UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE

Terminated (or cancelled) without certification. DMEA No. 812-A

This is the official contract file containing all official records of the project. Duplicate material has been removed. The records contained in the files are checked and are arranged in this manner:

Left Side

Certificate of Audit (Final).

Interim Audit(s).

✓ Report of Review.

✓ Termination Notice or Agreement. NOTICE OF CERTIFICATION BY AGREEMENT CLOSING LETTER

Recision Notice.

Assignment of Contract.

Contract Amendments (latest on top).

✓ Contract with all exhibits and annexes.

Owner's Consent to Lien.

Subordination Agreement.

Leases and assignments of leases.

✓ Application and attachments.

✓ Schedule of Collections.

✓ Operator's monthly reports and all attachments (latest on top).

Right Side

✓ Project summary.

✓ Work completed analysis.

✓ All other material is filed in chronological order with correspondence including the following reports as checked:

✓ Final Field Team Report. (Tab)

✓ Operator's Final Report.

Interim Reports.

✓ On-site Exam Report(s). (Tab)

Settlement Sheets.

If additional folders are required because of volume of records, show folder numbers and contents below:

Maps in folder number_____

Operator's Monthly Reports in folder number _____

R.C.G. ✓ ✓
Reviewer's Initials

7973

DEFENSE MINERALS EXPLORATION ADMINISTRATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

SUPPLEMENTAL REPORT OF REVIEW

I have reviewed the Monthly Reports of:

Black Hills Keystone Corporation

530 Fifth Avenue

New York 19, New York

pertaining to Exploration Project Contract No. Idm-E99, Docket No. DMA-812X-A, for the period of October, 1951 to August 15, 1952.

My review included an examination of the Monthly Reports (Forms MF-104), comparison of the costs claimed with the contract and pertinent schedules, consideration of the previous Report of Review issued by Jay L. Chambers on October 3, 1952, and a determination of the reasonableness and propriety of the costs.

This review was made in lieu of an audit of the Operator's accounts and records for the following reasons:

(a) the administrative cost to the Government of an audit would be excessive in relation to value of the contract or the estimated amount of possible disallowances thereunder; and

(b) a major portion ($5,754.62) of the costs covered diamond drilling under sub-contract at footage rates.

The review disclosed the following facts in regard to the amount paid or to be paid the contractor:

Total cost as billed by Contractor		$ 6,429.62
Exceptions:		
By DMEA Finance Officer	$ 165.00	165.00
Total Accepted Cost		$ 6,264.62

The contract calls for a 90 percent participation of exploration expenses by the United States Government. Therefore, payment to the contractor by the Government in the amount of Five thousand six hundred thirty-eight and 16/100 Dollars

— $5,638.16 —

is considered valid and proper, provided that the Regional Executive Officer has accepted or will accept the project as having otherwise met the terms of the contract.

November 14, 1952

E. R. Talbert
Auditor

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D.C.~~
Region V
2908 Colfax Avenue South
Minneapolis 8, Minnesota

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
NOV 20 1952

November 18, 1952

Memorandum

To: E. D. Talbert, Acting Chief, Contract Administration and Audit Division, DMEA, Interior Building, Washington 25, D. C.

From: Executive Officer, Field Team, Region V

Subject: Docket DMEA-812x-a, Contract Idm-E99
Black Hills Keystone Corporation

Reference is made to your letter of November 14, 1952, enclosing a revised Report of Review.

The $20 which you took exception to was for an item on the invoice for core boxes which is a legitimate charge.

The Report of Review is returned for correction, as indicated.

Also attached for your record is a copy of the drilling contract pertinent to both Black Hills Keystone Corp. contracts.

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

Attachments

ABNeedham:dg
cc Dutton
Region V
files
df

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

Mr. A. B. Needham
Executive Officer
DMEA Field Team, Region V
2908 Colfax Avenue South
Minneapolis, Minnesota

NOV 14 1952

Re: DMA-812X-A, Idm-R99
Black Hills Keystone Corp.

Dear Mr. Needham:

Reference is made to a telephone conversation between you and Mr. Chambers on or about October 27 relative to the referenced project.

