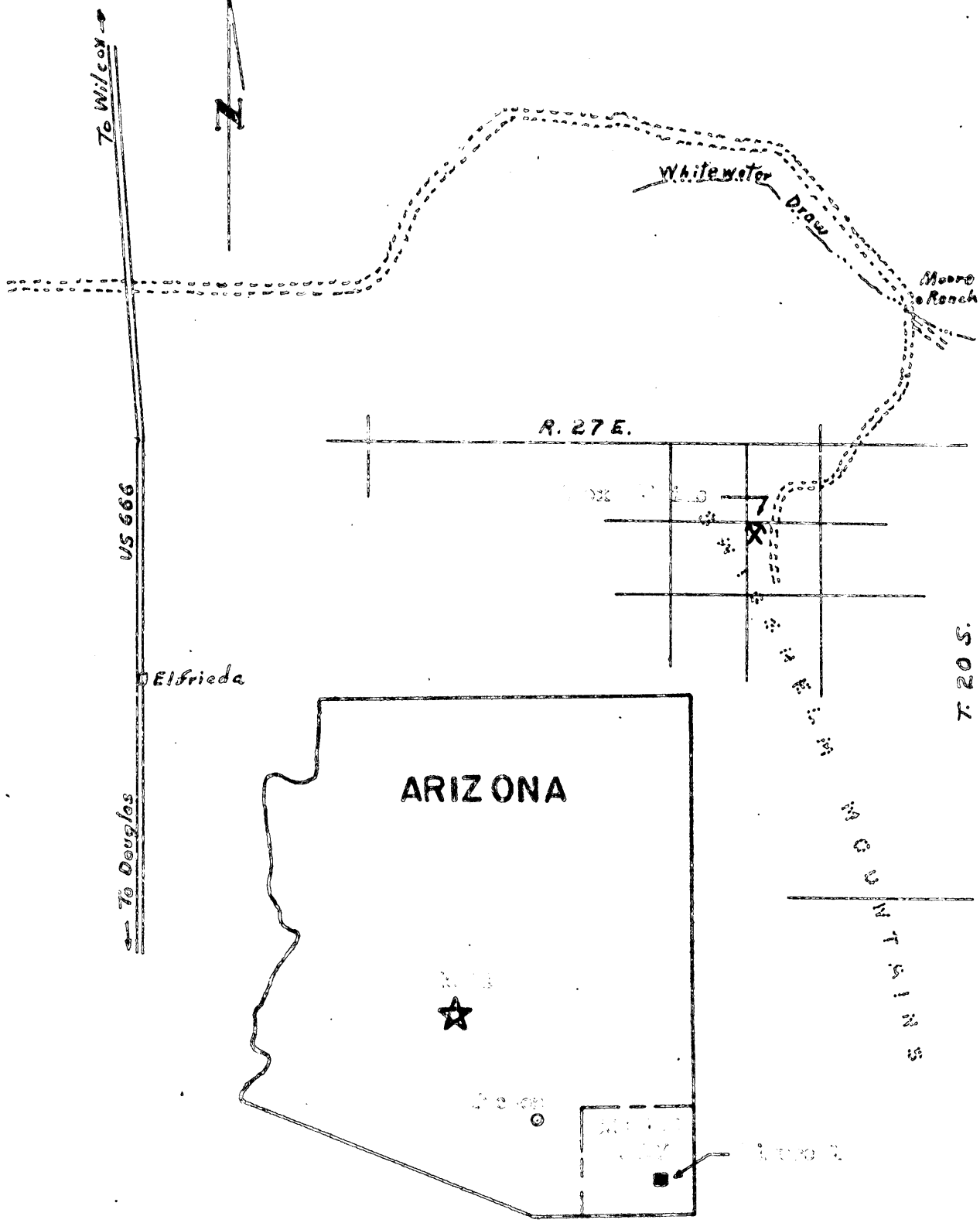
ACKNOWLEDGMENTS

Thanks are due Homer Bates for his help during the examination.

