3059

August 27, 1953

Memorandum

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division, DMEA

Subject: Denial of exploration project by the Field Team, Region IV.
Docket No. DMEA 3059, Tungsten
San Juan Property. C. M. Taylor and A. L. Corman, Owners
Ventana Mining District, Pima County, Arizona

The denial of the subject application by Region IV is based on the following information:

1. The applicant applied for a loan of $24,000.00 to explore for tungsten on the subject property. A shallow shaft, cuts and pits on a shear zone had opened up some small showings of scheelite.

2. The Scheelite occurs in short irregular pods in a brecciated zone.

3. Due to the highly brecciated character of the rock, it would be difficult to mine the ore cleanly. It is indicated that the grade of ore as mined would not exceed 0.75 percent WO_3.

4. Mining costs would be high as the ore would have to be mined selectively.

5. Indicated and inferred ore reserves are small and additional exploration would have little probability of making a significant discovery.

6. The examining Field Team concludes that the discovery of a significant tungsten ore body is improbable and recommends denial.

7. A letter of denial was sent to the applicants from Region IV.

This Division concurs in the denial.

SIGNED

F. A. Rutledge, Acting Chief
Iron and Ferro-Alloys Division

TLChapman:foc
cc: Docket
Code 400
Adm. Reading File

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

August 27, 1953

Memorandum

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division, DMEA

Subject: Denial of exploration project by the Field Team, Region IV.
Docket No. DMEA 3059, Tungsten
San Juan Property. C. M. Taylor and A. L. Gorman, Owners
Ventana Mining District, Pima County, Arizona

The denial of the subject application by Region IV is based on the following information:

1. The applicant applied for a loan of $24,000.00 to explore for tungsten on the subject property. A shallow shaft, cuts and pits on a shear zone had opened up some small showings of scheelite.

2. The scheelite occurs in short irregular pods in a brecciated zone.

3. Due to the highly brecciated character of the rock, it would be difficult to mine the ore cleanly. It is indicated that the grade of ore as mined would not exceed 0.75 percent WO_3.

4. Mining costs would be high as the ore would have to be mined selectively.

5. Indicated and inferred ore reserves are small and additional exploration would have little probability of making a significant discovery.

6. The examining Field Team concludes that the discovery of a significant tungsten ore body is improbable and recommends denial.

7. A letter of denial was sent to the applicants from Region IV.

This Division concurs in the denial.

F. A. Rutledge

F. A. Rutledge, Acting Chief
Iron and Ferro-Alloys Division

400 FILE COPY
SURNAME:

Chapman
Rutledge
Mattendorf

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

August 27, 1953

Memorandum

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division, DMEA

Subject: Denial of exploration project by the Field Team, Region IV.
Docket No. DMEA 3059, Tungsten
San Juan Property. C. M. Taylor and A. L. Gorman, Owners
Ventana Mining District, Pima County, Arizona

The denial of the subject application by Region IV is based on the following information:

1. The applicant applied for a loan of $24,000.00 to explore for tungsten on the subject property. A shallow shaft, cuts and pits on a shear zone had opened up some small showings of scheelite.

2. The Scheelite occurs in short irregular pods in a brecciated zone.

3. Due to the highly brecciated character of the rock, it would be difficult to mine the ore cleanly. It is indicated that the grade of ore as mined would not exceed 0.75 percent WO_3.

4. Mining costs would be high as the ore would have to be mined selectively.

5. Indicated and inferred ore reserves are small and additional exploration would have little probability of making a significant discovery.

6. The examining Field Team concludes that the discovery of a significant tungsten ore body is improbable and recommends denial.

7. A letter of denial was sent to the applicants from Region IV.

This Division concurs in the denial.

SIGNED

F. A. Rutledge, Acting Chief
Iron and Ferro-Alloys Division

R. C. 8-28-53

TLChapman:foc
cc: Docket
Code 400
Adm. Reading File

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

224 New Customhouse
Denver 2, Colorado

August 13, 1953.

Mr. Charles M. Taylor
P. O. Box 1710
Tucson, Arizona

Re: Docket DMEA-3059

Dear Mr. Taylor:

Reference is made to your application for Government aid on the San Juan scheelite property.

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

A careful study of your property and data available to this agency reveals that the probability of disclosing mineable reserves of scheelite by your proposed exploration program is not considered sufficiently promising to justify Government participation. Under these circumstances, we regret to advise that your application for exploration aid is denied.

Very truly yours,

John F. Shaw
For W. H. King
Field Team, Region IV

HMC:cwm

cc: Administrator, DMEA
WRStorms
RFRobinson
Subject
AHKoschmann (2)
Chron.

A. H. Koschmann
Field Team, Region IV

Reviewed by
DMEA OPERATING COMMITTEE
8-21-53
(date)

C
O
P
Y

224 New Customhouse
Denver 2, Colorado

August 13, 1953

Mr. Charles M. Taylor
P. O. Box 1710
Tucson, Arizona

Re: Docket DMEA 3059

Dear Mr. Taylor:

Reference is made to your application for Government aid on the San Juan scheelite property.

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

A careful study of your property and data available to this agency reveals that the probability of disclosing mineable reserves of scheelite by your proposed exploration program is not considered sufficiently promising to justify Government participation. Under these circumstances, we regret to advise that your application for exploration aid is denied.

Very truly yours,

John F. Shaw (signed
for W. H. King
Field Team, Region IV

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

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

224 New Customhouse
Denver 2, Colorado

August 11,1953.

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 3059 (Tungsten), Charles M. Taylor, San Juan Scheelite Property, Pima County, Arizona.

Enclosed are four copies of the final report on the subject docket, a copy of the letter of denial to the applicant, and two copies of Form 3b.

John F. Shaw
John F. Shaw
For W. H. King

A. H. Koschmann
A. H. Koschmann

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
8-21-53
(date)

DENIED

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

August 11, 1953.

Mining Division
Region IV

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 3059 (Tungsten), Charles M. Taylor, San Juan Scheelite Property, Pima County, Arizona.

Enclosed are nine copies of the final engineering report on the subject docket.

The applicant requested $24,000.00 for churn drilling and extending an inclined shaft.

The examiners conclude that the possibility of making a significant discovery seems remote and they recommend denial.

We concur in this recommendation.

W. H. King
W. H. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
8-21-53
(date)

MINING DIVISION
REGION IV

July 29, 1953

Memorandum

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

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

Subject : Report on Docket DMEA-3059, San Juan Tungsten Prospect, Ventana Mining District, Pima County, Ariz.

Enclosed are original and 8 copies of a report on the above property by L. L. Faraham and J. F. Haynes of the Bureau of Mines. The Geological Survey made a separate examination of the deposit and submitted its report late in June.

As the possibility of making a significant discovery seems remote the examiners recommend that the loan be denied. I concur with their recommendation.

Bruchure is enclosed.

Walter R. Storms

Walter R. Storms

CC W. H. King (8)
R. F. Robinson
DMEA-3059
DF

WRStorms:frj

Reviewed by
DMEA OPERATING COMMITTEE
8-21-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.
200 New Customhouse
Denver 2, Colorado

June 29, 1953

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 3059, San Juan Scheelite Property, Pima County, Arizona (tungsten)

Enclosed are the original and 8 copies of the geologic report by Raymond F. Robinson of the U. S. Geological Survey covering the above docket.

The examiners believe that the possibility of making a significant discovery is rather remote.

I recommend that the application be denied.

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

Enclosures (9)

Reviewed by
DMEA OPERATING COMMITTEE
8-21-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

P.O. Box 4126, University Station
Tucson 5, Arizona

June 26, 1953

Memorandum

To: A. H. Koschmann, Denver, Colorado

From: R. F. Robinson, Tucson, Arizona

Subject: San Juan Scheelite Property, Pima County, Arizona (tungsten)
DMEA 3059

Enclosed find the original and 8 copies of the geologic report on the subject docket.

Although the indicated width and grade of the mineralization is attractive and the limits of the mineralized zone are not known, the examiners believe that the possibility of making a significant discovery is rather remote.

Raymond F. Robinson

Raymond F. Robinson
Acting District Supervisor
Arizona - New Mexico

Enclosures 9

Reviewed by
DMEA OPERATING COMMITTEE
8-21-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA-3059, San Juan Tungsten Prospect

Ventana Mining District, Pima County, Arizona

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

J. F. Haynes, Mining Engineer
U. S. Bureau of Mines

July 1953

Reviewed by
DMEA OPERATING COMMITTEE
8-21-53
(date)

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By L. L. Farnham[1/] and J. F. Haynes[1/]

On May 25, 1953, C. M. Taylor and A. L. Gorman applied to the Defense Minerals Exploration Administration under the Defense Production Act of 1950, as amended, for an exploration loan amounting to $24,000. The application was docketed as DMEA-3059. The funds requested were for the purpose of exploring a tungsten prospect situated in the Papago Indian Reservation of Pima County, Ariz.

The claims, known as the San Juan group, were located first in 1951. To date the development work has been limited to shallow prospect openings and no ore has been produced.

Spotty scheelite mineralization was found associated with a number of irregular sub-parallel fractures that occupied a highly altered shear zone. The mineralized portion of the individual fractures were relatively short and occurred sporadically within an area some 30 feet wide and for about 300 feet along the trend of the fault zone. It was estimated that the combined length of the better mineralized occurrences would be of the order of 150 feet with an average width of 3 feet. Thus the potential of the deposit would be of the order of 35 tons per foot of depth extension.

Estimates of the production costs indicated that, under prevailing conditions, the ore would have to average at least 1 percent WO_3 before there would be any incentive to produce tungsten from this deposit.

1/ Mining Engineers, U. S. Bureau of Mines

Sampling of the various exposures showed that only a limited amount of the potential tonnage could be expected to contain sufficient tungsten as to constitute ore.

Therefore, because of the limited size of the deposit and the improbability that further exploration would disclose substantially larger or higher-grade bodies, it is recommended that the application for the lean be denied.

CHARLES M. TAYLOR
SAN JUAN SCHEELITE PROPERTY
PIMA COUNTY, ARIZONA
DBA 3059

TUNGSTEN

Geology

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

CHARLES M. TAYLOR
SAN JUAN SCHEELITE PROPERTY
PIMA COUNTY, ARIZONA
DMA 3059

TUNGSTEN

CONTENTS

	Page
Introduction	1
Geologic Setting	1
Description of Mineral Deposit	1
Geologic Potential	3
Geologic Conclusions	4

ILLUSTRATIONS

	Following Page
Figure 3 Geologic Map	See Engineering Report
Figure 4 Geologic Map	4

INTRODUCTION

Scheelite mineralization occurs in a fault zone cutting metamorphosed igneous rocks on the San Juan claims. This property, consisting of 4 claims, is located at the west base of the north-trending Baboquivari Mountains in Pima County, Arizona. More exactly it is in unsurveyed T.17 S, R.7 E, sec. 30, a few hundred feet south of San Juan Ranch. Prospecting work has been confined largely to the San Juan No. 2 claim, and it is this claim that the applicant proposes to explore.

GEOLOGIC SETTING

The country rocks in the vicinity of the claims are of igneous origin, but they all are metamorphosed to a greater or lesser extent and have a gneissic structure. They are intruded by pegmatitic dikes of easterly trend and southerly dip. These rocks have in turn been intruded by a rhyolite dike striking N 20° - 30° E. Along a part of its length it ranges between 30 and 50 feet in width.

DESCRIPTION OF MINERAL DEPOSIT

A strong fault zone containing scheelite mineralization cuts the country rocks on the San Juan claims, and along a part of its course it has followed the rhyolite dike. The fault has an average strike of N. 30° E. and dips to the east at angles ranging from 45° to 70°. It has been traced along its strike for about 800 feet, from the adit on the south to San Juan Wash on the north. Interesting amounts of scheelite mineralization,

however, appear to be confined to that part of the fault coincident with the altered and brecciated rhyolite dike along a strike length of about 270 feet, from the adit on the south to cut No. 2 on the north (Fig. 3).

The breccia zone that marks the fault ranges in width from 20 to 60 feet. Horses of less shattered rock are separated by zones of more intensely shattered rock. Where most shattered and crushed, the rock has been altered to a mass of soft white clay and sericite, spotted here and there by manganese oxides. Calcite occurs as pods and veinlets, and less commonly fine grained quartz is found as narrow veinlets. Scheelite occurs as disseminated grains in the soft altered fault gouge, and as films enclosing breccia fragments. Individual grains are seldom more than an eighth of an inch in diameter. Because of its soft nature the fault zone is commonly concealed and it cannot be satisfactorily observed except in the pits and cuts that have been made.

Though scheelite is scattered through the breccia zone, the potentially important concentrations are along and adjacent to subsidiary faults and crush zones separated by horses of shattered rock. The average width of the higher grade shoots as exposed in the workings is between 2 and 4 feet. Zones containing appreciable scheelite cannot be distinguished from barren areas with the unaided eye. It is not known whether the scheelite "veins" as now exposed are continuous from one opening to another, and it

is thought probable that there may be two or more "veins" whose individual continuity is not yet satisfactorily tested. (Fig. 4)

GEOLOGIC POTENTIAL

At the present stage of development no measured or indicated ore can be estimated, other than the small amount present in the dumps (see engineering report). North of the shaft, over a length of 120 feet, workings at locations 2, 4, and 6 (Fig. 3) expose scheelite mineralization averaging about 3½ feet in width. If it is assumed optimistically that continuous mineralization of this width might be proved with exploration, then 40 tons per foot of depth might be inferred. The fault zone extending for 150 feet south of the incline shaft, though potentially scheelite-bearing, is less promising based on present exposures; and there are few facts to warrant any estimation of inferred tonnage for this block.

The depth to which mineralization might persist is an unknown factor; no similar deposits are known in this area to offer a standard of comparison. However, the inclined shaft and topographic position of other cuts show scheelite mineralization over a vertical range of about 60 feet; and projection to 100 feet of depth, for purposes of estimation, does not seem unreasonable.

On this basis, then, a block 120 feet long, 3.5 feet wide, and 100 feet deep has a potential of up to 4000 tons of "ore".

