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

December 1, 1955

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Report of Examination, DMEA Docket 3876 (Beryl), Hexagon Mining Company, Windy group of claims, Pima County, Arizona

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

The field examiners believe there is little chance of making a significant discovery of beryl ore on this property. They recommend that the application be denied, and we concur in this recommendation.

E. M. Harshman

E. M. Harshman
Acting Executive Officer, DMEA
Field Team, Region III

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE

(date)

Box 4097
Tucson 5, Arizona

November 28, 1955

Memorandum

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

TRANSMITTED

DEC 1 1955

From : Superintendent, Southwest Experiment Station

Subject : Engineering Report, Docket DMEA-3876, Hexagon Mining Co.'s Windy Beryl Claims, Sabaquivari Mining District, Pima County, Ariz.

Enclosed are original and 8 copies of the section on Engineering by T. M. Remale of the Bureau of Mines for the above property. Separate sections on Summary, Conclusions and Recommendations, and on Geology already have been submitted by the Geological Survey.

As there seems to be little chance of making a significant discovery of beryl ore by the proposed exploratory work, the DMEA examiners have recommended that Government aid be denied the applicant. I concur with this recommendation.

Brochure is enclosed.

Walter R. Storms

Walter R. Storms

CC W. M. Traver (8)
DMEA-3876
BF

WRStorms:frj

Reviewed by
DMEA OPERATING COMMITTEE

(date)

TRANSMITTED

DEC 1 1958

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By Leonid Bryner[1] and T. N. Romalo[2]

In an application to the Defense Minerals Administration, dated June 20, 1955 and docketed as DMA-3876, Robert O. Borgert, Secretary-Treasurer of the Hexagon Mining Co., requested government participation in a program estimated to cost $40,970 to explore for Beryl on the Windy group of claims, Pima County, Arizona.

The property consists of five or six unpatented lode claims, located and held by the applicant. Practically no exploration or development has been done and no shipments have been made.

Beryl occurs very sparsely in thin steeply dipping pegmatite veins that strike from N5°W to N60°W in Precambrian granite. The thickest veins do not appear to contain any more beryl than the thinnest veins. The distribution of beryl in the veins and the distribution of the veins in the granite indicate that the average grade of a sampled vein about 4 inches thick is roughly 0.02 to 0.04 percent BeO, and the average grade of ground containing a relatively high concentration of such veins is on the order of 0.002 to 0.004 percent BeO.

On the basis of these grade estimates and the observed geology we conclude that significant reserves of beryllium ore are not indicated and are not likely to be discovered on this property. We recommend, therefore, that government participation in this project be denied.

Approved by
DMA OPERATING COMMITTEE

(date)

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

DMEA-3076, HEXAGON MINING COMPANY'S
WINNY GROUP OF BERYL CLAIMS
PIMA COUNTY, ARIZONA

TRANSMITTED

DEC 1 1955

Engineering Report

By T. M. Romslo
Mining Engineer
U. S. Bureau of Mines

November 1955

RECEIVED
DMEA OPERATING FACILITIES

(date)

BMLA-3876, HEXAGON MINING COMPANY'S
WINDY GROUP OF BERYL CLAIMS
PIMA COUNTY, ARIZONA

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2	Geologic and claim map	(See geologic report)

INTRODUCTION

The Hexagon Mining Co. applied to the Defense Minerals Exploration Administration for Governmental aid in exploration for beryl on its Windy group of claims in Pima County, Ariz. The application was received June 29, 1955. It was docketed as DMEA-2076, reviewed by the Operating Committee, and referred to the Field Team of Region III for a field examination and report.

Proposed explorations were composed of 1,500 feet of trenching, sinking a 50-foot shaft, and driving a 150-foot adit. Cost of the work was estimated at $48,970.

The Windy group of claims first was examined for the DMEA on July 30, 1955 by Leonid Bryner, geologist, U. S. Geological Survey. The examination was made in the presence of the company's representatives, W. E. Brady, R. O. Sargent, H. T. Pancoe and R. A. Feglo. Shortly thereafter, the company requested that further investigations be deferred until their geologist, J. L. Clark, could provide the Government with additional geological data. The data were made available late in October, so the property was re-examined in the presence of Mr. Clark by Mr. Bryner and T. M. Rennie, mining engineer, U. S. Bureau of Mines.

LOCATION AND ACCESSIBILITY

The Windy Group of mining claims is about 40 air-miles southeast of Tucson, Ariz. (figure 1). They are described as being situated in the S½ of the S½ of sec. 20, and the N½ of the N½ of sec. 29, T. 18 S., R. 8 E., Pima County, Ariz.

The property may be reached from Tucson by traveling 21 miles westerly on paved State Highway 86 to Robles Junction, thence 21.2 miles south on graded Sasabe road, thence 10.0 miles westerly on ranch roads that are mainly of the unimproved type.

TOPOGRAPHY, PHYSICAL FEATURES AND CLIMATE

The Windy group of claims is at an average altitude of 3,800 feet in the eastern foothills of the Babaquivari Mountains. The area is moderately rugged. Its principal drainage is easterly through Gustavson Canyon.

Vegetation is confined to forage grasses and a light growth of scrubs.

Summers are hot and winters are mild.

Annual precipitation of about 11 inches, mainly occurs as heavy summer storms, and light rains and occasional snowfalls during the winter.

