MF-500

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

REFERENCE SLIP

DATE 12/18/53

REFERRED TO:

1. ~~Code 600~~
2.
3.
4.

FOR:

..... Action	..... Recommendation
..... Approval	..... Record of .....
..... Comment	..... Referring to .....
..... Conference	..... Reply for signature of .....
..... Consideration	..... Rewriting
..... Filing	..... Signature
..... Instructions	..... Suggestions
..... Investigation	..... Your information
..... Initials	
..... Mailing	
..... Previous correspondence	

REMARKS:

Check (X) before the items needing attention.

ROBERT E. ADAMS

Initials of sender.

GPO 16—63815-1

ORIGINAL TO DOCKET

IN REPLY REFER TO:

[illegible]

Defense Minerals Administration
RECEIVED
DEC 17 1953

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

December 17, 1953

Memorandum

[illegible] REPORT ON [illegible] -3174 (beryl)

To: L. C. [illegible], Defense Minerals Exploration Administration
From: D. M. Larrabee, U. S. Geological Survey
Applicant: [illegible] Armstrong.
Name of property: Quien Sabe No. 2 claim.
Location of property: Fremont County, Wyoming.
Date of field team report: November 19, 1953.
Authorship of field team report: [illegible] Harrer and [illegible] Declerck.
Field team's recommendation: Denial.
Comments: Little if any chance of significant production of beryl, tantalite, etc.
ACTION [illegible]: Follow field team's recommendation.

D. M. Larrabee

Larrabee:jeh
12/17/53
cc: Director's reading 4212
Branch reading 4212
DMEA 3 ✓
Larrabee G-230

MF-500

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

REFERENCE SLIP

DATE 12/18/53

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REMARKS:
ORIGINAL TO DOCKET

Check (X) before the items needing attention.

ROBERT E. ADAMS
Initials of sender.

GPO 16—63815-1

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

DEPARTMENT OF THE INTERIOR
Bureau of Mines
RECEIVED
DEC 18 1953

December 17, 1953

Memorandum

To: L. G. Houk, Chief, Nonmetallics Division, DMEA

From: R. F. Griffith, Rare and Precious Metals Branch

Subject: DMEA Docket 317% (Mica-Beryl-Columbite-Tantalite), H. T. Armstrong, Quien Sabe No. 2 claim, Fremont County, Wyoming.

This office concurs with the recommendation that the subject application be denied.

The field team recommendation has been sent to the Chief, Minerals Division, in accordance with the routing slip attached thereto.

Signed

R. F. Griffith

RFGriffith:jj

Copy to: Minerals Division
Rare and Precious Metals Br.
R. F. Griffith
L. G. Houk (3)
E. W. Ellis, Room 4640
F I L E S

MF-500

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

REFERENCE SLIP

DATE 12/21/53

REFERRED TO:

1. ~~Code 600~~
2. Code 220
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FOR:

..... Action	..... Recommendation
..... Approval	..... Record of .....
..... Comment	..... Referring to .....
..... Conference	..... Reply for signature of .....
..... Consideration	..... Rewriting
..... Filing	..... Signature
..... Instructions	..... Suggestions
..... Investigation	..... Your information
..... Initials	
..... Mailing	
..... Previous correspondence	

REMARKS: .....

Check (X) before the items needing attention.

ROBERT E. ADAMS

Initials of sender.

GPO 16—63815-1

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

224 New Customhouse
Denver 2, Colorado

December 4, 1953.

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Field Team, Region IV

Subject: Report of Examination - DMEA Docket 3174 (Mica-Beryl-Columbite-Tantalite), H. T. Armstrong, Quien Sabe No. 2 claim, Fremont County, Wyoming.

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

W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
12-18-53
(date)

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

224 New Customhouse
Denver 2, Colorado

December 4, 1953.

Mr. Hepburn T. Armstrong
3636 Sixteenth Street, N.W.
Washington, D. C.

Re: Docket No. DMEA-3174

Dear Mr. Armstrong:

Reference is made to your application for Government aid on the Quien Sabe No. 2 claim.

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 Beryl, Columbite, Tantalite and Mica 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,

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

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

HMC:cwm

cc: Docket
Administrator, DMEA
WMTraver
AHKoschmann (2)
Chron.

Reviewed by
DMEA OPERATING COMMITTEE
12-18-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

224 New Customhouse
Denver 2, Colorado

December 4, 1953.

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Report of Examination - DMEA Docket 3174 (Beryl-Columbite-Tantalite-Mica), H. T. Armstrong, Quien Sabe No. 2 claim, Fremont County, Wyoming.

Enclosed are eight copies of the engineering report on the subject property.

The applicant requested $13,333.00 to explore two pegmatite dikes. Beryl crystals are small and only occasionally are they large enough to be recovered by hand sorting. The amount of tantalite is not significant and the proposed exploration would add little to the present knowledge of mineable reserves.

The engineer believes this property is not sufficiently attractive to justify further exploration and recommends that the application be denied.

We concur in this recommendation.

W. H. King

W. H. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
12-18-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
November 19, 1953

Memorandum

To: Executive Officer, Field Team, Region IV

From: Chief, Mineral Resources Branch, Mining Division, Region IV

Subject: DMEA 3174 (Beryl-columbite-tantalite-mica), M. T. Armstrong, Quien Sabe No. 2 claim, Fremont County, Wyoming

Enclosed are the original and ten copies of the "Summary, Conclusions, and Recommendations," by C. M. Harrer and D. R. Maclaren, and the engineering report by C. M. Harrer.

The applicant requested $13,333.00 to explore two pegmatite dikes. On the basis of past production, Harrer concludes that by hand cobbing the larger dike might produce 1/3 pound of tantalite (65.5 percent Ta_2O_5) per ton of dike rock. This amounts to approximately $1.00 per ton. Some beryl is present but in such small crystals that little will be recovered. Mica and feldspar do not meet specifications for marketing. The application is recommended for denial.

I concur with the conclusions and recommendations.

W. M. Traver

W. M. Traver

enclosures

cc 20
DMEA 3174
DMEA Chron.