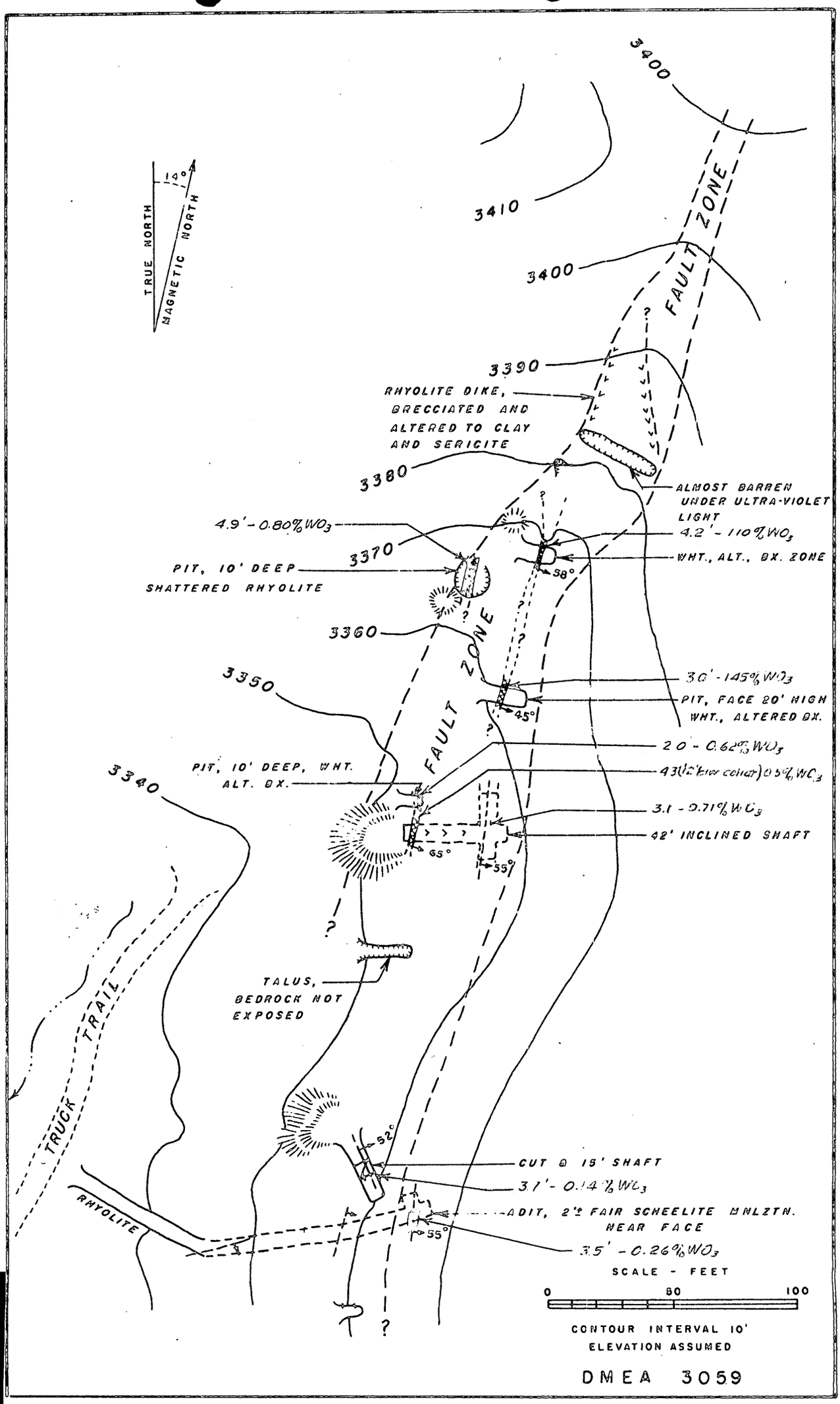


FIGURE 4.- GEOLOGIC MAP - SAN JUAN NO. 2 CLAIM
PIMA COUNTY, ARIZONA

The grade of the ore shoots within the zone is not certainly known, but a private report estimates the grade, based on lumping, at between 0.75 and 1.25 percent. It is thought however that this figure is too high. Assays of samples taken by L. L. Farnham, U. S. Bureau of Mines are shown on Fig. 3. Samples taken by the Geological Survey are shown on Fig. 4. For the samples taken in the shaft and pits north of the shaft the assays (Fig. 4) give a weighted average of 0.86 percent WO_3 over a width of 3.6 feet. It is estimated that an average grade of approximately 0.75 percent WO_3 might be expected.

GEOLOGIC CONCLUSIONS

Sinking to 100 feet and drifting to the north has a geologic chance of encountering scheelite mineralization over a length of 120 feet with an average width of 3½ feet. If this mineralization should be continuous, up to 4000 tons of scheelite bearing rock might be indicated. It is thought that this relatively small potential of material which would probably average not more than 0.75 percent WO_3 would not constitute a significant discovery.

DMEA-3059, SAN JUAN TUNGSTEN PROSPECT
VENTANA MINING DISTRICT, PIMA COUNTY, ARIZONA

Engineering Report

By L. L. Farnham and J. F. Haynes
Mining Engineers
U. S. Bureau of Mines

July 1953

DMEA-3059, SAN JUAN TUNGSTEN PROSPECT
VENTANA MINING DISTRICT, PIMA COUNTY, ARIZONA

CONTENTS

Engineering report	Page
Introduction	1
Acknowledgments	1
Location and physical features	1
History and production	2
Ownership and extent	2
Description of the deposit	2
Ore reserves	4
Present status of exploration	6
Proposed exploration and cost	7
Economic considerations	8
Conclusions and recommendations	10

ILLUSTRATIONS

Figure		Following page
1	Location map	1
2	Claim map	2
3	Plan of workings	4

INTRODUCTION

On May 27, 1953, Charles M. Taylor and A. L. German applied to the Defense Minerals Exploration Administration, under the Defense Production Act of 1950, as amended, for an exploration loan amounting to $24,000. The application was docketed as DMEA-3059. The funds requested were to be used for the further exploration of a tungsten prospect.

The property was visited by the examiners on May 28, 1953 and again with a "Mineralight" on the evening of June 1, 1953.

ACKNOWLEDGMENTS

Acknowledgments are made to the applicants, A. L. German and Charles M. Taylor for their assistance during the examination.

LOCATION AND PHYSICAL FEATURES

The property is situated about 57 miles south of Tucson in an unsurveyed portion of the Papago Indian Reservation, Ventana mining district, Pima County, Ariz. It appears that if the area were surveyed the claims would lie in sec. 30, T. 17 S., R. 7 E.

The property can be reached from Tucson by traveling 50 miles southwesterly on paved State Highway 86, thence 7 miles southeasterly on a branching dirt road that terminates at the site of the proposed exploration (figure 1).

The claims lie in the rolling desert foothills along the western side of the Baboquivari mountains at an altitude of about 3,400 feet above sea level. The climate is arid and the nearest available source of a limited supply of water is from Government owned wells some 10 miles northwest of the property.

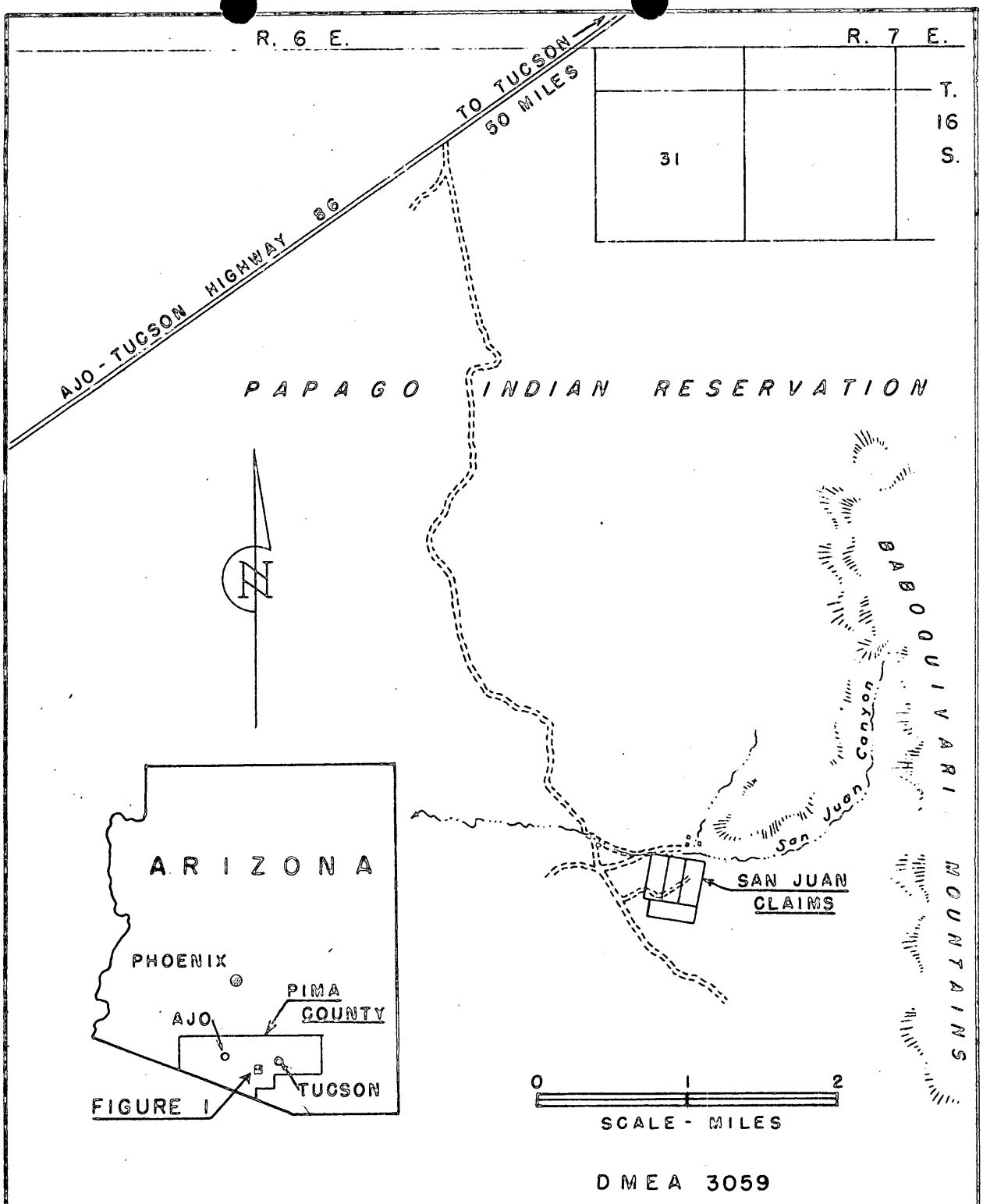


FIGURE 1. - LOCATION MAP

SAN JUAN TUNGSTEN CLAIMS PIMA COUNTY, ARIZONA

HISTORY AND PRODUCTION

The claims were located in 1951 following the discovery of scheelite in the area. Only superficial surface prospecting has been attempted and no ore has been produced from the property.

In the latter part of 1952, the Byrd Investment Co. of Tucson secured a lease and option on the claims. During the life of the option this company attempted to interest several other parties in the development of the prospect. These efforts were apparently unsuccessful and the option reportedly expired June 1, 1953 with the property reverting back to the applicants.

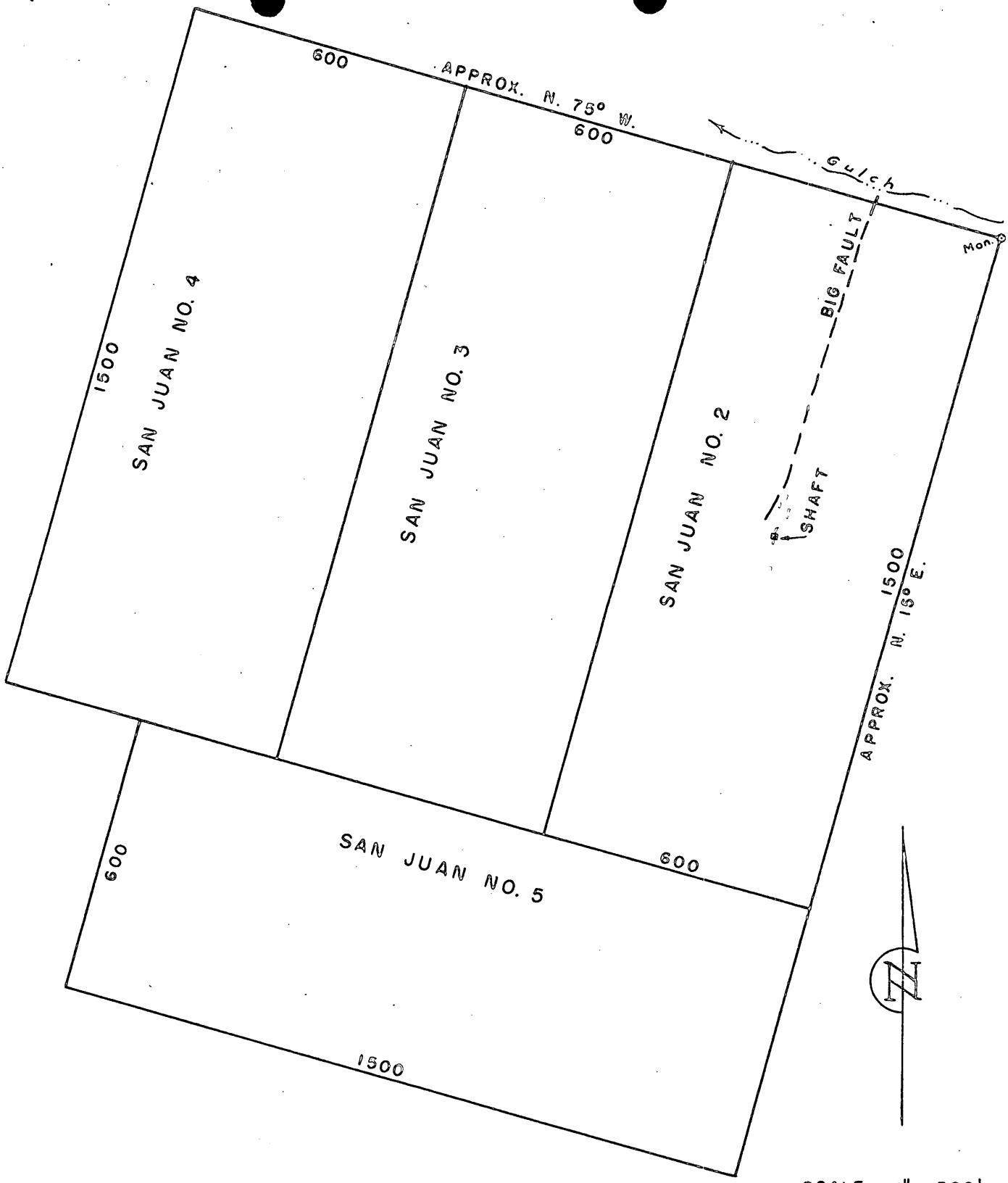
OWNERSHIP AND EXTENT

The property, known as the San Juan group, consists of 4 contiguous unpatented lode claims owned by the applicants, Chas. M. Taylor and A. L. German. The location notices are recorded in the Pima County Recorder's office as follows:

San Juan No. 2 - Book 320, page 258
San Juan No. 3 - Book 329, page 532
San Juan No. 4 - Book 329, page 533
San Juan No. 5 - Book 329, page 534

DESCRIPTION OF THE DEPOSIT

Scheelite occurs at the site of the proposed exploration in a portion of a strong northeasterly trending fault zone that cuts several diverse kinds of igneous rocks. The fault zone is traceable for several hundred feet as it traverses the north central portion of the San Juan No. 2 claim (figure 2). The tungsten is associated with several narrow irregular sub-parallel fractures that occupy a small portion of the western side of the main fault.