LOCATION AND PHYSICAL FEATURES

The applicant's mining claims are located on the northeasterly end of the Swisshelm Mountains about 23 miles by road east of Elfrida, Cochise County, Ariz. The nearest shipping point is Douglas, Ariz., which is 49 miles south of the area. The prospect is reached over a good dirt road that leaves U. S. Highway 666 about 5 miles north of Elfrida. This branch road runs easterly for about 13 miles to Moore's ranch, where it forks with the right hand branch leading to the property (fig. 1). The claims lie on the easterly slope of a prominent hill in an area of moderately rugged topography. The 2 principal productive mines of the district, the Mountain Queen and Chance, are about 3,000 feet southeast of the center of the applicant's property.

The prospect openings on the claims range from 5,500 to 5,800 feet above sea level.


To Willcox
N
Whitewater Draw
Moore Ranch
R. 27 E.
US 666
Elfrieda
To Douglas
T. 20 S.
ARIZONA

HISTORY AND PRODUCTION

The first discovery of silver-lead ore in the Swisshelm district was made on the Mountain Queen claim in 1885. This became known as the Scribner mine and was the principal productive property in the area until 1945, when ore was found on the adjoining Chance claim. These two mines have yielded the bulk of the district's intermittent production. The small early production from the Scribner is unknown. From 1918 to 1950, the total metal produced from the district has amounted to approximately 10,000,000 pounds of lead, 250,000 ounces of silver, and minor amounts of gold and copper. The tenor of the ore has been reported as averaging between 20 and 25 percent lead, thus indicating that the total metal production of the district has probably come from not more than 25,000 tons of ore.

The Apex claims belonging to the applicants were located in 1936. There had been very little, if any work performed on the property prior to that time. In the course of considerable prospecting and exploration work on the Apex No. 1 claim, the applicants found and mined about 30 tons of ore. This ore was reported to have averaged between 12 and 15 percent lead, and about $10 a ton in gold and silver.

OWNERSHIP AND EXTENT

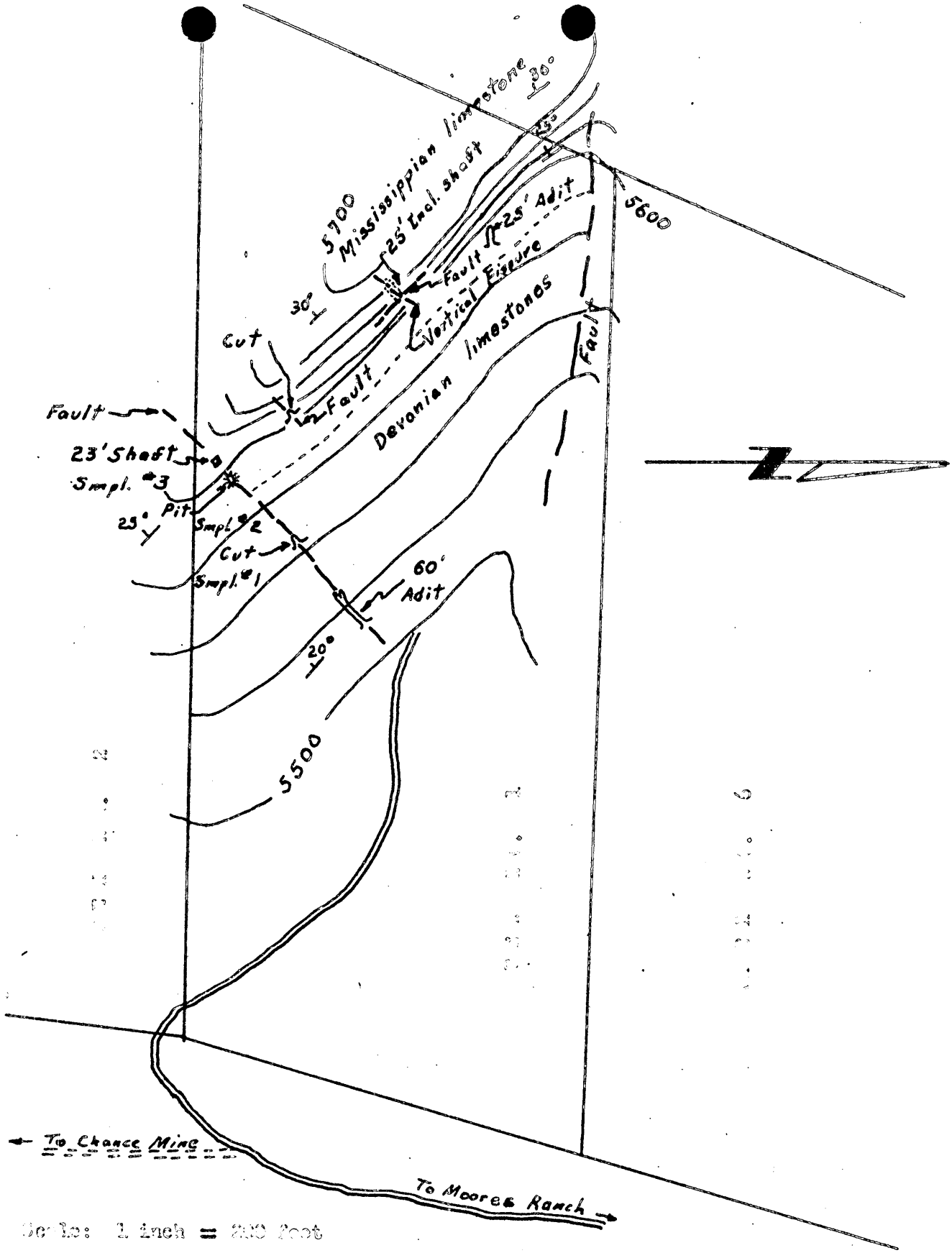
The applicants hold by location 4 contiguous mining claims known as the Apex Nos. 1, 2, 3 and 6. All are in Sec. 12, T. 20 S., R. 27 E.