WMT/pam

Reviewed by
DMEA OPERATING COMMITTEE
12-18-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.
Denver Federal Center
Denver 2, Colorado

November 13, 1953

To: Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 3174, Armstrong Metals Corporation, Quien Sabe No. 2 Claim, Fremont County, Wyoming

Attached are 8 copies of the geologic report by D. R. MacLaren on the subject property.

Two pegmatite bodies are exposed on the Quien Sabe No. 2 claim. The larger body is 400 feet long and has a maximum exposed width of about 20 feet. It has been emplaced in pre-Cambrian amphibolite. Tantalite, in small crystals, is concentrated in, but not limited to, a zone in the core some 200 feet long and 2 feet thick. Although a few large beryl crystals are found near the hangingwall of the pegmatite, most of the beryl is in small crystals in a footwall zone.

A second pegmatite body, southwest of the principal deposit, contains considerable beryl in small crystals along the hangingwall. Scattered crystals of tantalite were noted in this pegmatite body.

Mr. MacLaren concludes that the size of the beryl crystals precludes significant production by hand-cobbing methods, and that the reserves of tantalite are small, in the order of a few thousand pounds. He therefore recommends denial of the application for exploration assistance.

I concur in this recommendation.

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

Enclosures (8)

Reviewed by
DMEA OPERATING COMMITTEE
12-18-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 3174, H. T. Armstrong

Quien Sabe No. 2 claim

Fremont County, Wyoming

Beryl-columbite-tantalite-mica

C. M. Harrer, Mining Engineer
Bureau of Mines

D. R. MacLaren, Geologist
Geological Survey

November 19, 1953

Reviewed by
DMEA OPERATING COMMITTEE
12-18-53
(date)

DMRA 3174

H. T. ARMSTRONG
QUEEN BABE NO. 2 CLAIM
FREMONT COUNTY, WYOMING

Summary, Conclusions, and Recommendations

By C. N. Harrer
Mining Engineer
Bureau of Mines

D. R. MacLaren
Geologist
Geological Survey

BMEA 3174

QUIEN SABE NO. 2 CLAIM
HEPBURN T. ARMSTRONG
FREMONT COUNTY, WYOMING

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ILLUSTRATIONS

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DMEA 3174

QUIEN SABE NO. 2 CLAIM
HEPBURN T. ARMSTRONG
FREMONT COUNTY, WYOMING

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By C. M. Harrer and D. R. MacLaren

Hepburn T. Armstrong, 3636 Sixteenth Street, N. W., Washington, D. C., has applied for a Defense Minerals Exploration Administration loan of $13,333.00 to explore two pegmatite dikes occurring on the Quien Sabe No. 2 claim for beryl, tantalite-columbite, strategic mica, and lepidolite.

The property was examined for the Defense Minerals Exploration Administration on October 20, 1953.

Hepburn T. Armstrong has a 5-year lease on the Quien Sabe No. 2 claim, effective on August 26, 1953, from the owner, Peter Bruce Mining Company of Cheyenne, Wyo.

The Quien Sabe No. 2 claim is in Secs. 21, 22, 27, and 28, T. 40 N., R. 93 W., sixth principal meridian, Copper Mountain Mining District, Fremont County, Wyo., between 6,500 and 7,000 feet altitude.

Past production is reported as 300 pounds of tantalum assaying 65.5 percent Ta_2O_5, which was concentrated to about 80 percent Ta_2O_5.

On the Quien Sabe No. 2 claim, two pegmatites separated by an alluvium-filled valley have intruded amphibolite. They are essentially composed of quartz, albite, and muscovite with hanging wall and footwall margins of coarse white quartz associated with a white to blue-gray feldspar and fine-grained aggregates of muscovite. In the larger dike there is a zone near the center that contains many small tantalite crystals and another zone near the footwall at the west end that contains an abundance of small beryl crystals. In the smaller dike, which is of

similar composition, a very few widely scattered crystals of tantalite were seen and there is a short narrow zone with abundant small beryl crystals.

Due to the sporadic distribution of minerals within the deposit, it is difficult to arrive at a reasonably accurate estimate of reserves; however, an evaluation was attempted.

It is concluded that gross reserves of tantalite to a depth of 50 feet are approximately 2,100 pounds (1 pound per ton) of which one-third could be recovered by cobbing to a grade of about 65.5 percent Ta_2O_5 with an estimated value of $2,100.00. This value might conceivably be raised to $4,500.00, by gravity concentration through grade increase to 72 percent and increasing recovery to 1,500 pounds.

Production of beryl would probably not exceed a few hundred pounds from occasional pockets of crystals, large enough to be recovered by hand sorting.

Feldspar and mica are not of strategic quality and lepidolite or other lithium minerals are insignificant.

It is recommended that Hepburn T. Armstrong's request for a Defense Minerals Exploration Administration loan of $13,333.00 be denied.

ARMSTRONG METALS CORPORATION
FREMONT COUNTY, WYOMING

DMEA DOCKET 3174

Geologic Report

By D. R. MacLaren
U. S. Geological Survey

DMEA
12-18-53
(date)

ARMSTRONG METALS CORPORATION
FREMONT COUNTY, WYOMING

INTRODUCTION

The Armstrong Metals Corporation has applied for Defense Mineral Exploration assistance to explore a pegmatite deposit on the Quien Sabe No. 2 claim near Shoshoni, Wyoming. The applicant proposes to drive a flat inclined shaft for 50 feet on one pegmatite, and a second shaft for 25 feet on another; to do an unspecified amount of trenching at five locations across the first dike, and to do sufficient work on an access road, estimated by the examiners to be between one-quarter and one-half mile long, to permit transportation of equipment and supplies to the property. The applicant estimates that the cost of the project will be $15,333 (Government's share 90% or $11,000.70).

An examination was made October 20, 1957, accompanied by C. H. Herrer of the U. S. Bureau of Mines, and Lou Jay, agent for the applicant. The Quien Sabe No. 2 claim is in secs. 21, 22, 27, and 28, T. 40 N., R. 95 W., 6th principal meridian, on the southern edge of the Owl Creek or Bridger Mountains, Fremont County, Wyoming. It is reached from Shoshoni by 14 miles of good graded ranch road and 2 miles of fair ungraded ranch road, thence by foot over one-quarter to one-half mile of ill-defined trail. The property is inaccessible during periods of deep snow.