DMEA 3059

SCALE - 1" = 300'

FIGURE 2. - SAN JUAN CLAIMS

VENTANA MINING DISTRICT PIMA COUNTY, ARIZONA

The alteration within the mineralized area has been so intense as to make the identification of the host rock uncertain. Some examiners have classified it as a rhyolite while others have called it an aplite.

Spotty and varying amounts of scheelite were evident in the disconnected prospect openings that were scattered over an area some 30 feet wide and for some 300 feet along the course of the altered zone. However, the bulk of the tungsten was found in the northern half of this area where the scheelite occurred in relatively short irregular pods arranged in somewhat of an echelon pattern. These better mineralized areas were evidently limited to strike lengths of a few tens of feet, and ranged from 1.0 to 4.0 feet in width. The individual fractures, along which the scheelite was localized, had northerly strikes with easterly dips that varied from 45° to 60°. The fissures were irregular and poorly defined. In some places specks of disseminated scheelite were scattered irregularly over widths of several feet within the wall rocks adjacent to the mineralized fractures.

The Scheelite was uniformly fine-grained with crystals rarely exceeding an eighth of an inch in diameter. The gangue minerals, in addition to iron and manganese oxides, consisted essentially of kaolinized wall rock, dark colored calcite and some fine-grained quartz.

It was rarely possible to identify the scheelite with the unaided eye or to distinguish any difference between the ore and the altered barren wall rock. This in addition to the irregularity of the mineralization would make it quite difficult to mine the ore cleanly. The soft weak walls adjacent to the fractures would necessitate the adoption of the more costly mining methods.

ORE RESERVES

There was no appreciable amount of ore in sight on the property. The evidence afforded by the present prospect openings indicated that if the scattered disconnected areas containing the bulk of the tungsten were placed end to end they would have a combined length of possibly 150 feet and an average width of not more than 3 feet. Thus the potential of the deposit as a whole would be of the order of 35 tons per foot of depth extension. in several deposits

Nine samples were taken from the various exposures by the Bureau of Mines examiners. The location of these samples is shown on figure 3 and the results are as follows:

Sample No.	Width, Ft.	Location	Percent WO_3
14672	2.5	40-ft. level drift - south face	0.10
14673	3.0	40-ft. level drift - north face	0.51
14674	Grab	Ore pile (2 tons)from cut No. 2	0.77
14675	0.9	High-grade fracture in cut No. 2	4.06
14676	Grab	Ore pile (5 tons)from pit No. 3	0.29
14677	14.0	Across side of cut No. 4	0.32
14678	4.0	Fracture in face o f cut No. 5	0.13
14679	3.5	Fracture in pit of cut No. 8	0.04
14680	4.0	Fracture in face of cut No. 9	0.06

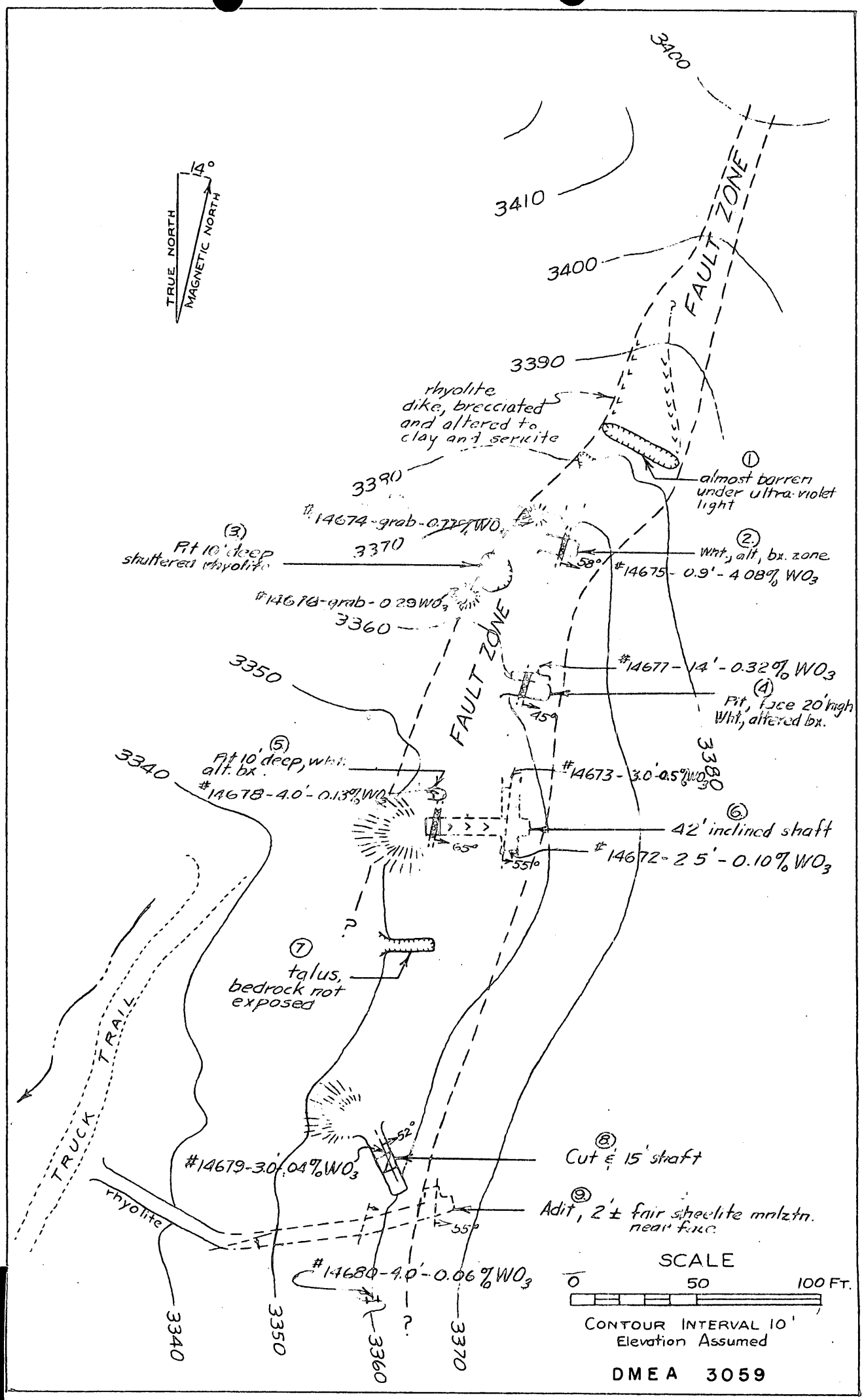


FIG 3.-GEOLOGIC MAP – SAN JUAN NO.2 CLAIM
PIMA COUNTY, ARIZONA

The above samples were taken in daylight and before the exposures had been examined under ultra-violet light, so at the time of the sampling the distribution of the scheelite was not known. Consequently some of the samples were taken over widths that, as viewed later under ultra violet light, exceeded the width of the best mineralization. This proved to be true in the case of the last 4 of the above samples. Sample No. 14677, representing 14 feet of altered material, was taken at the suggestion of the applicant, A. L. Gorman, who claimed that the entire exposure was "commercial ore". When observed later with a mineralight, more or less scheelite was present across the 14 feet sampled, but within that distance the bulk of the tungsten was restricted to a width of about 2.5 feet.

In most cases the higher grade material as excavated from the prospect openings had been segregated and placed in piles separate from the lower grade and barren material. These small piles had air-slacked and broken down largely to fines so thatit was possible to obtain from them fairly representative grab samples. Two such samples were taken of the higher grade material that had been removed from 2 of the more promising appearing exposures. These samples averaged 0.53 percent WO_3. Under the circumstances these grab samples are probably more indicative of the minable grade of the areas they represent than a few hand samples would be if taken from the material in place.

While the 9 samples taken in the scattered exposures cannot be considered as representing the average grade of the deposit, they do indicate that only a limited amount of the exposed mineralization is of probable ore grade.

PRESENT STATUS OF THE EXPLORATION

The exploratory work on the property consisted of 9 shallow surface openings, an inclined shaft some 40 feet deep, and a crosscut adit having a length of about 90 feet (figure 3). In addition to the above a bulldozer had been used to remove the cover and expose the bed rock in the northern part of the mineralized area. The most northerly of the surface openings consisted of a trench about 35 feet long which crosscut the northward projection of the mineralized zone. No appreciable tungsten was found by this work. The most southerly open cut, situated about 350 feet from the north trench, showed little if any scheelite under ultra-violet light. The shaft, 5 by 7 feet in rock section, was sunk about midway between the above openings. The upper portion of this shaft was inclined 65° while the lower portion flattened to about 45°. Lateral work from the bottom of this incline consisted of a 15-foot hanging wall crosscut, 10 feet of drifting northward and 6 feet of drifting southward. The adit had crosscut the mineralized zone at a depth of about 30 feet in the vicinity of cut No. 8 (figure 3). Although some Scheelite was present near the face of the adit it appeared to be too low grade to justify sampling.

PROPOSED EXPLORATION AND ESTIMATED COST

The proposed exploration as set forth in the application is quoted below:

5-(b) It is proposed to explore the vein as follows:

1. By means of a churn drill hole situated east of Cut No. 4 (figure 3) at the required distance to pass through the vein, as projected downward on an east dip of 75° from the horizontal, at a depth of 300 feet, this hole will, I believe, develop water sufficient for operating a mill of ten tons daily capacity.

2. By means of a churn drill hole situated east of Cut No. 2 at the required distance to pass through the vein at a depth of 100 feet.

3. By means of a churn drill hole situated east of Cut No. 9 at the required distance to pass through the vein at a depth of 100 feet.

4. By deepening the existing inclined shaft an additional 150 feet and running 300 feet of drifts and crosscuts from this shaft in the vein zone.

The cost of this work as estimated by the applicant is as follows:

Churn drilling, 300 feet @ $10	$ 5,000
Shaft sinking, 1½ compartments, 150 feet @ $80	12,000
Drifting and crosscutting, 300 feet @ $20	6,000
Supervision by owner at no cost.	
Contractor will furnish all equipment and supplies.	
Owner will use his own jeep station wagon for supervision.	
No rehabilitation or repairs.	
No new buildings or improvements.	
Miscellaneous and contingencies	1,000
Total	$24,000

The exploration of a deposit of this type by means of churn or core drilling would appear unlikely to accomplish the desired results. It would seem more feasible to explore the zone at a depth of say 100 feet by drifting and crosscutting.

Owing to the spotty and scattered nature of the tungsten mineralization it appears extremely doubtful that 300 feet of lateral work, as contemplated by the applicant, would adequately explore the zone. It would seem more likely that 500-600 feet of drifting and crosscutting might be required.

Judged by prevailing costs of comparable work the applicant's unit cost estimates appear too low. In the opinion of the examiners it would probably cost at least $25,000 to sink the shaft to a depth of 100 feet and perform the amount of lateral work necessary to properly explore the mineralized area. If 3,500 tons of ore was indicated by this proposed work, the cost of the exploration alone would be equivalent to about $7 a ton.

ECONOMIC CONSIDERATIONS

At this time there is no known market for ore containing less than 2.0 percent WO_3 within a radius of several hundred miles from the subject property. Hence before tungsten could be produced from this deposit in substantial amounts a suitable mill would be necessary. Assuming sufficient ore were found to justify a local mill and that an adequate supply of water could be developed in the vicinity, the production costs would probably be of the order outlined below:

	Per ton of ore
Exploration and development	$8.00
Mining[1]	20.00
Milling (small tonnage)	5.00
Marketing and overhead	2.00
Total direct costs	$35.00

If sufficient water was not found in the immediate vicinity of the deposit, then the ore would have to be trucked to a site where an adequate supply of water was available. It is reported that it would be possible to obtain a mill site with sufficient water near the Hobles Ranch which is 35 miles from the deposit. To truck the ore this distance, at 10 cents a ton mile, would increase the costs to over $38 a ton.

Ore-dressing tests made on the San Juan ore by the Arizona Bureau of Mines indicated that about 65 percent of the tungsten was recoverable in gravity concentrates that averaged 62.6 percent WO_3. According to E. Fernstrom of Tucson, who buys high-grade tungsten ore and concentrates, a scheelite concentrate having a grade of 60 percent or more would have a value of $57.50 per unit of contained WO_3. For instance an ore containing 1.0 percent or 1 unit of WO_3 yielding a 65 percent recovery would have a gross marketable value at this time of $37.38 a ton, f.o.b. Tucson. As the direct production costs of the San Juan ore, exclusive of amortization, royalty, taxes, etc., would probably almost equal if not exceed the marketable value of an ore containing one

1/ Based on 1.0 ton per man shift with labor ($15 a shift) representing 70 percent of the total mining cost.

percent WO_3, it appears that a grade of over 1 percent WO_3 would be necessary before there was any incentive to produce tungsten from this deposit. Relatively small irregular enrichments containing 1 percent or more will be found but it appears safe to conclude that the bulk of the potential tonnage in the deposit will probably average, as mined, considerably less than 1 percent WO_3.

