File Copy
Surname

Klugeschied.
Yager
Kiilsgaard
Selfridge
Mumbel
Hyman

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

JUN 29 1956

Mr. Clarence C. Williams, President
Pan-Am Mining Company, Inc.
Post Office Box 816
Panhandle, Texas

Re: Docket No. DMEA-4261 (Copper-Lead-Zinc)
Pan-Am Mining Company, Inc.
Starlight Mine
Graham County, Arizona

Dear Mr. Williams:

Your application for aid for an exploration project and other data available to us in Washington relating to the above-named property have been reviewed.

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

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

Should the rehabilitation reveal ore occurrences which are at present unknown, and which would establish some definite objective for the exploration, we would be very glad to reconsider your application.

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

Sincerely yours,

G. O. Mittendorf

Administrator

WPKlugeschied/er 6/28/56
Copy to: Docket
Admr R File
Op. Committee
Base Metals
Mr. Pennington, USBM
Mr. Kiilsgaard, USGS
Region III (2)
Chron.

R.C.W.

File Copy
Surname
Klugescheid.
Yoga
Kinsinel

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

500

June 28, 1956

Memorandum

To: The Administrator

From: Chief, Base Metals Division

Subject: Denial of Application, Docket No. DMEA-4261 (Copper-Lead-Zinc), Pan-Am Mining Company, Inc., Starlight Mine, Graham County, Arizona

The cited application, dated April 13, 1956, was received in this office April 16.

The Applicant proposes to rehabilitate the Kelly Tunnel which is supposed to have a length of 1,900 feet, reopen the Silver King mine, the Silver Queen tunnel, clean out and repair two shafts. Some driving is contemplated but there is no definite objective at this time, as they do not know what the showings in the working faces of the mine are. Some drilling might also be done.

The application is extremely vague and consists largely of rehabilitation. The application was referred to the Field Team.

The total production of this mine to date is less than 1,000 tons. The property consists of 11 patented claims, and is situated about 8 miles south of the San Carlos reservoir.

Ore is reported to have been discovered in the Kelly tunnel between 1,400 and 1,500 feet from the portal, and it is said that a vein 4 feet wide, which contains 8 per cent copper was found at the face of the tunnel 1,900 feet from the portal. These reports cannot be verified at present.

The examining Geologist, John W. Faick, USGS, states:

"Known production is less than 1,000 tons of ore and geological conditions do not indicate that larger deposits will be found on the property or that the rich surficial deposits mined in the past will extend to appreciable depths. I therefore recommend that this application be denied."

"The proposed program requested by the Applicant consists largely of rehabilitation, of a type in which DMEA does not participate. I so advised the Applicants, and suggested, if their rehabilitation revealed a definite objective suitable for exploration by DMEA they could request to have their application reactivated."

W. P. Klugescheid
for W. R. Griswold

WPKlugescheid/er

Copy to: Docket
Base Metals
Chron.

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

June 28, 1956

Memorandum

To: The Administrator

From: Chief, Base Metals Division

Subject: Denial of Application, Docket No. DMEA-4261 (Copper-Lead-Zinc), Pan-Am Mining Company, Inc., Starlight Mine, Graham County, Arizona

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W. P. Klugescheid
for W. R. Griswold

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

June 28, 1956

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W. P. Klugescheid

for W. R. Griswold

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

RECEIVED JUN 21 1956

June 20, 1956

Klugesheid

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: Commodity Industry Analyst, Branch of Base Metals

Subject: Review of Field Team examination report, Docket No. DMEA 4261 (copper-lead-zinc), Pan-am Mining Company, Starlight Mine, Graham County, Arizona, $32,830.68

The geologic examination report of this property by John N. Faick, Geological Survey, has been reviewed.

The exploration program proposed by the applicant was not definite and, according to Faick, was largely rehabilitation of the present workings.

Faick states that known production has been less than 1,000 tons from small shallow deposits.

Also, geological conditions do not indicate that large deposits are present or small rich deposits occur at appreciable depths.

For these reasons, the Field Team recommends that the application be denied and the application could be reconsidered upon the establishment of a definite objective following the rehabilitation work.

I concur with this recommendation.

J. W. Pennington

J. W. Pennington

Copy to: Division of Minerals
Branch of Base Metals (2)
Thor Kiilsgaard, U.S.G.S.
R. W. Geehan
F i l e s

RECEIVED
JUN 21 1956

June 20, 1956

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Copy to: Division of Minerals
Branch of Base Metals (2)
Thor Kiilsgaard, U.S.G.S.
R. W. Goehan
F i l e s

IN REPLY REFER TO:

RECEIVED
JUN 26 1956

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

June 25, 1956

Re: DMEA 4261
Pan-Am Mining Co.,
Starlight Mine
Graham Co., Ariz.
$32,830.68 - Copper-Lead

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: N. E. Nelson, U. S. Geological Survey

From: Review of Field Team report.

The applicant requested aid in rehabilitating 3 old mines, following which drifting, crosscutting, and diamond drilling would be done, if conditions justified. The application appeared to be based largely on reports of ore in old time workings, now inaccessible.

The examiner could see little to confirm the reports. From the appearance of the mine openings now open, the small amount of ore mined came from small bunchy "oxide" ore bodies. The examiner concluded that large orebodies are not likely, but in case rehabilitation shows some of the reports of ore occurrences are true, another application would receive the consideration warranted.

The examiner and the Field Team recommend denial of the application.

I concur with the recommendation.

N. E. Nelson

N. E. Nelson

IN REPLY REFER TO:

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

RECEIVED
JUN 26 1956

June 25, 1956

re: DMA 4261
Pan-Am Mining Co.,
Starlight Mine
Graham Co., Ariz.
$32,830.68 - Copper-Lead

Memorandum

To: [illegible] Griswold, Defense Minerals Exploration Administration

From: H. [illegible] Nelson, U. S. Geological Survey

Subject: Review of Field Team report.

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The examiner and the Field Team recommend denial of the application.

I concur with the recommendation.

H. E. Nelson

H. [illegible] Nelson

HENelson:btr
G 5/25/56

cc: J. W. Pennington, 3623
Director's reading filing 4212
Branch reading file (4212)
DMEA (3)
Chron. file
Docket file

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

RECEIVED
JUN 15 1956

June 12, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Geologic Report of Examination, Docket DMEA 4261 (Copper-Lead-Zinc), Pan-Am Mining Company (Starlight Mine), Graham County, Arizona

Enclosed are the original and three copies of the Geologic Report of Examination on the subject property.

The Bureau of Mines did not participate in the examination. The examiner found that geologic conditions do not warrant Government participation at this time. He recommends that the application be denied. We concur in this recommendation.

In the event that the Applicant's rehabilitation reveals a definite objective suitable for DMEA exploration, a new application would receive proper consideration.

DMEA Field Team, Region III

By W. M. Traver
Executive Officer

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
6-18-56
(date)

DMEA
Date [illegible]d.

JUN 11 1956

BUREAU OF MINES
Denver, Colorado

MINERAL DEPOSITS
DMEA
RECEIVED
JUN 11 1956
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

Box 4126 University Station
Tucson, Arizona

June 7, 1956

RECEIVED
JUN 15 1956

MEMORANDUM

To: Executive Officer DMEA Field Team Region III

From: John N. Faick Through: E. N. Marshman

Subject: Report of Examination, DMEA-4261 (Copper-Lead-Zinc)
Pan-Am Mining Company (Starlight Mine) Graham County, Arizona

Enclosed are the original and 8 copies of Examination Report on the above subject docket. It is recommended that the application be denied because geological conditions do not indicate that government participation in exploration is warranted. Furthermore, the proposed project is largely rehabilitation of a type not acceptable to DMEA.

The Bureau of Mines was not represented in this examination and I do not believe Bureau participation is necessary.

Survey's copy of the application is being returned herewith and the Bureau's copy will be returned by Mr. Storms.

John N. Faick
John N. Faick

JNF:ms

cc. Marshman (8)
Storms
Faick

TRANSMITTED
JUN 12 1956

Reviewed by:
DMEA OPERATING COMMITTEE
6-18-56
(date)

DMEA
Date Rec'd.
JUN 11 1956
BUREAU OF MINES
Denver, Colorado

UNITED STATES
DEPARTMENT OF THE INTERIOR
FRED A. SEATON, SECRETARY

RECEIVED
JUN 15 1956

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

TRANSMITTED
JUN 12 1956

DMEA-4261, Pan-Am Mining Company, Inc.

Starlight Mine (Copper-Lead-Zinc)

Graham County, Arizona

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

June 7, 1956

Reviewed by
DMEA OPERATING COMMITTEE
6-18-56
(date)

DMEA-4261, PAN-AM MINING COMPANY, INC.
STARLIGHT MINE (COPPER-LEAD-ZINC)
GRAHAM COUNTY, ARIZONA

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JUN 1 5 1956

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Summary, Conclusions and Recommendations	6

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2	Claim Map	1

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JUN 15 1956

INTRODUCTION

An application for aid in exploration of the Starlight Mine, near Stanley, Arizona, was received by the Defense Minerals Exploration Administration on April 19, 1956, and was received in the Tucson office about May 15. The application, which was docketed as DMEA 4261, proposed an indefinite project consisting mostly of rehabilitation of old mine workings, at a total estimated cost of $32,830.68. As little information was available to this office, it was considered advisable to make a field examination of the property, which was briefly examined by this writer on May 25, 1956.

The property consists of 11 patented claims, of which the Starlight and Will Ryan claims are the most important. The property is situated (fig. 1) in Graham County about 8 miles south of the San Carlos reservoir and about 4 airline miles north of the old town of Stanley. The property can be reached from Globe or Safford. From Safford drive westerly along paved highway No. 70 to a country road which leaves the highway 14 miles west of Calva. Follow this country road southward along the bottom of Kelly Gulch for a distance of 6 miles to the portal of the Kelly tunnel, which is the principal workings on the property. The upper, or western part of the property can be reached by a road that leaves the highway about 2 miles west of the Kelly gulch road, and follows along a southerly trending ridge. The property (fig. 2) lies west of Kelly Gulch in an area drained by one of its tributaries, Godless Gulch.

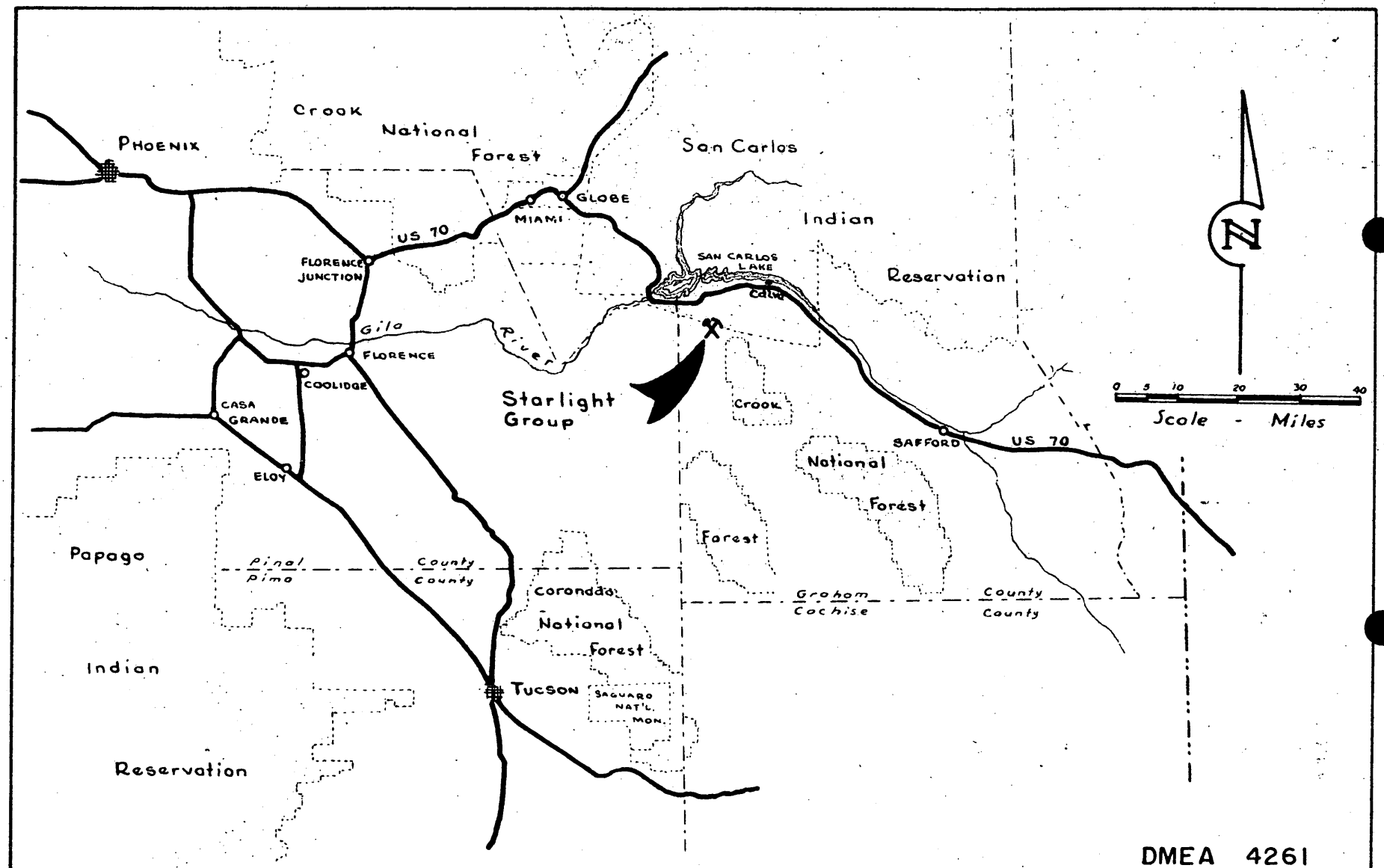

FIGURE - 1 - LOCATION MAP, STARLIGHT GROUP OF CLAIMS, PAN-AM MINING CO.