It is concluded that the mica and feldspar are of inferior grade; that the beryl is for the most part in small crystals difficult to hand-cob; and that no significant amount of tantalite, probably not more than 2,000 to 4,000 pounds, can be found on this property. It is therefore recommended that this application be denied. Under critical

conditions a few thousand pounds of tantalite might be recovered from this deposit.

GEOLOGY

The geology of the Owl Creek (Bridger) Mountains pegmatites is described in volume 25 of the American Mineralogist by T. G. McLaughlin (1940), and in U. S. Geological Survey Professional Paper by John B. Hanley, E. William Heinrich, and Lincoln R. Page (1950). The deposit on the Julien Sabe No. 2 claim is described in more detail in a Bureau of Mines War Minerals Memorandum by N. L. Klemmer (1943).

The rocks of the area in which the Julien Sabe No. 2 claim is located are a complex sequence of pre-Cambrian basic schists, amphibolites, gneisses, and basic igneous dikes that have been intruded by granite dikes and pegmatites. The bedding and foliation of the schists are essentially parallel, striking N. 75° E. to due east, and dipping 60° to 70° S. Granite and pegmatite bodies, usually not more than 20 to 30 feet thick, as a rule strike parallel to the foliation but dip 5° to 55° N., the degree of dip changing rapidly within short distances.

On the Julien Sabe No. 2 claim (figure 3) two pegmatites, separated by an alluvium covered valley, have intruded amphibolite. The larger and more promising pegmatite is about 400 feet long and has an outcrop width ranging from 15 to 30 feet. Because of the rapidly changing dips along the hanging and foot walls, it is difficult to determine the true thickness, but it is probably between 15 and 20 feet. The pegmatite, striking N. 60° - 80° E. and dipping 30° to 50° N., has a central core of fine-grained albite and quartz in which there is a considerable abundance of small tantalite crystals. The tantalite

is somewhat concentrated in, though not limited to, a zone about 200 feet long and 2 feet thick which contains some crystals up to one-half inch in size. Near the margins of the pegmatite coarse white quartz is commonly associated with a white to blue-grey feldspar and fine grained aggregates of muscovite. Small pockets of fairly large beryl crystals are found near the hangingwall contact. Not far from the west end of the pegmatite along the footwall, is a zone about 100 feet long and 3 feet thick that contains abundant small to fine grained crystals of beryl.

Southwest of the main dike, and separated from it by an alluvium-filled valley, is another pegmatite 180 feet long, having an outcrop width of 15 to 25 feet. The true thickness is probably not more than 10 or 15 feet. This pegmatite strikes about N. 30° E. and dips from 9° NW to 23° NW. In the northeastern portion along the hangingwall, is a zone of quartz-albite-muscovite pegmatite up to 2 feet thick that contains many small crystals of beryl. The rest of the dike is essentially quartz and albite with very little mica. Only four or five small crystals of tantalite were seen just below the quartz-albite-muscovite zone.

The northeast dike has been partially explored by five trenches from which it is said that about 300 pounds of hand-cobbed tantalite, assaying 75% to 80% Ta_2O_5 has been shipped.

RESERVES

Due to the nature of the deposit it is most difficult to arrive at any accurate estimate of ore reserves. However, the following is an attempt to make some sort of an evaluation. The reported 300 pound

shipment of tantalite was hand-cobbed from an estimated 900 tons of rock taken from five open-cuts on selected portions of pegmatite. This indicates a potential recovery of one-third pound of tantalite per ton of rock taken from the zone of most prolific tantalite mineralization. This zone, about 200 feet long and 2 feet thick, is estimated to contain about 40 tons of ore per foot of depth. Should the tantalite content of this zone remain constant to a depth of 50 feet, the richest zone of the pegmatite would contain only 2,000 tons of rock or about 650 pounds of tantalite available by hand-cobbing. Should mechanical methods of concentration be used, and assuming that the recovery would be as much as a pound to the ton, this zone would only contain 2,000 pounds of tantalite worth about $6,000. Further, assuming mechanical concentration of tantalite from the entire pegmatite it is doubtful that the recovered mineral would be more than doubled, or 4,000 pounds.

No attempt has been made by former operators to hand-cob beryl from the portions of the dike where it is most abundant because of the small size of most of the crystals. It is doubtful that more than 150 to 200 pounds could be hand-cobbed from the few scattered pockets along the hangingwall that contain some medium sized and a few large sized beryl crystals. Although a fairly large tonnage of small beryl crystals might be indicated, hand-cobbing would be extremely difficult and recovery low because of the small size of the crystals.

According to N. L. Hiemter (1943), the mica and feldspar are of inferior grade and therefore cannot be considered as possible ores.

CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the two pegmatites on this claim contain

a small tonnage of recoverable tantalite, and beryl in insignificant amounts, and that the contained mica and feldspar is of inferior grade. Therefore, it is recommended that this application be denied. Under critical conditions a few thousand pounds of tantalite might be recovered from this deposit.

REFERENCES

McLaughlin, T. G. (1940) Pegmatite dikes of the Bridger Mountains, Wyo. Am. Mineralogist, vol. 25, pp. 46-68, 1940

Wimmler, N. L. (1943) Bridger Mountain pegmatite dikes, Fremont County, Wyoming. U. S. Bureau of Mines War Minerals Memorandum, 1943.

Hanley, John B., E. Wm. Heinrich, and Page, Lincoln R. (1950) Pegmatite Investigations in Colorado, Wyoming, and Utah: U. S. Geol. Survey Prof. Paper 227, pp. 109-112, 1950.