CONCLUSIONS AND RECOMMENDATIONS

The existing prospect openings on the subject property are considered to have fairly well indicated the relative potential of the tungsten mineralization. A small production is possible from chloriding operations but it does not appear probable that the deposit is of sufficient size or grade as to constitute a substantial source of tungsten. No evidence was found to indicate the probability that further exploration would disclose materially larger or higher grade deposits than those now evident. Consequently it is recommended that the application for the loan be denied.

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

224 New Customhouse
Denver 2, Colorado

August 11, 1953.

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 3059 (Tungsten), Charles M. Taylor, San Juan Scheelite Property, Pima County, Arizona.

Enclosed are four copies of the final report on the subject docket, a copy of the letter of denial to the applicant, and two copies of Form 3b.

John F. Shaw
For W. H. King

A. H. Koschmann

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

August 11, 1953.

Mining Division
Region IV

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 3059 (Tungsten), Charles M. Taylor, San Juan Scheelite Property, Pima County, Arizona.

Enclosed are nine copies of the final engineering report on the subject docket.

The applicant requested $24,000.00 for churn drilling and extending an inclined shaft.

The examiners conclude that the possibility of making a significant discovery seems remote and they recommend denial.

We concur in this recommendation.

W. H. King
W. H. King

Enclosures

MINING DIVISION
REGION IV

July 29, 1953

Memorandum

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

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

Subject : Report on Docket DMEA-3059, San Juan Tungsten Prospect, Ventana Mining District, Pima County, Ariz.

Enclosed are original and 8 copies of a report on the above property by L. L. Farnham and J. F. Haynes of the Bureau of Mines. The Geological Survey made a separate examination of the deposit and submitted its report late in June.

As the possibility of making a significant discovery seems remote the examiners recommend that the loan be denied. I concur with their recommendation.

Bruchure is enclosed.

Walter R. Storms

Walter R. Storms

CC W. H. King (8)
R. F. Robinson
DMEA-3059
DF

WRStorms:frj

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.
200 New Customhouse
Denver 2, Colorado

June 29, 1953

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 3059, San Juan Scheelite Property, Pima County, Arizona (tungsten)

Enclosed are the original and 8 copies of the geologic report by Raymond F. Robinson of the U. S. Geological Survey covering the above docket.

The examiners believe that the possibility of making a significant discovery is rather remote.

I recommend that the application be denied.

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

Enclosures (9)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

P.O. Box 4126, University Station
Tucson 5, Arizona

June 26, 1953

Memorandum

To: A. H. Koschmann, Denver, Colorado

From: R. F. Robinson, Tucson, Arizona

Subject: San Juan Scheelite Property, Pima County, Arizona (tungsten) IMLA 3059

Enclosed find the original and 8 copies of the geologic report on the subject docket.

Although the indicated width and grade of the mineralization is attractive and the limits of the mineralized zone are not known, the examiners believe that the possibility of making a significant discovery is rather remote.

Raymond F. Robinson

Raymond F. Robinson
Acting District Supervisor
Arizona - New Mexico

Enclosures 9

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA-3059, San Juan Tungsten Prospect

Ventana Mining District, Pima County, Arizona

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

J. F. Haynes, Mining Engineer
U. S. Bureau of Mines

July 1953

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By L. L. Farnham[1] and J. F. Haynes[1]

On May 25, 1953, C. M. Taylor and A. L. Gorman applied to the Defense Minerals Exploration Administration under the Defense Production Act of 1950, as amended, for an exploration loan amounting to $24,000. The application was docketed as DMEA-3059. The funds requested were for the purpose of exploring a tungsten prospect situated in the Papago Indian Reservation of Pima County, Ariz.

The claims, known as the San Juan group, were located first in 1951. To date the development work has been limited to shallow prospect openings and no ore has been produced.

Spotty scheelite mineralization was found associated with a number of irregular sub-parallel fractures that occupied a highly altered shear zone. The mineralized portion of the individual fractures were relatively short and occurred sporadically within an area some 30 feet wide and for about 300 feet along the trend of the fault zone. It was estimated that the combined length of the better mineralized occurrences would be of the order of 150 feet with an average width of 3 feet. Thus the potential of the deposit would be of the order of 35 tons per foot of depth extension.

Estimates of the production costs indicated that, under prevailing conditions, the ore would have to average at least 1 percent WO_3 before there would be any incentive to produce tungsten from this deposit.

1/ Mining Engineers, U. S. Bureau of Mines

Sampling of the various exposures showed that only a limited amount of the potential tonnage could be expected to contain sufficient tungsten as to constitute ore.

Therefore, because of the limited size of the deposit and the improbability that further exploration would disclose substantially larger or higher-grade bodies, it is recommended that the application for the loan be denied.

CHARLES M. TAYLOR
SAN JUAN SCHEELITE PROPERTY
PIMA COUNTY, ARIZONA
DMEA 3059

TUNGSTEN

Geology

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

CHARLES M. TAYLOR
SAN JUAN SCHEELITE PROPERTY
PIMA COUNTY, ARIZONA
DMEA 3059

TUNGSTEN

CONTENTS

	Page
Introduction	1
Geologic Setting	1
Description of Mineral Deposit	1
Geologic Potential	3
Geologic Conclusions	4

ILLUSTRATIONS

	Following Page
Figure 3 Geologic Map	See Engineering Report
Figure 4 Geologic Map	4

INTRODUCTION

Scheelite mineralization occurs in a fault zone cutting metamorphosed igneous rocks on the San Juan claims. This property, consisting of 4 claims, is located at the west base of the north-trending Baboquivari Mountains in Pima County, Arizona. More exactly it is in unsurveyed T.17 S, R.7 E, sec. 30, a few hundred feet south of San Juan Ranch. Prospecting work has been confined largely to the San Juan No. 2 claim, and it is this claim that the applicant proposes to explore.

GEOLOGIC SETTING

The country rocks in the vicinity of the claims are of igneous origin, but they all are metamorphosed to a greater or lesser extent and have a gneissic structure. They are intruded by pegmatitic dikes of easterly trend and southerly dip. These rocks have in turn been intruded by a rhyolite dike striking N 20° - 30° E. Along a part of its length it ranges between 30 and 50 feet in width.

DESCRIPTION OF MINERAL DEPOSIT

A strong fault zone containing scheelite mineralization cuts the country rocks on the San Juan claims, and along a part of its course it has followed the rhyolite dike. The fault has an average strike of N. 30° E. and dips to the east at angles ranging from 45° to 70°. It has been traced along its strike for about 800 feet, from the adit on the south to San Juan Wash on the north. Interesting amounts of scheelite mineralization,

however, appear to be confined to that part of the fault coincident with the altered and brecciated rhyolite dike along a strike length of about 270 feet, from the adit on the south to cut No. 2 on the north (Fig. 3).

The breccia zone that marks the fault ranges in width from 20 to 60 feet. Horses of less shattered rock are separated by zones of more intensely shattered rock. Where most shattered and crushed, the rock has been altered to a mass of soft white clay and sericite, spotted here and there by manganese oxides. Calcite occurs as pods and veinlets, and less commonly fine grained quartz is found as narrow veinlets. Scheelite occurs as disseminated grains in the soft altered fault gouge, and as films enclosing breccia fragments. Individual grains are seldom more than an eighth of an inch in diameter. Because of its soft nature the fault zone is commonly concealed and it cannot be satisfactorily observed except in the pits and cuts that have been made.

Though scheelite is scattered through the breccia zone, the potentially important concentrations are along and adjacent to subsidiary faults and crush zones separated by horses of shattered rock. The average width of the higher grade shoots as exposed in the workings is between 2 and 4 feet. Zones containing appreciable scheelite cannot be distinguished from barren areas with the unaided eye. It is not known whether the scheelite "veins" as now exposed are continuous from one opening to another, and it

is thought probable that there may be two or more "veins" whose individual continuity is not yet satisfactorily tested. (Fig. 4)

GEOLOGIC POTENTIAL

At the present stage of development no measured or indicated ore can be estimated, other than the small amount present in the dumps (see engineering report). North of the shaft, over a length of 120 feet, workings at locations 2, 4, and 6 (Fig. 3) expose scheelite mineralization averaging about $3\frac{1}{2}$ feet in width. If it is assumed optimistically that continuous mineralization of this width might be proved with exploration, then 40 tons per foot of depth might be inferred. The fault zone extending for 150 feet south of the incline shaft, though potentially scheelite-bearing, is less promising based on present exposures; and there are few facts to warrant any estimation of inferred tonnage for this block.

The depth to which mineralization might persist is an unknown factor; no similar deposits are known in this area to offer a standard of comparison. However, the inclined shaft and topographic position of other cuts show scheelite mineralization over a vertical range of about 60 feet; and projection to 100 feet of depth, for purposes of estimation, does not seem unreasonable.

On this basis, then, a block 120 feet long, 3.5 feet wide, and 100 feet deep has a potential of up to 4000 tons of "ore".

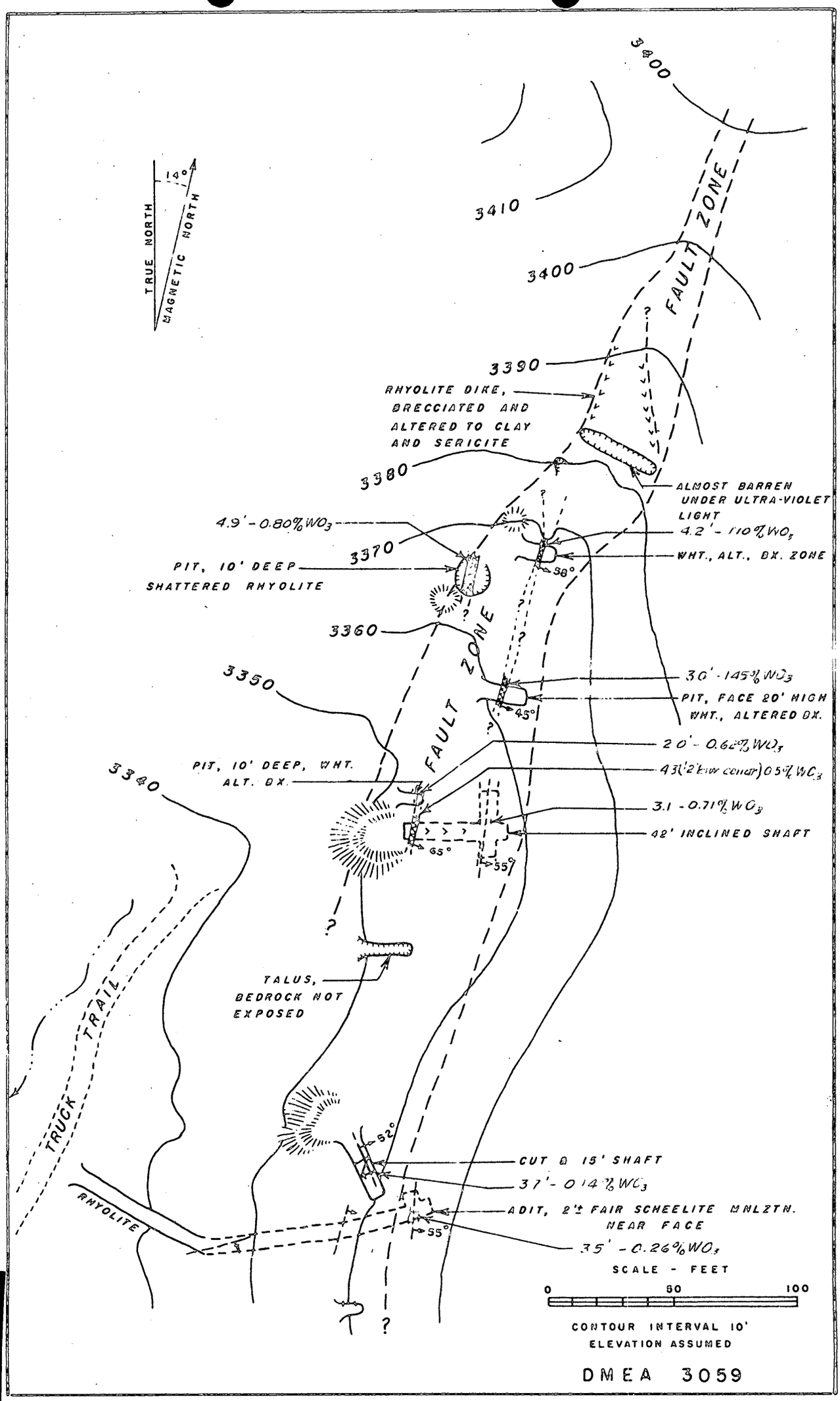


FIGURE 4.- GEOLOGIC MAP - SAN JUAN NO. 2 CLAIM
PIMA COUNTY, ARIZONA

The grade of the ore shoots within the zone is not certainly known, but a private report estimates the grade, based on lamping, at between 0.75 and 1.25 percent. It is thought however that this figure is too high. Assays of samples taken by L. L. Farnham, U. S. Bureau of Mines are shown on Fig. 3. Samples taken by the Geological Survey are shown on Fig. 4. For the samples taken in the shaft and pits north of the shaft the assays (Fig. 4) give a weighted average of 0.86 percent WO_3 over a width of 3.6 feet. It is estimated that an average grade of approximately 0.75 percent WO_3 might be expected.

GEOLOGIC CONCLUSIONS

Sinking to 100 feet and drifting to the north has a geologic chance of encountering scheelite mineralization over a length of 120 feet with an average width of $3\frac{1}{2}$ feet. If this mineralization should be continuous, up to 4000 tons of scheelite bearing rock might be indicated. It is thought that this relatively small potential of material which would probably average not more than 0.75 percent WO_3 would not constitute a significant discovery.