DESCRIPTION OF THE DEPOSITS

The ore deposits of the Swisshelm district are replacements in Carboniferous limestones. Practically all of the ore produced in the two principal mines of the area has occurred in the Naco limestone where certain beds were found lying upon a sill of diorite porphyry. The sill appears to have been intruded along a low angle thrust fault. Because of the close association of the known ore with this structure, it was thought that certain channels in the thrust may have served as a conduit for the mineralizing solutions.[1/] The productive ore bodies appear to have been further localized where steep northerly-trending fractures interesected favorable limestone beds.

The Naco limestone has been eroded from the area covering the applicants' property. On the claim that was proposed for exploration, the massive Escabrosa limestones, trending northwest and dipping flatly (25°) southwest, were cut by numerous vertical fractures having northeasterly strikes. The most prominent of these cross fractures, situated near the south side of the Apex No. 1 claim, was a fault fissure, traceable for several hundred feet (fig. 2). The filling between the walls of the fault ranged from 2 to 5 feet in width. It consisted of crushed, altered limestone with sporadic streaks of iron oxides and lenses of massive crystalline calcite in which occasional specks of lead minerals were visible. For several hundred feet northwest

1/ Loring, W. B., Geology and ore deposits of the Northern Swisshelm Mountains, University of Arizona Thesis, 1947.



Scale: 1 inch = 200 feet

PLATE 2 - [illegible]

of this fault, several other sub-parallel but thinner and less pronounced fractures cut across the limestone beds (fig. 2). Two spots of irregular mineralization were exposed at points where these fractures intersected minor bedding-plane faults in the limestone. On the best of these occurrences an incline shaft had followed the mineralization to a depth of 25 feet. According to the applicant, this work yielded about 20 tons of oxidized ore that contained approximately 12 percent lead, 5 ounces of silver and 0.20 ounces of gold per ton. This pod-like body followed the dip (25°) of a short bedding-plane fault with its long dimensions oriented in the direction of an intersecting vertical fracture. The ore averaged about 5 feet in width and had a thickness of 3 feet. At an inclined depth of some 20 feet below the outcrop, the ore pinched out. Due to the flat dip, this ore, if projected downward, would apparently pass through the hill, and come out on the surface again on the opposite or westerly hillside. Thus an adit driven in a northwesterly direction from the easterly base of the hill, as proposed by the applicant, would be too low to ever intersect the bedding-plane fault on which this deposit occurred.