DMRA 3174

N. T. ARMSTRONG
QUEEN BABE NO. 2 CLAIM
FREMONT COUNTY, WYOMING

Engineering Report

By C. M. Harrer
Mining Engineer
Bureau of Mines

DMEA 3174

QUIEN SABE NO. 2 CLAIM
HEPBURN T. ARMSTRONG
FREMONT COUNTY, WYOMING

ENGINEERING REPORT

BY

C. M. Harrer

INTRODUCTION

Hepburn T. Armstrong, 3636 Sixteenth Street, N. W., Washington, D. C., has applied for a Defense Minerals Exploration Administration loan of $13,333.00 to explore pegmatite exposures on the Quien Sabe No. 2 claim for beryl, tantalite-columbite, mica, and lepidolite.

Hepburn T. Armstrong is president of the Armstrong Minerals Corporation, incorporated under the laws of Delaware. The company address is the same as above.

The property was examined for the Defense Minerals Exploration Administration on October 20, 1953.

ACKNOWLEDGMENTS

Mr. Lou Jay of Riverton, Wyo., conducted the examining team over the property. Reports by the Bureau of Mines and Geological Survey mentioned in the text, were freely consulted and pertinent data incorporated in this report.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The Quien Sabe No. 2 claim lies on the southern flank of the Bridger or Owl Creek Mountains in Secs. 21, 22, 27, and 28, T. 40 N., R. 93 W., sixth principal meridian, Copper Mountain Mining District, Fremont County, Wyo., between 6,500 and 7,000 feet altitude (fig. 1).

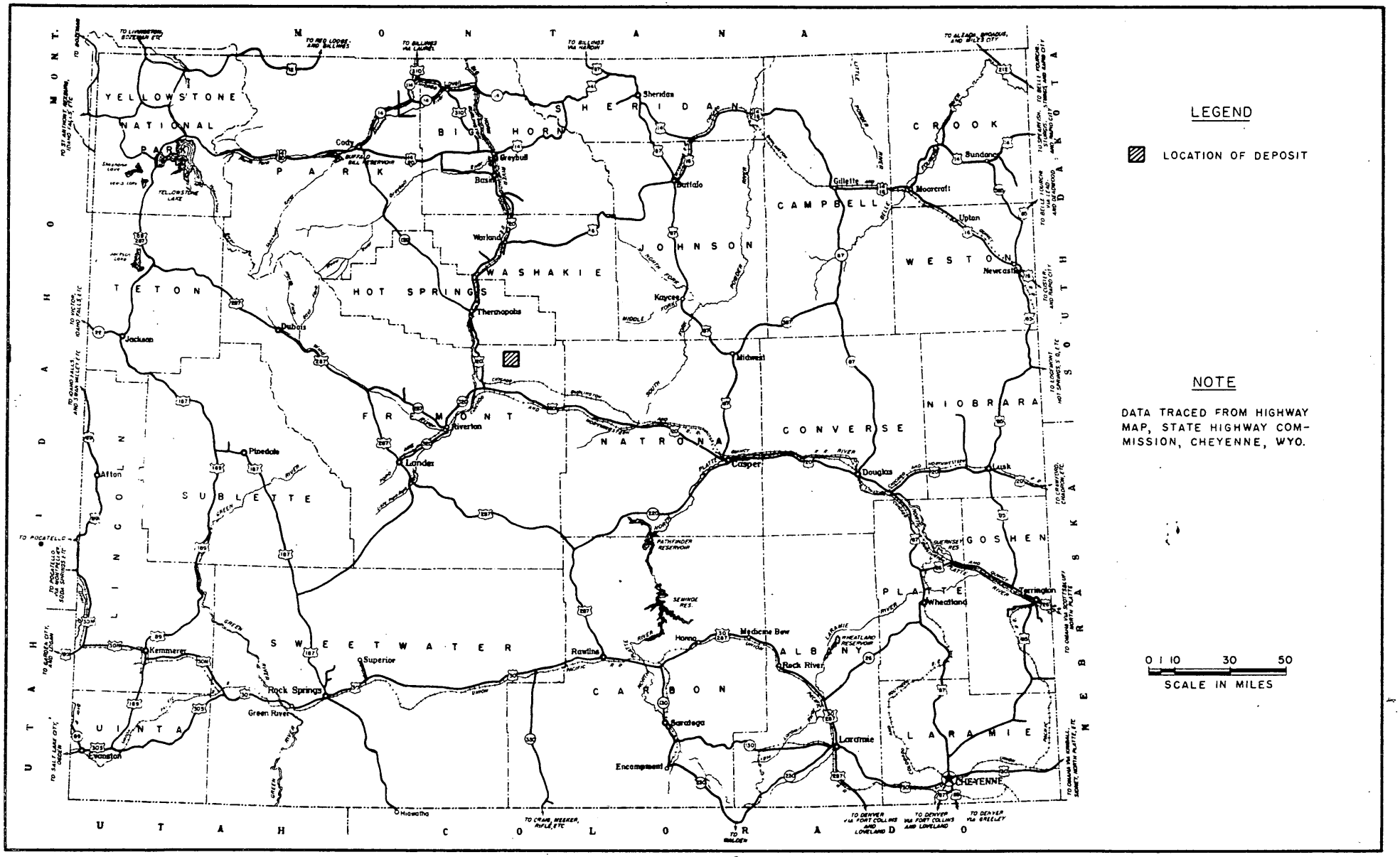


FIGURE 1. - LOCATION MAP, QUIEN SABE NO. 2 CLAIM, HEPBURN T. ARMSTRONG, FREMONT COUNTY, WYO. (DMEA 3174)

The property is reached by driving 3.3 miles northerly from Shoshoni, Wyo., on U. S. Highway 20 to the Bonneville cutoff; thence 16.7 miles northeasterly to within 1/2 mile of the property which is reached by crossing a rugged ridge on foot. The nearest water is available from Hoodoo Creek about 3,500 feet southeast of the claim. The Chicago, Burlington, and Quincy Railroad depot at Bonneville is about 16 miles southwest of the property. Terrain is steep and rugged in the vicinity of the claim. The nearest source of power is at Bonneville, Wyo.

HISTORY AND PRODUCTION

The Quien Sabe No. 2 claim was first worked by Mike Crowley during 1906 when it was prospected for mica. There was no production.