DMEA-3059, SAN JUAN TUNGSTEN PROSPECT
VENTANA MINING DISTRICT, PIMA COUNTY, ARIZONA

Engineering Report

By L. L. Farnham and J. F. Haynes
Mining Engineers
U. S. Bureau of Mines

July 1953

DMEA-3059, SAN JUAN TUNGSTEN PROSPECT
VENTANA MINING DISTRICT, PIMA COUNTY, ARIZONA

CONTENTS

Engineering report	Page
Introduction	1
Acknowledgments	1
Location and physical features	1
History and production	2
Ownership and extent	2
Description of the deposit	2
Ore reserves	4
Present status of exploration	6
Proposed exploration and cost	7
Economic considerations	8
Conclusions and recommendations	10

ILLUSTRATIONS

Figure		Following page
1	Location map	1
2	Claim map	2
3	Plan of workings	4

INTRODUCTION

On May 27, 1953, Charles M. Taylor and A. L. Gorman applied to the Defense Minerals Exploration Administration, under the Defense Production Act of 1950, as amended, for an exploration loan amounting to $24,000. The application was docketed as DMEA-3059. The funds requested were to be used for the further exploration of a tungsten prospect.

The property was visited by the examiners on May 28, 1953 and again with a "Mineralight" on the evening of June 1, 1953.

ACKNOWLEDGMENTS

Acknowledgments are made to the applicants, A. L. Gorman and Charles M. Taylor for their assistance during the examination.

LOCATION AND PHYSICAL FEATURES

The property is situated about 57 miles south of Tucson in an unsurveyed portion of the Papago Indian Reservation, Ventana mining district, Pima County, Ariz. It appears that if the area were surveyed the claims would lie in sec. 30, T. 17 S., R. 7 E.

The property can be reached from Tucson by traveling 50 miles southwesterly on paved State Highway 86, thence 7 miles southeasterly on a branching dirt road that terminates at the site of the proposed exploration (figure 1).

The claims lie in the rolling desert foothills along the western side of the Baboquivari mountains at an altitude of about 3,400 feet above sea level. The climate is arid and the nearest available source of a limited supply of water is from Government owned wells some 10 miles northwest of the property.

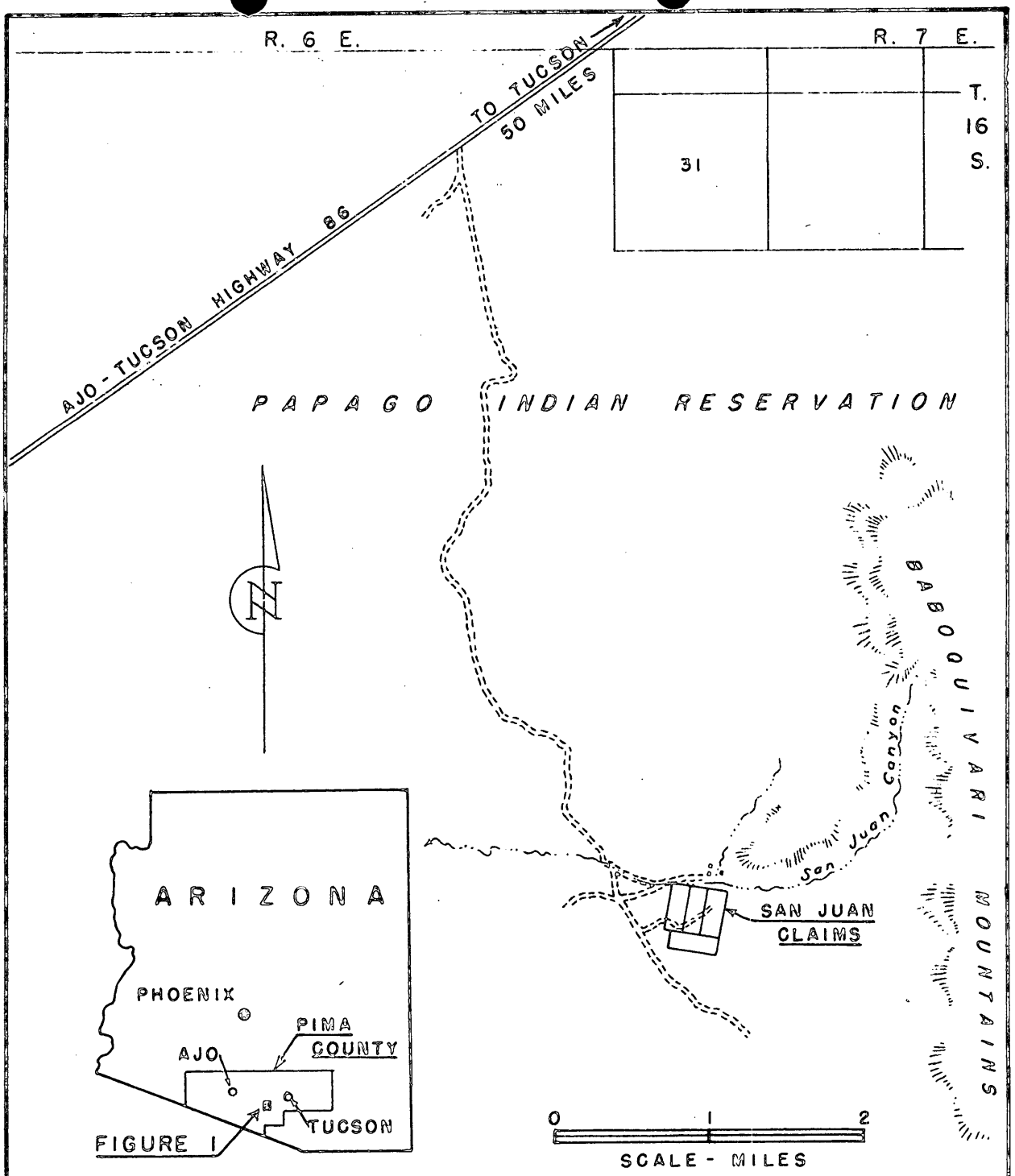


FIGURE 1. - LOCATION MAP

SAN JUAN TUNGSTEN CLAIMS PIMA COUNTY, ARIZONA

HISTORY AND PRODUCTION

The claims were located in 1951 following the discovery of scheelite in the area. Only superficial surface prospecting has been attempted and no ore has been produced from the property.

In the latter part of 1952, the Byrd Investment Co. of Tucson secured a lease and option on the claims. During the life of the option this company attempted to interest several other parties in the development of the prospect. These efforts were apparently unsuccessful and the option reportedly expired June 1, 1953 with the property reverting back to the applicants.

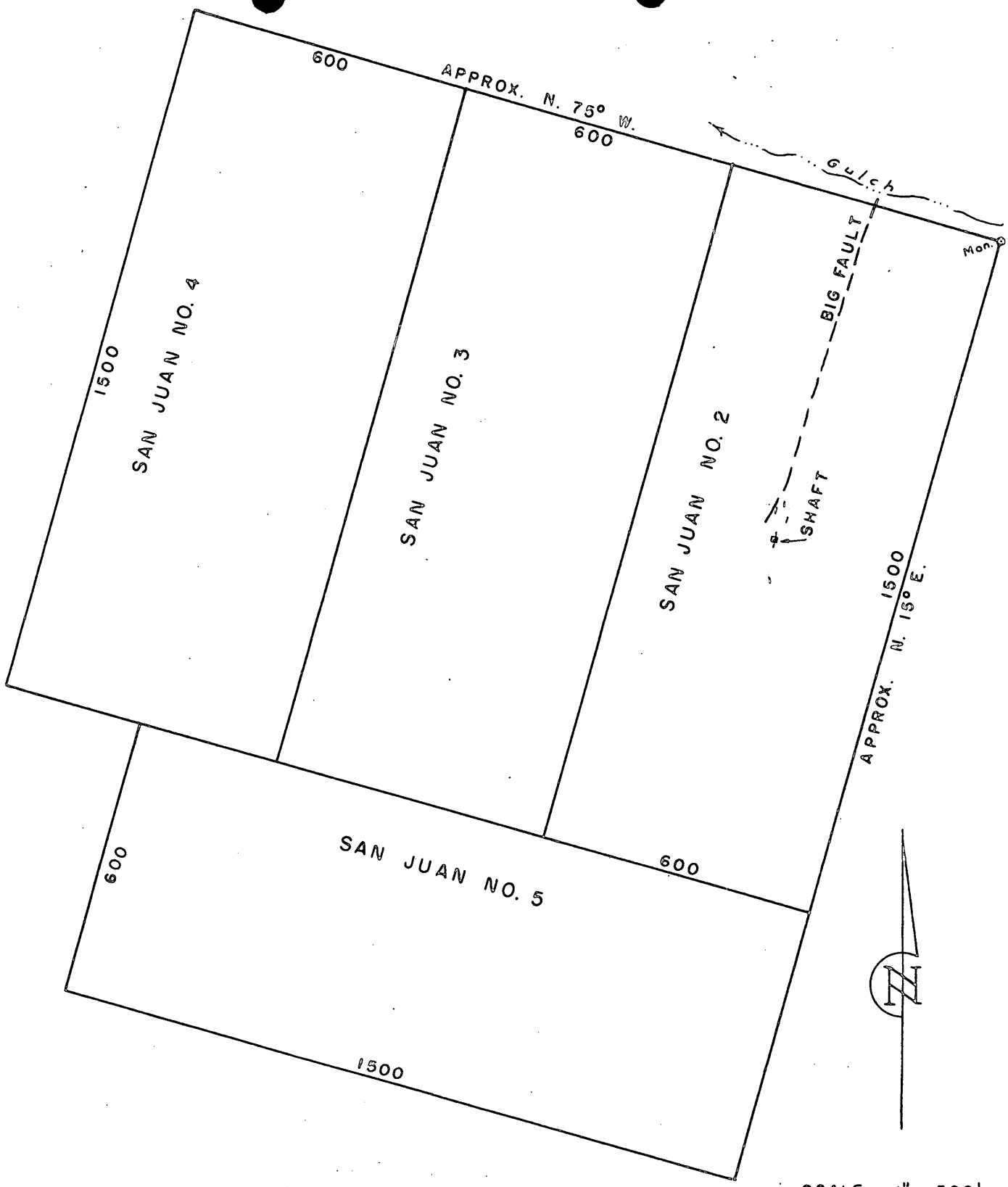
OWNERSHIP AND EXTENT

The property, known as the San Juan group, consists of 4 contiguous unpatented lode claims owned by the applicants, Chas. M. Taylor and A. L. Gorman. The location notices are recorded in the Pima County Recorder's office as follows:

San Juan No. 2 - Book 320, page 258
San Juan No. 3 - Book 329, page 532
San Juan No. 4 - Book 329, page 533
San Juan No. 5 - Book 329, page 534

DESCRIPTION OF THE DEPOSIT

Scheelite occurs at the site of the proposed exploration in a portion of a strong northeasterly trending fault zone that cuts several diverse kinds of igneous rocks. The fault zone is traceable for several hundred feet as it traverses the north central portion of the San Juan No. 2 claim (figure 2). The tungsten is associated with several narrow irregular sub-parallel fractures that occupy a small portion of the western side of the main fault.



DMEA 3059

SCALE - 1" = 300'

FIGURE 2. - SAN JUAN CLAIMS

VENTANA MINING DISTRICT PIMA COUNTY, ARIZONA

The alteration within the mineralized area has been so intense as to make the identification of the host rock uncertain. Some examiners have classified it as a rhyolite while others have called it an aplite.

Spotty and varying amounts of scheelite were evident in the disconnected prospect openings that were scattered over an area some 30 feet wide and for some 300 feet along the course of the altered zone. However, the bulk of the tungsten was found in the northern half of this area where the scheelite occurred in relatively short irregular pods arranged in somewhat of an echelon pattern. These better mineralized areas were evidently limited to strike lengths of a few tens of feet, and ranged from 1.0 to 4.0 feet in width. The individual fractures, along which the scheelite was localized, had northerly strikes with easterly dips that varied from 45° to 60°. The fissures were irregular and poorly defined. In some places specks of disseminated scheelite were scattered irregularly over widths of several feet within the wall rocks adjacent to the mineralized fractures.

The Scheelite was uniformly fine-grained with crystals rarely exceeding an eighth of an inch in diameter. The gangue minerals, in addition to iron and manganese oxides, consisted essentially of kaolinized wall rock, dark colored calcite and some fine-grained quartz.

It was rarely possible to identify the scheelite with the unaided eye or to distinguish any difference between the ore and the altered barren wall rock. This in addition to the irregularity of the mineralization would make it quite difficult to mine the ore cleanly. The soft weak walls adjacent to the fractures would necessitate the adoption of the more costly mining methods.

ORE RESERVES

There was no appreciable amount of ore in sight on the property. The evidence afforded by the present prospect openings indicated that if the scattered disconnected areas containing the bulk of the tungsten were placed end to end they would have a combined length of possibly 150 feet and an average width of not more than 3 feet. Thus the potential of the deposit as a whole would be of the order of 35 tons per foot of depth extension.