About 150 feet northwest of the incline shaft a short adit (25 ft.) had explored another isolated, irregular spot of mineralization. According to the applicant a few tons of lead ore was sorted from the mineralized material broken during the course of this work. No visible ore remained in the adit.

ORE RESERVES

No mineable ore was in sight on the applicants' property. Judged by the size and non-persistent character of the bodies formerly found, the reserves that could be reasonably inferred would be insignificant.

The first phase of the work proposed by the applicant involved drifting on the main fault fissure. Hence this area was sampled by the field team. Three samples were cut across the better mineralized portions of the fracture filling where it was exposed along the outcrop by prospect openings (fig. 2). The assay results of the samples were as follows:

Location	Width	Ounces per ton Gold	Ounces per ton Silver	Percent Lead
Face lower open cut	1.7 ft.	Trace	0.17	0.12
East end upper pit	2.0 ft.	0.005	0.19	0.08
West end vertical shaft	1.5 ft.	Trace	0.15	0.07

No replacement ore bodies were indicated in the exposed section of the limestone beds adjacent to this fissure.

No samples were taken in the other mineralized areas as obviously all of the material with an appreciable lead content had been taken out.

PRESENT AND PROPOSED EXPLORATION

The surface of the applicants' claims had evidently been well explored. Numerous shallow prospect openings were scattered over the surface on all the various spots of mineralization. The greater part of the work was done on the more persistent fault fissure located near the south side of the Apex No. 1 claim (fig. 2). There the principal

openings consisted of an adit 60 feet long and a vertical shaft 23 feet deep. The adit was located near the easterly base of the hill while the shaft was some 300 feet to the southwest and about 150 feet higher on the hillside. Approximately 300 feet northwest of the vertical shaft an incline shaft followed a fracture to a depth of 25 feet. At a short distance north of the incline an adit had been driven on another fracture for about 25 feet.

The first phase of the exploration work proposed by the applicant would consist of continuing the 60-foot adit along the fault fissure until it reached the area under the vertical shaft. In this vicinity the applicant, for some unknown reason, had great hopes of finding a large ore body.

The second phase of the proposed work was dependent upon the failure of the first phase. In the event that ore was not found under the shaft, then it was proposed to change the direction of the adit and continue driving it for an additional 300 feet to a point under the incline shaft. This latter work would crosscut several minor vertical fractures such as apparently localized the ore found in the incline shaft. However, it would fail to find the projection of this ore as was explained under the description of the deposits.

ESTIMATED COST OF THE PROJECT

The cost of the proposed project was estimated as follows:

First phase - 250 feet of drifts @ $25	$6,260
Second phase - 350 feet of crosscuts @ $25	7,500
Total (exclusive of equipment and facilities)	$13,750

There were no buildings or equipment on the property. Water would have to be hauled from a nearby ranch. The applicant claimed that he had or could furnish all the necessary equipment with the exception of an air compressor.

Obviously the $6,000 requested would probably not complete the first phase of the proposed exploration.

CONCLUSIONS AND RECOMMENDATIONS

The Apex claims do not appear to warrant further exploration for the following reasons:

The first phase of the proposed work involved drifting on a fault fissure in which no ore had been found along its well-prospected outcrop. Due to the thickness and flat dip of the enclosing limestones, the proposed drift on this fissure would remain in the same formation as that now exposed along its outcrop. Thus there is no reason to expect that this phase of the proposed work would encounter a more favorable environment for ore than now exists on the surface.

The second phase of the proposed exploration work, in case the first phase proved unsuccessful, would consist of crosscutting a number of minor vertical fractures, two of which had apparently localized some ore, but in bodies too small to be of value. This

second phase of the work, like the first, would remain in the same limestone beds as exposed on the surface, so it does not seem likely that a significant discovery would result from the further exploration of this property.

Therefore, it is recommended that the application for the loan be denied.

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

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

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D. C.

