7-17-52

Mr. Norman C. Spilde
P. O. Box 495
Custer, South Dakota

Subject: Docket No. DMMA-2590
Baryl-Mica
Blue Bonnet and Star Lode Claims
Custer County, South Dakota

Dear Mr. Spilde:

Your application for exploration assistance, Docket No. DMMA-2590, has been reviewed by this office.

After careful consideration, we find that the proposed exploration offers insufficient promise of making significant new discoveries of strategic minerals.

We regret to advise that the application in this case for exploration assistance is herewith denied.

Sincerely yours,

(signed) FRANK E. JOHNSON

Acting Administrator
Defense Minerals Exploration
Administration

JTRobertson:mp 7/14/52
cc: Docket File
Adm. Reading File
Mr. Norton, G-232, GSA Bldg.
Mr. Kauffman, Jr. 1347
Field Team, Region V
Operating Committee
Mr. Houk

July 14, 1952

Memorandum

To: Chairman, Operating Committee, DMEA

From: Non-Metallic Minerals Division, DMEA

Subject: Docket No. DMEA-2590 - Beryl-Mica
Blue Bonnet and Star Lode Claims
Custer County, South Dakota
Re: Recommendation for denial.

Commodity Specialists of Bureau of Mines and Geological Survey recommended a denial of this exploration project and in this we concur.

The Field Team Report, however, contains a recommendation for a trenching program - two surface trenches - in the amount of $4,165.20

The extent and quality of the mineralized pegmatites on the two claims have already been tested by five large open-cuts or mine workings. The two trenches proposed by the Field Report offer little promise of adding to the present knowledge of the mine, or adding to the extent of the ore, or determination of any new kind of ore. Therefore, the nature and extent of the deposit is already pretty well known and there is little to justify two more trenches. The open-cuts #1, #2, #3, #4 and #5 are shown on the accompanying map and they indicate, that insofar as the outcrop is concerned, the pegmatite is sufficiently tested.

Jasper T. Robertson
Non-Metallic Minerals Division

Attachment
JTRobertson:mp
cc: Docket File
Adm. Reading File
Mr. Houk

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

July 10, 1952

Memorandum

To: Lawrence G. Houk, Chief
Non metallics, DMEA

From: A. J. Kauffman, Jr.
Rare and Precious Metals Branch

Subject: Denial of DMEA #2590, Norman C. Spilde, Box 495, Custer, South Dakota, Star and Blue Bonnet.

Re: beryl, columbite-tantalite, mica and feldspar

After considering the Field Team report and comments by the Geological Survey, this office recommends denial of the subject application.

According to Bureau of Mines Report of Investigation 4855, "Beryl Resources of Black Hills South Dakota", March 1952 any beryl present in the Star and Blue Bonnet Claims is not recoverable either by hand sorting or milling.

Signed

A. J. Kauffman, Jr.

Attachment

SNeedleman:kg

Copy to: Minerals Division
S. Needleman
A. J. Kauffman, Jr.
Rare and Precious Metals Branch
F I L E S

IN REPLY REFER TO:

CNM

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

Memorandum

July 7, 1952

REVIEW OF FIELD TEAM REPORT ON APPLICATION DMEA-2590 (Mica, beryl)

To: L. G. Houk, Defense Minerals Exploration Administration
From: P. L. Weis, U. S. Geological Survey
Applicant: Norman C. Spilde.
Name of property: Blue Bonnet and Star Lode claims.
Location of property: 4½ miles SE. of Custer, Custer County, South Dakota.
Date of field team report: June 24, 1952.
Authorship of field team report: L. O. Binyon and J. A. Redden.
Field team's recommendation: Tentative approval of an exploration contract for exploration costing $4,165.
Comments:

1) In the Professional Paper covering Black Hills pegmatites, John W. Adams states:

> "In 1943, 2,051.37 pounds of sheet and 53.75 pounds of untrimmed punch mica was sold to Colonial Mica Corporation from the Blue Bonnet and Star property . . . It is moderately to densely air-stained. Most of the mica sold was of No. 2 inferior quality but some was of No. 1 and No. 2 qualities. The mica from the Star and Blue Bonnet did not have the required proportion of No. 1 and No. 2 qualities to be acceptable for purchase by the Colonial Mica Corporation in 1944."