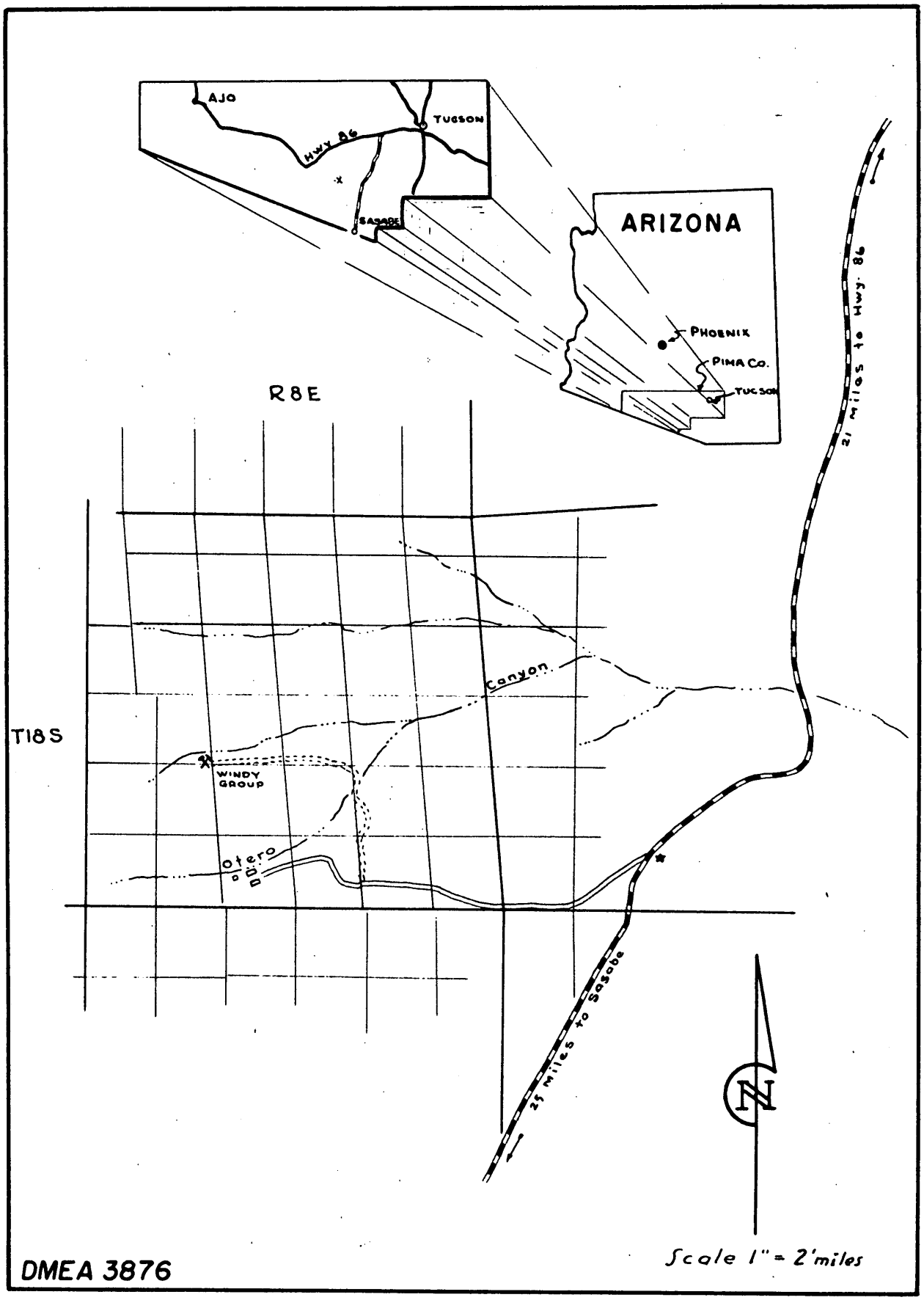

FIGURE -1- LOCATION MAP, HEXAGON MINING CO.

PIMA COUNTY, ARIZONA

HISTORY AND PRODUCTION

Beryl was discovered on the Windy group of claims in April 1955 by the several partners of the Hexagon Mining Co. Five of the six claims were located and recorded during the following month. Since then work on the claims has been confined to a minor amount of trenching and sampling. Three samples were sent to the U. S. Bureau of Mines for metallurgical tests. One of the samples was not assayed or tested as it appeared to be a specimen. The other two samples assayed 1.30 and 1.56 percent BeO. Testing of these samples yielded concentrates containing an average of about 9.7 percent ~~BeO~~ beryl. Recovery of beryl averaged about 94 percent.

EXTENT AND OWNERSHIP OF PROPERTY

The Windy group comprises 6 unpatented lode mining claims, Windy Nos. 1 to 6 (figure 3). The claims are owned by the Hexagon Mining Co., a partnership formed in Arizona. The company's address is 3274 E. 25th St., Tucson Ariz. The partners, all of Tucson, Ariz., are H. T. Passon, 8711 E. Cooper; R. O. Bergert, 3274 E. 25th St.; W. E. Brady, 3546 Washington St.; J. L. Clark, 5367 E. 20th St.; D. J. Raiter, 4818 Pueblo Lenina; and R. A. Fogle, 5633 E. Speedport.

DESCRIPTION OF THE DEPOSIT

Beryl was observed in a few of the numerous pegmatite veins that crop out in granite (figure 2). The veins generally strike from N. 25° to 60° W. and their dips range from vertical to 40° to the north. Most of them are 3 to 4 inches thick, although several have thicknesses up to 3 feet. The length of the veins range from less than 50 feet to a maximum of 180 feet.

The vein material is predominantly coarse-grained quartz. Irregular bunches of feldspar and small amounts of muscovite also are present. Other minerals that occur in minor amounts are beryl, bismutite, molybdenite, kaolinite, hematite, and chalcedony. The beryl is pale blue in color. It occurs sporadically as crystals up to one inch in length and as bands in which the beryl crystals are too small to be identified with a hand lens. The bands, generally a small fraction of an inch in length, pinch and swell irregularly along the vein.

Area "A", containing about 5 veins, appears to contain the highest concentration of beryl. Here each of the veins are separated by about 20 feet of granite. Beryl is erratically distributed along the veins for an estimated one-thirtieth to one-sixtieth of their total length. A sample across a 4-inch wide vein, where beryl was noted in higher than average amounts, contained 1.3 percent BeO. It was taken by the BMEA examining team and was assayed by the U. S. Bureau of Mines at Tucson.

ORE RESERVES

The deposit contains no measurable ore reserves.

The grade of material in the zone of indicated highest concentration has been estimated at 0.002 to 0.004 percent BeO. This holds in for all ground, both veins and the intervening granite. Vein material alone contains an estimated 0.02 to 0.04 percent BeO.

CONCLUSIONS AND RECOMMENDATION

On the Windy group of claims, beryl occurs sporadically and in meager amounts in mostly parallel narrow pegmatite veins in granite. Beryl content, even where it is most highly concentrated within a mizable zone, is too low to be considered of present economic importance. On this basis, denial of Government participation in exploration for beryl on the property is recommended.