GRAHAM COUNTY, ARIZONA

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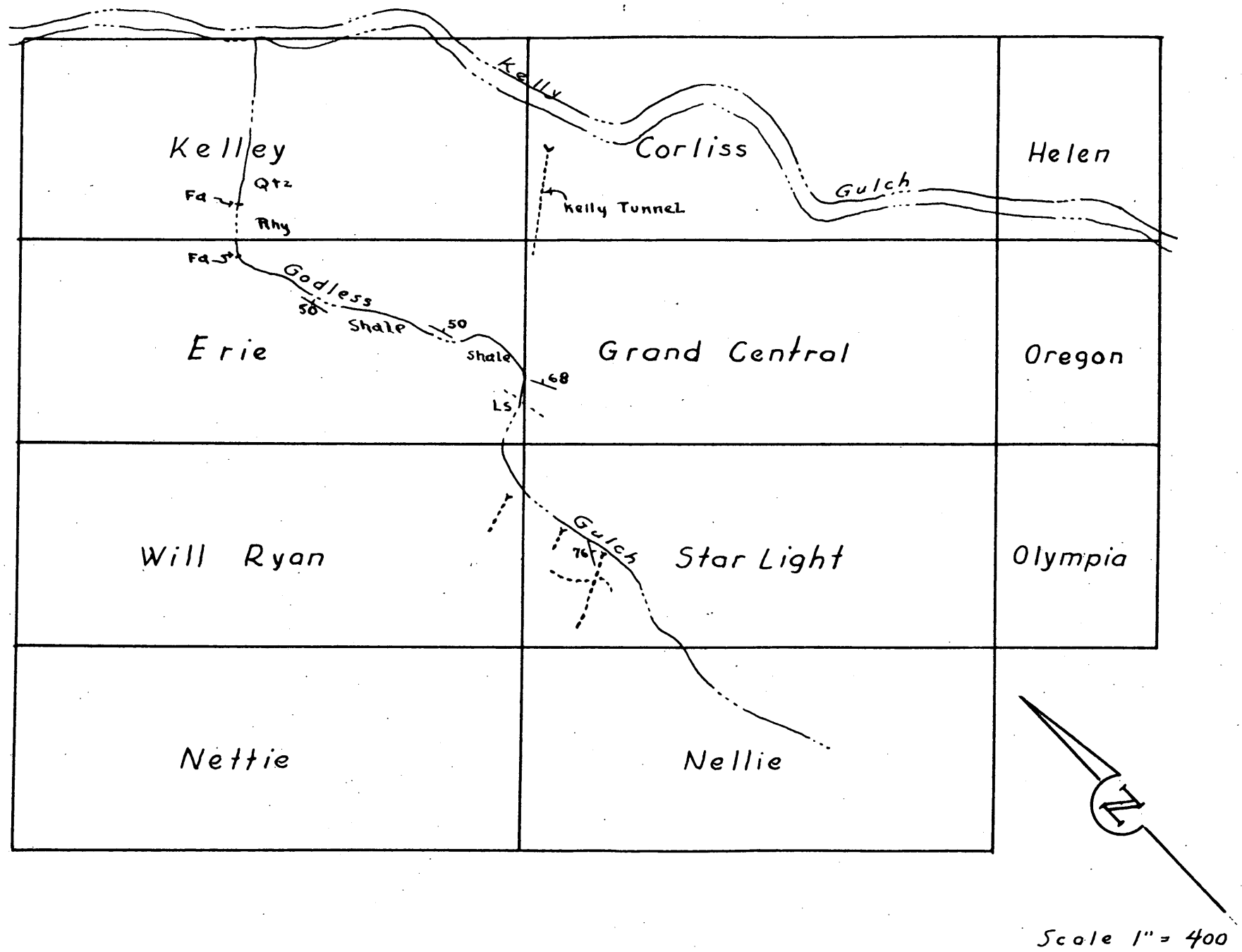
JUN 15 1956



DMEA 4261

FIGURE - 2 - STARLIGHT GROUP OF CLAIMS, PAN-AM MINING CO.

GRAHAM COUNTY, ARIZONA

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JUN 1 5 1956

Fig. 2

The property is controlled by a lease and option agreement by the Pan-Am Mining Co., Inc., Box 816, Panhandle, Texas. Officers of the company are: C. C. Williams, president; E. G. Stapp, Secretary; Cyril Pingleton, Treasurer. Resident manager is Dick N. Campbell, geologist. All officers of the company are residents of Panhandle, Texas.

The property is briefly described in 2 publications, as follows:

(1) Stevens' Copper Handbook, Vol. VI, p. 984; also in several other volumes.

(2) Ross, C. P., Geology and Ore Deposits of the Aravaipa and Stanley Mining Districts, Graham County, Arizona, U. S. Geological Survey Bull. 763, pp. 113-114, 1925.

HISTORY, PRESENT STATUS AND PRODUCTION

Ross reports, "The deposits here were evidently worked by the Spaniards or Mexicans in very early days, as when the deposits were rediscovered in 1886 there were several glory holes in Godless Gulch and the remains of an adobe smelter near-by." According to information furnished to the applicants by Alfred L. Ransome, Chief, Division of Mineral Industries, U. S. Bureau of Mines, Region III, the property was operated intermittently on a small scale from about 1905 to the present time. Ransome reports that in 1905-6 the Starlight group was operated by the Tri-Bullion Smelting and Development Company, which did considerable development work on the property. In 1933 the property was operated by Arch Morrow of Thatcher, Arizona, and in 1947 it was operated for a short time by G. Kellog Green, of Globe, Arizona. Hewitt Wolfe operated the property during part of 1947 and from January to May 1950, and again in 1952.

In 1905 the property reportedly was developed by a tunnel 1200 feet long, 1657 feet of drifts; and 700 feet of raises. On the Starlight claim it is said there were 2 shafts, respectively 140 feet and 200 feet deep. On this claim a few hundred feet of workings, consisting of an adit and drifts, crosscuts, raises and winzes, from which a little ore obviously had been stoped, was accessible in May 1956. It is said that the long tunnel or Kelly tunnel which has its portal about 20 feet above the floor of Kelly gulch has a total length of 1900 feet. The applicants are reopening this tunnel by driving around caved areas reported to be about 500, 700 and 1200 feet from the portal.

Production from the mine, as reported to the applicants by Alfred L. Ransome, is as follows:

Year	Tons Ore	Ounces Gold	Ounces Silver	Pounds Copper	Pounds Lead
1905	500	97	5,000	30,000	800,000
1906	277	54	2,770	44,320	221,600
1933	32	0.63	60	855	17,348
1947	5	1.0	20	186	4,022
1947	16	5.0	69	685	12,035
1950	1	-	2	58	647
1952	1	0.5	7	72	803

Ransome credits the 1933 production to the Tri-Bullion group of claims and all other production to the Starlight group. Reasons for making this group distribution are unknown to the writer, as only one property, consisting of 11 patented claims under a single ownership, appears to be represented. Probably most of the ore was produced from shallow workings on the Starlight claim; however the applicant believes most of the ore produced in 1905-6 was mined from the long tunnel in Kelly gulch.

GEOLOGY

The Starlight group of claims is underlain by Cambrian quartzite, Devonian (?) shale, and Carboniferous Tornado limestone which, in most places, strike about N. 15° W. and dip from 50 to 70 degrees east. As shown by Ross, the beds are overturned and the limestone dips beneath the quartzite which is exposed in both walls of Kelly gulch. The shale is exposed in the bottom and sides of Godless gulch and the limestone is exposed at its head and on the high ridge which lies along the western side of the property. The only intrusive rock seen by the writer is a fine-grained, light-colored dike-like mass exposed in Godless gulch near the prospects on the Starlight claim, and rhyolite that appears to be a dike or sill near the contact between the quartzite and shale. The long tunnel driven from Kelly gulch penetrated through about 500 or 600 feet of quartzite, probably about the same amount of shale, and reportedly penetrated the limestone a considerable distance. Differences in attitudes of the quartzite in opposite walls of Kelly gulch suggest that this gulch follows a fault zone along which there is considerable displacement. Another fault that may be relatively important occurs in the shale approximately at the contact with the quartzite, and is exposed in the long tunnel and at the surface in Godless gulch. Minor faults of relatively small displacements are present in the mine workings in Godless gulch, where they appear to have been important factors in localizing the ore deposits.

Ore is reported to have been discovered in the long tunnel in Kelly gulch at 1400 or 1500 feet from the portal, and it is said that a vein about 4 feet wide, which contains 8 percent copper was found at the face of the tunnel 1900 feet from the portal. These reports cannot be verified at present. The only evidence of mineralization in the tunnel that the writer saw was hematite stain in disturbed shale near the contact with quartzite. A little copper and iron stained material is visible on the dump. Near the head of Godless gulch are small underground workings and many small, shallow surface cuts, trenches and pits from which some ore obviously was produced. Fragments of ore or float are scattered along the bed of Godless gulch from these prospects to Kelly gulch. Very little ore or ore-type mineralization was to be seen in place in May 1956.

The ore consists principally of oxidation products of lead and to a minor extent of copper, but sparse galena was found in a few places. The primary or hypogene ore consists of galena and presumably traces of chalcopyrite, associated with barite. These minerals form small oreshoots or bodies of mineralized rock in which the minerals replaced fractured limestone. These bodies are very small, widely scattered, and usually not in any way connected with each other. The deposits are distributed in a manner which suggests that bedding or bedding plane faults may have been important factors in distribution and localization of the ore. A typical deposit is from 10 to 15 feet long, from a few inches to a few feet wide, and most have been worked to depths of only a few feet. The largest ore body apparently was

mined from shallow workings on the Starlight claim. These workings indicate that a small irregular lenticular pod of ore possibly not over 100 feet long, and probably having a maximum cross section not exceeding 150 square feet, was mined in this area. This ore body could easily have accounted for the entire known production from the property.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Small deposits of secondarily enriched lead-silver-copper ores have been mined from shallow workings on the Silverstar group of claims, Graham county, Arizona. Known production is less than 1000 tons of ore and geological conditions do not indicate that larger deposits will be found on the property or that the rich surficial deposits mined in the past will extend to appreciable depths. I therefore recommend that this application be denied.

The proposed program requested by the applicant consists largely of rehabilitation, of a type in which DMEA does not participate. I so advised the applicants, and suggested if their rehabilitation revealed a definite objective suitable for exploration by DMEA they could request to have their application reactivated.

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

June 12, 1956

224 New Customhouse
Denver 2, Colorado

RECEIVED
JUN 15 1956

Klugscheid

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Geologic Report of Examination, Docket DMEA 4261 (Copper-Lead-Zinc), Pan-Am Mining Company (Starlight Mine), Graham County, Arizona

Enclosed are the original and three copies of the Geologic Report of Examination on the subject property.

The Bureau of Mines did not participate in the examination. The examiner found that geologic conditions do not warrant Government participation at this time. He recommends that the application be denied. We concur in this recommendation.

In the event that the Applicant's rehabilitation reveals a definite objective suitable for DMEA exploration, a new application would receive proper consideration.

DMEA Field Team, Region III

W. M. Traver

By W. M. Traver
Executive Officer

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE

6/18/56
(date)

DMEA
Date Rec'd.

JUN 11 1956

BUREAU OF MINES
Denver, Colorado

MINERAL DEPOSITS
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JUN 11 1956

U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

Box 4126 University Station
Tucson, Arizona

June 7, 1956

RECEIVED
JUN 15 1956

MEMORANDUM

To: Executive Officer DMEA Field Team Region III

From: John N. Faick Through: E. N. Harshman

Subject: Report of Examination, DMEA-4261 (Copper-Lead-Zinc)
Pan-Am Mining Company (Starlight Mine) Graham County, Arizona

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Survey's copy of the application is being returned herewith and the Bureau's copy will be returned by Mr. Storms.

John N. Faick
John N. Faick

JNF:ms

cc. Harshman (8)
Storms
Faick

TRANSMITTED
JUN 12 1956

UNITED STATES
DEPARTMENT OF THE INTERIOR
FRED A. SEATON, SECRETARY

RECEIVED
JUN 15 1956

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

TRANSMITTED
JUN 12 1956

DMEA-4261, Pan-Am Mining Company, Inc.

Starlight Mine (Copper-Lead-Zinc)

Graham County, Arizona

John M. Faick, Geologist
U. S. Geological Survey

June 7, 1956

Reviewed by
DMEA OPERATING COMMITTEE

(date)

RECEIVED
JUN 15 1956

DMEA-4261, PAN-AM MINING COMPANY, INC.
STARLIGHT MINE (COPPER-LEAD-ZINC)
GRAHAM COUNTY, ARIZONA

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An application for aid in exploration of the Starlight Mine, near Stanley, Arizona, was received by the Defense Minerals Exploration Administration on April 19, 1956, and was received in the Tucson office about May 15. The application, which was docketed as DMEA 4261, proposed an indefinite project consisting mostly of rehabilitation of old mine workings, at a total estimated cost of $32,830.68. As little information was available to this office, it was considered advisable to make a field examination of the property, which was briefly examined by this writer on May 25, 1956.