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

OCT 15 9 09 AM '51

DO NOT FILL IN THIS BLOCK

Docket No. dma 2159

Date received 10-15-51

Participation

Homer Bates,
Garnet Bates,
630 Twelfth Street,
Douglas, Arizona.

Name and address of applicant

Date October 4, 1951.

FILL IN THIS BLOCK

Date of application October 6, 1951.

Estimated cost $3,000.00

Mineral or metal Lead, silver, gold.

Percentage of Government participation 90%

Location of mine Swisshelm Mining District,

Township 20-S, Section 12, Range 27-E.

Date of filing MF-100 June 25, 1951.

DMA Docket Number, if available M.S.1295

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.

U. S. BUREAU OF MINES
OCT 8 1951
TUCSON DIV., ARIZ.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation? Partnership.
*2. If a partnership, state names and addresses of partners. Stated above.
*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. The manager will be Homer Bates, a practical miner.
*5. Are you the owner or the lessee of the property? Owners.
6. If owner, state what claims, liens, or encumbrances, if any, are against the property. None.
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. See schedule.
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)? $700.00. It is sufficient.

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

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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. See schedule.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted. See schedule

    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. Mining claim known as "Apex No. 1".

*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. 49 miles north of Douglas, Ariz. Roads good.

*13. State source and quantity of water available for operations and its sufficiency at all seasons. Sufficient water for State amount of power to be used, rate per hour or other cost, and source. all purposes. Also see schedule.

*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work. None.

15. State in detail how the ore could be shipped and how and where milled. By truck to Douglas, Ariz. Treated in El Paso, Tex.

*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. See schedule.
    (*b*) State briefly the known history and production of adjoining and neighboring properties. See schedule.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations. See copy of report.

*17. Production:
    (*a*) If mine is in production, furnish the following information: Not in production.

	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.) Property not developed.
    (*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.
No further explanation to be given.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted? See schedule.

21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it. See schedule.

    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. See copy of report.

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. Driving tunnel 40 ft. per month for six months.

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.

Bates and Bates. (Name of company) By _____ (Signature of authorized official)

October 6, 1951. (Date) Manager. (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

Homer Bates,
Garnet Bates,
630 Twelfth Street,
Douglas, Arizona.

ANSWERS TO QUESTIONS FORM MF-103.

8 - Work done in the past can only be classified as prospecting.

10-A - Work will be confined to mining claim known as "Apex No. 1".

10-B - Same as above.

13 - Power to be used is an 18-horse power gasoline engine.

16-A A shaft about 25 feet has been sunk, and approximately 200 feet of tunnels have been driven. A few tons of ore have been produced in carrying on this work.

16-B The adjoining mining properties are "The Chance" and the "Scribner". The latter has been operating off and on for 70 years, and the former for about 50 years.

20 - The minerals are lead, silver and gold. The deposits being in the form of lenses.

21 - The proposed work is to be tunnels, and the time required not over six months.

23-A Labor: One miner to be employed at $13.00 per day.

23-B None.

23-C None.

23-D None.

23-E None.

23-F None.

23-G $150.00 per month.

23-H Explosives and other supplies - $582.00.

23-I $378.00.

GENERAL REPORT ON THE APEX GROUP OF MINING CLAIMS.

SWISSHELM DISTRICT.

COCHISE COUNTY, ARIZONA.

The Swisshelm Mining District is one of the old districts of Cochise County, Arizona, and it would seem from report that claims were taken up about the same time that mining activities began in Bisbee, in the early eighties.

The district is made up of five groups of claims, as follows:
The Chance Mine of four claims.
The Scribner Group with three patented claims.
The Great American of four patented claims.
The Apex Group of four claims, and the
Swisshelm Gold and Silver Mining Company with twelve claims.

The location is in the northern extremity of the Swisshelm Mountains, a range running north and south, and forming part of the eastern boundary of the Sulphur Springs Valley.

The nearest rail road shipping point is Douglas, Arizona, a distance of forty nine miles.
On leaving Douglas, one travels highway No. 66, approximately thirty miles to a point just north of Elfrida, where a good dirt road, running east, leads to the mines.