D.M.E.A.
Date Rec'd.
NOV 30 1955
BUREAU OF MINES
Denver, Colorado

Box 4126 University Station
Tucson, Arizona

November 21, 1955

MEMORANDUM

To: Mr. E. N. Harshman

From: J. N. Faick

Subject: Report of Examination DMEA 3876 (Beryl), Hexagon Mining Co., Windy Group of claims, Pima County, Arizona

TRANSMITTED
DEC 1 1955

Enclosed are the original and 8 copies of a report of examination of the above subject property by Leonid Bryner, Geologist. Also enclosed is the section on Summary, Conclusions, and Recommendations. This report recommends denial of Government participation in exploration because only very small amounts of beryl are present in the area.

This report has my approval.

John N. Faick

JNF:ms

cc. Harshman (8)
Storms

Reviewed by
DMEA OPERATIONS COORDINATOR
(date)

U. S. DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY
DEFENSE MINERALS EXPLORATION ADMINISTRATION

REGION III

TRANSMITTED

DEC 1 1955

GEOLOGY

EXAMINATION REPORT

DMEA 3876

HEXAGON MINING CO.
WINDY GROUP
PIMA COUNTY, ARIZONA
(Beryl)

By
Leonid Bryner
Geologist
U. S. Geological Survey
November 21, 1955

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
FIELD TEAM REGION XIX

EXAMINATION REPORT
DMEA 3876
HEXAGON MINING CO.
WEMBY GROUP
PIMA COUNTY, ARIZONA
(Beryl)

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Fig. 1 - Location map	See Engineering Report
Fig. 2 - Geologic and Claim Map	Following page 1

INTRODUCTION

In an application to the Defense Minerals Exploration Administration, dated June 20, 1955, Robert O. Borgart, Secretary-Treasurer of the Hexagon Mining Co., requested government participation in a program estimated to cost $40,970 to explore for Beryl on the Windy group of claims, Pima County, Arizona.

The claims are located in the S ½ of the S ½ of Sec. 20 and in the N ½ of the N ½ of Sec. 29, T. 18 S. and R. 8 E. This ground is in Contreras Canyon at an elevation of about 4,000 feet. From Robles Junction, on State Highway 86, it is 21.2 miles south on the Sasabe road and then 10.9 miles west by ranch roads to Contreras Canyon. The road up Contreras Canyon almost to the claim is shown on the U.S.G.S. Babaquivari Peak Quadrangle.

The property consists of five unpatented lode claims entitled Windy No. 1, 2, 3, 4, and 5, (fig. 2). The applicant shows a sixth claim (No. 6) on the map accompanying the application. These claims were located by and are held by the six partners who comprise the Hexagon Mining Co.

On July 30 I examined the property with W. E. Brady, R. O. Bogart, M. T. Pascoe and R. A. Fogle of the company. Almost all of the showings were visited but there was no time to map the geology. A Bureau of Mines engineer was not available at the time. Shortly after this, the applicant requested that the report be deferred until the company geologist, J. L. Clark, could map the geology and thereby provide the government with additional data on which to base its evaluation. We conceded to this request. I revisited the property with