The property consists of 11 patented claims, of which the Starlight and Will Ryan claims are the most important. The property is situated (fig. 1) in Graham County about 8 miles south of the San Carlos reservoir and about 4 airline miles north of the old town of Stanley. The property can be reached from Globe or Safford. From Safford drive westerly along paved highway No. 70 to a country road which leaves the highway 14 miles west of Calva. Follow this country road southward along the bottom of Kelly Gulch for a distance of 6 miles to the portal of the Kelly tunnel, which is the principal workings on the property. The upper, or western part of the property can be reached by a road that leaves the highway about 2 miles west of the Kelly gulch road, and follows along a southerly trending ridge. The property (fig. 2) lies west of Kelly Gulch in an area drained by one of its tributaries, Godless Gulch.

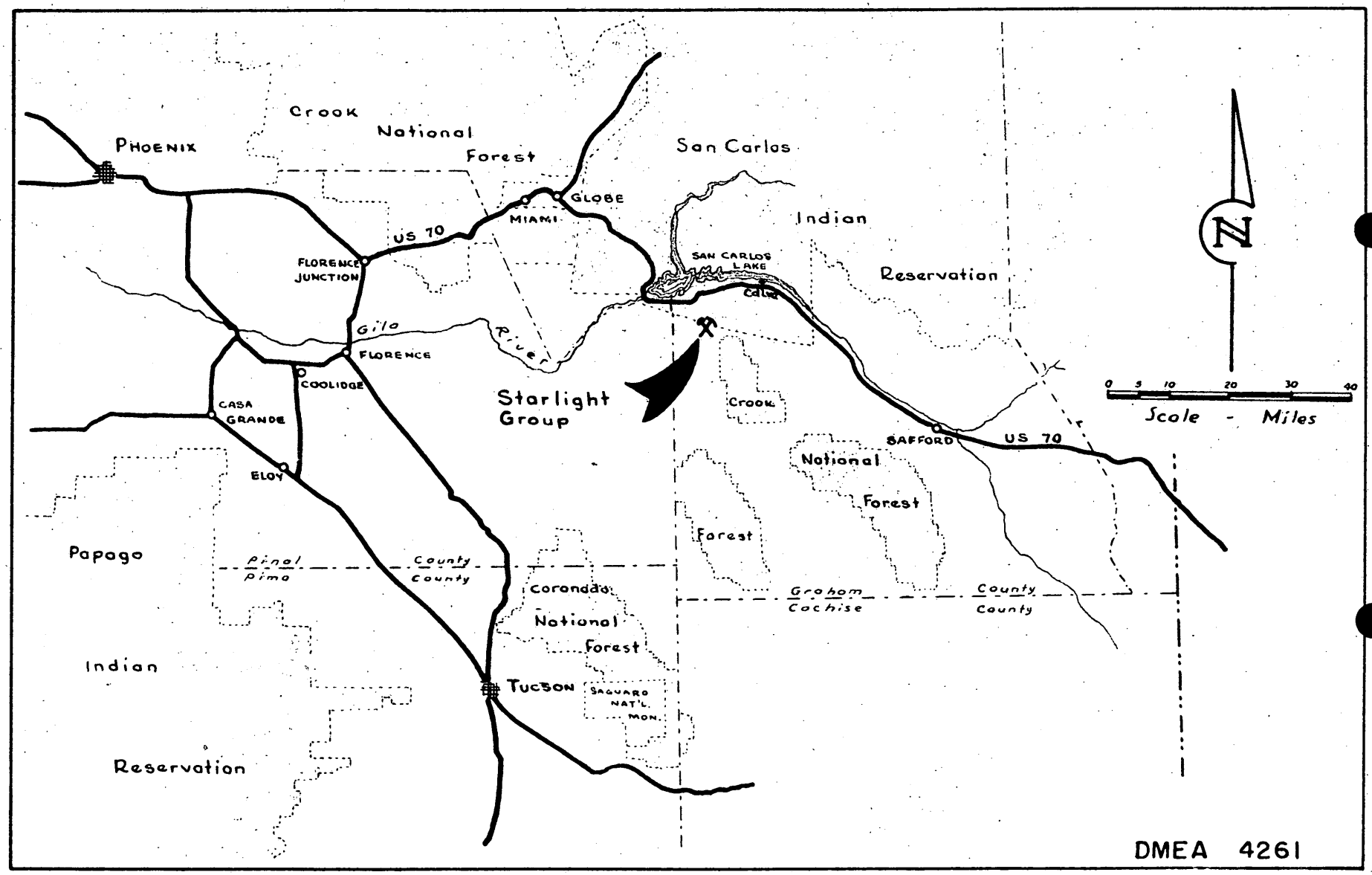
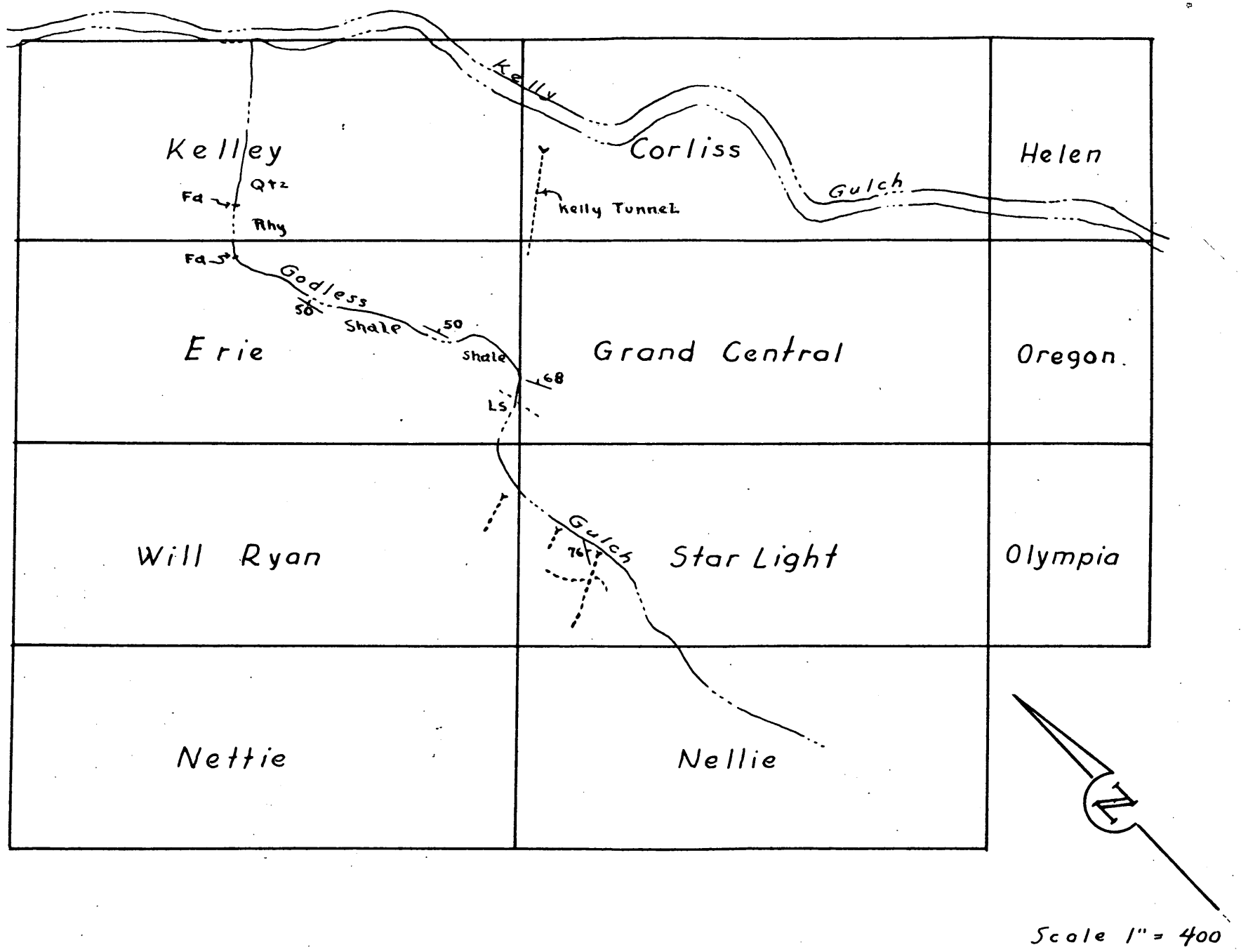


FIGURE - 1 - LOCATION MAP, STARLIGHT GROUP OF CLAIMS, PAN-AM MINING-CO.

GRAHAM COUNTY, ARIZONA

RECEIVED
JUN 1 5 1956



DMEA 4261

FIGURE - 2 - STARLIGHT GROUP OF CLAIMS, PAN - AM MINING CO.

GRAHAM COUNTY, ARIZONA

RECEIVED
JUN 1 5 1956

Fig. v

The property is controlled by a lease and option agreement by the Pan-Am Mining Co., Inc., Box 816, Panhandle, Texas. Officers of the company are: C. C. Williams, president; E. G. Stapp, Secretary; Cyril Pingleton, Treasurer. Resident manager is Dick M. Campbell, geologist. All officers of the company are residents of Panhandle, Texas.

The property is briefly described in 2 publications, as follows:

(1) Stevens' Copper Handbook, Vol. VI, p. 984; also in several other volumes.

(2) Ross, C. P., Geology and Ore Deposits of the Aravaipa and Stanley Mining Districts, Graham County, Arizona, U. S. Geological Survey Bull. 763, pp. 113-114, 1925.

HISTORY, PRESENT STATUS AND PRODUCTION

Ross reports, "The deposits here were evidently worked by the Spaniards or Mexicans in very early days, as when the deposits were rediscovered in 1886 there were several glory holes in Godless Gulch and the remains of an adobe smelter near-by." According to information furnished to the applicants by Alfred L. Ransome, Chief, Division of Mineral Industries, U. S. Bureau of Mines, Region III, the property was operated intermittently on a small scale from about 1905 to the present time. Ransome reports that in 1905-6 the Starlight group was operated by the Tri-Bullion Smelting and Development Company, which did considerable development work on the property. In 1933 the property was operated by Arch Morrow of Thatcher, Arizona, and in 1947 it was operated for a short time by G. Kellog Green, of Globe, Arizona. Hewitt Wolfe operated the property during part of 1947 and from January to May 1950, and again in 1952.

In 1905 the property reportedly was developed by a tunnel 1200 feet long, 1657 feet of drifts; and 700 feet of raises. On the Starlight claim it is said there were 2 shafts, respectively 140 feet and 200 feet deep. On this claim a few hundred feet of workings, consisting of an adit and drifts, crosscuts, raises and winzes, from which a little ore obviously had been stoped, was accessible in May 1956. It is said that the long tunnel or Kelly tunnel which has its portal about 80 feet above the floor of Kelly gulch has a total length of 1900 feet. The applicants are reopening this tunnel by driving around caved areas reported to be about 500, 700 and 1200 feet from the portal.

Production from the mine, as reported to the applicants by Alfred L. Ransome, is as follows:

Year	Tons Ore	Ounces Gold	Ounces Silver	Pounds Copper	Pounds Lead
1905	500	97	5,000	30,000	880,000
1906	277	54	2,770	44,320	221,600
1933	32	0.63	60	855	17,348
1947	5	1.0	20	186	4,022
1947	16	5.0	69	685	12,035
1950	1	-	2	58	647
1952	1	0.5	7	72	803

Ransome credits the 1933 production to the Tri-Bullion group of claims and all other production to the Starlight group. Reasons for making this group distribution are unknown to the writer, as only one property, consisting of 11 patented claims under a single ownership, appears to be represented. Probably most of the ore was produced from shallow workings on the Starlight claim; however the applicant believes most of the ore produced in 1905-6 was mined from the long tunnel in Kelly gulch.

GEOLOGY

The Starlight group of claims is underlain by Cambrian quartzite, Devonian (?) shale, and Carboniferous Tornado limestone which, in most places, strike about N. 15° W. and dip from 50 to 70 degrees east. As shown by Ross, the beds are overturned and the limestone dips beneath the quartzite which is exposed in both walls of Kelly gulch. The shale is exposed in the bottom and sides of Godless gulch and the limestone is exposed at its head and on the high ridge which lies along the western side of the property. The only intrusive rock seen by the writer is a fine-grained, light-colored dike-like mass exposed in Godless gulch near the prospects on the Starlight claim, and rhyolite that appears to be a dike or sill near the contact between the quartzite and shale. The long tunnel driven from Kelly gulch penetrated through about 500 or 600 feet of quartzite, probably about the same amount of shale, and reportedly penetrated the limestone a considerable distance. Differences in attitudes of the quartzite in opposite walls of Kelly gulch suggest that this gulch follows a fault zone along which there is considerable displacement. Another fault that may be relatively important occurs in the shale approximately at the contact with the quartzite, and is exposed in the long tunnel and at the surface in Godless gulch. Minor faults of relatively small displacements are present in the mine workings in Godless gulch, where they appear to have been important factors in localizing the ore deposits.