Mr. Chambers is out of the city at the present time, but before he left he advised me of the telephone conversation and requested that a revised Report of Review, to supplement the one issued by him on October 3, 1952, be prepared upon the receipt of a copy of a Form MF-104 covering additional work and costs on the project. This Supplemental Report of Review has been prepared and the original and two copies thereof are enclosed for distribution by you in accordance with section 3 of Supplement 4 to DMEA Circular 19.

It will be noted that an exception of $20.00 has been taken to the sub-contracted drilling costs of $1,236.00 claimed by the Operator on the final MF-104 covering the period of July 21 to August 15, 1952. The MF-104A indicates the footage drilled during this period as 256, for which a proper charge (@ $4.50 per ft. for drilling and $.25 per ft. for water) of $1,216.00 is applicable. This exception has been taken without benefit of a copy of either the sub-contract or the pertinent invoice; therefore it would be appreciated if the propriety of this exception is verified before acceptance and distribution of the Report of Review. If you do not concur please advise and return the Report.

Your attention is invited also to the provision, in the final paragraph of the Report of Review, that you have "accepted or will accept the project as having otherwise met the terms of the contract." This provision was deemed necessary since neither the Field Team's final report has been received nor have I personally determined through consultation with you that the project was satisfactorily prosecuted.

This office has no record of the receipt of copies of the approved sub-contract pertinent to this project; however, the Report of Review has been prepared on the premise that Mr. Chambers verified the unit rates and your approval thereof during his recent visit to Minneapolis. It is requested that a copy of the sub-contract be forwarded to this office to complete our records.

Sincerely yours,

(Signed) E. D. Talbert

E. D. Talbert, Acting Chief
Contract Administration and
Audit Division

Enclosure

DEFENSE MINERALS EXPLORATION ADMINISTRATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

Weatherwax ltr. 11/18/52

SUPPLEMENTAL REPORT OF REVIEW

I have reviewed the Monthly Reports of:

Black Hills Keystone Corporation

530 Fifth Avenue

New York 19, New York

pertaining to Exploration Project Contract No. 1mP299, Docket No. DMA-812L-A, for the period of October, 1951 to August 15, 1952.

My review included an examination of the Monthly Reports (Forms MF-104), comparison of the costs claimed with the contract and pertinent schedules, consideration of the previous Report of Review issued by Jay L. Chambers on October 3, 1952, and a determination of the reasonableness and propriety of the costs.

This review was made in lieu of an audit of the Operator's accounts and records for the reasons:

(a) the administrative cost to the Government of an audit would be excessive in relation to value of the contract or the estimated amount of possible disallowances thereunder; and

(b) a major portion ($5,754.62) of the costs covered diamond drilling under sub-contract at footage rates.

The review disclosed the following facts in regard to the amount paid or to be paid the contractor:

Total cost as billed by Contractor		$ 6,429.62
Exceptions:		
By DMEA Finance Officer	$ 165.00	
Herewith: Excess charge on final MF-104 for drilling 256 ft. @ $4.75	20.00	185.00
Total Accepted Cost		$ 6,244.62

The contract calls for a 90 per cent participation of exploration expenses by the United States Government. Therefore, payment to the contractor by the Government in the amount of Five thousand six hundred twenty and 16/100 Dollars

— $ 5,620.16 —

is considered valid and proper, provided that the Regional Executive Officer has accepted or will accept the project as having otherwise met the terms of the contract.

November 14, 1952

E. R. Talbert
Auditor

REPORT OF REVIEW

Black Hills Kaystone Corporation

530 Fifth Avenue

New York 19, New York

pertaining to Exploration Project Contract No. Idm-E99, Docket No. DMA-812X-A, for the period of October, 1951 to February 27, 1952.

The review disclosed the following facts in regard to the amount paid or to be paid the contractor:

Total cost as billed by Contractor		$5,143.62
Exceptions:		
By DMEA Finance Officer	$165.00	
Herewith	-0-	165.00
Total Accepted Cost		$4,978.62

The contract calls for a 90 per cent participation of exploration expenses by the United States Government. Therefore, payment to the contractor by the Government in the amount of Four thousand four hundred eighty Dollars and 76/100

- $4,480.76 -

is considered valid and proper.