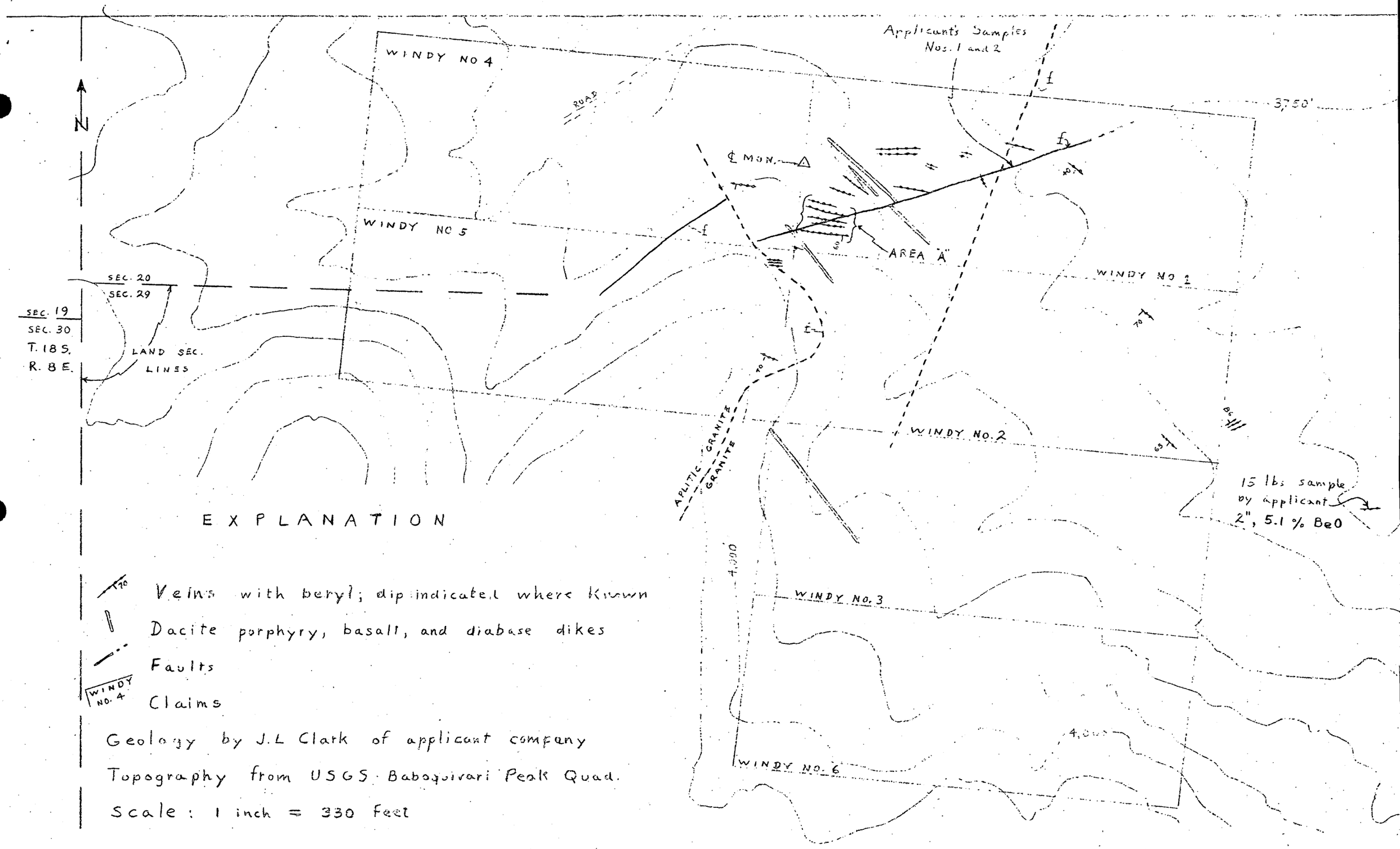

FIG 2.- GEOLOGIC AND CLAIM MAP, WINDY GROUP, HEXAGON MINING CO., PIMA COUNTY, ARIZ.

DMEA 3876

T. M. Romslo of the U. S. Bureau of Mines and with J. L. Clark on November 3. Despite the additional geologic data, this second examination only served to emphasize my unfavorable first impression of the property.

Clark's completed map is used in figure 2 of this report.

GEOLOGY

The deposit is in an area of Precambrian granite in the eastern foothills of the Ruhequivari Mountains. Over the project area of about 2000 by 3000 feet numerous quartz veins crop out in the granite. About sixteen such veins were noted during this examination. The applicant states that "to date twenty-eight of these veins have been located which have definite mineralization of beryl." The veins tend to occur in groups but even within a group they are rather sparsely distributed. The prevalent strike of the veins in the area is N. 55° W. to N. 80° W. and their dip is from vertical to 40 degrees south. In general the veins are only 3 or 4 inches thick, although several veins up to three feet in thickness were noted. The exposures in most places are too poor to allow observation of the continuity of the veins. But several veins less than 50 feet in length were noted. The maximum length noted was 180 feet. Slivers of dark schist occur as inclusions in the granite and in many cases the veins pinch out against such slivers, or even surround them. The schist slivers are generally oriented parallel to the veins.

The veins in places are offset by small, northeasterly-trending faults. Generally the offsets are on the order of inches rather than of feet. The direction of movement was such that the east part of a

vein is offset to the north with respect to the west part. Dark grey, fine-grained andesite (?) dikes in the area occupy many of these faults. Clark calls them "dacite porphyry" and "basalt" dikes, and has identified some diabase dikes. Most of these dikes are only a foot or two in thickness, but a six- or seven-foot dike was seen.

The veins are pegmatites. They are predominantly coarse-grained quartz, but also contain irregular bunchs of feldspar and small amounts of muscovite. Magnetite is a comparatively rare constituent, but hematite is common as fracture coatings and as small subhedral crystals in the quartz. In addition to these minerals Clark has identified bismutite, molybdenite, hoochlinite, and chalcedony.

A spot of scheelite about one-tenth of an inch in diameter was recognized by a fluorescent light examination of a hand specimen from this deposit. This scheelite was in the wall of a 1½ inch quartz vein that contained banded beryl. So far as is known no other scheelite has been recognized in the deposit.

The ore mineral is a pale blue variety of beryl which occurs chiefly as bands parallel to and near one of the walls of the veins, and also occurs in coarse columnar aggregates in which the crystals may be up to one inch in length. In the bands the beryl is too fine-grained for individual crystals to be distinguished with a hand lens. The bands are generally a small fraction of an inch wide and pinch out and open up irregularly along the vein. There may be several bands in a vein. The thickest veins do not on the whole contain any more beryl than the thinnest veins, and for most of their length the veins contain no beryl at all. The average thickness of

the banded beryl in the mineralized parts of any one vein is estimated here as half an inch, and the mineralized length is estimated as one thirtieth to one sixtieth of the total vein length. This is admittedly a very rough estimate but will give some idea of the low beryl content of the deposit. The average quantity of the coarse, columnar beryl is even more difficult to estimate than that of the banded type. Though the coarse beryl occurs over greater widths of vein than the banded beryl, it is less continuous along the vein; therefore, the two types of beryl are estimated to be present in approximately equal amounts.

GRADE

The deposit is a new find and nothing but hand specimens have been taken from it. The applicant has dug a few pits for assessment work, but the beryl is seen mostly in virgin outcrops.

A rough approximation of the grade of this deposit can be inferred from the foregoing geologic description. The area of highest concentration of beryl appears to be the one consisting of about five veins and called area "A" in figure 2. One of these veins, where it was 4 inches wide and appeared to contain a higher than average amount of beryl, was sampled, and assayed 1.3 percent BeO. On the basis of this sample and an estimated distribution of beryl in the veins of one thirtieth to one sixtieth of the vein length, this vein was estimated to average 0.02 to 0.04 percent BeO. As pointed out on page 3, the thickness of the beryl band does not appear to be related to the thickness of the containing vein. As

the 5 veins in area "A" are more or less parallel and evenly spaced in a belt about 100 feet wide, each vein represents a four or five inch zone of 0.02-0.04 BeO separated by about 20 feet of barren granite. Therefore in area "A", about 100 feet by 100 feet, the average grade of rock would be on the order of 0.002 to 0.004 percent BeO. This estimated grade could be increased many times and the rock still not be of minable grade.

The applicant took two samples for mill tests by the U. S. Bureau of Mines Rapid City Experiment Station. These samples, Nos. 1 and 2, assayed respectively 1.3 and 1.56 percent BeO; results that check the assay value used in the above grade estimate.

Even if the deposit is considered from the standpoint of a small operation involving selective mining and hand sorting, it probably is too low grade to be economically workable.

EXPLORATION

Most of the proposed work consists of trenching the more highly mineralized area to depths of ten feet or more. But the exploration plan also includes driving one adit to crosscut some of the veins about fifty feet below the surface.

CONCLUSIONS AND RECOMMENDATIONS

No reserves of beryllium ore can be inferred for this deposit. Because of the very spotty nature of this deposit and its very low grade, it is unlikely that significant reserves can be discovered here. Therefore I recommend that government participation in this project be denied.