Ore is reported to have been discovered in the long tunnel in Kelly gulch at 1400 or 1500 feet from the portal, and it is said that a vein about 4 feet wide, which contains 8 percent copper was found at the face of the tunnel 1900 feet from the portal. These reports cannot be verified at present. The only evidence of mineralization in the tunnel that the writer saw was hematite stain in disturbed shale near the contact with quartzite. A little copper and iron stained material is visible on the dump. Near the head of Godless gulch are small underground workings and many small, shallow surface cuts, trenches and pits from which some ore obviously was produced. Fragments of ore or float are scattered along the bed of Godless gulch from these prospects to Kelly gulch. Very little ore or ore-type mineralization was to be seen in place in May 1956.

The ore consists principally of oxidation products of lead and to a minor extent of copper, but sparse galena was found in a few places. The primary or hypogene ore consists of galena and presumably traces of chalcopyrite, associated with barite. These minerals form small oreshoots or bodies of mineralized rock in which the minerals replaced fractured limestone. These bodies are very small, widely scattered, and usually not in any way connected with each other. The deposits are distributed in a manner which suggests that bedding or bedding plane faults may have been important factors in distribution and localization of the ore. A typical deposit is from 10 to 15 feet long, from a few inches to a few feet wide, and most have been worked to depths of only a few feet. The largest ore body apparently was

mined from shallow workings on the Starlight claim. These workings indicate that a small irregular lenticular pod of ore possibly not over 100 feet long, and probably having a maximum cross section not exceeding 150 square feet, was mined in this area. This ore body could easily have accounted for the entire known production from the property.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Small deposits of secondarily enriched lead-silver-copper ores have been mined from shallow workings on the Silverster group of claims, Graham county, Arizona. Known production is less than 1000 tons of ore and geological conditions do not indicate that larger deposits will be found on the property or that the rich surficial deposits mined in the past will extend to appreciable depths. I therefore recommend that this application be denied.

The proposed program requested by the applicant consists largely of rehabilitation, of a type in which DMEA does not participate. I so advised the applicants, and suggested if their rehabilitation revealed a definite objective suitable for exploration by DMEA they could request to have their application reactivated.

RECEIVED
MAY 10 1956

May 7, 1956

Docket

~~Kingsbaid~~
Betty

Memorandum

To: W. N. Storms

From: Superintendent, Denver Experiment Station, Reg. III

Subject: Docket DMEA 4261 (Copper-Lead-Zinc), Pan-Am Mining Company, Inc., (Starlight Mine), Graham County, Arizona

Enclosed is the application for Pan-Am Mining Company, Inc., Docket DMEA 4261, in the amount of $32,830.68.

It is suggested that you contact the applicant and determine if additional information is available. If you have any information that indicates an exploration project would be warranted on this property, the applicant could be requested to submit a revised application which would include exploration in addition to rehabilitation. It would be contrary to DMEA policy to participate in an exploration project of the type submitted.

It is suggested that you submit to the Executive Officer a memorandum containing any knowledge which you may have regarding this property and the results of your contacts with the applicant. It can then be determined if a field examination is warranted.

JOHN F. SHAW

John F. Shaw

cc: W. M. Traver (3)
E. N. Harshman
J. N. Faick
Sec. Op. Com. (2)

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

~~Hollingshead~~
Betty

May 3, 1956 RECEIVED
MAY 7 - 1956

224 New Customhouse
Denver 2, Colorado

Docket

Memorandum

To: J. F. Shaw
J. N. Faick

From: Field Team, Region III

Subject: Docket DMEA 4261 (Copper-Lead-Zinc) Pan-Am Mining Company, Inc., (Starlight Mine), Graham County, Arizona

Enclosed is the subject application in the amount of $32,830.68.

The requested exploration is entirely too vague and unrealistic. The Applicant should be advised that DMEA does not participate in rehabilitation where no definite plan of exploration is to follow the rehabilitation. Please refer to the statement in the letter from the Chairman, Operating Committee dated May 25, 1955, copy of which was furnished you.

> "We reconfirm our explanation to you that DMEA will not participate in rehabilitation solely for examination and with no definite target in mind."

You may have access to information not available to the Washington or Region III offices that would serve to justify exploration work of some type. If you consider a field examination advisable, the possibility of a limited core drilling project should be considered. However, your attention is called to the Applicant's estimate of $1.50 per foot for such work, which is unrealistic.

Please note the copy of the attached letter from the Chairman, Operating Committee dated April 27, 1956 and the memoranda of review of the application by M. E. Nelson and J. W. Pennington.

HMC:ab
cc: Chair. Op. Comm. (2)
Harshman
Docket 4261
Chron.

DMEA Field Team, Region III

W. M. TRAVER,

By W. M. Traver
Executive Officer

File Copy
Surname
Klugescheid
Selfridge

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

500

APR 27 1956

Mr. W. M. Traver
Executive Officer
DMEA Field Team, Region III
224 New Customhouse Bldg.
Denver 2, Colorado

Re: Docket No. DMEA-4261 (Copper-Lead-Zinc)
Pan-Am Mining Company, Inc.
Starlight Mine
Graham County, Arizona

Dear Mr. Traver:

The cited application for exploration assistance is being referred to your office for consideration, a field examination of the property if warranted, and recommendation.

The wording of this application is extremely vague and they do not seem to have any very definite objective in mind. Everything seems largely based on ancient history and we doubt if they have any real information as to how much rehabilitation will be necessary. It might be well to inform the Applicant that DMEA does not participate in projects that consist mostly of rehabilitation.

The data on surface showings are very sketchy and it seems obvious that they have taken little or no time to study this angle of the project. The plat enclosed is useful only as a property map.

Copies of memoranda dated April 20, 1956, by N. E. Nelson, Geological Survey, and J. W. Pennington, Bureau of Mines, relating to the project are enclosed for your information.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee

Enclosures

WRKlugescheid/er 4/25/56
Copy to: Docket
Admr & File
Op. Committee
Base Metals
Mr. Pennington, USBM
Mr. Kiilsgaard, USGS
Chron.

APPROVED:

/s/ Robert W. Geohegan
Member, Bureau of Mines

Thor H. Kiilsgaard
Member, Geological Survey

File Copy
Surname
Klugescheid
Sherwood
Stetson
Kiilsgaard
Selfridge
Kjerulf

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

APR 27 1956

Mr. Clarence C. Williams, President
Pan-Am Mining Company, Inc.
Box 816
Panhandle, Texas

Re: Docket No. DMEA-4261 (Copper-Lead-Zinc)
Pan-Am Mining Company, Inc.
Starlight Mine
Graham County, Arizona

Dear Mr. Williams:

Your application for Government assistance to explore the cited property has been reviewed by the Base Metals Division of the Defense Minerals Exploration Administration and has been referred to:

Mr. W. M. Traver
Executive Officer
DMEA Field Team, Region III
224 New Customhouse Bldg.
Denver 2, Colorado

If the Field Team requires additional information concerning your application, they will contact you at an early date.

Sincerely yours,

C. O. Mittendorf

Administrator

WPKlugescheid/er 4/25/56
Copy to: Docket
Admr R File
Op. Committee
Base Metals
Mr. Pennington, USBM
Mr. Kiilsgaard, USGS
Region III (2)
Chron.

P.C.L.

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

RECEIVED
APR 24 1956

April 20, 1956

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: Commodity Industry Analyst, Branch of Base Metals

Subject: Review of application, Docket No. DMEA 4261 (copper-lead-zinc) Pan-Am Mining Co., Inc., Starlight Mine, Graham County, Arizona, $32,830.68

The proposed exploration of this property is not too definite and appears to be the following:

1. Tunnel around two caved areas in Kelley Tunnel.
2. Prospecting in Kelley Tunnel and existing drifts.
3. Reopen Silver King Mine and prospecting of mine.
4. Reopen Silver Queen Tunnel and extend it 200 to 300 feet.
5. Rehabilitate two shafts and prospect existing drifts.
6. Exploration of outcrops.
7. Core drilling, if necessary.

Estimated costs of this exploration program are $32,830.68.

Data supplied with the application indicates that exploration of the property may be warranted. However, it is recommended that the application be referred to the Field Team for examination and the preparation of a more definite program.

J. W. Pennington

J. W. Pennington

Copy to: Division of Minerals
Branch of Base Metals (2)
R. W. Geehan
Thor Kiilsgaard, U.S.G.S.
F i l e s

RECEIVED
APR 24 1956

April 20, 1956

Memorandum

To: W. R. Grimwald, Defense Minerals Exploration Administration

From: Commodity Industry Analyst, Branch of Base Metals

Subject: Review of application, Docket No. DMEA 4061 (copper-lead-zinc) Pan-Am Mining Co., Inc., Starlight Mine, Graham County, Arizona, $32,830.68

The proposed exploration of this property is not too definite and appears to be the following:

1. Tunnel around two caved areas in Kelley Tunnel.
2. Prospecting in Kelley Tunnel and existing drifts.
3. Reopen Silver King Mine and prospecting of mine.
4. Reopen Silver Queen Tunnel and extend it 200 to 300 feet.
5. Rehabilitate two shafts and prospect existing drifts.
6. Exploration of outcrops.
7. Core drilling, if necessary.

Estimated costs of this exploration program are $32,830.68.

Data supplied with the application indicates that exploration of the property may be warranted. However, it is recommended that the application be referred to the Field Team for examination and the preparation of a more definite program.

J. W. Pennington

J. W. Pennington

JWPennington/vr

Copy to: Division of Minerals
Branch of Base Metals (2)
R. W. Graham
Thor Kilingsand, U.S.G.S.
F i l e s

IN REPLY REFER TO:

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

RECEIVED
APR 23 1956

April 20, 1956

Re: DMEA 4261
Pan-Am Mining Co.
Starlight Mine
Graham Co., Arizona
$32,830.68, Copper-lead-zinc

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of application.

The applicant requests assistance in rehabilitating and re-exploring 3 old mines by drifting, crosscutting, and perhaps diamond drilling. The mines are credited with a small production. Operations appear to have been intermittent from Spanish times to 1952. Oxidized copper and lead ores were shipped.

The best information concerning the geology of the deposits is contained in U.S.G.S. Bulletin 763, Aravaipa and Stanley Mining Districts, Arizona, by C. P. Ross, 1925. Ross says, "The deposits appear to be entirely in the Tornado limestone, but Cambrian quartzite and pre-Cambrian metamorphic rocks are also present. The Paleozoic rocks are fractured, tilted, and locally overturned. . . . The mineralized rock in the upper part of Godless Gulch is in small irregular bodies that replace the fractured limestone. These are the only exposures of ore in place that could be seen at the time of visit. Ore is reported to have been encountered in the long tunnel in Kelley Gulch at 1,400 or 1,500 feet from the portal. This tunnel passed through quartzite for the first 600 feet from the mouth and then entered limestone. There is little ore on the dump of the tunnel in Kelley Gulch, but some was found on dumps in Godless Gulch. This is a mixture of chrysocolla, malachite, azurite, anglesite, cerusite, hydrated iron oxide (largely limonite), quartz, calcite and a little residual galena."

No definite program is outlined. Apparently the work will be shaped to fit the findings of work done.

Referral to the Field Team for appropriate action is recommended.

N. E. Nelson

N. E. Nelson

IN REPLY REFER TO:

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

RECEIVED
APR 23 1956

April 20, 1956

Re: DMEA 4261
Pan-Am Mining Co.
Starlight Mine
Graham Co., Arizona
$32,830.68, Copper-lead-zinc

Memorandum

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No definite program is outlined. Apparently the work will be shaped to fit the findings of work done.

Referral to the Field Team for appropriate action is recommended.

NENelson:iml
G-4/20/56
cc: Director's reading, 4212
Branch reading, 4212
DMEA (3); Docket file; H.M.Meyer, 3623

N. E. Nelson

N. E. Nelson

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

April 16, 1956

224 New Customhouse
Denver 2, Colorado

Mr. E. G. Stapp, Secretary
Pan-Am Mining Company, Inc.
Box 816
Panhandle, Texas

Re: Application for DMEA Aid (Copper-Lead-Zinc) (Starlight Mine), Graham County, Arizona

Dear Mr. Stapp:

This will acknowledge receipt of your letter dated April 13, 1956 and four copies of your application for DMEA Aid for exploration on the Starlight Mine.

Your application has been forwarded to the Washington office, DMEA, for their review and should additional information be required, they will advise you.

Very truly yours,

W. M. TRAVER

W. M. Traver
Executive Officer, DMEA
Field Team, Region III

HMC:ab

cc: Chair. Op. Comm. (2)
Harshman
Storms
Subject
Chron.

April 19, 1956
Subject: DMEA-4261
Re: Exploration Assistance
Starlight Mine

Pan-Am Mining Company, Inc.
Box 816
Panhandle, Texas

Gentlemen:

The receipt of your application dated April 13, 1956, for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-4261 and referred to the Base Metals Division.

Kindly identify all future correspondence relating to your application by this docket number.

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division

April 19, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number

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

DMEA - 4261 Pan-Am Mining Company, Inc.

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

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

April 16, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Application for DMEA Aid (Copper-Lead-Zinc), Pan-Am Mining Company, Inc., Starlight Mine, Graham County, Arizona

Enclosed are three copies of the subject application in the amount of $32,830.68. Also enclosed are two copies of our letter to the Applicant.

The Applicant has failed to give a clear-cut plan of exploration and a considerable amount of rehabilitation is involved.

One copy of the application is being retained in our file.