There is no reason to believe that the quality of the any mica in these deposits would meet present specifications better than it did in 1944. Specifications are essentially the same now as they were in 1944.

2) Adams states in his report on the reserves of the Star and Blue Bonnet claims:

> "If a demand existed for the type of mica available at the Star and Blue Bonnet claims, a large quantity could readily be obtained by the extension of existing workings."

From this it is apparent that information on the property is adequate, and that no exploration contract is justified.

3) Binyon and Redden state in their field team report (p.3):

> "Past production from open cuts Nos. 2 and 4 indicates that one pound of sheet mica per ton of rock was produced, and that 4 percent of this was No. 1 and No. 2 mica, while the remainder was of inferior quality."

This information was not available at the time the original application was evaluated. It means, however, that only 4 pounds of No. 1 and No. 2 sheet could be recovered from each 100 tons of rock mined.

4) In view of the non-strategic quality of the mica, and the already existing information on reserves, no exploration loan should be granted.

RECOMMENDATION: Denial

Paul L. Weis

Weis:jeh
G-7/7/52
cc: Director's reading file 4212
Branch " "
DMEA
Norton G-230
Weis G-228

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

COPY

Region V
2908 Colfax Avenue South
Minneapolis 8, Minnesota

DMEA-2590

June 24, 1952

Memorandum

To: Operating Committee, Defense Minerals Exploration Administration, Interior Building, Washington 25, D. C.

From: Executive Officer, Field Team, Region V

Subject: N. C. Spilde, Custer S. Dak. - Application for exploration and field team report.

Here are the original and three copies of an Exploration to explore the Star and Blue Bonnet Claims, Custer, S. Dak., for beryl and other pegmatite minerals, made by Norman C. Spilde who requested assistance in making the application from the field team representatives in the Black Hills.

In so doing, the field team made the examination and completed a report, the original and three copies of which are also attached, so that field referal will not be necessary and the Washington office can either approve or deny without further field action.

/s/ A. B. Needham
Executive Officer
Field Team, Region V

Attachments

ABNeedham:dg
cc Dutton
Mullen
Redden
Region V
files
df

DMEA-2590

UNITED STATES
DEPARTMENT OF THE INTERIOR
OSCAR L. CHAPMAN, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION V

Star and Blue Bonnet Claims

Custer County, South Dakota

E. O. Binyon, Mining Engineer
U. S. Bureau of Mines

J. A. Redden, Geologist
U. S. Geological Survey

May 22, 1952

Reviewed by
DMEA OPERATING COMMITTEE

_____
(date)

DEFENSE MINERALS EXPLORATION ADMINISTRATION
Report of Field Examination

by

E. O. Binyon, Mining Engineer
U. S. Bureau of Mines

J. A. Redden, Geologist
U. S. Geological Survey

Property: Star & Blue Bonnet Claims
Applicant: Norman C. Spilde
Commodity: Beryl, mica, columbium, tantalum

Conclusions and Recommendations

Past production from both the Star and Blue Bonnet Claims, according to statements by the applicant, amounted to approximately 3.5 tons of beryl and 2,000 pounds of sheet mica valued at $13,000. The total production of potash feldspar is not known.

The proposed trenches (see sketch) will crosscut the pegmatites and will make available additional geologic data on structure and grade of the deposits.

At present an estimate of the grade and possible future production must be based almost entirely on the reported past production. From this it is estimated that approximately 12 tons of beryl can be recovered from the tonnage in the area to be explored by the proposed work on the Star claim and 13 tons from the Blue Bonnet claim, a total recovery of 25 tons of beryl.

The mine-run mica is not of acceptable quality under the government's mica program. However, by careful sorting of mine-run material, it is possible that 1,400 pounds of sheet mica which would be acceptable can be recovered; this is based on the quality of past production.