600

DEC 27 1955

Ramagan Mining Co.
3274 E. 26th Street
Tucson, Arizona

Re: Docket No. [illegible]-3976 - Beryl
Ramagan Mining Co.
Windy Group (Mix Claims)
Pima County, Arizona

Gentlemen:

Your application for aid for an exploration project and other reports available to us in Washington relating to the subject property have been reviewed.

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

Careful study of all our information indicates to us that the probability of disclosing significant reserves of beryl is not sufficiently promising to justify Government participation. We regret to advise you, under these circumstances, that your application is denied.

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

Sincerely yours,

C. O. Mittendorf

Administrator

WCAnderson:ad 12/21/55
Copy to: Adm. R. Fike
Docket
Operating Committee
Field Team, Region III
Mr. Killingsord, 5222
Mr. Rosa, 3641A
Mr. Hank
Mr. Anderson

IN REPLY REFER TO:

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

RECEIVED
DEC 12 1955

December 9, 1955

Re: DMEA 3876
Kennecott Mining Co. (Partnership)
Windy Group
Pima County, Arizona
$40,970.00 - Beryl

Memorandum

To: L. G. Hook, Defense Minerals Exploration Administration

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

Subject: Review of Field Team report

The applicant requested assistance in exploring for beryl in scattered narrow pegmatitic veins in granite.

The estimated cost of the proposed program is $40,970.00 and was to consist of:--

1,500 feet of trenching, 50 feet of sinking and a 150-foot adit.

No less than 16 narrow veins occurring in scattered clusters and individually were seen. All veins are beryl-bearing but the amounts of beryl in the veins is so small as to make them non-economic whether taken individually or in clusters.

The examiners conclude that the proposed work is not justified and recommend that the application be denied.

I concur with that recommendation.

H. E. Nelson

H. E. Nelson

HENelson:iml
G-12/9/55
cc: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
H. T. Reno, 3641

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

RECEIVED
DEC - 9 1955

December 8, 1955

Memorandum

To: L. G. Houk, Director, Non-Metallic Minerals Division, DMEA

From: Commodity-Industry Analyst, Branch of Rare and Precious Metals

Subject: Report of Examination, DMEA Docket No. 3876, (beryl) Hexagon Mining Company, Windy group of claims, Pima County, Arizona. Received in the Branch of Rare and Precious Metals December 8, 1955

Evidently the deposit is small and extremely low grade. I concur with the Field Team's recommendation that the application for exploration aid be denied.

Horace T. Peno

August 10, 1955

224 New Customhouse
Denver 2, Colorado

Mr. W. L. Brady
Assistant Manager
Hexagon Mining Company
3274 East 26th Street
Tucson, Arizona

Re: Docket DMEA 3876
Windy Beryl Claims
Pima County, Arizona

Dear Mr. Brady:

Your request for a sixty-day delay in the examination of your Beryl deposit is granted. Will you please advise Mr. R. W. Storms, Superintendent, South West Experiment Station, U.S. Bureau of Mines, P.O. Box 4697, University Station, Tucson, Arizona when your detailed maping is completed so that he will be able to schedule a date for the examination.

Very truly yours,

W. M. TRAVER,

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

HMC:ab
cc Sec. of Oper. Comm. (2)
Harshman
Storms
DMEA 3876
Chron.

RECEIVED
AUG 18 1955

August 11, 1955

Mr. W. H. Storms
Chief, SW Experiment Station
U. S. Bureau of Mines
P.O. Box 4097, University Station
Tucson, Arizona

Dear Sir,

In regard to the application for DMEA Loan, Docket No. DMEA 3876 - Beryl, by the Hexagon Mining Company. During the initial investigation by your local DMEA Geologist a need was found for detailed mapping of the area. We would like to request a sixty-day delay while detailed maps are drawn up.

Your cooperation in this matter will be very much appreciated.

Very truly yours,

HEXAGON MINING COMPANY

W E Brady
W. E. Brady
Asst. Manager

WEB/hb

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

RECEIVED
JUL 25 1955

224 New Customhouse
Denver 2, Colorado

July 19, 1955

Memorandum

To: W. R. Storms (w/brochure)
J. N. Faick

From: Field Team, Region III

Subject: Docket DMEA-3376 (Peryl), Hexagon Mining Company, Windy group, Pima County, Arizona

Enclosed is the subject application in the amount of $40,970.00. A field examination and suitable report are required.

Attached for your information is a copy of a letter from the Chairman of the Operating Committee and attached memoranda from the Commodity group.

W. M. TRAVER,

Enclosures

W. M. Traver

E. N. Harshman

E. N. Harshman

DMEA Field Team, Region III

HMC:pw

cc: Subject
Chron
Harshman
Sec.Op.Comm. (2)

600

JUL 13 1955

Mr. W. M. Traver
Executive Officer, DMEA
Field Team, Region VII
Bureau of Mines
224 Customhouse Bldg.
Denver 2, Colorado

Subject: Docket No. DMEA-3876 - Beryl
Hexagon Mining Company
Windy Group (Six Claims)
Pima County, Arizona

Dear Mr. Traver:

The subject application is referred to your office for either a field examination and report or a report based on information available to your office and the results of testing the samples submitted by the applicant to the Bureau of Mines station at Rapid City, South Dakota. One copy of the application was transmitted to your office on June 29, 1955.

Copies of memoranda from Horace T. Rose of the Bureau of Mines, dated June 30, 1955, and from M. E. Nelson of the Geological Survey, dated July 5, 1955, are enclosed for your information.

If your office recommends an exploration program approved by the Applicant, please furnish the necessary information to draft a contract. In this connection, nine copies of a map showing the proposed work in relation to the mining claim boundaries will be required.