Nine samples were taken from the various exposures by the Bureau of Mines examiners. The location of these samples is shown on figure 3 and the results are as follows:

Sample No.	Width, Ft.	Location	Percent WO_3
14672	2.5	40-ft. level drift - south face	0.10
14673	3.0	40-ft. level drift - north face	0.51
14674	Grab	Ore pile (2 tons)from cut No. 2	0.77
14675	0.9	High-grade fracture in cut No. 2	4.08
14676	Grab	Ore pile (5 tons)from pit No. 3	0.29
14677	14.0	Across side of cut No. 4	0.32
14678	4.0	Fracture in face o f cut No. 5	0.13
14679	3.5	Fracture in pit of cut No. 8	0.04
14680	4.0	Fracture in face of cut No. 9	0.06

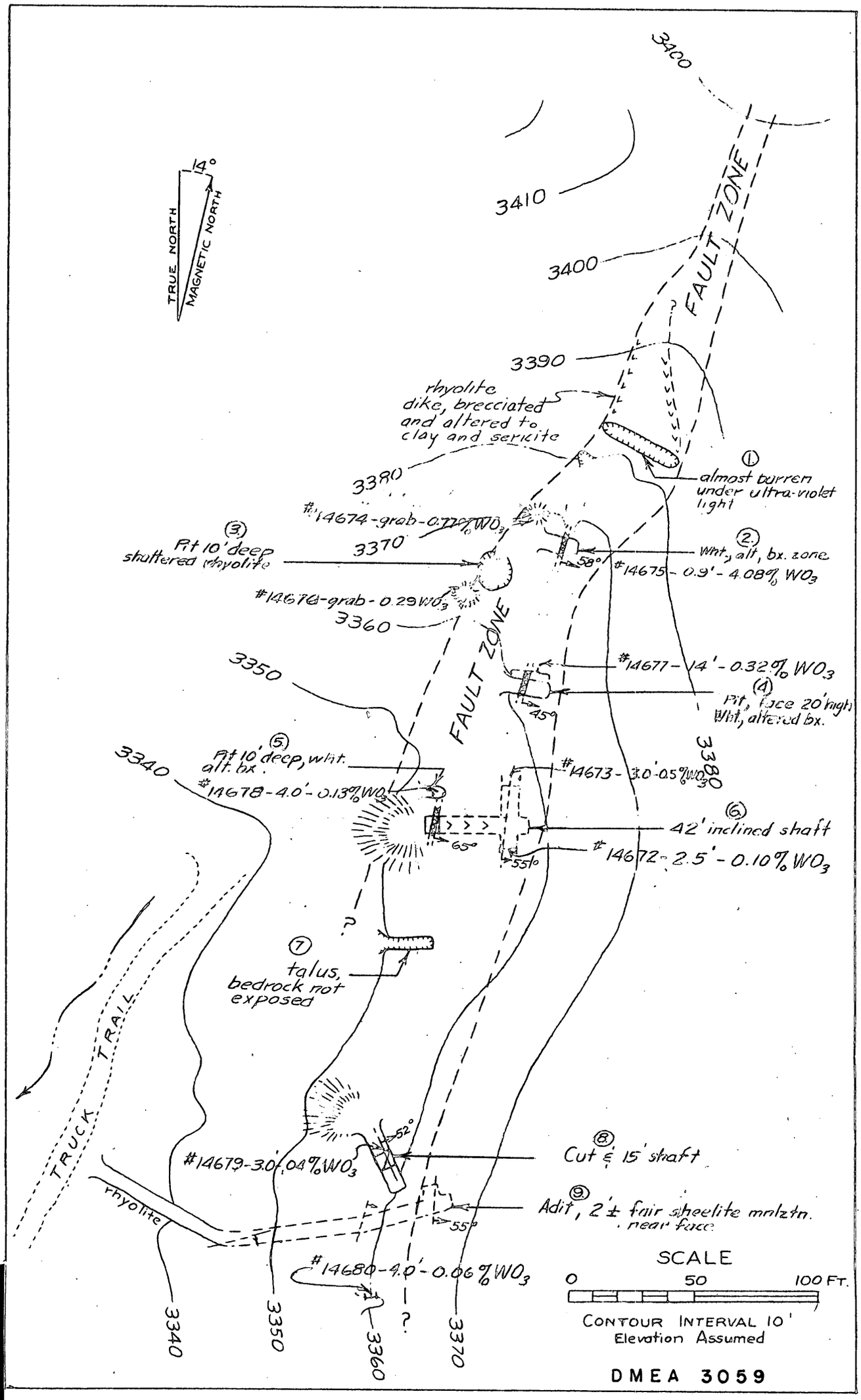


FIG 3.-GEOLOGIC MAP – SAN JUAN NO.2 CLAIM
PIMA COUNTY, ARIZONA

The above samples were taken in daylight and before the exposures had been examined under ultra-violet light, so at the time of the sampling the distribution of the scheelite was not known. Consequently some of the samples were taken over widths that, as viewed later under ultra violet light, exceeded the width of the best mineralization. This proved to be true in the case of the last 4 of the above samples. Sample No. 14677, representing 14 feet of altered material, was taken at the suggestion of the applicant, A. L. Gorman, who claimed that the entire exposure was "commercial ore". When observed later with a mineralight, more or less scheelite was present across the 14 feet sampled, but within that distance the bulk of the tungsten was restricted to a width of about 2.5 feet.

In most cases the higher grade material as excavated from the prospect openings had been segregated and placed in piles separate from the lower grade and barren material. These small piles had air-slacked and broken down largely to fines so thatit was possible to obtain from them fairly representative grab samples. Two such samples were taken of the higher grade material that had been removed from 2 of the more promising appearing exposures. These samples averaged 0.53 percent WO_3. Under the circumstances these grab samples are probably more indicative of the minable grade of the areas they represent than a few hand samples would be if taken from the material in place.

While the 9 samples taken in the scattered exposures cannot be considered as representing the average grade of the deposit, they do indicate that only a limited amount of the exposed mineralization is of probable ore grade.

PRESENT STATUS OF THE EXPLORATION

The exploratory work on the property consisted of 9 shallow surface openings, an inclined shaft some 40 feet deep, and a crosscut adit having a length of about 90 feet (figure 3). In addition to the above a bulldozer had been used to remove the cover and expose the bed rock in the northern part of the mineralized area. The most northerly of the surface openings consisted of a trench about 35 feet long which crosscut the northward projection of the mineralized zone. No appreciable tungsten was found by this work. The most southerly open cut, situated about 350 feet from the north trench, showed little if any scheelite under ultra-violet light. The shaft, 5 by 7 feet in rock section, was sunk about midway between the above openings. The upper portion of this shaft was inclined 65° while the lower portion flattened to about 45°. Lateral work from the bottom of this incline consisted of a 15-foot hanging wall crosscut, 10 feet of drifting northward and 6 feet of drifting southward. The adit had crosscut the mineralized zone at a depth of about 30 feet in the vicinity of cut No. 8 (figure 3). Although some Scheelite was present near the face of the adit it appeared to be too low grade to justify sampling.

PROPOSED EXPLORATION AND ESTIMATED COST

The proposed exploration as set forth in the application is quoted below:

5-(b) It is proposed to explore the vein as follows:

1. By means of a churn drill hole situated east of Cut No. 4 (figure 3) at the required distance to pass through the vein, as projected downward on an east dip of 75° from the horizontal, at a depth of 300 feet, this hole will, I believe, develop water sufficient for operating a mill of ten tons daily capacity.

2. By means of a churn drill hole situated east of Cut No. 2 at the required distance to pass through the vein at a depth of 100 feet.

3. By means of a churn drill hole situated east of Cut No. 9 at the required distance to pass through the vein at a depth of 100 feet.

4. By deepening the existing inclined shaft an additional 150 feet and running 300 feet of drifts and crosscuts from this shaft in the vein zone.

The cost of this work as estimated by the applicant is as follows:

Churn drilling, 500 feet @ $10	$ 5,000
Shaft sinking, 1½ compartments, 150 feet @ $80	12,000
Drifting and crosscutting, 300 feet @ $20	6,000
Supervision by owner at no cost.	
Contractor will furnish all equipment and supplies.	
Owner will use his own Jeep station wagon for supervision.	
No rehabilitation or repairs.	
No new buildings or improvements.	
Miscellaneous and contingencies	1,000
Total	$24,000

The exploration of a deposit of this type by means of churn or core drilling would appear unlikely to accomplish the desired results. It would seem more feasible to explore the zone at a depth of say 100 feet by drifting and crosscutting.

Owing to the spotty and scattered nature of the tungsten mineralization it appears extremely doubtful that 300 feet of lateral work, as contemplated by the applicant, would adequately explore the zone. It would seem more likely that 500-600 feet of drifting and crosscutting might be required.

Judged by prevailing costs of comparable work the applicant's unit cost estimates appear too low. In the opinion of the examiners it would probably cost at least $25,000 to sink the shaft to a depth of 100 feet and perform the amount of lateral work necessary to properly explore the mineralized area. If 3,500 tons of ore was indicated by this proposed work, the cost of the exploration alone would be equivalent to about $7 a ton.

ECONOMIC CONSIDERATIONS

At this time there is no known market for ore containing less than 2.0 percent WO_3 within a radius of several hundred miles from the subject property. Hence before tungsten could be produced from this deposit in substantial amounts a suitable mill would be necessary. Assuming sufficient ore were found to justify a local mill and that an adequate supply of water could be developed in the vicinity, the production costs would probably be of the order outlined below:

	Per ton of ore
Exploration and development ----	$8.00
Mining[1] ----------	20.00
Milling (small tonnage)---------	5.00
Marketing and overhead ---------	2.00
Total direct costs ---	$35.00

If sufficient water was not found in the immediate vicinity of the deposit, then the ore would have to be trucked to a site where an adequate supply of water was available. It is reported that it would be possible to obtain a mill site with sufficient water near the Robles Ranch which is 35 miles from the deposit. To truck the ore this distance, at 10 cents a ton mile, would increase the costs to over $38 a ton.

Ore-dressing tests made on the San Juan ore by the Arizona Bureau of Mines indicated that about 65 percent of the tungsten was recoverable in gravity concentrates that averaged 62.6 percent WO_3. According to E. Fernstrom of Tucson, who buys high-grade tungsten ore and concentrates, a scheelite concentrate having a grade of 60 percent or more would have a value of $57.50 per unit of contained WO_3. For instance an ore containing 1.0 percent or 1 unit of WO_3 yielding a 65 percent recovery would have a gross marketable value at this time of $37.38 a ton, f.o.b. Tucson. As the direct production costs of the San Juan ore, exclusive of amortization, royalty, taxes, etc., would probably almost equal if not exceed the marketable value of an ore containing one

1/ Based on 1.0 ton per man shift with labor ($15 a shift) representing 70 percent of the total mining cost.

percent WO_3, it appears that a grade of over 1 percent WO_3 would be necessary before there was any incentive to produce tungsten from this deposit. Relatively small irregular enrichments containing 1 percent or more will be found but it appears safe to conclude that the bulk of the potential tonnage in the deposit will probably average, as mined, considerably less than 1 percent WO_3.

CONCLUSIONS AND RECOMMENDATIONS

The existing prospect openings on the subject property are considered to have fairly well indicated the relative potential of the tungsten mineralization. A small production is possible from chloriding operations but it does not appear probable that the deposit is of sufficient size or grade as to constitute a substantial source of tungsten. No evidence was found to indicate the probability that further exploration would disclose materially larger or higher grade deposits than those now evident. Consequently it is recommended that the application for the loan be denied.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration
JUN 2 1953
RECEIVED

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-3059
Metal or Mineral
Date Received 6/2/53
Estimated Cost
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: Charles M. Taylor,
P.O. Box 1710,
Tucson, Arizona.

(*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 Four unpatented lode claims in Ventana mining district, Pima County, Arizona (See Maps No. 1 and No. 2, attached).

(*b*) State any mine name by which the property is known. San Juan scheelite property

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Four-fifths owned by Charles M. Taylor and one-fifth by A. L. Gorman, 105 E. Mohave Rd., Tucson, Ariz.

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

(*e*) If you own the land, describe any liens or encumbrances on it None

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

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.

See attached sheet regarding items 4 (a-e).

16—66551-1

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore Scheelite

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

(*c*) The work will start within 30 days and be completed within 12 months from the date of an exploration project contract.

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

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: $24,000

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

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

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

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

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

[x] Money [ ] 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 May 25th, 1953

C M Taylor 1/5 Int
(Applicant)

By A. L. Gorman 1/5 -
per C M Taylor

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

3-4724
PHONE ~~6-2987~~

P. O. BOX 1710

C. M. Taylor

~~2847 EAST FIRST STREET~~

TUCSON, ARIZONA

336 - N. Park ave.

3-(f) Location notices are recorded in Pima County Recorder's Office, Tucson, Arizona, as follows:

Claim No. 2 San Juan - Book 320 at page 258 thereof
Claim San Juan No. 3 - Book 329 at page 532 thereof
Claim San Juan No. 4 - Book 329 at page 533 thereof
Claim San Juan No. 5 - Book 329 at page 534 thereof

4-(a) Scheelite was first discovered in this area during early 1951. I carried on prospecting by means of pits, cuts, a short adit, a shallow shaft, and an inclined shaft 42 feet deep, as indicated on Map No. 3 (Preliminary geologic map of San Juan scheelite area, by Eldred D. Wilson, Arizona Bureau of Mines unpublished manuscript, 1951) and Map No. 4.

More recently a lessee, building an access road with a bulldozer, inadvertently filled in a few of the shallow pits. Otherwise all the openings indicated on Map No. 3 are accessible for examination.

4-(b) The prospecting already done indicates notable scheelite mineralization distributed over an area more than 300 feet long by 15 to 25 or more feet wide (See Map No. 3). Sampling of the cut No. 4, for example, showed 0.52 per cent WO_3 across a width of 16 feet, with a still higher-grade calcitic streak in the face.

Regarding the indicated and inferred ore, J. M. Hill (copy of Report dated Sept. 23, 1952, attached) wrote as follows:

> "The former owners, who did the prospecting and development to date, have furnished me with results of their sampling, and a copy of their engineer's report. Mr. Gorman, who supervised most of this work, was of great assistance in pointing out to me the various places where good and poor results had been had in the earlier sampling. My impression of the mineralization is that small cut samples in this type are not entirely satisfactory, as it is evident that there is considerable waste, unmineralized rock even in the better looking ore. For this reason, I took only two samples, and do not expect to have them assayed. From my inspection with the Mineral Light I believe it safe to accept the assay results of the owners as a starting point. Their sampling indicates a deposit 120 feet long, opened to a maximum depth at the shaft of 45 feet, and varying in width from 30 inches to 5 feet of possible 0.50% WO_3. From my lamping, I would rather figure a possible maximum width of 4 feet and an average of between 2 and 3 feet, with WO_3 content of between 0.75% and 1.25% WO_3.

C. M. Taylor,
326 N. Park Ave.,
Tucson, Ariz.

4-(b) continued.

"To my mind, this is a good-looking, partly-developed prospect that warrants further development with every evidence that mineralization will continue to depth."

4-(c) The San Juan locality, according to the U. S. Geological Survey Baboquivari quadrangle topographic map, is at an altitude of approximately 3,400 feet, among foothills at the western base of the Baboquivari Mountains.