A small production of columbite-tantalite was reported but none was seen and no estimate of reserves can be made.

It is doubtful that the full amount of the loan can be repaid from the inferred value of recoverable minerals that can be mined from the areas or portions of the pegmatites to be explored by the proposed trenches. Owing to the topography and limited inferred thicknesses of the pegmatites, exploration other than by trenching would entail too

great an expenditure when the risk of making a discovery adequate for repayment of the loan is considered.

As stated, repayment of the loan is rather doubtful if it is to be repaid from production confined to the areas influenced by the trenches. However, with favorable results from the proposed work, it is possible that subsequent mining from these areas will lead to additional production from other parts of the pegmatites and that the loan could possibly be liquidated. The field team recommends that the proposed exploration be approved solely on the basis that the inferred production may result.

In making the recommendation, the fact that the loan may be only partly liquidated has been considered; however, the field team has assumed that the critical need for beryl and strategic mica and the possibility of immediate production of these minerals is of greater importance than full repayment of the loan.

The applicant has had 15 years experience as a miner and small mine operator. He is capable and financially able, with 90 percent government participation, to complete the exploratory work.

Preliminary Geologic Examination

The Star and Blue Bonnet claims were visited by the field team at the request of the applicant prior to making an application for an exploration loan. The accompanying sketch map and brief report were prepared for submission with the application.

The claims owned by Norman C. Spilde, the applicant, are in secs. 32 and 33, T. 3 S., R. 5 E., about 4 miles southeast of Custer, Custer County, South Dakota. Pegmatites are found on both claims and some mining has been done in the past on each deposit. The Blue Bonnet pegmatite was mined mainly for mica during World War II. Beryl and feldspar, as by-products, were also produced during this period. Some mica production is reported for the Star Lode, but the principal product from the pegmatite was feldspar. About 1½ tons of beryl and a minor amount of columbite-tantalite are reported to have been mined from the workings shown on the accompanying sketch map.

The pegmatite on the Blue Bonnet claim is relatively thin and, for the most part, is conformable with the schist and dips gently to the northeast. The western portion of the pegmatite trends to the south and is apparently discordant. The concordant portion exposed in the open cut No. 3 (see sketch map) is thickening considerably with depth, increasing from a thickness of 4 feet at the crest to a thickness of at least 10 feet at the bottom of the open cut.

The pegmatite has two units, a wall zone averaging 2 feet in thickness and composed of quartz-plagioclase-perthite-muscovite, and an inner zone composed of perthite-quartz-pegmatite with accessory mica, beryl, garnet, and plagioclase. Locally, as in open cut No. 5, quartz predominates over perthite.

Neither the percentage nor the quality of the muscovite mica in the wall zone is too high. Past production from open cuts Nos. 2 and 4 indicates that 1 pound of sheet mica per ton of rock mined was produced and that 4 percent of this was No. 1 and No. 2 mica, while the remainder was No. 2 inferior quality.

The grade of beryl in the entire pegmatite is probably low. Recovery of beryl from open cut No. 5 was reported as approximately 2 tons or 0.5 percent of the mined rock. The same rate of recovery can be expected from the unusually rich inner zone for about 80 feet to the south along the strike of the pegmatite from open cut No. 5. An unknown amount of feldspar was recovered from all mine workings.

The Star pegmatite has an estimated thickness of 30 feet but may be even thicker. Few contacts are explored and the attitude of the pegmatite could not be determined.

The coarse-grained unit, composed predominantly of perthite-quartz pegmatite, crops out along the center of the pegmatite. Plagioclase, muscovite, beryl, and garnet constitute the remainder of the unit. Along the edges of the coarse-grained unit there appears to be a fine-grained unzoned pegmatite. Hence, the interior may represent a zoned pegmatite within an unzoned ore.

The percentage of muscovite in this pegmatite is lower than the Blue Bonnet but is probably of similar quality. One book or aggregate of books from open cut No. 2 was said to have yielded 200 pounds of small sheet mica.