Approved:

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

Thor H. Kiilsgaard
Member, Geological Survey

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

Enclosures 4

WCAnderson:pk 7/11/55
Copy to: Admr. R. File
Docket
Operating Committee
Mr. Kiilsgaard, 5222
Mr. Reno, 3641A
Mr. Houg

Hexagon Mining Co.
3274 E. 26th Street
Tucson, Arizona

JUL 13 1955

Re: Docket No. DMEA-3676 - Beryl
Hexagon Mining Co.
Windy Group (Six Claims)
Pima County, Arizona

Gentlemen:

Your application for assistance in exploring the subject property has been reviewed by the Nonmetallic Minerals Division of the Defense Minerals Exploration Administration and has been referred to Mr. W. M. Traver, Executive Officer, DMEA Field Team, Region III, Bureau of Mines, 224 Customhouse Building, Denver 2, Colorado, for further consideration and possibly a field examination.

The Regional Office will contact you at an early date if an examination is to be made. Any assistance you may give the members of the Field Team during the examination will be appreciated.

Sincerely yours,

C. O. Mittendorf

Administrator

WCAnderson:pk 7/11/55
Copy to: Admr. R. File
Docket
Operating Committee
Field Team, Region III
Mr. Kiilsgaard, 5222
Mr. Reno, 3641A
Mr. Houk

IN REPLY REFER TO:

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

RECEIVED
JUL - 6 1955

July 5, 1955

Re: DMEA 3876
Kennecott Mining Co.
Windy Group (6 claims)
Pima County, Arizona
$40,970 - Beryl

Memorandum

To: L. G. Monk, Defense Minerals Exploration Administration

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

Subject: Review of application.

I have no information on this prospect or of the area as for pegmatite minerals.

The application says no sampling has been done and no estimate made of the beryl content. The general information afforded indicates a Field Team examination is warranted.

Referral to the Field Team is recommended.

N. E. Nelson

N. E. Nelson

NENelson:iml
G-7/5/55

cc: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
N. T. Reno, 3641

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

RECEIVED
JUL - 1 1955

June 30, 1955

Memorandum

To: L. H. Hook, Director, Non-Metallic Minerals Division, DMEA

From: Commodity-Industry Analyst, Branch of Rare and Precious Metals

Subject: Application for Exploration Aid. DMEA Docket No. 1076 (beryl)

It is recommended that subject application be referred to the Field to verify with the Bureau of Mines station at Rapid City, South Dakota, the presence of beryl in the samples submitted by the applicant and then, if beryl is present, to make an examination of the property.

Horace T. Reno

Enclosure

HTReno:jtmc

Copy to: Division of Minerals
Branch of Rare and Precious Metals
DMEA (3 copies)
H. T. Reno
FILES

Reno

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED
JUN 29 1955

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. 3876
Metal or Mineral Beryl
Date Received 6-29-55
Estimated Cost $40,970
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: HEXAGON MINING CO. 3274 E. 26th St., Tucson, Arizona
Partnership formed in 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. Not applicable.

(*d*) If a partnership, add to the above statement the names and addresses of all partners. See page 1.

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. 5 unpatented mining claims located in SE¼ Sec. 20 and NE¼ Sec. 29 Township 18 South Range 8 East, State of Arizona.
Note: Plate I shows recently acquired claim No. 6

(*b*) State any mine name by which the property is known. None

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Partnership owns unpatented claims jointly.

(*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. Not applicable.

(*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 list page 1.

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. See page 1.

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. None.

(*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. See attached data page 2 and plate I.

(*d*) State the facts with respect to the accessibility of the project: Access roads, distances to shipping, supply and residence points. See page 3.

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power. See page 3.

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

(*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 data page 4. & plate I.

(*c*) The work will start within 30 days and be completed within 24 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 page 5.

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:

(*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.). All work to be done by independent contract, see page 6.

(*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. Not applicable, under 6 (a).

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel. Not applicable, under 6 (a).

(*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. Not applicable, under 6 (a).

(*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. Not applicable, under 6 (a).

(*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. Under 6 (a).

(*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. Not applicable, under 6 (a).

(*h*) *Contingencies.*—Give an estimate of any necessary allowances for contingencies not included in the costs stated above. Not applicable, under 6 (a).

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. [X] Use of equipment owned by you [X] Other (Labor)

Explain in detail on acompanying paper. See page 7.

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 June 20, 1955

HEXAGON MINING COMPANY
(Applicant)

By Robert O. Borgert

Robert O. Borgert

Secretary-Treasurer

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

Mineral Mining Co., 3274 E. 26th St., Tucson, Arizona

Page 1

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1 (a) Partners

E. T. Pearson, 711 N. Cooper, Sierra, Ariz.
R. C. Dorsey, 3274 E. 26th St., Tucson, Ariz.
M. T. Brady, 4745 Huntington St., Tucson, Ariz.
W. L. Clark, 727 E. 10th St., Tucson, Ariz.
D. J. Bolton, 1018 Pecos Valley, Tucson, Ariz.
R. A. Doyle, 5223 E. Devonport St., Tucson, Ariz.

1 (b) Unpatented Claims

(1) Recorded May 2, 1955, Book 130 Page 322 Tucson, Ariz.
(2) Recorded May 2, 1955, Book 130 Page 323 Tucson, Ariz.
(3) Recorded May 2, 1955, Book 130 Page 324 Tucson, Ariz.
(4) Recorded May 22, 1955, Book 132 Page 213 Tucson, Ariz.
(5) Recorded May 22, 1955, Book 132 Page 214 Tucson, Ariz.

4 (a) Physical Description

Work to date consists of open cuts in mineralized zone equal to a excavation 6 x 6 x 20 feet in size, to comply with the Arizona State and Federal mining laws pertaining to possession of unpatented lode claims. This work has been accomplished on each of the above noted claims. The claims are readily accessible for construction, and may be reached by automobile in two hours driving time from Tucson, Arizona.

4 (c) Description of Geologic Features

The Windy group of claims lies at the eastern base of the Rincon range of mountains, approximately fifty miles southwest of Tucson. The group consists of six unpatented mining claims as illustrated on the attached sketch map. These claims are located in a small basin, covering the floor and western elevated rim. The drainage from this basin is easterly and the numerous drainage channels have dissected the recent alluvium covering the floor of the basin, exposing the bedrock. Most of the ground between these drainage channels is presently covered by the alluvium with the exception of the westerly portion of the area covered by the claims which is somewhat elevated and bedrock is exposed throughout.