During 1910, J. Stephenson, F. E. McIntyre, A. E. Maxwell, and associates of Lander, Wyo., located the Whippet No. 8 claim (Quien Sabe No. 2) in the search for feldspar, beryl, and mica. There was no production.

During 1937, V. B. Maghee of Lander acquired a lease on the claim and produced about 300 pounds of tantalite assaying 65.5 percent Ta_2O_5, which was later concentrated by the Fansteil Corporation of Chicago, Ill., to about 80 percent Ta_2O_5. According to J. Stephenson, the tantalite averaged about 82 percent Ta_2O_5. A 1/2-ton lot of selected ore was reported to have produced 13 pounds of cobbed tantalite.

During 1939, Morris Kline and associates, known as the Quien Sabe Mining Syndicate and later as the Peter Bruce Mining Company of Cheyenne, Wyo., relocated the Whippet No. 8 claim under its present designation of Quien Sabe No. 2 claim.

Hepburn T. Armstrong leased the Quien Sabe No. 2 claim from the Peter Bruce Mining Company during 1953 and has applied for a Defense Minerals Exploration Administration loan to explore the claim for beryl, tantalite-columbite, mica, and lepidolite.

The property and surrounding area are described by T. G. McLaughlin.[1]

The Quien Sabe claim was examined by engineers of the Bureau of Mines in 1942[2] and 1943.[3]

The Geological Survey mapped and examined the property during 1942.[4] [5]

The property is described by the Geological Survey of Wyoming.[6]

1/ McLaughlin, American Mineralogist, volume 25, pages 46-68, 1940.

2/ Snedden, H. D., Unpublished report. Field Trip to the Tantalum Property of the Quien Sabe Mining Syndicate, Fremont County, Wyo., July 25, 1942.

3/ Wimmler, W. L., War Minerals Memorandum, Bridger Mountain Pegmatite Dikes, Fremont County, Wyo., October 1943.

4/ Love, J. D., and Hanley, J. B., Confidential Geologic Report, U. S. Geological Survey, 1942, "Beryl and Tantalite Deposits in the Copper Mountain District, Owl Creek Mountains, Fremont County, Wyo.

5/ Hanley, J. B., and Heinrich, E. W., and Page, Lincoln, Pegmatite Investigations in Colorado, Wyoming, and Utah, 1942-1944. U. S. Geological Survey Professional Paper 227, pages 111-112.

6/ Geological Survey of Wyoming, Bulletin 45, Wyoming Mineral Resources, page 57.

OWNERSHIP AND EXTENT

The Quien Sabe No. 2 claim is the property of the Peter Bruce Mining Company, 225 Majestic Building, Cheyenne, Wyo., by right of location. It is a standard lode location, 600 feet by 1,500 feet (fig. 2) recorded in the office of the County Clerk of Fremont County, Wyo., in Mineral Claim Book No. 50 on pages 466, 467, and 565.

Hepburn T. Armstrong, 3636 Sixteenth Street, N. W., Washington, D. C., has a lease of the Quien Sabe No. 2 claim dated August 26, 1953. The lease is in force for a period of 2 years after termination of a proposed Defense Minerals Exploration Administration exploration program or extension thereof. The total length of the lease is stipulated to not exceed 5 years from the signing unless renewed by mutual consent.

Hepburn T. Armstrong is president and treasurer of Armstrong Minerals Corporation, 3636 Sixteenth Street, N. W., Washington, D. C. Beatrice P. Merda, 1578 Colonial Terrace, Arlington, Va., is vice-president and secretary. Val Maghee of 305 Treasure State Building, Billings, Mont., is a vice-president. T. S. Armstrong, 3323 Vista Street, Long Beach, Calif., is a vice-president. H. S. Weidberg of 17-A Ridge Road, Greenbelt, Md., is associated with the company.

DESCRIPTION OF THE DEPOSITS

Two pegmatite dikes occur on the Quien Sabe No. 2 claim (fig. 2) in pre-Cambrian amphibolite and are separated by a valley partly filled with erosion debris. They exhibit somewhat similar characteristics. The northeast pegmatite is exposed over a length of 400 feet and a maximum

