UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

OFFICE OF
REGIONAL DIRECTOR

REGION IV

224 NEW CUSTOMHOUSE
DENVER 2, COLORADO

August 1, 1951

Memorandum

To: Landon Strobel, Executive Secretary
Defense Minerals Administration

From: DMA Field Team, Region IV

Subject: DMA Docket 1545X, Joe Grover, Grover Mine, Clear Creek County, Colorado

Enclosed herewith are original and two copies of the report as noted above.

We concur with the examining geologist and recommend that an exploration loan be denied.

The brochure is returned herewith.

F. T. Allsman, Alternate

A. H. Koschmann

Enclosure
One copy by Air Mail
Two copies by Regular Mail

ld
cc: DMA

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

August 1, 1951

Memorandum

To: DMA Field Team, Region IV

From: A. H. Koschmann

Subject: DMA Docket 1545X, Joe Grover, Evergreen, Colorado

Attached are the original and 7 copies of the report, with map~~s~~, by Truman H. Kuhn, geologist, U. S. Geological Survey, covering the above docket. Because of low grade, high mining costs, and unfavorable geologic conditions to find strategic mica and beryl in commercial quantities, Mr. Kuhn concludes that the project does not merit an exploration loan.

I concur with this conclusion.

Attached also is the brochure.

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

Attachments (10)

GROVER MINE

CLEAR CREEK COUNTY, COLORADO

DMA DOCKET 1545X

Geology and Ore Reserves

By Truman H. Kuhn, Geologist
U. S. Geological Survey

TABLE OF CONTENTS

	Page
INTRODUCTION	1
GENERAL GEOLOGY	2
MICA	2
BERYL	3
COLUMBITE	4
FELDSPAR	4
MINE WORKINGS	4
PRODUCTION AND GRADE . . .	5
ORE RESERVES	6
PROPOSED WORK	6
CONCLUSIONS AND RECOMMENDATIONS . . .	6

GROVER MINE
CLEAR CREEK COUNTY, COLORADO

INTRODUCTION

The Grover mine, located on patented homestead land in section 10, T 4 S, R 72 W, 6th Principal Meridian, Clear Creek County, Colorado, is owned by Joe Grover, Evergreen, Colorado. Mr. Grover has applied for a loan of $60,000 to further explore the pegmatite body for beryl and mica.

The property was visited on July 5, 1951, and again on July 12, 1951.

The mine is at an altitude of approximately 8,750 feet on the north side of Beaver Brook valley. It is 4.5 miles by air line southeast of Idaho Springs, and 12.5 miles by air line and 21 miles by road southwest of Golden. The property is 3.5 miles over dirt road from U. S. Highway 40 and can be reached from the highway by taking the dirt road leading westward up Beaver Brook canyon at Elmgreen Ranch.

Certain data and conclusions obtained from older reports on the Grover pegmatite have been incorporated into this report. Other reports examined include:

1. A memorandum report by Thomas C. Denton, Mining Engineer for the U. S. Bureau of Mines, dated June 22, 1942.
2. A report by W. M. Traver, Jr., Mining Engineer for the U. S. Bureau of Mines, on "Winsor Beryl Deposit, Clear Creek County, Colorado," based on an examination made January 22, 1944.
3. A report prepared for Mr. Grover by Arthur L. Crawford, Geologist and Mineral Technologist, Utah Engineering Experimental Station,

University of Utah, and Alfred M. Buranek, Geologist, Department of Publicity and Industrial Development of the State of Utah, dated January 28, 1944.

4. Hanley, John B., Heinrich, E. Wm., and Page, Lincoln R., Pegmatite Investigations in Colorado, Wyoming, and Utah, 1942-1944: U. S. Geol. Survey P. P. 227, pp. 29-30, Plates 1 and 5, 1950.

GENERAL GEOLOGY

The geology of the Grover Pegmatite is well described by John B. Hanley in U. S. Geol. Survey Prof. Paper 227, on pages 29 and 30.

The pegmatite is an elongate, tabular body approximately 760 feet long, as much as 25 feet wide, and apparently concordant to the schist and gneiss of the pre-Cambrian Idaho Springs formation. It trends east-west and probably dips from 70° S to vertical. The pegmatite is obscurely zoned, and the beryl and columbite is restricted to the intermediate zone of quartz-albite-muscovite pegmatite.