DMEA Field Team, Region III

W. M. Traver

By W. M. Traver
Executive Officer

Enclosures

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

April 16, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Application for DMEA Aid (Copper-Lead-Zinc), Pan-Am Mining Company, Inc., Starlight Mine, Graham County, Arizona

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DMEA Field Team, Region III

W. M. TRAVER

By W. M. Traver
Executive Officer

Enclosures

OFFICERS AND DIRECTORS

CLARENCE C. WILLIAMS
PRESIDENT

C. E. LYLES
FIRST VICE-PRESIDENT

J. W. BLACKWELL
SECOND VICE-PRESIDENT

O. D. SMITH
THIRD VICE-PRESIDENT

E. G. STAPP
SECRETARY

CYRIL PINGELTON
TREASURER

FLOYD T. HUBBARD
ALVIS TABOR
MELVIN VICK
B. R. BELL
F. L. STEVENS

PAN-AM MINING COMPANY, INC.

PANHANDLE, TEXAS

DMEA
Date Rec'd.
APR 16 1956
BUREAU OF MINES
Denver, Colorado

April 13.1956.

United States Department of the Interior
Bureau of Mines
Defense Minerals Exploration Administration
224 New Customshouse
Denver 3 Colo.

Gentlemen;

Under separate cover we are mailing to you this day an application for aid in a mineral exploration program. In this application we have included the 4 application forms, 4 separate copies of the estimated cost of the various items listed in the application, 4 copies of our purchase contact on property, 4 copies of patent plat and 4 copies of a technical report assembled by the Scientific Prospecting Co.. This report contains much information on the property described in the application. Should there be any additional information needed please advise and we will endeaver to supply the same.

We would appreciate very much your earliest consideration on this application and if in any way we may expedite the matter by a personal call we will be glad to come to Denver to discuss it with you.

Very truly yours

E.G. Stapp

E.G.Stapp, Secretary
Box 816
Panhandle Texas

OFFICERS AND DIRECTORS

CLARENCE C. WILLIAMS
PRESIDENT

C. E. LYLES
FIRST VICE-PRESIDENT

J. W. BLACKWELL
SECOND VICE-PRESIDENT

O. D. SMITH
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SECRETARY

CYRIL PINGELTON
TREASURER

FLOYD T. HUBBARD
ALVIS TABOR
MELVIN VICK
B. R. BELL
F. L. STEVENS

1TM

PAN-AM MINING COMPANY, INC.

PANHANDLE, TEXAS

DMEA
Date Rec'd
APR 16 1956
BUREAU OF MINES
Denver, Colorado

April 13.1956.

United States Department of the Interior
Bureau of Mines
Defense Minerals Exploration Administration
224 New Customshouse
Denver 3 Colo.

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We would appreciate very much your earliest consideration on this application and if in any way we may expedite the matter by a personal call we will be glad to come to Denver to discuss it with you.

Very truly yours

E. G. Stapp

E.G.Stapp, Secretary
Box 816
Panhandle Texas

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

DMEA
Date Rec'd. 4-19-56

RECEIVED
APR 19 1956

APR 16 1956
BUREAU OF MINES
Denver, Colorado

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

Not to be filled in by applicant

Docket No. DMEA-4261
Metal or Mineral Copper-Lead-Zinc
Date Received 4-19-56
Estimated Cost $32,830.68
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Pan-Am Mining Company, Inc. Box 816 Panhandle Texas
Clarence C. Williams, President Panhandle Texas
E.G.Stapp Secretary Box 816 Panhandle Texas
Cyril Pingleton Treasurer Panhandle Texas

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract 11 Patented claims known as the Starlight property in Graham County Ariz. (Full description on extra sheet)

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

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Purchaser under contract (Copy of contract attached)

(*d*) If you are the owner, submit with this application a copy of the lease, contract, or other document under which you control the property.

(*e*) If you own the land, describe any liens or encumbrances on it Liens as per contract attached

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

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

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

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

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

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

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore Lead, Copper, Zinc & other associated minerals.

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

(*c*) The work will start within 5 days and be completed within 8 months from the date of an exploration project contract.

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

6. *Estimate of costs.*—Furnish a detailed estimate of the costs of the proposed work (you will have to use a separate sheet), under the following headings. Add the totals under all headings to give the estimated total cost of the project: 32830.68 Attached sheet

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

(*b*) *Labor, supervision, consultants.*—Include an itemized schedule of numbers, classes and rates of wages, salaries or fees for necessary labor, supervision and engineering and geological consultants. None

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including tools and equipment costing less than $50 each, and power, water and fuel. Attached sheet

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

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

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

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

(*h*) *Contingencies.*—Give an estimate of any necessary contingencies not included in the costs stated above. Attached Sheet

NOTE.—No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs.

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

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

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

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated April 13, 1956

Pan-Am Mining Company Inc.
(Applicant)

By Chester C. Williams
President

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

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

Application for aid in an exploration project

Ref. 1

(a) Pan-Am Mining Company Inc. Panhandle Texas

(c) Clarence C. Williams President Panhandle Texas
E.G.Stapp Secretary Box 816 Panhandle Texas
Cyril Pingleton Treasurer Panhandle Texas

3

(a) All those certain patented Lode Claims, situated in the Stanley Butte Mining District, Graham County Arizona, United States Patent recorded Book 3 Pages 12-18, office of County Recorder, Graham County Arizona and named, Kelly, Erie, WillRyan, Nettie, Helen, Corliss, Grand Central, Starlight, Nellie, Oregon and Olympia.

(b) Starlight Mine, Silver King & Silver Queen Mines.

(c) Purchaser under contract (Copy of Contract attached)

(d) Copy of Purchase contract attached

4

(a)

Will Ryan-	#2	Tunnel	5 x 7 x 20 ft.
		Shaft	5 x 7 x 20 ft.
	#3	Tunnel	4 x 6½ x 192 ft.
		Drift	4 x 6 x 55 ft.
	Cross	Cut	4 x 6 x 22 Ft
Starlight-		Tunnel	4 x 6½ x 276 Ft.
		Drift	4 x 6½ x 209 Ft.
		Shaft	6 x 8 x 107 Ft.
		Drift	4 x 6 x 10 Ft.

Kelly Cross Cut Tunnel reported to be 1900 ft. long however there is a cave-in at 500 ft. and is also reported to be caved in at 1200 ft. The Kelly tunnel cuts across the middle of the property and the other two are higher up the side of the ridge and were were started with the idea of cutting the mineralized zone below the out crops. There are also several open pits and holes on the property.

(b) There is no current production but the United States Department of the Interior, Burau of mines report gives the production;

Year	Tons	Gold	Silver	Copper	Lead
1905	500	97 Oz	5000 Oz	30 000 Lb	800 000 Lb
1906	277	54	277	44 320	221 600
1933	32	.63	60	855	17 348
1947	21	6	89	871	16 057

(c) The general geology is a series of sedimentaries, quartzites, shales, limestone which are heaved and fractured byquartzites, monzonites, grano-diorites and porphry intrusives. The fotmation stands at a dip of 70 degrees from the horizonital and has a strike of N 45 W. These intrusives have caused grat fractured zones of 40 to 70 ft. across with minor fractures. Ores found on the property areCerrusite, Galena, Azurite, anglesite, chrysocolla, malachite, silver and gold hematite, barite and chalcosite. See attached reports.

(d)

A maintained dirt road leads from US highway 70 along the ridge of Kelly gulch to the top of the property. This road is easily traveled by auto or truck. Another roadleads from US highway 70 at a point 2 miles east of the ridge road, up the bed of kelly gulch to the portal of the Kelly tunnel. This road can also be traveled by auto or truck and with some repair could be made a very good ore haul road.

ef.4 (cont)

(a) Common laborers, muckers and etc are readily available from the Indian reservation at near by San Carlos. Experienced miners can be had from the globe Miami district about 35 miles distant. Materials and supplies can be had from Globe, Phoenix, Safford or can be brought in from El Paso in a few hours.
Water is avaiable from a spring in the Kelly Tunnel which is piped to a storage tank in Kelly gulch for most operations but should more water be needed it may be developed fromKelly Gulch.
Electric power is not available on the property but is available six miles away.

5

(a) Copper, lead and zinc have already been found and we are looking for additional indications of these as well as other associated minerals.

(b) The patent plat attached shows the location of existing workings and will show the location of proposed exploration as follows; tunnell around the two cave-ins in the Kelly tunnel, do directional prospecting in this tunnel and any existing drifts, reopen the silver King mine and do directional prospecting. Reopen the Silver Queen tunnel and advance it to penetrate the limestone. ~~Should be~~ 200 to 300 ft. advance. Clean out and repair two shafts, do directional prospecting in these tunnels and any existing drifts. Do hand drilling and exploration along outcrops, which can be traced full length of property.
Do core drilling if deemed advisable by the field geologist.

(c) Work is already in progress to try to go around the first cave-in in Kelly tunnel and all work should be completed within 8mos.

(d) The officers of Pan-Am Mining Company Inc. are all men with many years experience in various business management positions, and are at present successful business men. Dick N. Campbell, geologist and general supervisor has a Masters Degree in geology, a degree in pre-engineering and a bachelors degree in business management has headed the Scientific Prospecting Co. which has been examining and reporting on mining claims and properties. In the Scientific Prospecting co. Dick N. Campbell was associated with Dr. F. Albon Wade, head of the Geology Department of Texas Tech, Lubbock Texas. Through our connection with Scientific Prospecting Co we have available as a consulting geologist the services of Dr. Wade who was chief Scientist for Admiral Byrd on his Antartic expedition in the 1930s.
The mine foreman in charge of the actual operation has held responsible positions with large and small mining co,s. since 1921.

6

(a) None(unless ~~core~~ drilling should be advised by the geologist which may be had for approximate $1.50 per ft.)

(b)

1 Geologist, Engineer, Assayist & supervisor	$20.00	per Day	
Expenses	6.00	" "	
1 Miner & foreman	16.00		
1 Miner & jackhammer man	12.00		
4 Indian laborers and Muckers @7.00	28.00		
Total per day	82.00		
20 days per month	1640.00		
Total for 8 mos			$13120.00

(c)

Gasoline, Oil & Etc	$50.00	
Dynamite, Caps, Fuse & etc	150.00	
Assay supplies	15.00	
Timbering material	100.00	
Carbide	12.95	
Bits for drills	30.50	
Electrical supplies	50.00	
Total for month	408.45	
Total for 8 mos		$3267.60

Ref; 6 (Cont.)

(d) Equipment to be purchased

1 Used Jeep	$500.00	
1 New Poinjar Portable Rock Drill	900.00	
1 Balance & weights for assay	275.00	?
Est. 1000' # 12 mine rails, 4 tons @$250.00	1000.00	not enough
" 1000' 2" airline pipe	500.00	
" 1000' 1" Waterline pipe	200.00	
1 Ore car	100.00	
1 Power winch for shafts	750.00	
1 Columnar Bar	40.00	
1 Vent fan system for Kelly tunnel	575.00	
Necessary camp site equipment	125.00	
Total		$ 4965.00

Equipment, owned by operator to furnished on use allowance

1 Worthington 215 air compressor	$265.00	
1 Ingersoll-Rand jack hammer	20.00	
1 Dodge Power wagon	150.00	
1 Assay office equipment, less balance&wts	50.00	?
2 portable electric light plants	30.00	
1 Thor Portable 380 drilling machine	75.00	
Missc. small equip	25.00	
Total per month	615.00	
Total for 8 months		$4920.00

(e) Waterline (Repair) $110.00
House trailer repair (used for Office) 200.00
Total for 8 months $ 310.00

(f) Road Improvement $ 500.00
Assay Office (Operator already has equipment 300.00 ?
Tool Shed 200.00
Shower house & toilet 108.00
Total for 8 months $1108.00

(g) Estimated monthly repair

Air compressor	$ 15.00	
Jack hammer, Columnar bar, Portable drill & etc.	25.00	
Poinjar portable drill	10.00	
Thor portable drill	10.00	
Dodge power wagon	75.00	
Jeep	25.00	
Analytical, and consulting service	100.00	
Miners Compensation Ins	140.32	
Payroll taxes	32.80	
Liability Ins	6.89	
Fire & theft ins	2.50	
Total per month	$442.51	
Total for 8 months		$ 3540.08

(h) Estimated contingences $200.00
Total per month 200.00
Total for 8 months $1600.00

Ref; 7

(a) Yes
(b) Money and use of equipment.

Total cost of Project $32830.68

Return to
Pan-Am Mining Company Inc.
Box 816 Panhandle Texas

STARLIGHT PROPERTIES

CONTENTS

FORWARD

HISTORY BY UNIVERSITY OF ARIZONA

BUREAU OF MINES PRODUCTION REPORT

STRATIGRAPHY & MINERAL REPORT BY JOE REED

STEVENS COPPER HAND BOOK REPORT

NEBEKER REPORT

DR. F. A. WADE PRELIMINARY REPORT

DR. WADE & DR. BRAND REPORT

Collected and Submitted

By

SCIENTIFIC PROSPECTING CO., INC.
2421 2nd Place
Lubbock, Texas

Sept. 20, 1955

FORWARD

The various papers included in this brochure contain most of the available information is pertinent to the Starlight mining properties. The report on the properties made by the Bureau of Mines indicates the past production of ore from these properties. Practically all of the ore removed from the claims was shipped prior to the year 1908. As a consequence, none of the advantages of modern mining and milling technology have been employed on this property. There is evidence that would indicate that no milling of ore was done on location for the last fifty years or more. Milling and/or concentrating ores at the mine would make the mining operations much less costly and lower grade ore could therefore be mined. Indications of copper and lead ores on the surface indicate that the property has not been fully developed.