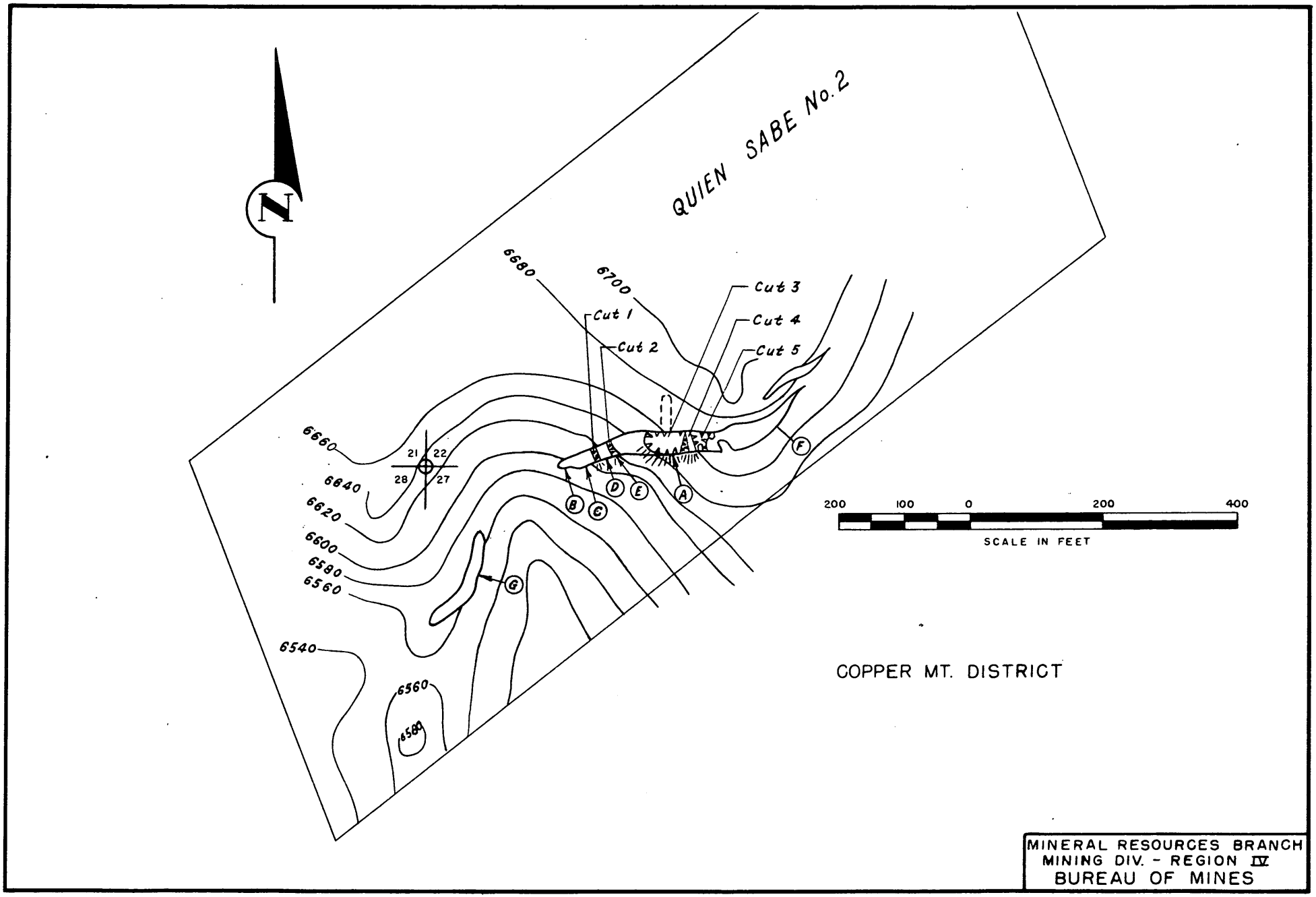


FIGURE 2 - PROPERTY AND DEVELOPMENT MAP, QUIEN SABE NO. 2 CLAIM, HEPBURN T. ARMSTRONG
FREMONT COUNTY, WYO. (DMEA 3174)

width of 30 feet. Coarse white quartz, aggregates of muscovite, and white to bluish-gray feldspar are abundant near the margins of the pegmatite. Small beryl crystals occur in spots near the hanging wall contact, with finer beryl crystals near the footwall. Tantalite is abundant as very small to coarse crystals in a fine-grained albite. No tantalite was observed in the northeast end of the pegmatite. Tantalite was observed in trenches 1 through 5, figure 2, over a length of about 200 feet and a width of about 2 feet, as scattered crystals up to 1 inch diameter. A specimen in the possession of Lou Jay showed tantalite crystals imbedded in a large beryl crystal. The dike trends N. 80° E. and dips between 30° and 60° to the northwest.

The southwest pegmatite is about 180 feet long with an average width of 20 feet. It contains considerably less beryl, with tantalum evident as a few tiny scattered crystals. The pegmatite consists mainly of white quartz, potash feldspar, and small books of muscovite mica. The contacts are poorly exposed and appear very irregular. It is reported[7] to contain small crystals of tantalite chiefly in fine-grained aggregates of muscovite near the center of the pegmatite.

No lithium minerals were identified; however, some petalite was reported[8] by the Geological Survey. The Bureau of Mines reported[9] the presence of small amounts of lithium, titanium, and tin.

7/ Reference cited in footnote 5.

8/ Reference cited in footnote 5.

9/ Reference cited in footnotes 2 and 3.

SAMPLING DATA

There has been no appreciable change in development work on the property since 1942 and sampling by the Bureau of Mines during 1942 and 1943 is still pertinent. During 1942,[10] the large pegmatite on the Quien Sabe No. 2 claim was sampled. Tantalite and beryl are sporadically developed as tiny to coarse crystals and aggregates in the pegmatite.

A sample of tantalite bearing rock, exposed in a pocket, assayed 4.09 percent $(Ta+Cb)_2O_5$, 61.8 percent SiO_2, 0.5 percent BeO, and 0.3 percent Li.

Another hand-sorted sample from a dump assayed 2.04 percent $(Ta+Cb)_2O_5$, 66.2 percent SiO_2, 2.1 percent BeO, and 0.1 percent Li.

A dump sample believed representative of the ore assayed 0.28 percent $(Ta+Cb)_2O_5$, 55.9 percent SiO_2, and 1.0 percent BeO, and no Li.

Beryl crystals assayed 0.06 percent $(Ta+Cb)_2O_5$, 48.7 percent SiO_2, and 12.6 percent BeO.

A sample designated as No. 2 was concentrated by tabling with the following results:

Results of Tabling Sample-2 from the Quien Sabe No. 2 Claim

Products	Percent weight	Percent-assay Ta_2O_5	Cb_2O_3	$(Ta-Cb)_2O_5$	Distribution $(Ta-Cb)_2O_5$
Tantalite concentrate	1.1	75.80	0.90	76.70	43.7
middling	2.4	2.40	0.55	2.95	3.5
tailing	96.5	---	--	1.10	52.8
Calculated Heads	100.0	---	--	2.04	100.0

10/ Reference cited in footnote 2.

Physical and electrical properties of the associated muscovite mica were inferior and are probably not saleable.

Microscopic and visual examinations of the feldspar showed it to be of inferior quality with considerable quartz occluded in the feldspar.

The Quien Sabe No. 2 claim was again sampled by the Bureau of Mines during 1943.[11]

Sample No.	Percent Ta_2O_5	Percent Cb_2O_5	Remarks
1	12.65	0.15	East end of Cut 5. Tantalite crystals in quartz, feldspar, mica gangue. About one-third of material taken from small pocket blasted out 8 feet below hanging wall.
2	1.7	0.015	Cut 2. Small scattered crystals of tantalite in sugary quartz and feldspar in a 1- by 5-foot area in central part of dike. Sample was about one-eighth of material broken.
3	0.64	Trace	Cut 1. Small, black crystals scattered in 4- by 4-foot area in hard quartz, feldspar, and fine mica. Sample was about one-tenth of material broken.