A few beryl crystals 1 to 4 inches in diameter were exposed in open cut No. 2. The beryl produced from this cut is reported to have been 1½ tons or roughly 0.4 percent of the mined rock.

Description of the Work

Crosscut the dikes on the Star and Blue Bonnet (see sketch) with trenches approximately 75 feet in length, 12 feet in width, and an average depth of about 13 feet.

Estimated Costs of Project

(1) Independent contracts
None

Estimated Costs of Project (cont.)

(2) Labor, supervision, consultant		
Wages:		
1 loader operator @ $14.00 per day for 60 days	$ 840.00	
1 supervisor-miner @ $14.00 per day for 60 days	840.00	
consultant for preparation of final reprt, etc.	100.00	
		$ 1,780.00
(3) Operating material and supplies		
Explosives, bits and steel, pipe fittings, gasoline, oil, and miscellaneous small supplies and incidentals		1,300.00
(4) Operating equipment		
To be purchased		
None		
To be rented		
1 loader @ $16.00 per day for 60 days		960.00
To be furnished by the operator		
1 air compressor, 105 cu. ft.) @ $50 per mo. 1 jackhammer, air and water hose and fittings) (estimated value, $3,000)		100.00
(5) Rehabilitation and repairs		
None		
(6) New buildings, improvements, installations		
None		
(7) Miscellaneous		
F.I.C.A. Payroll tax		25.20
Total estimated cost		$ 4,165.20
Government participation at 90 percent		3,748.68

IN REPLY REFER TO:

G-MD-PLW

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 30 1952

June 30, 1952

Memorandum

REVIEW OF APPLICATION DMEA-2590 (Mica, beryl)

To: L. W. Houk, Non-Metallic Minerals Division, DMEA
From: P. L. Weis, U. S. Geological Survey
Applicant: Norman C. Spilde.
Name of property: Blue Bonnet and Star Lode Claims.
Location of property: 4½ miles SE. of Custer, Custer County, South Dakota.
Estimated cost of project: $4,140.
Summary of applicant's proposal: Cutting 150 feet of exploration trenches, involving the movement of about 2,000 tons of material.
Sources of information on applicant's property: Page, L. R., et al., pegmatite investigation, 1942-1945, Black Hills, South Dakota: U. S. Geological Survey Prof. Paper 247, in press.
Comments: 1) Applicant describes two pegmatites 100 feet wide and 1,200 feet long. Page states there is only one, 6 to 10 feet thick, 1,500 feet long, with a 15° - 35° dip.

2) Page states that 2,000 pounds of sheet mica was sold from the Blue Bonnet claim in 1934, all of which had moderate to dense air stain. Mica from this property was not capable of meeting Colonial Mica Corporation specifications in 1944.

3) Page reports that beryl occurs in crystals less than 1 inch in length, in small amounts. No columbite-tantalite has been found in this pegmatite.

4) In view of the available information on this property, no further exploration appears warranted, particularly since there is considerable doubt as to the quality of the mica likely to be produced. It is now known that mica can be mined in fairly large amounts from the hanging wall mica zone, but the quality probably would not be good enough to meet the specifications of the proposed government purchase office at Custer. It appears unlikely that appreciable amounts of beryl or columbite-tantalite can be produced from these properties.

RECOMMENDATION: Deny the application, but tell applicant that the case will be reopened if he submits a sample containing several pounds of good-stained or better mica.

Weis:jeh
G-6/30/52
cc: Director's reading file 4212
Branch " " "
DMEA
Weis, USGS, Rm. G-228
Norton, USGS, Rm. G-230

Paul L. Weis

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. DMEA-2590

Date received 6-26-52

Participation

Defense Minerals Administration
RECEIVED
JUN 26 1951

Norman C. Spilde
Box 495
Custer, South Dakota

Name and address of applicant

Date May 22, 1952

FILL IN THIS BLOCK

Date of application May 22, 1952

Estimated cost $4,140.00

Mineral or metal Beryl, columbite-tantalite, mica, and feldspar.