GEOLOGY:
The Apex Group of claims covers a mountain formed by Naco limestone (Carboniferous) tilted at a steep angle, with a trend northwest and southeast, and dipping southwest.
It lies up against as old igneous formation, probably andesite.
The limestone is fractured in six different places, these fractures being more or less parallel to one another, and at right angles to the strike of the limestone. They show that they have been channels for mineralized solutions, which have left pockets of iron (now oxidized) and lead (both sulphides and carbonates) in a calcite gangue. The lead carries good values in silver, and the iron appreciable amounts in gold.

Very little work has been done so far on the property, and it has been distributed over all of the six fractures.

I consider the property worthy of development by means of tunnels, exploring the different fractures with the expectation of locating bodies of lead-silver ore.

I base my views on the appearances of the outcroppings along the fractures together with the history of the adjacent mines - the Chance and the Scribner. These mines have been large producers, and the Scribner is still operating.

Respectively submitted.

Irving H. Wentworth

Irving H. Wentworth,
Mining Engineer.

Douglas, Arizona,
June 25, 1951.

Form MF-100
(March 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Form approved.
Budget Bureau No. 42-R1026.

GENERAL TECHNICAL DATA
FOR USE UNDER THE
DEFENSE PRODUCTION ACT OF 1950

NOT TO BE FILLED IN BY APPLICANT

Docket No. dmal 2159

Date received 10-15-51

Homer Bates and
Garnet Bates,
630 Twelfth Street,
Douglas, Arizona.

Name and address of applicant

Date June 25, 1951.

INSTRUCTIONS

This form is to be filed with Defense Minerals Administration, Department of the Interior, Washington 25, D. C. It should be accompanied by appropriate application form when a specific type of Government assistance is requested, in the form of (1) loan, (2) purchase contract, (3) Government guarantee of a private loan, (4) Necessity Certificate pursuant to the provisions of Sec. 124-A (Amortization Deduction) of Internal Revenue Code, 1950, (5) priorities or allocation of mining equipment, and maintenance, repair and operating supplies, and (6) other forms of Government assistance that might arise under the Act. Submit four (4) signed copies of the form and accompanying papers. Name and address should be stamped or typed on each sheet of this form and all accompanying papers. *When a question is inapplicable it should be so stated on the form.* Additional sheets may be attached in answering any questions or in supplying additional information. (IF YOU CANNOT ANSWER A QUESTION, SO STATE.) If a question is answered elsewhere indicate where answered. It is not necessary to answer it again.

GENERAL TECHNICAL DATA

Supply the following information on separate sheets, arranged, numbered, and lettered as indicated:

1. Materials produced:
   (*a*) What are the chief mine, mill, or smelter products? Lead, silver, gold.
   (*b*) What are the byproducts, if any?
2. Name(s) and type(s) of mine(s), mill(s), smelter(s), refinery(ies), pit(s), quarry (ies), drilling operation(s). Include old names of property, if any. Show extent of workings, including the following:
   (*a*) Linear feet of shafts.
   (*b*) Linear feet of drifts and crosscuts.
   (*c*) Linear feet of tunnels or adits.
   (*d*) Linear feet of other mine openings (explain briefly).

   Indicate whether mine is flooded or not. Describe any pumping problems. Give size or productive capacity.
3. For each operation listed above supply the following:
   (*a*) Distance and direction from nearest town and shipping point. 49 miles north of Douglas, Ariz.
   (*b*) Mining district. Swisshelm.
   (*c*) Township, Section, Range. Township 20-S, Section 12, Range 27-E.
   (*d*) County, State. Cochise County, Arizona.
4. (*a*) State whether or not property is now in operation, and if in operation, by whom operated.
   (*b*) Are you operating this property as:
   - ☒ Owner. S.
   - ☐ Lessee.
   - ☐ Contractor.
5. Number of years in production _____

   If not in production or operation, estimated date when production will begin _____
6. Experience of operators:

   Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who manage the project.
7. History:
   (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for suspension of operation.
   (*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.

8. Names and addresses of Officers, Directors, or Partners, and in addition thereto, the five largest stockholders if applicant is a corporation.