Sample No.	Percent $(Ta+Cb)_2O_5$	Percent BeO	
4	0.025	0.20	Dump sample from Cuts 3 and 5.
5	0.27	0.27	Dump sample from Cut 1.

Sample 4 was crushed through 10 mesh and was readily concentrated by panning with the following results:

Product	Weight Grams	Weight Percent	Assay - percent Ta_2O_5	Assay - percent Cb_2O_5	Assay - percent SnO	Assay - percent TiO_2	Percentage distribution of $(Ta+Cb)_2O_5$
Concentrates	457	13.7	84.3	0.36	1.05	Trace	94.66
Tailings	2,874	86.3	--	--	0.035	Trace	5.34

11/ Reference cited in footnote 3.

ORE RESERVES

Large (northeast) Pegmatite: The pegmatite is developed by five trenches and pits (fig. 2) and extension to a depth of 50 feet appears reasonably assured. Tantalite as very small to large crystals up to 1-inch diameter is inferred over a length of 250 feet and an average width of 2 feet. With a tonnage factor of 12 cubic feet, about 2,100 tons of tantalum-bearing rock are estimated to exist in the pegmatite. Past production of 300 pounds of tantalum assaying 65.5 percent Ta_2O_5 was reported[12] as recovered from about 900 tons of pegmatite rock which indicates that tantalum-bearing rock that could be cobbed was about 1 pound to 3 tons of the rock removed. Using this ratio, the 2,100 tons of tantalum-bearing rock should yield about 700 pounds of tantalum by cobbing and hand sorting. At present prices of $3.00 per pound, gross value of cobbed tantalum is estimated at $2,100.00. Gravity concentration could probably raise the total of recoverable tantalum to 72 percent or about 1,500 pounds, principally as crystals too small to cob, with a gross value of about $4,500.00.

Beryl occurs chiefly as very small crystals with occasional pockets of crystals sufficiently large to cob out. Total beryl is estimated at about 12.5 tons $\left(\frac{100 \times 3 \times 50}{12} \times 0.01\right)$ much of which will be too small and shattered by blasting to recover by hand sorting. Only a few hundred pounds are believed recoverable as a saleable product.

Muscovite mica exposed in the pegmatite is essentially scrap, in clusters, and a sample was reported[13] inferior in electrical and physical properties. The pegmatite is estimated to contain about 10

12/ Reference cited in footnote 3.
13/ Reference cited in footnote 2.

percent mica by volume as small books up to 2 inches in rough diameter. Because of its inferior quality and lack of market, no further evaluation was attempted.

Feldspar occurs principally as albite with some perthite and is intimately associated with quartz which cannot be cobbed to a commercial product. Because of its inferior quality and lack of market, no further evaluation was attempted.

Small (southwest) Pegmatite: This pegmatite (fig. 2) has not been prospected, and the outcrop indicates that the greater part is intergrown white quartz, albite, and small books of muscovite mica. Its content of beryl, tantalite, and albite are less than exhibited in the larger pegmatite. Tantalite is evidenced as extremely small and scattered crystals and future production will probably be insignificant.

Similarly, beryl exposed indicates a very small quantity could be produced as occasional crystals.

Muscovite mica and albite feldspar are even more inferior in quality than that exposed in the larger pegmatite and cannot be prepared as profitably saleable products.

PRESENT STATUS

Exploration and Development

The large pegmatite has been developed by five trenches and cuts as shown on figure 2. The work remains essentially the same as when mapped by the Geological Survey in 1942.[14]

14/ Reference cited in footnotes 4 and 5.

Mining and Milling Equipment

There are no mining or milling equipment or other facilities on the property.

APPLICANT'S PROJECT PROPOSALS, WITH COSTS

Hepburn T. Armstrong proposes to construct a rough access road to the Quien Sabe No. 2 claim and explore the large pegmatite with 50 feet of crosscut under the area from which past production came; location A, figure 2. Test pits would also be blasted out at locations B-C-D-E-F, figure 2.

In addition, the small pegmatite would be explored with 25 feet of adit or incline at location G, figure 2.

Costs are distributed as follows:

Labor, Supervision, and Consultants - 3 months, 6 days per week:		
Road building - bulldozer 40 hours at $15.00 per hour	$ 600.00	
Two miners at $12.00 per day	1,872.00	
One helper at $10.00 per day	780.00	
One utility man to sort, haul water, and repair equipment at $10.00 per day	858.00	
Saturday overtime	216.00	
One superintendent at $22.00 per day plus $6.00 per diem; transportation round-trip Los Angeles	2,454.00	
One consulting engineer and geologist at $50.00 per day; (12 days) transportation and expenses, six round-trips to Denver at $75.00 each	1,050.00	
		$7,830.00
Operating Materials and Supplies		
One set drill steel (2 feet - 2 feet - 6 feet)	20.00	
300 drill bits (throwaway type) at $0.15 each)	45.00	
100 feet of 1-inch air hose	50.00	
One oiler	15.00	
500 feet 1-1/2-inch plastic air pipe at $0.50 per foot	250.00	

200 feet 1-inch water pipe	$ 50.00	
1,200 pounds dynamite	300.00	
100 feet 20-pound mine rail	200.00	
Blasting caps	20.00	
Fuel (gasoline-oil)	180.00	
Shovels, picks, spikes, and miscellaneous tools	200.00	
		$ 1,330.00
Operating Equipment		
One jack-leg drill (rental)	246.00	
One wheelbarrow (new)	27.00	
One compressor (125-cfm - rental)	477.00	
One tugger hoist (rental)	213.00	
Two 1-1/2-ton used mine cars (purchase)	200.00	
One 1-ton truck (rental)	400.00	
One gasoline-driven pump (rental)	132.00	
One water pressure tank (rental)	16.00	
		1,711.00
Rehabilitation and repairs		None
New Buildings, Improvements, and Installations		
One utility shed for tools and equipment		250.00
Miscellaneous		
Workman's Compensation and Employer's Liability Insurance	400.00	
Payroll and sales taxes	100.00	
Analytical work	200.00	
Accounting	200.00	
Freight charges ($2.50 per cwt - 4,000 pounds equipment Denver to mine)	100.00	
		1,000.00
Contingencies 10 percent		1,212.00
Total estimated costs		$13,333.00

CONCLUSIONS

The large pegmatite (fig. 2) is the only one of interest on the Quien Sabe No. 2 claim. Its gross reserves of tantalite to a depth of 50 feet are estimated at 2,100 pounds of which about 700 pounds assaying about 65.5 percent Ta_2O_5 and valued at $2,100.00 could be recovered by hand cobbing and a maximum of 1,500 pounds valued at $4,500.00 may conceivably be recovered by jigging and tabling. The property could not support a profitable mining venture and is not sufficiently attractive to justify further exploration. Production from the property would only be profitable at greatly increased prices.