The reports submitted by Dr. P. A. Wade and A. C. Nebeker are highly regarded. These men are very well qualified in their respective fields of geology and engineering, and both have acquired a high degree of professional integrity. Our staff concurs with the general inferences made in the Nebeker reports. The more detailed Nebeker report was prepared about 1930, and except for labor costs and costs of mining materials, it is still considered essentially correct. This statement is made with confidence since the properties have had no significant development after the report was written.

The F. A. Wade Preliminary reports point up the potential of the properties. These reports were not intended to be anything more than the titles declare.

A very brief report of the stratigraphy and the types of minerals found on the property was prepared by Mr. Joe Reed. The information contained therein was abstracted from published literature concerning the Starlight mines.

The property in its present state remains a prospect. However, in the opinion of our staff, it is a very good prospect and one which we feel should be given careful consideration by any interested investor. In order to change the present status of the properties from a prospect to a property containing commercial quantities of ore, it is necessary that a more complete evaluation of the property be made. This would require detailed geologic mapping, followed by a geologic report and a mining engineers report. These reports and maps would then be followed by a recommended core-drill program intended to block out ore bodies present and to determine their extent, tonnage, and valuation.

COPY

UNIVERSITY OF ARIZONA
Tucson 25, Arizona

College of Mines
Arizona Bureau of Mines

April 28, 1955

Mr. Dick N. Campbell, Pres.
SCIENTIFIC PROSPECTING CO., INC.
3202 Delano Street
Midland, Texas

Dear Mr. Campbell:

Replying to your letter of recent date, we have very little information on the Starlight Mine. What we do have is as follows:

"The first mining in the district was apparently done during the 18th Century by Spaniards in the vicinity of the present Starlight mine. When the Starlight deposit was rediscovered in 1886, glory holes and the remains of an adobe smelter, estimated then to be over 100 years old, were found. Because of its position inside the San Carlos Indian Reservation, the area was not open to location until 1901. In 1903 work was started by the Tri-Bullion Smelting and Development Company of New York, and ore valued at $6,876. was reportedly shipped in 1905. The smelter returns for 1906 were $15,900. The claims were surveyed for patent in 1907, but no further work was done for at least 12 years. Since then work has been carried on intermittently, but only a small tonnage of ore has been shipped."

This information is excerpted from the unpublished paper compiled by the Arizona Bureau of Mines.

Yours very truly,

Richard T. Moore
Asst. Geologist

COPY COPY COPY

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF
MINES
224 New Customhouse
Denver, Colorado

COPY

June 6, 1955

Mr. Dick N. Campbell
Scientific Prospecting Co., Inc.
3202 Delano St., Midland, Texas.

Dear Mr. Campbell:

Your letter of April 23 addressed to the Bureau of Mines, Washington, D. C., concerning properties in Arizona has been directed to this office by Mr. Charles W. Merrill for reply.

We apologize for the delay in answering, but it has taken more time than expected to obtain the information.

In 1933, Long & Morrow (Arch Morrow), of Thatcher, Ariz., or A. R. Edwards, of Miami, Ariz., operated the Tri-Bullion Group and shipped 32 tons of ore, containing 0.63 ounce of gold, 60 ounces of silver, 855 pounds copper, and 17,348 pounds lead. According to our records, this is the only production that has ever been made from the Tri-Bullion Group.

In 1905-6, the Starlight Group was operated by the Tri-Bullion Smelting and Development Co. In 1905, the property was developed by a tunnel 1,200 feet long; 1,657 feet of drifts; 700 feet of raises. In 1905-6 the production was as follows: 1905 - 500 tons; 97 ounces gold, 5,000 ounces silver, 30,000 pounds copper, 800,000 pounds lead. 1906 - 277 tons; 54 ounces gold, 2,770 ounces silver, 44,320 pounds copper, 221,600 pounds lead. No production 1907-8.

During the past years, some leasers have been working at the property. In 1947, G. Kellog Green of Globe, Arizona, operated the property and sold 5 tons of ore containing 1 ounce gold, 20 ounces silver, 186 pounds copper, 4,022 pounds lead. Hewitt Wolfe and Lucas also operated the property in 1947, and sold 16 tons of ore containing 5 ounces gold, 69 ounces silver, 685 pounds copper, and 12,035 pounds lead. In 1950, Hewitt Wolfe operated the property from January to May and did 30 feet of drifting, 20 feet tunneling and sold 1 ton of ore containing 2 ounces silver, 58 pounds copper, and 647 pounds lead. Hewitt Wolfe also operated the property in 1952 and sold 1 ton of ore containing 1/2 ounce gold, 7 ounces silver, 72 pounds copper, and 803 pounds lead.

According to information from our file on this property it was leased early in 1955 to B. M. Guthrie, Roy Groxton, and Clellan L. Daily, c/o Hewitt Wolfe, 549 East Cedar Street, Apt. 5, Globe, Arizona. At one time our mine list indicated that Edward and Blanche Harrison were owners of the property. We also have the name of Stanley Butte Mining Co. as the owner, c/o C. A. Johson, 104 Winters Building, Phoenix, Arizona.

Sincerely yours,

Alfred L. Ransome, Chief
Division of Mineral Industries
Region III

COPY COPY COPY

STARLIGHT MINE

STRATIGRAPHY:

Gila conglomerate - Quaternary - cemented sand & tuff, gravel
Tornado ls. - Cretaceous - gray chert, well-bedded ls.
Massive quartzite - Cambrian - partly cross-bedded, with pebbly layers in places underlain by shale
Pinal Schist - Pre-Cambrian - sericitic, quartzitic & chlorite schist, intruded by granite 7 trap dikes (all metamorphosed)

The Starlight Mine consists of 12 overlapping patented claims covering about 180 acres on Kelly Gulch about 8 miles from San Carlos.

The deposits appear to be entirely in the Tornado limestone. The Paleozoics are fractured, tilted, & locally overturned. The mineralized rock is in small irregular bodies that replace the fractured limestone.

ORE MINERALS:

Chrysocolla, malachite, azurite, anglesite, cerussite, hydrated iron oxide (largely limonite), quartz, calcite, and a little residual galena.

(The Mine was closed in 1925, at which time the above minerals were found on the dumps. All of the above mineral are supergene, with the exception of galena. They probably represent the weathered surface of a primary lead-copper deposit.)

The above was written by Joe Reed, a Texas Tech. geology major, from printed material found in the library at Texas Tech.

TRI-BULLION SMELTING AND DEVELOPMENT COMPANY

A. C. Nebeker, E. M. Copied from
Vol. VI, page 984, Stevens Copper
Hand Book

N.G.

The Arizona Claims include the Tri-Bullion group of 8 gold and silver properties apparently idle, and the STARLIGHT GROUP of 14 copper and lead claims, located in Godless Gulch, in the Stanley Butte District, 8 miles south of San Carlos.

The Starlight Mine was discovered in 1886, but lands were set aside later as part of the San Carlos Indian Reservation, and were not segregated until 1901. Work by present company was started in 1903.

The country rocks are quartzite, perphory and limestone, showing occasional granite and diorite, carrying 3 known lenses of 20' estimated average width, showing oxide and carbonate ores, giving average assay of 8% copper, 10 ozs. silver, and $4.00 gold per ton, in addition to values in lead, zinc, antimony and bismuth. The high grade ores run 8% copper, 40% lead, with 10 ozs. silver and $3.50 gold per ton. Considerable ore carrying circa. 3% copper and 10% lead with small silver-gold values has been blocked out.

The ore body of 3' to 20' wide has given assays up to 32% copper with considerable gold and silver values.

The ore is low in silica and rich in lead and iron, rendering it self-fluxing notwithstanding the existence of deleteriouselements.

The principal claims are the STARLIGHT and WILL RYAN groups.

The STARLIGHT has shafts of 140' and 200',and a small tunnel, planned to cut the main vein at a distance of 1000', giving a back of 500', which already has cut 2 small veins showing auriferous and argentiferous copper ore. The Ryan crosscut tunnel is about 1200' long and the property shows large reserves of low grade ore.

Survey has been made for the 3000' tram line, with a 22% grade from the Starlight mine to the wagon road in Kelly Gulch.

The property shows remains of an old adobe smelter, 100 years or more of age as evidence that the mine was worked formerly by Mexicans or Spaniards. The Kelly zinc mine was a considerable producer during 1905 and Starlight shipped ore netting $6,876. The property is considered promising.

The Bulletin of Arizona Metal Mining Production gives the Starlight Mine credit of shipping in 1906 $22,000.00 of copper ore.

REPORT ON THE STARLIGHT MINE

LOCATION :

The Starlight mine is located on the South boundary line of the San Carlos Indian Reservation, near the western line of Pima County, Arizona. In the Stanley Mining District, and is eight miles southeast of Coolidge Dam.

The property consists of 11 patented claims, of approximately 200 acres. The patent survey No. is 2372, made September, 1907 by Lomas Cobb, Jr., and is recorded at Safford, the County seat of Graham County, Arizona. It is 20 miles from railroad siding of Calva, Arizona.

ROADS:

To reach the property, one turns off the main Highway, U. S. No. 70 at Kelley Gulch 15 miles west of Calva, or 9 miles east of Coolidge Dam, then go up the wash 6 miles, which brings one to the portal of the main tunnel. Highway 70 is a good oiled highway. The road up Kelley Gulch is a little rough at this time due to non-use and summer rains, but after several years of no repairs the writer went to the portal of the tunnel in a Model A. Ford in 50 minutes from the highway.

The road difficulties can be overcome by making a road along the ridge of the wash, and this is a gradual grade and will cut off 5 or 6 miles to the railroad.

The road up the gulch can be put in fair shape by spending about $50.00 to remove some boulders, and this road can serve until the mine goes into production.

CLIMATE:

I would estimate the elevation above sea level to be about 5000 feet, so the climate is a good working climate with no snow to interfere.

SUPPLIES:

Mining supplies can be brought in from Globe or Phoenix, Arizona, or El Paso, Texas in 24 hours time.

Miners and other help has always been plentiful at the prevailing wages of the districts around. Miners $5.00, muckers $4.50, Topmen $4.50.

Timbers can be had from local yards, or from the Coast, price at the mine approximately $45.00 per M.

FREIGHT:

Ore hauling from mine to siding at railroad $1.25 per ton, on railroad to smelter at El Paso will average about $3.00 per ton. If sent to smelter at Miami by truck $3.00.

CAMP:

There being no buildings at the mine, and it being too far out for the men to live in town, a few tent houses can be constructed for all preliminary work.

WATER:

For all mine purposes there is enough water flowing out of the tunnel. When more water is needed it can be developed in the gulch, or the stream will furnish it when sinking is done. Most of the year a stream flows down the wash past the mine.

GEOLOGY:

The general geology is a series of sedimentaries, quartzites, shales, limestone, which are heaved and fractured by quartz-monzonites, grano-diorites and porphyry intrusives. The formation stands at a dip of 70 degrees from the horizontal, and has a strike of N. 45° W.

These intrusives have caused great fractured zones of 40 to 70 feet across, with minor fractures.

The fractured zones making channels of least resistance to uprising mineralizing agencies are favorable points for formation of ore bodies either the replacement type, or contact type. Also, at the intersection of these fractures are favorable points for large ore bodies.

The shales being near the intrusives also act as a very effective dam to the uprising mineralizers, and are apt to cause the replacement of the limestone with ore.

The stopes where ores have already been taken out furnish evidence which justify the above conclusions.

One finds very similar conditions of formation and mineralization in the Superior District, Bisbee District of Arizona, and the Tintic District and Park City District of Utah, and these districts have produced millions upon millions of dollars worth of ore.

DEVELOPMENT:

The development consists of three tunnels with drifts and several pits, surface cuts and shallow shafts. One of these tunnels, the Kelley Cross-Cut Tunnel is 1900 feet in.

The two tunnels upon the hill were driven to cut just below where the ore outcropped and from these workings considerable ore was shipped, as one can see from the open stopes left. These stopes show where the ore has been taken out over lengths of 30 to 60 feet, with widths up to 15 and 20 feet, and height up to 40 feet.

The writer could not see what was in the bottom on acount of loose muck. In these stopes one can see fractures leading out with mineralization which could lead to other ore bodies.

The Kelley cross-cut tunnel with the portalabout 20 feet above the bottom of Kelley gulch is reported to be in 1900 feet. The writer was only able to go in about 600 feet due to a cave-in in the first fractured zone. This fractured zone is strongly mineralized with quartz, iron hematite which carries some silver, gold and lead, as shown by assay from a sample of red hematite taken by me.

Mr. McComas, who showed the property and who did the timbering as well as working the mine in the tunnel, reported that about 1200 feet farther was a 75' cut from which some copper was taken along with hemitite of iron. This statement seems correct, as one can see from the dump copper and iron ore as well as some lead. Mr. McComas also stated that they were just getting started on drifting along this large

break when the man, a Mr. Phelps, died and who was the sole support of the venture, so work stopped.

The Kelley cross-cut tunnel cuts all formations and shows in the 600 ft. quartzites, shales, limestone and porphyry.

1200 feet in a spring was opened and this water is carried in a 2 1/2 inch pipe to a large iron tank at the portal. In this tunnel there is also a mine track of 16 lbs. rails.

ORES:

Ores found on the Starlight are cerussite (lead carbonate), galena (lead sulphide), anglesite (lead sulphate), chrysocolla (copper silicate), azurite and malachite (copper carbonates), silver and gold hematite (iron oxide) gangue minerals in the vein and quartz, barite and chalcocite.

PRODUCTION:

Due to several years passing since shipments were made it is hard to find copies of settlement sheets, but the stopes show shipments have been made of high grade lead-silver ores.