MICA

Both biotite and muscovite mica are present in the pegmatite. Muscovite, the possible commercial mica, is described by Hanley:

"Muscovite occurs in thick books as much as 6 inches in width and 10 inches in length. It is usually reeved, ruled, has "A" structure, and is very heavily black-stained. Because of these defects none of the mica found would yield mica of sheet quality, although some would yield flat pieces of acceptable size."

"Muscovite is visually estimated to make up 10 to 15 percent of the intermediate-zone pegmatite and probably would yield a good quality of scrap mica."

Both Traver and Crawford and Buranek agree that the mica is ruled and stained and that the mica produced must be marketed as scrap.

At the time of the present examination, mica made up approximately 10 to 15 percent of the pegmatite exposed in the lower or eastern workings and about 5 to 10 percent of the pegmatite exposed in the more recent workings. Of the mica examined none was of sufficient size and quality to be of strategic grade. Books up to 8 inches in width were found but because of various structural defects and staining, no pieces of slightly stained or better mica as large as one inch square were observed.

BERYL

Hanley describes the beryl as occurring:

" - - - - in light-green euhedral crystals that are as much as 8 inches in diameter and 2 feet in length. It is free of mineral impurities and probably has a high BeO content."

"Beryl is visually estimated to make up only 1 in 5000 parts of the pegmatite - - - - ."

Crawford and Buranek also describe the beryl:

"The nine tons of beryl thus far recovered came principally from a restricted horizontal zone near the east end toward the bottom of the open-cut, from a space 3 x 15 x 125 feet. The latter constituted approximately 457 tons of material, which indicates that the 'pay shoot' contained almost 2% beryl."

At the present time very little beryl can be seen in the Grover workings. Based upon the beryl remaining in the walls and upon recognizable casts of beryl crystals, the percentage of beryl taken from the lower eastern excavation is estimated to be less than one-half per cent. No beryl or casts of beryl crystals were seen in the upper western portion of the workings.

COLUMBITE

Columbite and other rare minerals were mentioned by Joe Grover as occurring in the pegmatite. These minerals have been found and identified, but they are of specimen value only and cannot be considered as being of economic importance.

FELDSPAR

Microcline feldspar of marketable quality is present in the pegmatite and in terms of tonnage is the most abundant possible commercial product. The quantity, however, is relatively small and because of the necessary selective mining and hand sorting, mining costs will be high. The value of unground feldspar at Denver would not exceed $5.00 a ton. Under present conditions, it is doubtful if the feldspar can be considered as a commercial product.

MINE WORKINGS

At the time of Hanley's examination in October 1944, the mine workings included:

" - - - - a long, narrow open-cut, a 23-foot drift from this open-cut,

and several small prospect holes, the largest of which is 18 feet long and 4 feet wide. The main open-cut is about 275 feet in length, as much as 23 feet in width and as deep as 30 feet at the west face. It is at the eastern end of the pegmatite. Parts of the main cut have been worked at two levels, - - - - ."

A third bench level was mined in 1947-48, 20 feet above the upper level mentioned by Hanley. This third level was started approximately 50 feet east of the second level face and was continued westward into unexplored pegmatite for approximately 45 feet.

PRODUCTION AND GRADE

Traver states in his 1944 U. S. Bureau of Mines report:

"No known production was credited to the property until 1937, when it was acquired by the present owner, Mr. Joe Grover, of Park City, Utah. The records show shipment in the years 1937, 1938, 1941, and 1942 totaling about 1500 tons feldspar, 70 tons scrap mica, and 7 tons beryl."

In his report Traver estimated the total rock excavated to be 3000 tons and by calculation determined the grade of the mined portion to be:

Feldspar	50.0%
Mica	2.1%
Beryl	0.2%
Waste	47.7%

Making similar calculations, Crawford and Buranek estimated the grade of the mined portion of the body to be:

Feldspar	45.52%
Mica	2.09%

Beryl	0.28%
Waste	52.11%

For their calculated grade, Crawford and Buranek reported that 9 tons of beryl had been produced from the Grover pegmatite.

ORE RESERVES

Because of incomplete data and because of the irregular character of the pegmatite, no ore reserves can be calculated.

PROPOSED WORK

Mr. Grover proposes, and in fact has started, a 95-foot, steeply inclined raise to connect the lower tunnel with the floor of the lower open-cut. He believes that ore will be encountered below the eastern trench and that the raise will serve both as a prospect raise and as an aid to mining. (See plan and cross section) As the proposed work was outlined by Mr. Grover, it is not possible to completely separate exploration from development work.