Name and Address (a)	Official Title (If officer is also director indicate by "D") (b)	Total of Annual Salary, Commissions, Bonuses, Etc., Received From Applicant and Affiliates During Last Fiscal Year (c)	Estimated Net Worth Outside of Interest in Applicant (d)	Number of Shares Held in Applicant Corporation: Common (e)	Number of Shares Held in Applicant Corporation: Preferred (f)	Life Insurance Carried for Benefit of Applicant: Amount (g)	Life Insurance Carried for Benefit of Applicant: Net Cash Surrender Value After Loans (h)
Homer Bates,	Manager.						
630 Twelfth Street,							
Douglas, Arizona.							
Garnet Bates,	Secretary-Treasurer.						
630 Twelfth Street,							
Douglas, Arizona.							
	Total		x x x x x			x x x x x	x x x x x

If more lines are needed continue on separate sheet.

9. Capital Stock Issues:

For Corporate Applicants

Item	Authorized (a)	Outstanding (b)	Par Value (c)	Number of Shares Outstanding (d)	Dividend Rate Last Paid* (e)
Common stock	$	$	$		
Preferred stock	$	$	$		

*Indicate period covered.

10. Production: A few tons of ore have been produced in exploration work.

Item	Kind of Product (a)	1948 Total (b)	1949 Total (c)	1950 Total (d)	Present Average Monthly (e)
1. Quantity of product mined or quarried (Short, long, metric tons; barrels; pounds; etc.)					
2. Quantity of product processed (specify unit of measure and type of process)					
3. Quantity and grade of product sold or shipped (specify units of measure)					

11. Do you contemplate a change in the present average monthly rate of production? If so, state estimated maximum monthly production and basis of change.

12. Ore or Mineral Reserves:

(a) Describe the ore or mineral deposit briefly. Accompany the application by any available report on the geology and ore reserves.

(*b*) If deposit is other than placer:

(1) Submit assay plans and/or sections showing location and size of proved (measured) and probable (indicated) ore or mineral reserve.

(2) State the tonnage (indicate type of ton) and grade of each class of ore reserve, as above, and show how computed. Tabulated total ore reserve as follows:

TOTAL ORE OR MINERAL RESERVES

Ore or Mineral Reserve	Estimated Tons (a)	Metal or Mineral Content Per Ton (Grade) (b)	Gross Value Per Ton (c)	Recoverable Unit Value Per Ton (d)	Estimated Cost of Production Per Ton (e)
Measured (proved)					
Indicated (probable)					

(*c*) If placer:

(1) Give estimated total yardage and average marketable mineral content of each deposit.

(2) Submit map showing location of placer deposit and surrounding area, with all test holes or pits. Submit logs of each hole and test pit with depth and average value of each.

(3) Describe gravel, stating whether fine, medium or coarse; loose, tight, cemented, or frozen, and whether it contains stumps or boulders more than 1 foot in diameter; if so, how large, and in what proportion.

(4) Describe bedrock, giving type (granite, sandstone, shale, etc.) and state whether it is hard or soft, smooth, uneven or rough.

(5) Describe overburden, stating whether loose, tight, or cemented; fine or coarse textured; furnish estimate of average thickness and total amount.

(6) Tabulate the reserves using the form outlined above for ore or mineral reserves.

13. Access Roads:

Give road distances to shipping, supply and residence points, stating kind and condition of roads.

14. Water Supply:

State source and quantity of water available for operations and whether sufficient for all seasons of year.

15. Power:

State amount of power used, rate per hour, and source thereof.

16. Labor:

State number and classes (miners, muckers, millmen, etc.) of men employed during a recent representative payroll period.

Work has been carried on by owner and two or three helpers.

17. Equipment and Facilities:

Describe present equipment on the property, including buildings. (State condition.) List major pieces of equipment now owned or controlled and in serviceable condition available for this operation.

18. Are there any particular conditions or circumstances affecting your operations that are not described above? If so, explain.

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.

Bates + Bates
(Name of company)

By Homer Bates
(Signature of authorized official)

Oct 4 - 1951
(Date)

Manager
(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.