The Arizona Metal Production Bulletin No. 140 gives the Starlight a production record of $22,000. in gold and copper in 1906.

Stevens Hand Book of Mines states for 1905 a shipment of $6,867.00.

It is reported by two independent sources that a shipment of ore went out which assayed $20.00 gold, 10 ozs. silver and 87% lead. There are several places in the mine where 70% lead can be seen.

DEVELOPMENT COSTS TO DATE:

I would estimate the development cost, for patenting the claims, the driving of the tunnels, drifts, mine rail, etc. has been around $50,000. which work is valuable for future work.

NEICHBORING DISTRICTS:

There are no adjoining mines. This is due to the fact that this is the only patented property on the reservation and others would have to get a permit from the Indians and pay a special royalty. At the north and a little west about 30 miles is the Globe-Miami District which has produced over 575,000,000 dolars and to the east is the Morenci-Clifton District with over 311,000,000 dollars and just to the south is the Aravaipa District with over 1,000,000 dollars and to the west the Banner with a record of 13,000,000 dollars and still farther south the Cochise District with a record of 6,480,000 dollars, the Pearce and Courtland with a record of 21,000,000 dollars, the Warren District, in like formation, with 742,000,000 dollars.

The Stanley or Starlight District is within a triangle of districts which have produced millions of dollars and Nature is more than likely to favor it with its share.

Good

RECOMMENDATIONS:

It would be advisable for the development to be done in stages. The first

stage would be to carry on as follows:

Repair road up Kelley Gulch.. cost.....	$50.00
Get a tent house for foreman.....	75.00
Get camp tools and equipment.....	125.00
2000 ft. mine timber.....	85.00
Contract placing of tunnel sets at $15.00, 9 sets.....	135.00
	470.00
Foreman.....	150.00
Total at this stage.....	$ 620.00

From the information available it appears that no more timber would be needed, but the second break might need timbering. Add another $450. which would bring the total up to where production should start.

From this point on the cost will depend upon what the operator wishes to install, but should not exceed $7,000.00.

CONCLUSION:

Although the Starlight is only a prospect in its present stage of development, but having produced ore to the amount of over $28,000. and being in a formation, within a triangle of producers, shown beyond any question, the possibilities of ore being developed.

The ore bodies can be traced over the full length of the property.

The geological features are similar to other large producing districts.

The limestones are favorable for replacement, with shale present to act as a dam, influencing ascending mineral solutions to spread out and replace the lime and fractured zones with ore.

I believe bodies of commercial ore with size and values will be developed, and that the expenditures of the above amounts of money is warranted, and that profits will be realized in goodly amounts.

A. C. Nebeker, B.M.
Prescott, Arizona

Copy of report submitted by above engineer.

COPY

PRELIMINARY REPORT ON THE STARLIGHT AND SUNSET MINING CLAIMS.

On April 9, 1955, the undersigned consultant made a preliminary survey of the area included in the patented claims, generally referred to as the Starlight Mines, and the adjoining Sunset Claims located in Gila County, Arizona. The entire area was not covered, but a sufficient amount was to justify the following tentative conclusions.

The region is a highly mineralized one, similar in most respects to that of the Globe District which is located thirty to forty miles to the west. The general geologic settings are the same.

The cursury examination revealed that copper minerals predominate. They occur in surface exposures and in the walls of the tunnels examined in the oxidized zone and to a minor extent in the zone of secondary enrichment. Copper ore minerals noted include: cuprite, malachite, chrysacolla, and chalcocite, the latter as films deposited on pyrite. This mineralization is principally in the quartzites of the Apache Group of Cambrian age and in the Devonian-Carboniferous limestones near the contact with the intrusive diabase. Mineralization appears to follow the bedding planes.

A vein of Galena up to two plus inches in thickness outcrops for a distance of several hundred feet in one place. It is paralleled by a vein of chrysacolla spaced sufficiently close to be mined with the galena. It is suspected that the galena carries argentite, silver suphide, in it.

Previous investigations have reported a seam of barite ten to twenty feet in width, a large sample of which was sent to me. Small stringers of barite were noted by me, but the large seam was not visible.

I did not make a radioactive survey, others have and have reported strong anomalies. It is known that both primary and secondary uranium ores do occur farther to the west and it is highly probably that they occur in this area.

In the opinion of this consultant the region is one which contains deposits of copper, lead, silver and barytes of probable commercial value. It is recommended that a detailed survey be made to prove up and delimit the ore deposits, a radio-active survey would be made simultaneously.

Signed,

F. Alton Wade, Consultant

COPY COPY COPY

TEXAS TECHNOLOGICAL COLLEGE
Lubbock, Texas

COPY

August 18, 1955

To Whom It May Concern:

During the week of May 29 - June 4, 1955, Dr. John Paul Brand and the writer investigated the Starlight and associated patented claims and the adjacent Sunset Claims. These claims are located near the western boundary of Pima County, Arizona, approximately eight miles southeast of Coolidge Dam.

The numerous glory holes, tunnels and shafts scattered over the very steep hillside west of Kelly Gulch attest to the reports of activity of varied intensity on these claims during the past 60 or more years.

The detailed geology has not been worked out. However, in general it is very similar to that exhibited in the Globe District 40 to 50 miles to the west.

The oldest rocks noted in the sedimentary section are the quartzites of the Apache Group of Cambro-ordovician ? age. Limestones with interbedded shales rest conformably on the quartzites. The limestones are fossiliferous and tentatively are assigned an age of Carboniferous. The sedimentary section has been intruded by igneous rocks of intermediate composition, mostly diorites and diabases. These intrusions were the host rocks for the mineralized solutions.

The sediments have been folded and in general dip 70° to 80° to the northeast and strike 40° to 45° west of north. Faults are common. Some parallel the bedding and others cross it at large angles. Some sections of the limestone where faulted and are highly brecciated. Fractured zones were noted in the quartzite.

With one exception all workings investigated appeared to be in the oxidized zone. Gossan-like concentrations of iron oxides were noted in several places, particularly on Sunset #4 and adjacent patented claims. Mineralization is largely localized in the limestone, although fractured and brecciated sections of the quartzite were enriched with ore minerals. In the limestone veins of ore minerals follow the bedding planes and are offset along fractures to give lode structure locally. Beds of shale have acted as dams to the migratory mineralizing solutions. This has resulted in local concentrations.

An anomalous situation exists at the Silver King Mine. From a shaft approximately 60 feet deep and a short stope rich primary sulphide ores have been mined. Lack of time prevented a detailed examination to determine why this island of sulphides surrounded by oxidized sections existed. Several faults were noted in the immediate area and the Silver King Mine may be located in an upthrown fault block.

The Kelly-Cross-cut tunnel is reported to penetrate the hillside from a point about 25 feet above the floor of Kelly Gulch for a distance of 1800 to 1900 feet. If this is true, then the tunnel penetrates the limestone at a depth of more than 500 feet below the surface and could be in the primary ore. At present the tunnel is blocked off by a slumped

? sulphide

section 500 feet in from the opening. Here you are still in the quartzite. Copper and lead minerals outcrop in small veins along the surface. It is along these outcroppings that most of the shallow glory holes are concentrated. The silver ores occur in the galena and as argentite in the primary ores. Considerable gold has been mined in the area in the past. A seam of barite up to two feet thick, but which pinches and swells was noted in the upper chamber of the Starlight Mine.

It is our belief that the area is one of considerable promise and might prove to be a major producer of silver, gold, and lead with lesser values of copper and barytes. It is our recommendation that sufficient capital be provided to assure the following three suggested prospects.

First. The Kelly cross-cut tunnel should be cleared in order to have access to the limestone at depth where it is suspected that primary ore exists. When the mineralized zone is reached, stoping should proceed parallel with the bedding. It is very possible that the mineralized zones pinch and swell. Extremely rich pockets might be encountered.

Second. The Silver Queen tunnel should be continued into the limestone. At present it does not completely penetrate the quartzite, but the limestone contact can not be more than 200 to 300 feet beyond the present face. The mouth of the Silver Queen Mine is located not more than 100 feet above the floor of Kelly Gulch so that transportation costs are minimized. This tunnel might penetrate the primary ore in the limestone.

Third. The Silver King Mine should be reopened. This is the one from which the rich primary ore was mined. The reason for it having been shut down in the past is not known to us. If directional prospecting from the shaft indicates the presence of sulphides in sufficient quantities, this mine can be reopened and worked quite cheaply. Transportation to the gulch is the greatest problem.

STATE OF TEXAS

COUNTY OF CARSON

This agreement entered into on this the 23 day of January, 1956 between the PAN-AM MINING COMPANY, INC., a corporation organized under the laws of Texas and with its principal office located in Panhandle, Carson County, Texas and the SCIENTIFIC PROSPECTING COMPANY, INC., a Delaware corporation.

KNOW ALL MEN BY THESE PRESENTS: That,

1. The SCIENTIFIC PROSPECTING COMPANY, INC., does by these presents sell, transfer and convey unto the PAN-AM MINING COMPANY, INC. all rights, titles and interest in the contract of purchase between STANLEY BUTTE and the said SCIENTIFIC PROSPECTING COMPANY, INC. as set forth in the contract of purchase and sale with mining agreement marked "Exhibit A" and attached hereto and made a part hereof, it being the intention of the parties that the said PAN-AM MINING COMPANY, INC. is to have all of the rights of every nature whatsoever owned by the SCIENTIFIC PROSPECTING COMPANY, INC. in the said contract, and further, that the said SCIENTIFIC PROSPECTING COMPANY, INC. does hereby transfer all rights, titles and interest in that certain group of claims located adjacent to the said property above referred to, said adjacent group of claims being known as the SUNSET CLAIMS and consisting of twenty (20) mining claims in Graham County, Arizona.

2. A consideration of the transfer of the above two (2) properties, the first property consisting of those mining claims referred to in the aforementioned contract marked "Exhibit A", attached hereto, and the second propertyconsisting of that certain twenty (20) claims known as the SUNSET CLAIMS adjacent to the first described piece of property, the PAN-AM MINING COMPANY, INC. does agree to pay to the SCIENTIFIC PROSPECTING COMPANY, INC. the sum of THREE THOUSAND DOLLARS ($3,000.00) in cash, and as further consideration, that at such time as the capital stock of the said PAN-AM MINING COMPANY, INC. is increased to Twelve Hundred (1200) shares, that at such time the said PAN-AM MINING COMPANY, INC. shall issue Two Hundred (200) of such shares in the name of the SCIENTIFIC PROSPECTING COMPANY, INC., and further that the said PAN-AM MINING COMPANY, INC. shall issue Eight (8) treasury shares in the name of DICK N. CAMPBELL, and Eight (8) treasury shares in the name of BOB BARTLEY.

3. It is further stipulated and agreed between the parties that the said PAN-AM MINING COMPANY, INC. is to set aside the sum of TEN THOUSAND DOLLARS ($10,000.00) in cash for exploration and development of the aforementioned properties.

4. It is stipulated and agreed by the SCIENTIFIC PROSPECTING COMPANY, INC. that out of the THREE THOUSAND DOLLARS ($3,000.00) in cash to be paid to them as aforementioned, that they will:

1. Pay all taxes on the above described properties,
2. Pay FIVE HUNDRED DOLLARS ($500.00) to E. M. Guthrie to clear all rights and titles on the above mentioned property and pay the ONE THOUSAND DOLLARS ($1,000.00) mentioned in the attached contract marked "Exhibit A",

which is due and payable Six (6) months from the date of execution of the said contract.

5. In consideration of the premises, the said PAN-AM MINING COMPANY, INC. agrees to assume all payments due to STANLEY BUTTE in the said attached contract marked "Exhibit A", and that when the said contract is paid in full, that title to those properties set forth shall be exclusively in the PAN-AM MINING COMPANY, INC.

Dated this 23 day of January, 1956.

Attest:
/s/ F. Alton Wade

SCIENTIFIC PROSPECTING COMPANY, INC.
/s/ Dick N. Campbell
President

Attest:
/s/ E. G. Stapp
Secretary,

PAN-AM MINING COMPANY, INC.
By: /s/ Clarence C. Williams
President,

(Seal)

STATE OF TEXAS |
|
COUNTY OF CARSON |

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared CLARENCE C. WILLIAMS, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act and deed of the PAN-AM MINING COMPANY, INC., a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 24 day of January, 1956.

/s/ H. B. Skelton
Notary Public in and for Carson County, Texas.

My commission expires:

June 1, 1957

Attest:

SCIENTIFIC PROSPECTING COMPANY, INC.

/s/ F. Alton Wade
Secretary

/s/ Dick N. Campbell
President

(Seal)

STATE OF TEXAS |
COUNTY OF MIDLAND |

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared DICK N. CAMPBELL, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act and deed of the SCIENTIFIC PROSPECTING COMPANY, INC., a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 2nd day of Feb., 1956.

/s/ John N. Walston, Jr.
Notary Public in and for Midland County,
John N. Walston, Jr. Texas.