CONCLUSIONS AND RECOMMENDATIONS

Strategic mica is not present in this deposit and in considering the application for a DMA loan, beryl alone is of importance.

Assuming that a volume of pegmatitic material equal to that already mined, that is 3000 tons, could be recovered directly below the present workings, another 1500 tons of feldspar, 70 tons of scrap mica, and 7 to 9 tons of beryl might be expected. Based on an approximate value at the mine of $5.00 a ton for feldspar, $32.00 a ton for scrap mica, and

$50.00 a unit for beryl, the 3000 tons might yield $13.00 a tons, of which $10.00 would be from the possible beryl. Thus, an additional 3000 tons might yield a total value of $39,000.00. At the present market price of $28.00 a unit for beryl, the possible value would be only $8.75 a ton for all three products, or a total of $26,250.00 for 3000 tons. If Hanley's estimated 0.02 per cent (1 in 5000 parts) is correct for beryl, the value would drop to $4.00 a ton, calculating beryl at $50.00 a unit. From the above calculated gross values, underground development and mining costs must be paid, as well as trucking, and all other charges incident to mining. Mining costs would be high. Any mineable material found would be below the bottom of a narrow trench averaging 20 feet deep. To mine below the trench floor would necessitate either driving the 95-foot raise proposed by Mr. Grover and mining by underground methods, or stripping considerable waste to permit further open-cut mining.

Because of the small volume of expectable beryl, the high mining costs, and the unfavorable geologic conditions, it is recommended that the DMA application for a $60,000.00 loan to prospect for strategic mica and beryl be denied.

A smaller exploration loan is not feasible under present conditions. If, as a result of less costly prospecting methods, more beryl be indicated, either below the present eastern workings or in the western portion of the dike, extraction costs still would be extremely high and the amount of expectable beryl low. According to Hanley, the unexplored and undeveloped western portion of the pegmatite would be expected to contain even less beryl than the mined portion of the intermediate or quartz-albite-muscovite pegmatite zone.

In earlier reports both Mr. Traver of the U. S. Bureau of Mines, and Mr. Hanley of the U. S. Geological Survey advised against government participation in an exploration or development program on the Grover property.

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

SEP 12 1951

370

REGIONAL DIRECTOR'S
OFFICE
REGION IV
SEP 14 1951
BUREAU OF MINES
DENVER, COLORADO

Mr. Joe Grover
Evergreen
Colorado

Re: DMA-1545X
Mica and Beryl

Dear Mr. Grover:

Replying to your letter of August 20, 1951, we would be able to reconsider subject application only in the event that new data is submitted providing a sound geologic basis to justify additional exploration of the deposit. In view of the fact that the deposit has been examined and reported on adversely not only by DMA Field Team geologist but, previously, by two engineers of the U. S. Bureau of Mines and three geologists of the U. S. Geological Survey, who visited the area during World War II, we doubt very much that this requirement can be fulfilled.

We regret that we cannot offer you more encouragement but, frankly, in view of the amount of adverse data on hand, we do not see how we could possibly recommend additional exploration or development of a property which appears to promise, at best, only a very marginal operation.

Sincerely yours,

Tom Lyon

Tom Lyon, Director
Supply Division

RWASKEY:mp
9-7-51
cc: Field Team, Region IV (2)
DMA Docket File
Mr. Lyon
Mr. Barr

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

DMA

370

August 8, 1951

REGIONAL DIRECTOR'S OFFICE
REGION IV
AUG 16 1951
BUREAU OF MINES
DENVER, COLORADO

Memorandum

To: Reports and Records Unit, DMA

From: Chief, Industrial Minerals Branch, DMA

Subject: DMA-1545X, Joe Grover, Evergree, Colorado
Grover Mine, Clear Creek County, Colo.
Commodity: Mica, Beryl
Amount of Loan: $60,000

Denial recommended because data submitted by applicant and Field Team Report show:

1. Considerable work has already been accomplished on the deposit; need for and justification of additonal exploration has not been demonstrated.

2. A sound geologic basis for expecting to find significant amounts of strategic mineral in the deposit has not been shown.