Beryl, with the exception of a few clusters of crystals large enough to cob, occurs mainly as very small crystals which would be lost in mining.

Muscovite mica and albite feldspar are inferior and would not make profitably saleable products.

The proposed exploration program would add little to the present knowledge of minable reserves.

RECOMMENDATIONS

It is recommended that Hepburn T. Armstrong's request for a Defense Minerals Exploration Administration loan of $13,333.00 to explore the pegmatites on the Quien Sabe No. 2 claim be denied.

December 30, 1953

Memorandum

To: Mr. C. O. Mittendorf

From: Lawrence G. Houk

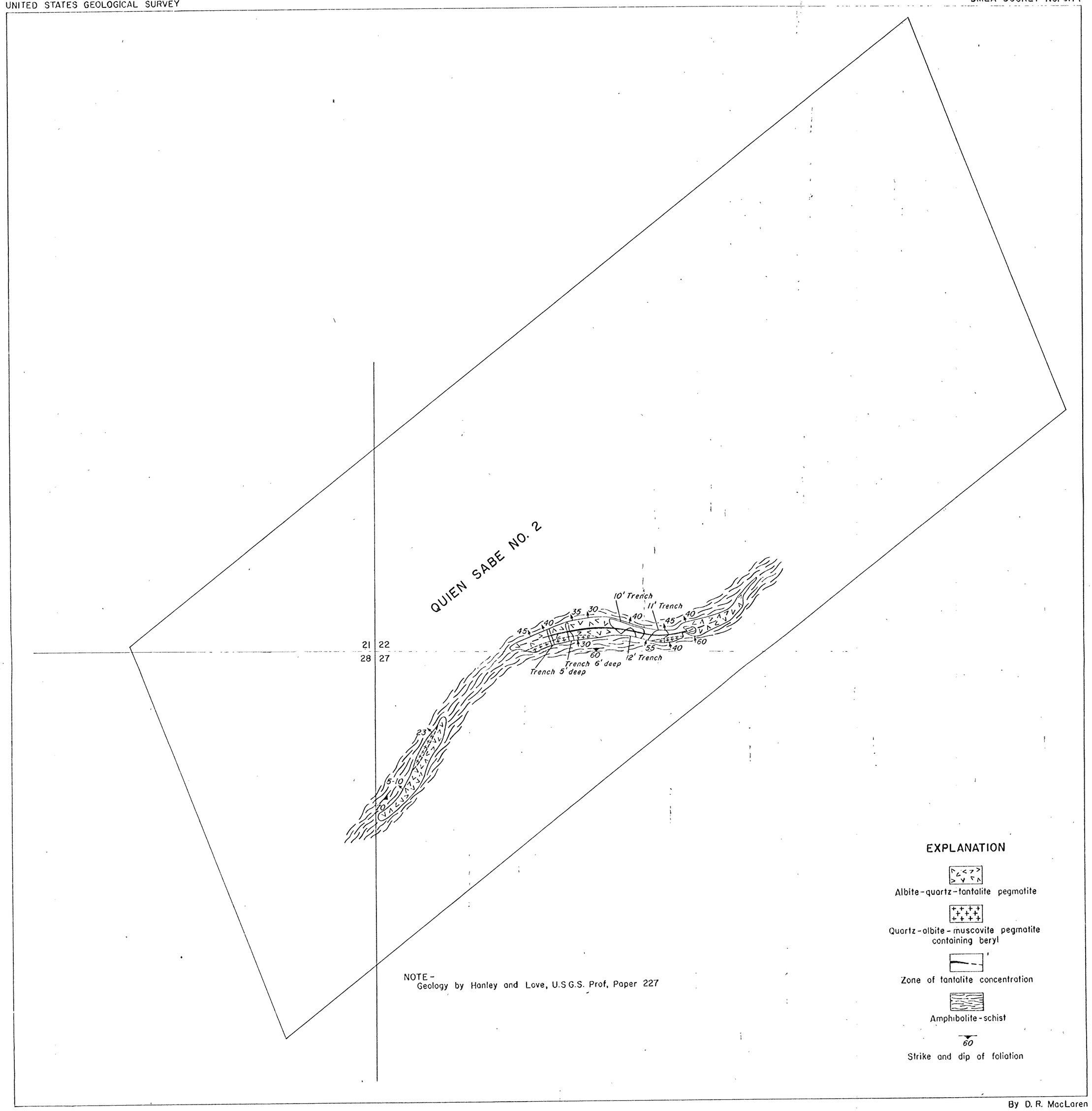
Subject: Concurrence in Region IV denial - Docket No. DMFA-3174 - Beryl, Tantalite-columbite, Mica
Quien Sabe No. 2
Hepburn T. Armstrong
Fremont County, Wyoming

The subject application for $13,333.00 to explore the Quien Sabe No. 2 claim in Fremont County, Wyoming, for beryl, tantalite-columbite and mica has been denied by Region IV under their delegation of authority.

The Nonmetallic Minerals Division concurs in the denial because of the limited size of the geologic target.

LGHouk:gad 12/30/53

Copy to: Admr. R. File
Docket File
Mr. Houk



By D. R. MacLaren

FIGURE 3.-PLAN SHOWING GEOLOGY AND RELATION OF TWO PEGMATITES ON QUIEN SABE NO. 2 CLAIM, FREMONT COUNTY, WYOMING

100 50 0 100 Feet