My Commission expires:

June 1, 1957

"EXHIBIT A"

STATE OF ARIZONA :

COUNTY OF GRAHAM :

CONTRACT OF PURCHASE AND SALE
WITH MINING AGREEMENT

WITNESS THIS AGREEMENT by and between STANLEY BUTTE MINING COMPANY, an Arizona Corporation, hereinafter called SELLER or STANLEY BUTTE, and SCIENTIFIC PROSPECTING CO., INC., a Delaware Corporation, hereinafter called PURCHASER or SCIENTIFIC, the Contract to be performed in Graham County, Arizona:

1. Stanley Butte, Seller, in consideration of the agreements and covenants hereinafter stated, hereby sells and agrees to convey unto Scientific, Purchaser; and Purchaser, hereby agrees to take by conveyance by and through a good and sufficient deed, executed by the Seller, together with possession of, the hereinafter described tracts of land and Mining Properties, to-wit:

All those certain patented lode claims situated in the Stanley Butte Mining District, Graham County, Arizona, the United States Patent whereof if of record in the office of the County Recorder of Graham County, Arizona, in Book 3 of Patents, page 12-18 and named:

Kelley	Erie	Will Ryan
Nettie	Corliss	Grand Central
Starlight	Nellie	Helen
Oregon	Olympia	

2. In consideration of the conveyance and acceptance of which, and covenants hereinafter contained, Purchaser agrees to pay Seller the sum of TWO HUNDRED THOUSAND DOLLARS ($200,000.00) in installments as follows until said TWO HUNDRED THOUSAND DOLLARS ($200,000.00) is paid in full:

(a) The sum of FIVE HUNDRED DOLLARS ($500.00) closing costs upon the execution of this contract.

(b) TEN PER CENT (10%) of the net returns from the sale or disposition of all minerals including uranium ore which shall be mined from said properties or ONE THOUSAND DOLLARS ($1,000.00) whichever is the greater at the end of SIX (6) calendar months from the date of execution of this contract.

(c) TEN PERCENT (10%) of the net returns from the sale or disposition of all minerals including uranium ore which shall be mined from said properties or TWO THOUSAND DOLLARS ($2,000.00) whichever is the greater at the end of TWELVE (12) calendar months from the date of execution of this contract.

(d) TEN PERCENT (10%) of the net returns from the sale or disposition of all minerals including uranium ore which shall be mined from said properties or FIVE THOUSAND DOLLARS ($5,000.00), whichever is the greater, at the end of each and every TWELVE (12) calendar months thereafter until the total selling price of TWO HUNDRED THOUSAND DOLLARS ($200,000.00) has been paid.

(e) The total payments during any TWELVE (12) month period

shall not exceed TWENTY THOUSAND DOLLARS ($20,000.00).

It is hereby understood and agreed that all monies paid to the Seller by the Purchaser shall be applied to, and become a part of, the purchase consideration of TWO HUNDRED THOUSAND DOLLARS, (200,000.00).

Net returns shall be defined as the amount paid by the smelter, mill or mint purchasing the ore and minerals with deduction only for all rail transportation costs and for smelter, mill or mint charges and penalties. No royalty shall be paid upon allowances of the Atomic Energy Commission for haulage or development work for fissionable ores.

3. It is hereby recognized and agreed by both parties that this contract be made null and void upon failure of the Purchaser to pay any of the above installments or payments after the initial closing costs of FIVE HUNDRED DOLLARS ($500.00) have been paid. All obligations by either party to each other shall be cancelled forever when this contract is made null and void by the above provision, except the obligation of the Purchaser to pay any outstanding royalty due on ore shipped from the mining claims herein described.

4. Said TEN PERCENT (10%) payments shall be paid to the Seller on the TENTH (10th) day of each month out of the net returns of the preceding calendar month and shall be accompanied by a true operating statement, smelter receipts and/or other records as deemed reasonable.

5. The Purchaser is given sole and exclusive possession of the said described mines, mining claims, and mining properties with the right of ingress and egress, to work, to operate, mine and produce mineral ores and and uranium ores there found in such manner as the Purchaser, its successors or assignees deem proper and to dispose of ores, minerals, uranium and products thereof; provided, however, that the Purchaser shall allow the Seller or its agents from time to time to enter upon the leased premises for the purpose of inspection, survey or taking samples therefrom and the Purchaser shall have access to all drilling and assay reports.

6. Seller agrees that, when the amount of TWO HUNDRED THOUSAND DOLLARS ($200,000.00) has been paid, it will properly execute, acknowledge and deliver to Purchaser, its successors or assignees a sufficient deed granting and conveying to the Purchaser, its successors or assignees a good mineral deed to the above described properties without further obligations to the Seller.

7. The Purchaser shall have the right to erect necessary buildings, install and operate such machinery and equipment, alter and change the property as it deems necessary. Such equipment, machinery, and supplies remain the property of the Purchaser and can be removed within a reasonable time, if and after, the Purchaser yields possession of such property, provided that all accrued royalty payments have been paid to the Seller.

8. Each party to this contract shall be permitted to assign or convey its interest, in part or whole, upon written notice to the other party.

9. Purchaser agrees to keep posted such non-liability notices as Seller may furnish, and to advise all parties furnishing labor, supplies and

materials to Purchaser, or its assignees, for use upon said described properties, that same is being operated under agreement, and that Seller will not be liable for anything so furnished, nor will said properties be imposed by a lien for such materials, labor and supplies furnished to Purchaser or its successors and assignees. It is further agreed tha the Purchaser shall not be liable for any obligations or encumbrances incurred by the Seller. Purchaser agrees to commence no mining operation on said premises until non-liability notices are posted and recorded as provided by law.

10. The Purchaser agrees to assume all responsibility in case of accident, injury to or disability to any and all employees in and about the property during the term of this contract.

11. The Purchaser shall comply with all provisions of the Federal Wage and Hour Law and shall make all payments due or to become due under the Federal and State Social Security Laws and under the Unemployment Compensation Law, tax laws or any other laws now in force or that may be enacted hereafter, affecting the employees of the Purchaser, wages paid the employees, of the Purchaser, and the products removed from said premises, during the term of this contract.

12. Purchaser shall work said premises in good mine fashion in manner necessary to good and economical mining.

13. Should the Purchaser be in violation of any condition or in default of any payment required by this contract, the Seller may deliver to the Purchaser in writing a notice to remedy such default, and if the Purchaser does not thereafter remedy such default, and if the Purchaser does not thereafter within thirty (30) days remedy such default, this agreement shall expire and terminate, and said mining claims shall become forfeited to the Seller and the Seller and its agents may thereupon enter upon said mining claims and dispossess all persons occupying the same, with or without force, and with or without process of law, or at the option of the Seller, the Purchaser and all persons found occupying said premises or any part thereof may be proceeded against as guilty of unlawful detainer.

Purchaser to pay all taxes assessed against the property after date of contract.

WITNESS OUR HANDS AND CORPORATE SEALS AT THE TIMES AND PLACES designated in our acknowledgments. Seller and Purchaser acknowledge receipt of a copy of this contract and agreement.

Dated this day, July 28, 1955.

Attest:	STANLEY BUTTE MINING COMPANY
/s/ Wary E. Garner	By: /s/ C. S. Johnson
Secretary	President, C. S. Johnson
(Seal)	

STATE OF ARIZONA :

COUNTY OF MARICOPA :

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared C. S. Johnson, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act and deed of the said

STANLEY BUTTE MINING COMPANY, a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this 28th day of July, A. D., 1955.

/s/ Myrtle Harris
Notary Public

(Seal)
My commission expires:

Aug 13, 1955

Attest:

/s/ F. Alton Wade
Secretary, F. Alton Wade

SCIENTIFIC PROSPECTING CO., INC.

by: /s/ Dick N. Campbell
President, Dick N. Campbell

STATE OF TEXAS :

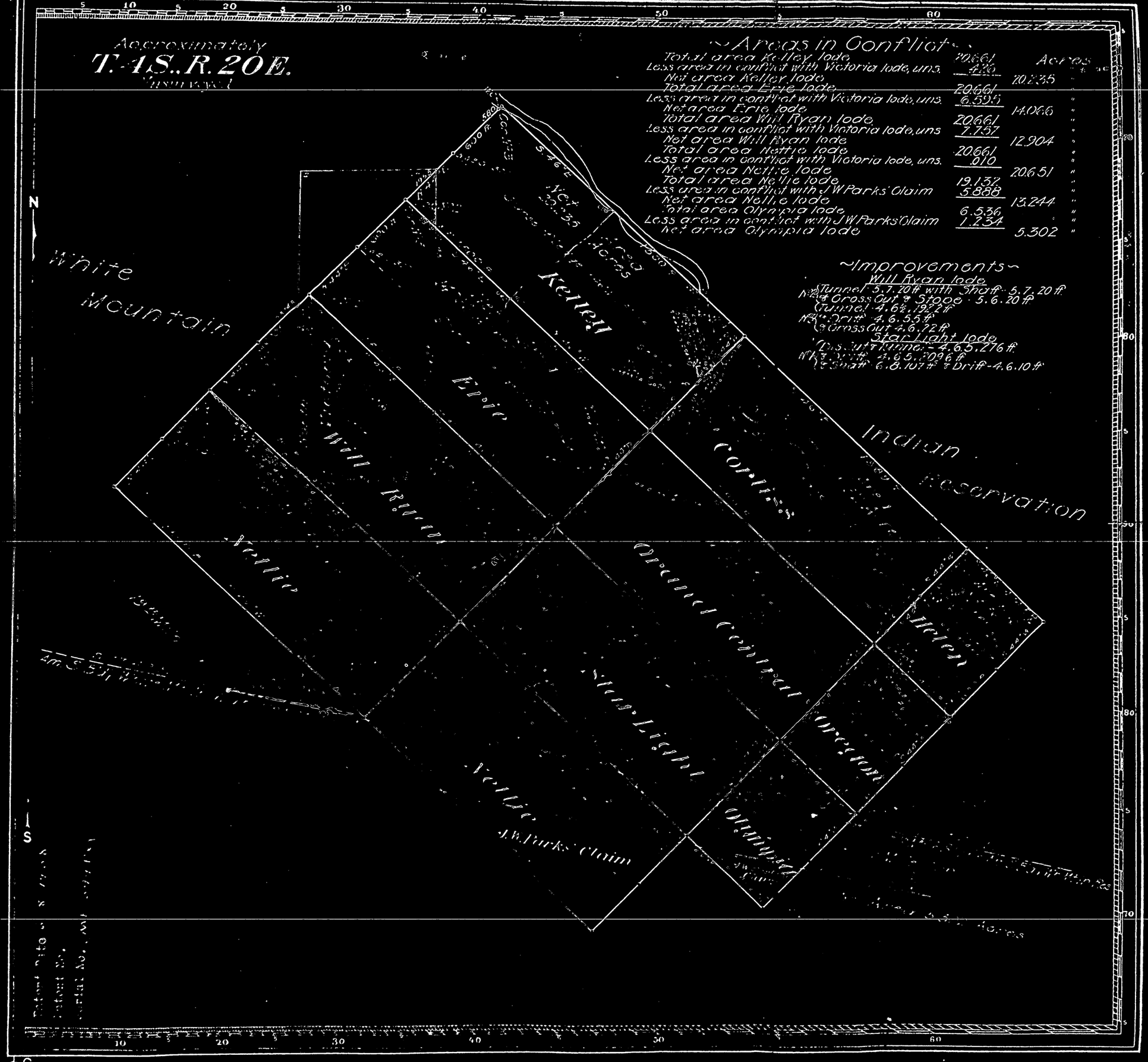
COUNTY OF LUBBOCK :

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared DICK N. CAMPBELL, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said SCIENTIFIC PROSPECTING CO., INC., a corporation, and that he executed the same as the act of such corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the 7th day of September A. D., 1955.

Notary Public in and for Lubbock County, Texas, My commission expires

Return to
Pan-Am Mining Company Inc
Box 816 Panhandle Texas



Claims Located Amended, September 6, 1906;
Except Nellie " " December 4, " .

Mineral Survey No. 2372

Lot No.

Arizona Land District.

PLAT

OF THE CLAIM OF

The Tri Bullion Smelting and Development Company

KNOWN AS THE

Kelley, Erie, Will Ryan, Nettie, Corliss, Grand Central, Star Light, Nellie, Helen, Oregon, Olympia.

IN Stanley Butte MINING DISTRICT,

Graham COUNTY, Arizona

Containing an Area of 156.870 Acres.

Scale of 400 feet to the inch.

Variation 13°5' E - 14°5'.

SURVEYED Feb. 12-13, 1907. BY

Lamar Cobb, Jr.

U.S. Deputy Mineral Surveyor.

The Original Field Notes of the Survey of the Mining Claim of The Tri-Bullion Smelting and Development Company known as the Kelley, Erie, Will Ryan, Nettie, Corliss, Grand Central, Star Light, Nellie, Helen, Oregon, Olympia.

from which this plat has been made under my direction, have been examined and approved, and are on file in this Office; and I hereby certify that they furnish such an accurate description of said Mining Claim as will, if incorporated into a patent, serve fully to identify the premises, and that such reference is made therein to natural objects or permanent monuments as will perpetuate and fix the locus thereof.

I further certify that Five Hundred Dollars worth of labor has been expended or improvements made upon said Mining Claims by claimant or for each of its grantors, and that said improvements consist of

6 tunnels, 3 drifts, 7 shafts, 9 cuts, 1 open cut and 2 cross cuts.

Total Value $21657.00

that the location of said improvements is correctly shown upon this plat, and that no portion of said labor or improvements has been included in the estimate of expenditures upon any other claim.

And I further certify that this is a correct plat of said Mining Claim made in conformity with said original field notes of the survey thereof, and the same is hereby approved.

U.S. Surveyor General's Office
Phoenix, Ariz.
August 31, 1907

Frank Lyon Pingalle
U.S. Surveyor General for
ARIZONA

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

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE TO AVOID
PAYMENT OF POSTAGE, $300
(PMGC)

Mr. Ellis
Room 4443, Interior Bldg.