The principal rocks exposed are schist, gneiss, pegmatite, "speckled or mottled lava" (porphyritic latite), and rhyolite.

Scheelite occurs within an altered dike-like mass of rhyolite which intrudes the older volcanic rocks along a fault zone.

Although the altered portion of this rhyolite dike is largely concealed by superficial rocks (talus), outcroppings and shallow workings have shown it to be more than 300 feet long and 15 to 25 or more feet wide.

Apparently the rhyolite dike occupies an older fault zone which strikes N. 18 degrees E. and dips steeply to the East. Renewed faulting movement shattered this dike leaving it subject to mineralization by solutions coming up from below. These mineral-carrying solutions deposited veinlets and replacements of scheelite, together with calcite and some quartz. Such solutions also altered the shattered rhyolite largely to sericite and clay. Still later movement within the fault zone broke up or brecciated the "vein."

A copy of a geologic report by J. M. Hill is appended hereto.

I wish to explore this deposit further because of its strong mineralization throughout an exposed length of more than 300 feet. Also, as stated by J. M. Hill, there is every evidence that mineralization will continue to depth.

4-(d) The San Juan property is accessible from the shipping, and supply center, Tucson, by 50 miles of the paved State Highway No. 86 and 7 miles of good unpaved road. (See Map No. 1).

Labor for the past prospecting operations resided partly in a camp at the claims and partly at nearby villages.

4-(e) The claims are near San Juan Spring; water for camp use is also hauled in by truck. The water which probably would be developed incidental to the proposed drilling operations could be used for milling.

A copy of an ore test of scheelite ore from the No. 2 San Juan claim is appended hereto.

C. M. Taylor,
326 N. Park Ave.,
Tucson, Ariz.

5-(b) It is proposed to explore the vein as follows:

1. By means of a churn-drill hole situated east of Cut No. 4 (Map No. 3) at the required distance to pass through the vein, as projected downward on an east dip of 75 degrees from the horizontal, at a depth of 300 feet. In addition to sampling the vein at a depth of 300 feet, this hole will, I believe, develop water sufficient for operating a mill of ten tons daily capacity.

2. By means of a churn-drill hole situated east of Cut No. 2, at the required distance to pass through the vein at a depth of 100 feet.

3. By means of a churn-drill hole situated east of Cut No. 9 at the required distance to pass through the vein at a depth of 100 feet.

4. By deepening the existing inclined shaft in Cut No. 6 (Maps No. 3 and 4) an additional 150 feet and running 300 feet of drifts and cross cuts from this shaft in the vein zone.

5-(d) The owner has been a practical miner during the past 51 years and has worked scheelite properties at various times during the past 11 years. Of his second R.F.C. loan, which was obtained to explore a scheelite property in the Twin Buttes district during World War II, he turned back to W. B. Goring an unexpended sum of several hundred dollars; this shows a willingness to operate such a project as economically as possible.

The owner will supervise the project.

6-(a) Work to be done by contract.
Note: The rock of this vein zone, so far as prospected, is relatively soft and hence amenable to low-cost drilling and mining, as well as to easy grinding in milling.

	Churn drilling, 500 feet @ $10.00	$ 5,000
	Shaft sinking, 1½ compartment, 150 feet @ $80.00	12,000
	Drifting and crosscutting, 300 feet @ $20.00 .	6,000
6-(b)	Supervision by owner at no cost.	
6-(c)	None	
6-(d)	Contractor will furnish all equipment. Owner will use his own Jeep Station Wagon for supervision.	
6-(e)	None	
6-(f)	None	
6-(g) and (h)	Miscellaneous and contingencies	1,000
		$24,000

C. M. Taylor,
326 N. Park Ave.,
Tucson, Ariz.

7-(b) Owner's share of costs will be put in form of certified check upon the date of the exploration contract.

Financial reference: Southern Arizona Bank and Trust Company, Campbell Avenue Branch, Tucson, Arizona.

A P P E N D I X

Copy of Report by J. M. Hill

Sept. 23, 1952

Mr. Peter C. Gillham
General Delivery
Casa Grande, Arizona

Dear Mr. Gillham:

As requested by you, at my office, on September 16, I made a preliminary examination of the San Juan group of tungsten claims on September 19, 1952. I was accompanied by Mr. A.L. Gorman, who had done most of the prospect work, and by Pat Burney, both of whom were sent by the Byrd Investment Co. to assist me in finding the property and to show me the workings. Late in the afternoon you and Mr. Krueger joined the group and were present when I went over the workings with the Mineral Light.

The San Juan group of four (4) unpatented claims is located a short distance southwest of San Juan Spring, on the Ali Molina Wash, a few miles west of the east boundary of the Papago Indian Reservation at the base of the Baboquivari Range. The spring, as shown on the map of the Reservation, is in unsurveyed Sec. 19, T.17 S., R. 7 E., and the claims in Sec. 20, T. 17 S., R. 7 E. and partly in Sec. 25, T. 17 S., R. 6 E. They are six miles, by the graveled road which skirts the west base of the Baboquivari Range, south of the Tucson-Sells-Ajo road, and 57 miles from Tucson. Sells is about 12 miles west of the Spring.

The group consists of four locations. Three full claims, side by side, are located with the long dimension trending north-south; the fourth claim lies lengthwise across the south end of the other three; I am not informed as to its exact relation to the other three locations. The group is a compact area of 80 acres, 1200 feet easterly by 2100 feet southerly from the north-east corner which is a stone monument on the south side of the wash, 500 feet south, 45° east of the little church at San Juan ranch.

The rocks in this area are all of igneous origin, ranging from aplite through coarse-grained granite to diorite. All are cut by many small and large pegmatite dikes. These formations are cut by a strong series of northeast-trending faults and, apparently, by some nearly east-trending breaks along which the principal water courses from the mountains have made their channels.

Copy of Report by J. M. Hill (continued)

The tungsten deposit, that has been developed to some extent on the San Juan #2 Claim at the northeast corner of the group, is found in a subsidiary tear fracture that strikes a few degrees west of north, that lies on the east side of a wide zone of soft fault breccia which strikes N. 30° E. and dips southeast at 75° to 80°. This big fault is well shown in the wash near the trail from the camp ground to the workings, and is about 200 feet west of the northeast corner of the group. It is also shown in the low divide at the north end of the prospected area. Further south it is followed by a wide wash that lies west of the various prospect holes. In the wash south of the Camp, a medium grained diorite lies west of the fault zone, with fine-grained, light colored aplite on the east of hanging wall side. The crushed zone itself is about 60 feet wide and consists mostly of clay and fragments of aplite. In the vicinity of the prospect work the rock is mostly aplite, which has a sheeting that dips to the east at about 15° to 30°.

The tear fracture, along which the tungsten mineralization has taken place, strikes from N. to N. 10° W. and dips east at 50° to 70°. Apparently, it runs into the large fault about in the saddle, north of most of the prospect work. There is little or no mineralization of the main fault breccia. The scheelite mineralization of the tear break has been demonstrated, south from the saddle for a distance of 120 feet and to a vertical depth of approximately 100 feet below the saddle, by six cuts and an inclined shaft 45 feet deep. The mineralization is heaviest in soft crushed aplite, but is also seen penetrating fragments of hard aplite, and as coatings on aplite fragments. Tungsten mineralization is evident in all the prospect holes and, as usual, varies from weak to strong. In some places scheelite can be seen over widths of as much as 6 to 7 feet. As a rule the material that looks to be of commercial grade is confined to widths of 2 to 4 feet in the immediate vicinity of the tear fracture. There are some cuts south of the shaft which show that mineralization has continued along the fracture for at least 120 feet south of the shaft.

The former owners, who did the prospecting and development to date, have furnished me with results of their sampling, and a copy of their engineer's report. Mr. Gorman, who supervised most of this work, was of great assistance in pointing out to me the various places where good and poor results had been had in the earlier sampling. My impression of the mineralization is that small cut samples in this type are not entirely satisfactory, as it is evident that there is considerable waste, unmineralized rock even in the better looking ore. For this reason, I took only two samples, and do not expect to have them assayed. From my inspection with the Mineral Light I believe it safe to accept the assay results of the owners as a starting point. Their sampling indicates a deposit 120

feet long, opened to a maximum depth at the shaft of 45 feet, and varying in width from 30 inches to 5 feet of possible 0.50% WO_3. From my lamping, I would rather figure a possible maximum width of 4 feet and an average of between 2 and 3 feet, with WO_3 content of between 0.75% and 1.25% WO_3.

To my mind, this is a good-looking, partly-developed prospect that warrants further development with every evidence that mineralization will continue to depth. I would suggest that such development should be done by sinking the present shaft another 30 feet and drifting north at the 50 foot level on the fracture 120 feet where a raise of about 90 to 100 feet would come out near the saddle. This work, including the construction of a mile of road, installation of hoist and necessary compressor and buildings, I estimate should not cost more than $10,000 to $12,000 and could be done in 3 to 5 months. The amount of this work, of course, will be dependent on what is found as work progresses. Itwould be advisable, also, to do some work to the south, on the 50 foot level, to see how far the mineralization has extended in that direction.

If the development to the north shows up as expected, there would be developed a block of from 1500 to 2100 tons of ore, carrying at least 0.75% and possibly as much as 1.00% WO_3, and having a possible value, figuring an 80% recovery, in milling, of between $56,000 and $100,000. Itwould also be indicated that another 1500 tons of possible ore could be counted on in the next 50 feet below the developed level.

I would not recommend considering a mill until the work outlined above has been completed and the ore blocked out. During the development it might be possible to have some ore milled at Las Guijas, or possibly at the mill advertised to be built at Huachuca. The next step would be the mill, once ore has been assured. I estimate that a 50 ton mill, the largest I would consider for this size operation, could be built for $25,000 to $30,000. It would have to be built where water is available, as there is no water at the mine or nearby. The Byrd Company has indicated that it would be possible to obtain a mill site with water near Robles Ranch, which would necessitate a 35 mile haul for all ore. They have informed me that a rate of $2.50 per ton has been given them by a trucking contractor.

Production costs are something else again, and the following guesses on my part should be checked with someone more qualified than I in these matters. My guess is that the total cost of mining, trucking and milling would be from $12 to $15 per ton.

Copy of Report by J. M. Hill (continued)

The real risk money is that to be used for the first stage development, namely $10,000 to $12,000. If that is successful in demonstrating the ore, as the evidence indicates, the further expenditures for mill and production would certainly be warranted and should not be hard to find.

I think that this deposit is of such character and size that the expenditure of the initial money is one that should be taken with every expectation that it will develop a good, small tungsten mine that may produce for a number of years. With the guaranteed price of $63 per unit for tungsten concentrate, this looks like an attractive proposition, if the conditions of the contract are equitable.

Respectfully submitted,

J.M. HILL

Geologist

UNIVERSITY OF ARIZONA
ARIZONA BUREAU OF MINES
ORE TESTING SERVICE

March 20, 1951

Mr. Charles M. Taylor
Box 1710
Tucson, Arizona

Dear Mr. Taylor:

Ore Test 1244

The sample of scheelite ore which you delivered to the Arizona Bureau of Mines from ~~south~~ East of Sells assayed 1.08 per cent WO_3.

A sample was crushed by rolls to minus 10-mesh and the material sized into three products by a hydraulic classifier; coarse, fine, and slime. The coarse and find fractions were tabled separately and the results are giving in the following table:

	Tons per 100 tons heads	Per cent WO_3	Distribution per cent WO_3
Heads	100.00	1.05*	100.0
Coarse concentrate	0.36	52.50	18.0
Fine concentrate	1.05	47.14	47.3
Coarse middling	3.59	0.96	3.3
Fine " #1	4.78	1.71	7.7
" " #2	11.77	0.95	10.7
Coarse tailing	25.12	0.09	2.2
Fine tailing	31.23	0.19	5.7
Slimes	22.10	0.24	5.1

*Calculated

UNIVERSITY OF ARIZONA
ARIZONA BUREAU OF MINES
ORE TESTING SERVICE

The coarse concentrate amounted to 0.36 ton per 100 tons of heads, assayed 52.50 per WO_3 and contained 18.0 per cent of the tungsten trioxides.

The fine concentrate amounted to 1.05 tons per 100 tons of heads, assayed 47.14 per cent WO_3 and contained 47.3 per cent of the total trioxide.

Combining the two above concentrates produced a concentrate which amounted to 1.41 tons per 100 tons of heads, assayed 48.5 per cent WO_3 and contained 65.3 per cent of the total tungsten trioxide.

The coarse table middling assayed 0.96 per cent WO_3 and the fine middling No. 1 and No. 2 assayed 1.71 and 0.95 per cents WO_3, respectively.