Percentage of Government participation 90%

Location of mine Four and one half miles southeast of Custer.

Date of filing MF-100

DMA Docket Number, if available

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation?
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.
*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.

*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.

*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.

*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.

15. State in detail how the ore could be shipped and how and where milled.

*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.

19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?

21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.

24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

Norman C. Spilde
(Name of company)

By Norman C. Spilde
(Signature of authorized official)
Norman C. Spilde
Owner
(Title)

May 22, 1952
(Date)

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.

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

THE APPLICANT

1. Individual.

2. Not a partnership.

3. Not a corporation.

4. Fifteen years as a miner and mine operator.

5. Owner.

6. None.

7. Not a lease.

8. Not over $600.00 worth of mineral sold off of this property by the present owner, minerals sold were mica, beryl, and feldspar. Former operators sold approximately $15,000.00 worth of minerals.

9. Ten percent of the cost.

THE PROPERTY

10. (a) Property consists of two adjoining lode claims of approximately twenty acres each. There are three pegmatite dikes on the claims that have been explored by three open cuts one of which is approximately 8' x 8' x 50', one which is 30' x 10' x 100', and one 10' x 10' x 20'. There are also two pits one of which is 40' in diameter and 10' deep, and one 20' in diameter and approximately 8' deep.
(b) Property is located in Section 33, T. 3S, R. 5E. Claims are not patented.

11. The former name of the property was the Blue Bonnet Feldspar Lode and the Star Lode Mining Claim. Present owner purchased claims and they held the original names.

12. Property is situated 4½ miles south east of Custer on a graveled County Road. Railroad same distance from property.

13. Property is situated about 1,000' from French Creek which supplies sufficient water for all present and future needs. Power to used will be gasoline motors and will require approximately twenty to twenty five gallons of gasoline daily.

14. Blacksmith shop, air compressor, and jack Hammer.

15. Ore would be shipped from Custer. No existing milling facilities at present.

16. (a) The previous exploration and developement is as answered in question 10 a. Operations carried on by three former lessees. About $13,000.00 worth of mica sold during government program during World War 11.

THE PROPERTY Continued

16. (b) Neighbering property owned by the Consolidated Feldspar Company and production figures are not available but several of these properties have produced large tonnages of saleable mineral. Notable among which is the Bull Moose which has produced large quantities of beryl.

(c) No privatevreports available.

17. Mine is not in pperation at the present time.

18. (a) The mineral deposits are found in two large pegmatite dikes which are approximately 100' wide and exposed for 1,200' along the claim, the other is approximately 75' wide and exposed for 300' along claim. Two smaller dikes are of undetermined size.

(b) None available.

(c) Ore bodies of such great extent and not sufficient work tempermit reliable estimate of tonnage.

19. No conditions or circumstances that has not been brough out by foregoing questions.

THE EXPLORATION

20. Beryl, Columbite-tantalite, mica, feldspar.

21. Approximately 150' of open trenching entailing the removal of approximately 2,000 tons of material. Time required to complete is estimated to be sixty days.