3. Much of the proposed work would be development and does not justify as exploration under M.O.-5.

Attached:

1. Field Report, Region IV with memo dated 8/1/51.
2. Review of application for Exploration
3. MF-100 in duplicate
4. MF-103
5. Exhibit "C" Brochure complete with data, maps, pictures, etc.

Denial Ltr
M.P.
James A. Barr, Sr.

Approved:

Director, Supply Division

RWASKEY: mas
cc: Field Team Region IV (2)

Fwd 8-21-51

routed

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

370

FEDERAL EXPLORATION
OFFICE
REGION IV
AUG 16 1951
BUREAU OF MINES
DENVER, COLO.

AUG 14 1951

Mr. Joe Grover
Evergreen, Colorado

Pwo
8-21-51

Dear Mr. Grover:

Subject: DMA-1545X, Mica and Beryl

Your application for aid for an exploration project on Mica and Beryl deposits located in Clear Creek County, Colorado, and docketed as DMA-1545X, has been reviewed by this office.

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

Exploration projects as defined in MO-5, Regulations Governing Government Aid in Defense Exploration Projects, must be confined to work necessary to search for unknown or undeveloped sources of strategic minerals; the work must be confined to a reasonable delineation and sampling of the ore and may not include work prosecuted primarily for mining or preparation for mining.

A very careful study of your proposal, including examination by DMA Field Team, revealed the following:

1. Considerable exploration and development work has been accomplished on the deposit; need for and justification of additional exploration has not been demonstrated.

2. A sound geological basis for expecting to encounter significant quantities of strategic minerals in the deposit has not been shown.

3. Much of the proposed work project would be mining or preparation for mining and would not qualify as exploration under MO-5.

Courtesy

Under these circumstances, your application for exploration aid to the extent of 90% of $60,000, is denied. Should additional information become available, we would be glad to have you resubmit your proposal for consideration.

Unless we receive a request within 30 days, we will consider the case closed.

Sincerely yours,

Tom Lyon

Tom Lyon, Director
Supply Division

RWASKEY:mp
cc: Reports and Records
Mr. Lyon
Mr. Barr
DMA Files
Field Team, Region IV (2)

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

DMA

REGIONAL DIRECTOR'S
OFFICE
REGION IV
JUL 20 1951
BUREAU OF MINES
DENVER, COLORADO

June 16, 1951

REGIONAL DIRECTOR'S
OFFICE
REGION IV
AUG 10 1951
BUREAU OF MINES
DENVER, COLORADO

Mr. Joe Grover

Evergreen, Colorado

Subject: DMA-1545X

Dear Mr. Grover: Mica, Beryl

Your application is being referred to Mr. J. H. East, Jr., 224 New Customhouse Building, Denver 2, Colorado, Executive Officer of the Field Team, Region IV, for further information.

Sincerely yours,

Tom Lyon, Director
Supply Division

RW:dak

cc: Mr. Strobel
Administrator's Reading File
Field Team
Mr. Barr
DMA Files

August 1, [illegible]

Transmittal

To: [illegible]

From: [illegible] Field Team, Region IV

Subject: [illegible] 1985, [illegible] survey, [illegible] view, [illegible] County, Colorado

Enclosed herewith are original and two copies of the report on [illegible] above.

We assume that the enclosed geologist and [illegible] that no exploration have to [illegible].

Thy hardness be [illegible] hospitality.

[illegible]

[illegible]

Enclosure:
[illegible] by [illegible]
[illegible] of [illegible] [illegible]

[illegible]
[illegible]

224 New Customhouse
Denver, Colorado

June 28, 1951

Memorandum

To: W. M. Traver, Jr.

(Through Chief, Mining Division) PTA

A. H. Koschmann (with brochure)

From: DMA Docket Team, Region IV

Subject: DMA Docket 1545X, Joe Grover, Evergreen, Colorado

Herewith is the exploration application and review on the above docket.

Please make the examination and report, paying particular attention to the requests contained in the review.