The prevailing rock type in the vicinity is tentatively identified as a fine-grained granite having numerous elongated bands of schlieren composed mostly of chlorite and biotite. Cutting this prevailing rock-type are several large andesite or dacite porphyry dikes, trending generally southeasterly and apparently later than other structures. No economic mineralization has been determined in conjunction with these dikes to date.

Of major importance to the proposed operation of this property are numerous small pegmatitic dikes or veins, trending slightly south of east, ranging from six inches to twenty inches in width and having an undetermined strike distance, although it is thought to be rather limited. To date some twenty-eight of these veins have been located which have definite mineralization of beryl. A concentration of these veins occurs near the location hole on the Windy No. 1, where the veins are only a few feet apart, and another concentration surrounding a large quartz vein on the western part of the same claim.

The beryl occurs as euhedral blue crystals, randomly scattered along the borders of the quartz veins and occasionally as a band within the quartz vein itself. It also occurs as massive segregations of a blue siliceous material which appears to be very fine grained crystals within a quartz matrix. The crystals range in size from one-and-one-half millimeters in diameter to microscopic needles. They are generally from four to twelve millimeters in length, occasionally attaining a length of twenty-four millimeters.

No attempt has been made to determine the percentage of beryl in these veins and no adequate sampling program has been initiated as yet. Several samples have been submitted to the U. S. Bureau of Mines in Rapid City, S.D. for assay, metallurgical testing, and determination of the BeO percentage in the beryl. Results of their test have not been received to date. Further samples will be submitted to them at a later date for beneficiation tests.

4 (c) Description of Geologic Features - Continued

Minerals identified, associated with the beryl-bearing veins, to date are: Beryl, bismutite, molybdenite, fluorite, koechlinite, and specularite. In addition to the above named metallic minerals are the common pegmatitic gangue minerals, quartz, feldspar, and mica (muscovite). The latter occurs in only small quantities.

In addition to the above-mentioned dikes and veins, are many large vuggy quartz veins, ranging from two to four feet in width, and having a strike length of some 100 feet or so. The vugs in these veins are lined with euhedral quartz crystals, sometimes coated by chalcedony, and generally carrying some specularite. Only cursory examination has been afforded these veins to date. However, spectrographic examination of the chalcedony from these vugs reveals both molybdenum and lithium. No lithium minerals have been identified to date.

Although the veins are small, it is thought that the number of them in the vicinity, and the close spacing of them throughout the entire area, will make a promising area for exploration, and perhaps production of beryl and bismuth. There are no evidences of past work on these claims nor anywhere in the vicinity. Some work has been done in the past, some five miles south of this region on gold and silver veins, but no mineralization of this type has been found in these veins to date.

In addition to the veins discovered on the present property, as shown on the accompanying sketch map, beryl has been identified in quartz veins both north and south of the area for a distance of nearly a mile in either direction. Further developments anticipate the inclusion of these outcrops into the present group of claims at an early date.

4 (d) Accessibility of project:

Property is readily accessible by automobile on main routes of travel. It lies about 60 miles southwest of Tucson, Arizona. The route consisting of approximately 45 miles of paved highway, 10 miles of improved gravel surfaced highway, and about 5 miles of minor road, which is maintained for access to ranches and cattle feeding operations, and is passable for automobiles throughout the year.

Tucson, Arizona is the nearest rail shipping point. Arivaca, Arizona is the nearest residence area, and is situated about 25 miles to the southeast, accessible by 5 miles of minor road, and 20 miles of improved road.

4 (e) Availability of supplies, etc.

Adequate manpower is available in the Tucson area. The nearest source of materials, supplies and equipment is Tucson, Arizona.

The nearest source of electric power is the REA line supplying the Otero Ranch, which lies about 2 miles southwest of the project. Power might be brought from this source; however, gasoline driven equipment will be used in the initial stages of exploration.

Drinking water is at present being hauled to the area. However, the Sedondo Ranch has a tank and well about one-quarter mile north of the project. Some of this water might be utilized during the exploration period. If the project goes into production, a reservoir could be constructed to store some of the runoff from the mountains to the west, or a new well could be constructed.

5 (b) Proposed Work

It is proposed for the development and exploration of the property under consideration to initiate the work with a series of closely spaced trenches, both cross-cutting and along the strike of the more highly mineralized veins. These trenches and pits will be carried to a depth of not less than ten feet, but will be dependent also upon the accessibility of the particular locale for open pit exploration and production. Also under consideration are several exploration pits to be carried downward along the dip of the veins to a depth of no less than twenty feet. These are for petrological information and also for accessibility for sampling the veins to a comparatively shallow depth. It is proposed to attempt to mine the deposits by open pits of dimensions to be determined later but probably small. It is anticipated that in certain areas, for example the vicinity of the location hole on Windy Number 1 and the area slightly west of this zone, to establish two open-pit operations, depending upon the results of the proposed sampling and exploration program.

It is contemplated to drive at least one adit, trending in a northerly direction, from the side of the wash near the middle of Windy Number 4, in order to cross-cut the numerous veins discovered on the surface. This will provide an opportunity for examination of the geologic association of the beryl bearing veins at a depth of approximately fifty feet, and will be the least expensive method of attaining this information.

It is felt that a diamond core drilling program would be ill-advised, inasmuch as present information indicates that the veins may be somewhat erratic. Future development may indicate this to be erroneous and that the veins will lend themselves to exploration by this method. No costs pertaining to diamond core drilling are included with this application. Three areas of alteration of the granitic material show some promise of the occurrence of beryl and should be deeply trenched for exploration purposes. These are marked on the attached sketch as altered zones. In addition all of the above proposed work is shown in detail on the attached sketch.

Supplemental Information

5 (d) Experience and Background of Applicant

Five of the partners are military personnel whose business experience consists of considerable prospecting, strip mining, and construction work. J. L. Clark is a graduate geologist with considerable mining experience in both Mexico and the U.S. He will provide the necessary technical advice to direct the project.

W. E. Brady owned and operated the Brady Bros. Construction Co., Miltonvale, Kansas from 1946 through 1951. Contracted for installation of farm ponds, terraces, roads, and was engaged in contract strip mining of coal, and engaged in all phases of earth moving. Supervised all activities of the business, including maintenance and operation of heavy construction equipment. Recalled to active duty with the USAF in 1951.