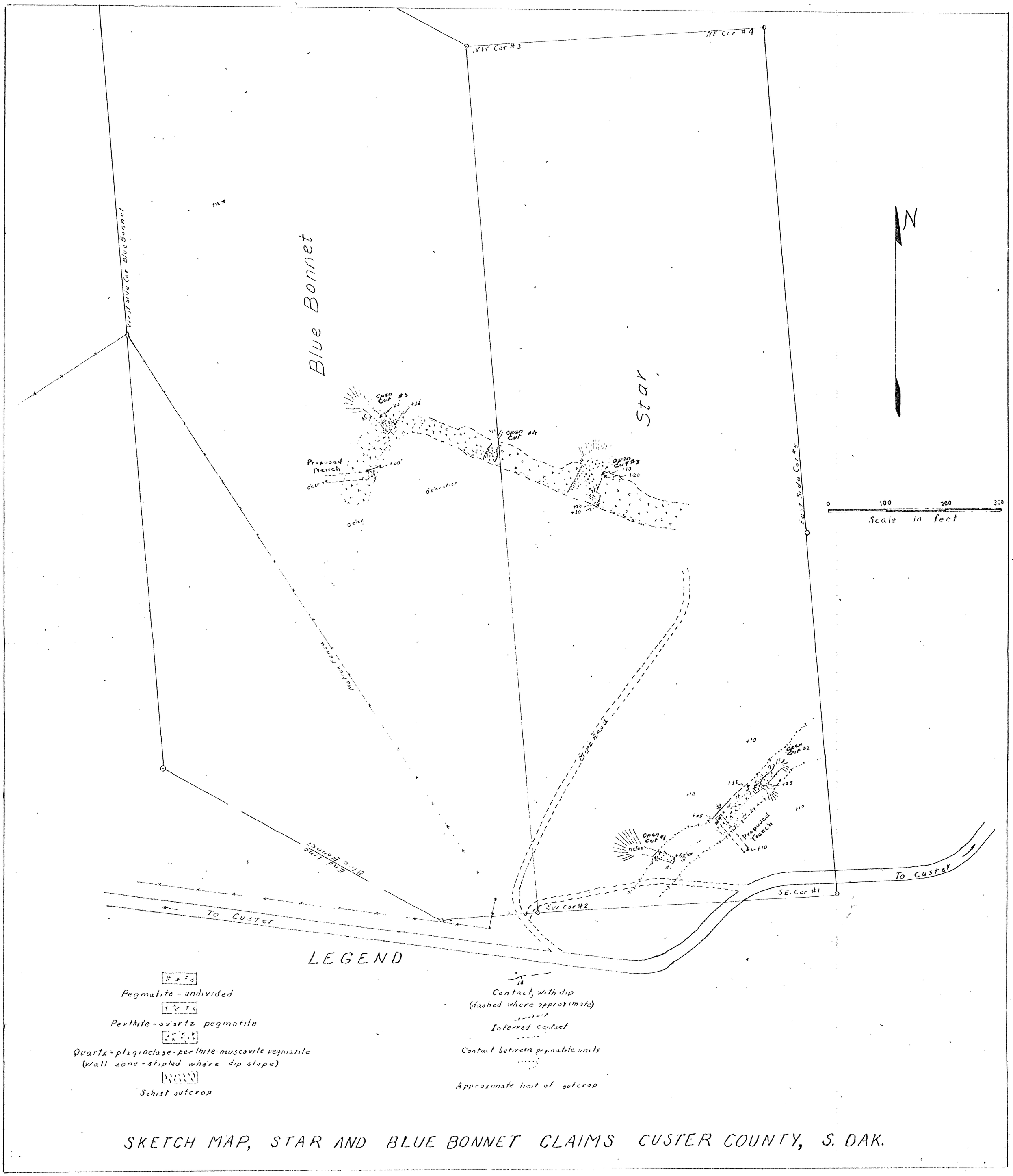
22. Pegmatites having showings of the above minerals and the fact that similar dikes in the neighborhood have produced these minerals. No maps or geological data available.

THE REQUIREMENTS AND COSTS

23.

(a)	1 Operator @ $1.75 per hour, 60 days ----------	$840.00
(b)	1 Miner and supervisor @ $1.75 per hour --------	840.00
(c)	None.	
(d)	None.	
(e)	None.	
(f)	1 Loader @ $2.00 per hour, $16.00 per day ------	960.00
(g)	1 Air Compressor and Jack Hammer @$100.00 per Mo.	200.00
(h)	Dynamite, caps, fuse, bits and steel ----------	700.00
(i)	Gasoline, oil, and incidentals ----------	600.00
	Total estimated cost of proposed work	$ 4,140.00

24. It is estimated that proposed work will be completed in a total of 60 working days, at the end of which time a total of $4,140.00 Will be spent.



SKETCH MAP, STAR AND BLUE BONNET CLAIMS CUSTER COUNTY, S. DAK.