Paul T. Allsman
P. T. Allsman, Alternate

A. H. Koschmann
A. H. Koschmann

Attachments
PTA/el cc-~~dmk~~ files, koschmann

GROVER MINE

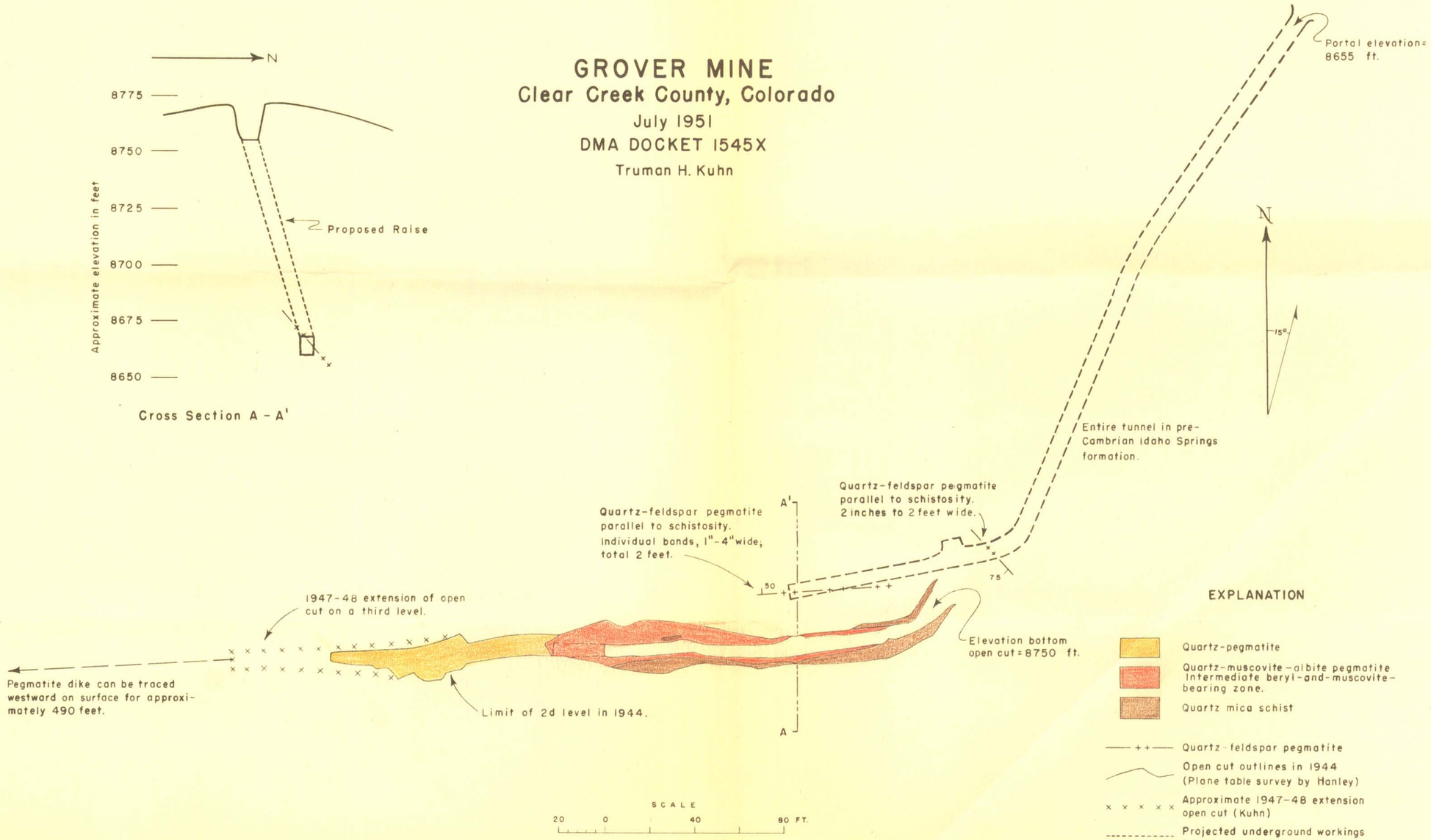
Clear Creek County, Colorado

July 1951

DMA DOCKET 1545X

Truman H. Kuhn

Cross Section A - A'



EXPLANATION

- Quartz-pegmatite
- Quartz-muscovite-albite pegmatite Intermediate beryl-and-muscovite-bearing zone.
- Quartz mica schist
- Quartz-feldspar pegmatite
- Open cut outlines in 1944 (Plane table survey by Hanley)
- Approximate 1947-48 extension open cut (Kuhn)
- Projected underground workings (Brunton and tape survey by Kuhn)

(1944 open cut outlines and geology of open cut from John B. Hanley, U. S. Geological Survey, Professional Paper 227, Plate 3, 1950)