R. O. Dorgert owned and operated the Union Construction Company, 2525 E. Sprague, Spokane, Washington from 1945 to 1947. Contracted remodeling of housing, repair and replacement of roofing, and the installation of insulation materials. Supervised all phases of the business. Sold business to partner in 1947 to attend college. Recalled to active duty with the USAF in 1951.

R. A. Fogle has 18 years experience in the maintenance of heavy machinery with the USAF. D. J. Reiter and M. T. Pascoe have considerable technical training, but little business or mining experience.

Partners will do some of their own labor, and provide technical guidance. A competent full time supervisor will be employed, whose qualifications will be acceptable to both the firm and the Government. Data on this individual will be forwarded to your office upon request at the time the contracts are let. Cost will been the basis of unit of work.

Estimate of Costs on Proposed Work

6 (a) Independent contracts (covers all work).

1500 feet of trenching 4 x 6 section @ $15 per foot (rock)	$22,500
1 adit tunnel 150 feet in length 5 x 7 section @ $30 per foot (rock)	4,500
1 exploratory shaft to depth of 50 feet 6 x 9 @ $65 per foot (rock)	3,250
Headframe, including shaft collar	500
Machinery for shaft (hoist, cable, shiv, bucket, blower)	1,500
Surface buildings (hoist, tool room, storage, powder house) total 500 sq. feet @ $3 per sq. foot -- frame construction	1,500
Bulldozer rental (road improvement, leveling ground, etc. 1 week including operator @ $120 per day	720
Assaying 100 samples @ $25 per sample	2,500
Metallurgical tests for beneficiation	2,500
Supervisor's salary 3 months @ $450 per month	1,350
Accounting costs 3 months @ $50 per month	150
Total	$40,970

7 (b) Share of costs.

We are prepared to meet our share of the costs by direct cash payment, supplying part of the labor, and the lease of company-owned equipment, hand tools, etc., to the independent contractor.

Sketch Map of
Windy Group of Claims

Showing approximate location of outcrops and essential drainage

Scale: 1" = 250'

Explanation

Quartz veins containing barite

Andesite Porphyry dikes

Location holes

Altered zones

Proposed Trenches adits open cuts and pits (not to scale)

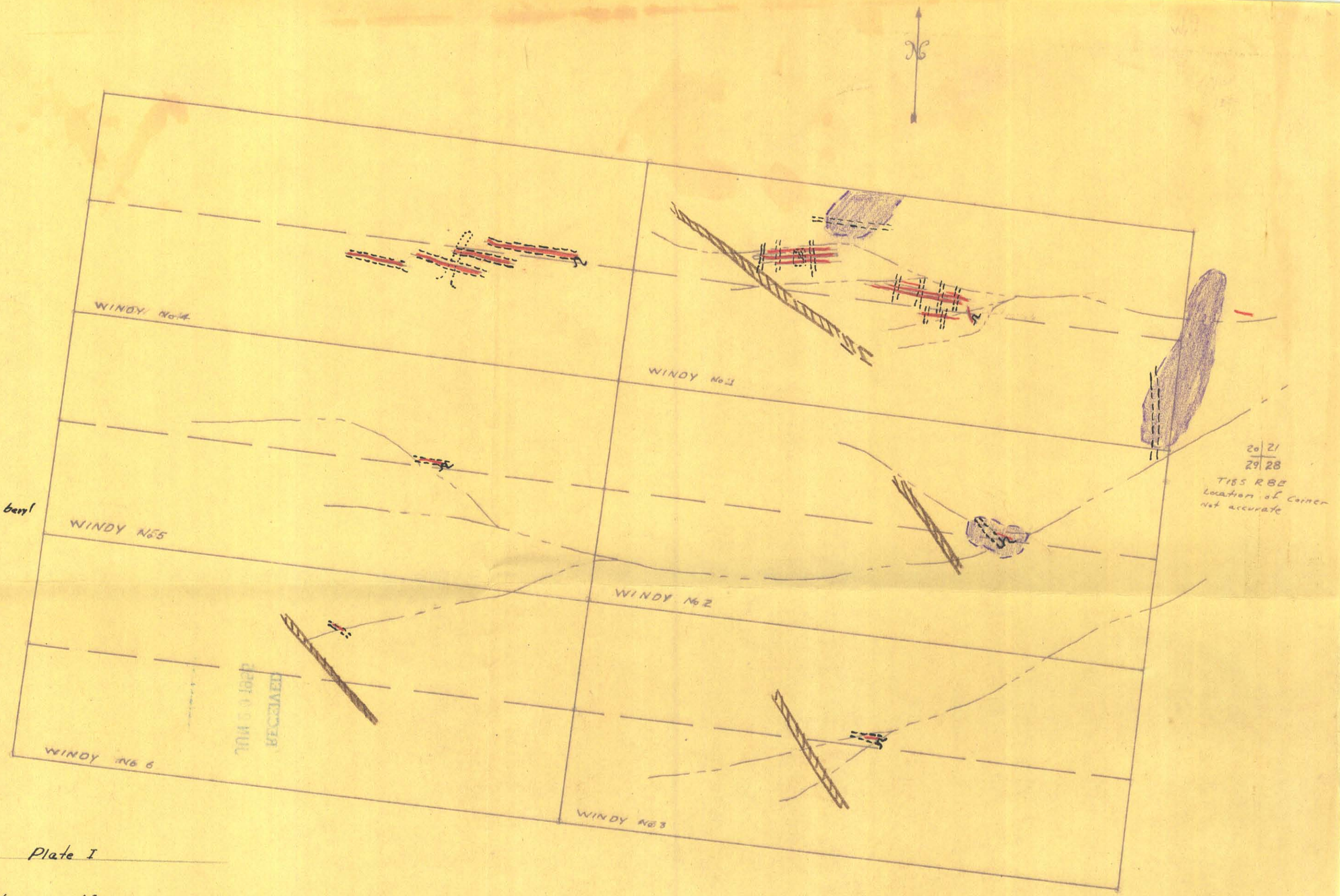

Plate I

Hexagon Mining Co.
3274 E 26 St.
Tucson, Arizona.