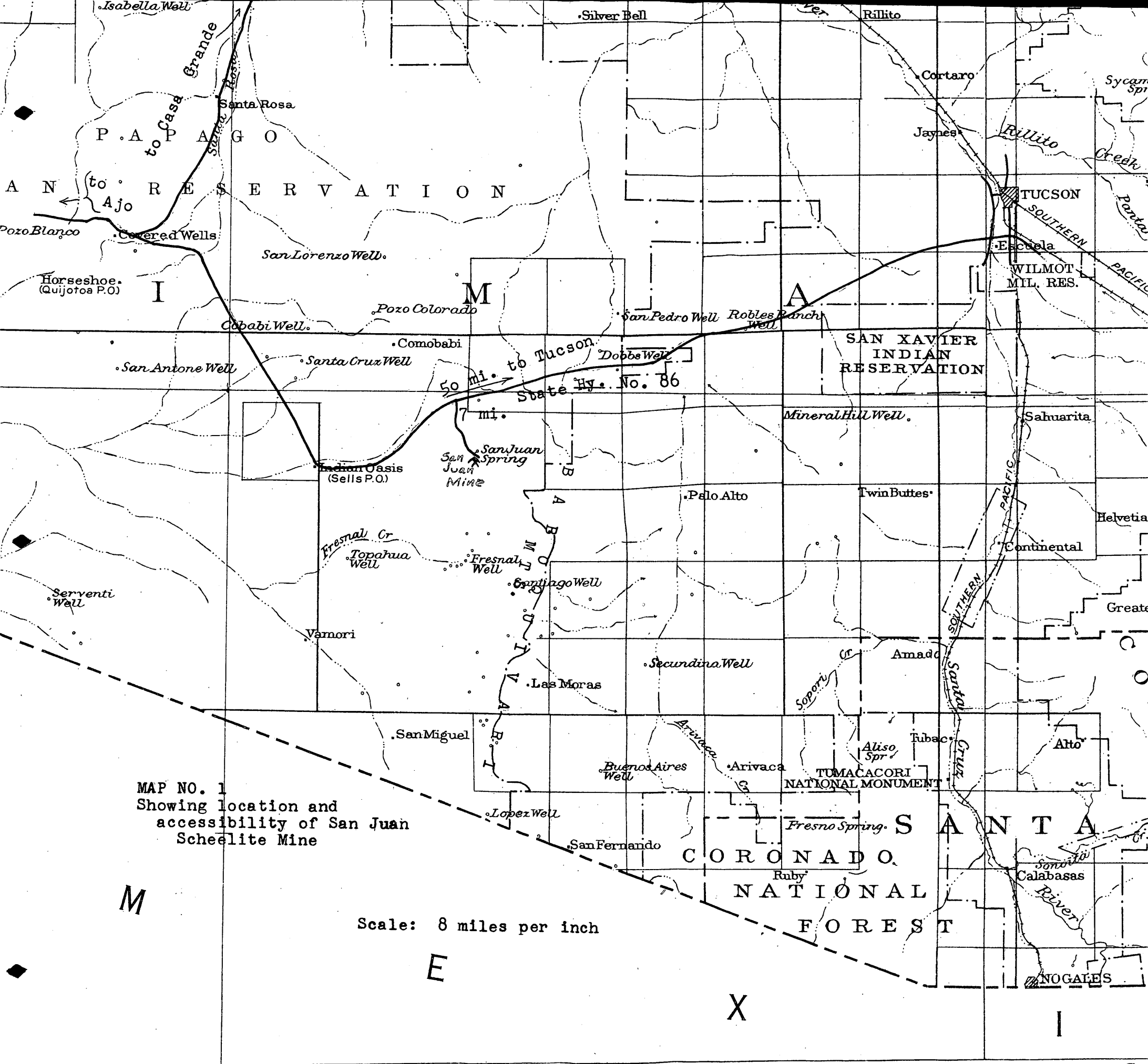
The coarse tailing assayed 0.09 per cent WO_3 and the fine tailing 0.19 per cent WO_3. The slimes were not treated and it assayed 0.24 per cent WO_3.

Tabling after sizing by classification produced a concentrate which assayed 48.5 per cent WO_3 and contained 65.3 per cent of the total tungsten. A large table might produce a higher grade concentrate but the recovery might drop off some.

Yours very truly,

(Signed) G. H. Roseveare
G. H. Roseveare
Metallurgist

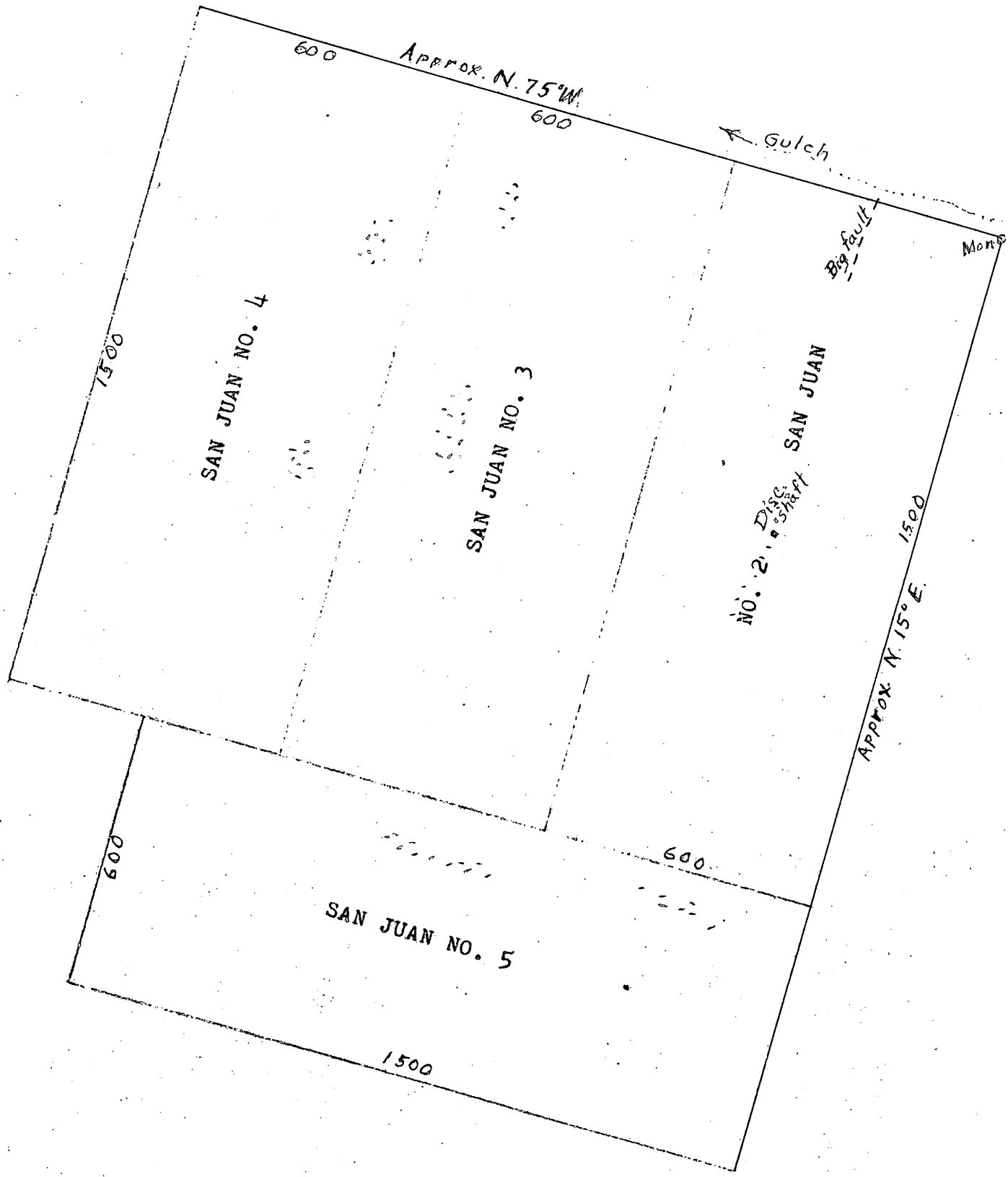
(Note: It is my understanding that Mr. Roseveare later ran another test on a sample of ore from this same place and obtained a much higher recovery. C.M.T.)



MAP NO. 1
Showing location and accessibility of San Juan Scheelite Mine

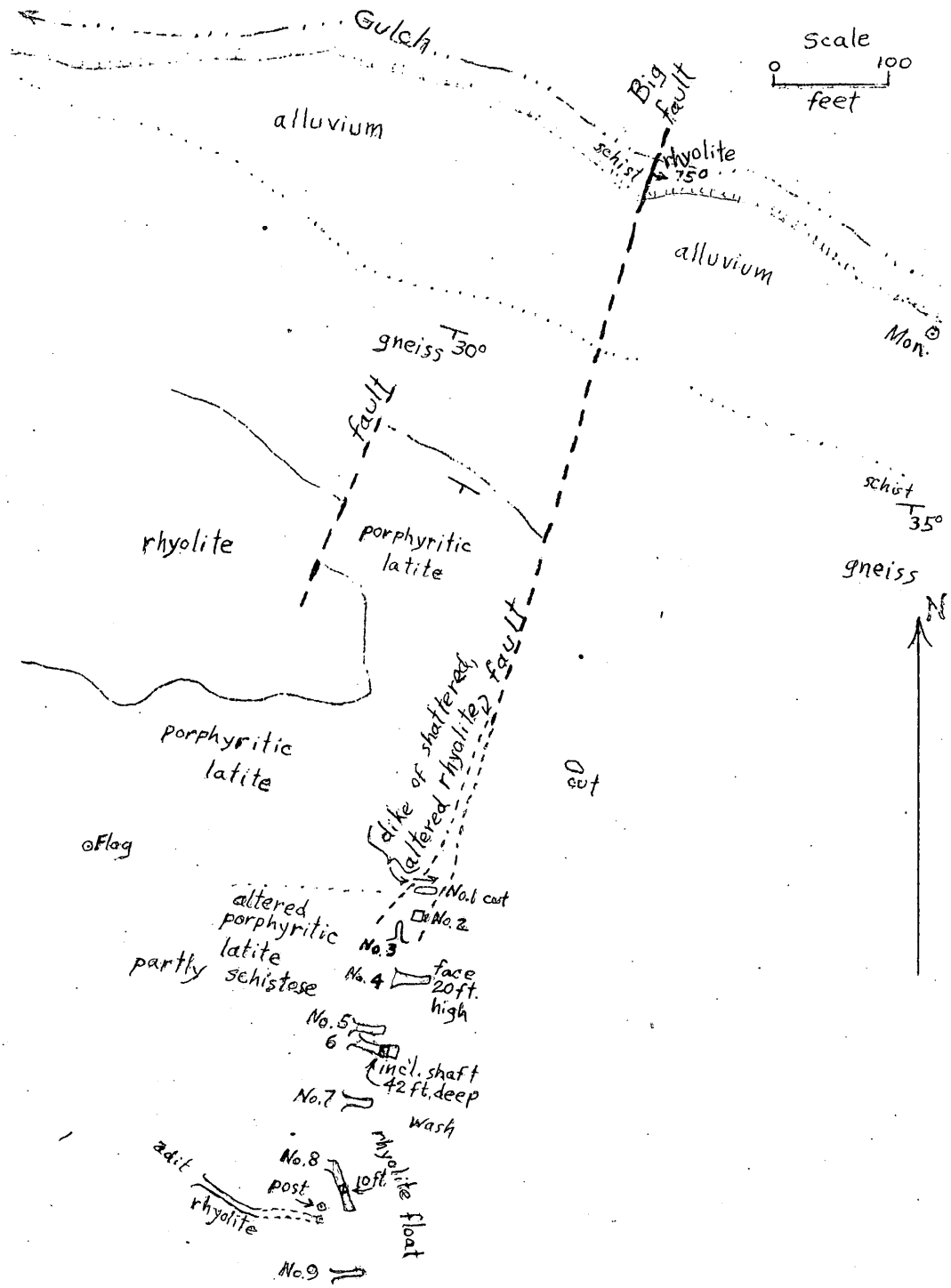
Scale: 8 miles per inch

DMGA-3059



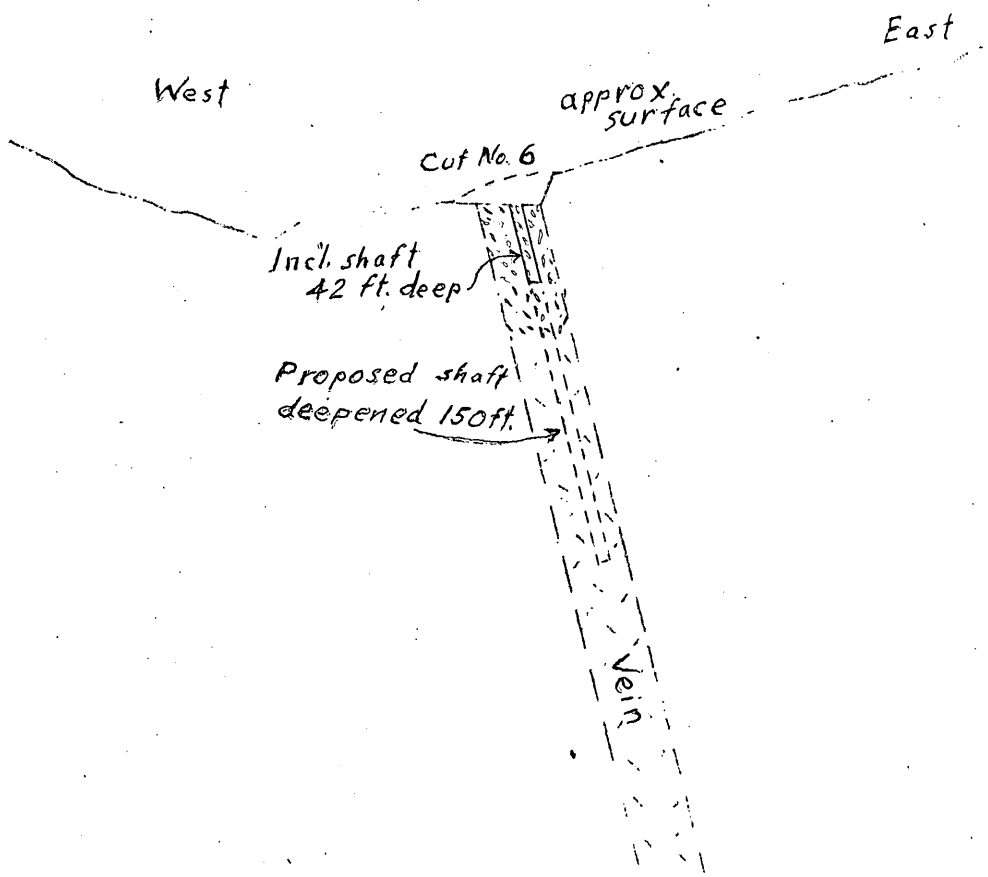
MAP NO. 2. San Juan group of claims
Scheelite croppings indicated in red color

DMEA-3059



MAP NO. 3. Preliminary Geologic Map of San Juan Scheelite Area, Pima County, Arizona. By Eldred D. Wilson, Arizona Bureau of Mines, 1951.
Scheelite mineralization indicated by red color.

DMEA-3059



MAP NO. 4. Cross section sketch through No. 6 cut and present inclined shaft, looking north. See Map No. 3 for surface geology. Scheelite mineralization indicated in red color
Scale: 1 inch = 100 feet

DMEA-3059

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
224 NEW CUSTOMHOUSE
DENVER 2, COLORADO

OFFICIAL BUSINESS

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

Defense Minerals Exploration Administration

Interior Building

Washington 25, D. C.