October 3, 1952

/s/ Jay Chambers
Auditor

DEFENSE MINERALS EXPLORATION ADMINISTRATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF REVIEW

I have reviewed the Monthly Reports of:

Black Hills Keystone Corporation

530 Fifth Avenue

New York 19, New York

pertaining to Exploration Project Contract No. Idm-899, Docket No. DMA-812X-A, for the period of October, 1951 to February 27, 1952.

My review included an examination of the Monthly Reports (Forms MF-104) and supporting documents attached thereto, comparison of the costs claimed with the contract and pertinent schedules, consultation with the Executive Officer of the field team, and a determination of the reasonableness and propriety of the costs.

This review was made in lieu of an audit of the Operator's accounts and records for the following reasons:

(a) the administrative cost to the Government of an audit would be excessive in relation to the estimated amount of possible disallowances thereunder;
(b) the Monthly Reports were partially supported by documentary proof of the costs incurred under the contract; and
(c) a major portion ($4,538.62) of the costs covered diamond drilling under subcontract at footage rates.

The review disclosed the following facts in regard to the amount paid or to be paid the contractor:

Total cost as billed by Contractor		$ 5,143.62
Exceptions:		
By DMEA Finance Officer	$ 165.00	
Herewith	-0-	165.00
Total Accepted Cost		$ 4,978.62

The contract calls for a 90 per cent participation of exploration expenses by the United States Government. Therefore, payment to the contractor by the Government in the amount of Four thousand four hundred eighty Dollars and 76/100

— $ 4,480.76 —

is considered valid and proper.

October 3, 1952

Jay K. Chamberlin
Auditor

FILE COPY
SURNAME:

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

600 Bel

Robertson
Houk
Gastage
Hoffland
Chamber
Johnson

Mr. W. K. Wallace
Black Hills Keystone Corporation
530 Fifth Avenue
New York, New York

MAR 18 1953

J.C. 3/18/53

Re: Docket No. DMEA-812A - Beryl-Mica
Bob Ingersoll Group
Pennington County, South Dakota
Contract No. Idm-899

Dear Mr. Wallace:

This is with reference to the subject Exploration Contract between the Black Hills Keystone Corporation and the Government.

The final audit of the contract expenditures and the final report of the Field Team have been received and accepted by this Administration. Of the total amount of $23,000.00 approved under the contract, the sum of $6,264.62 was expended, 90 percent of which, or $5,638.16, represented the Government's share. There were no unused material, supplies or equipment to be disposed of for the joint account of the Operator and the Government. The exploration work was completed in a satisfactory manner.

Because the results of the exploration were unfavorable, it is not our intention to make a certification of discovery or development which would create a lien against the subject property. We are, therefore, closing our books and records with respect to this project. Your attention is called, however, to Article 11 of the Contract which requires the Operator to "keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract".

Your interest in the Exploration Program of the Defense Minerals Exploration Administration and your willingness to participate therein are appreciated.

Sincerely yours,

C. O. Mittendorf

Administrator

JTRobertson:gad 3/16/53
Copy to: Admr. R. File
Operating Committee
Field Team, Region V
Docket File
Mr. Hoffland
Mr. Chambers
Mr. Houk

MF-200
(June 1951)

Indexed	
No. Card	
Card	
Reviewed	8/28/57

G. A. O.

Docket No. DMA 812X-A
Commodity Beryl, Mica
Idm-E 99

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

EXPLORATION PROJECT CONTRACT [1]

It is agreed this 3rd day of August, 1951, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration, hereinafter called the "Government," and [2]

Black Hills Keystone Corporation
530 Fifth Avenue
New York 19, N. Y.

hereinafter called the "Operator," as follows:

1. *Authority for contract.* This agreement is entered into under the authority of the Defense Production Act of 1950, pursuant to Mineral Order 5, entitled "Regulations Governing Government Aid in Defense Exploration Projects."

2. *Operator's property rights.* The exploration project shall be conducted on that certain property situated in the State of South Dakota, County of Pennington described as follows: [3] known as the Bob Ingersoll group of claims under patented mineral Survey No. 720, located 2½ miles from Keystone, Township 2-S, Range 6E, B.H.M.

with respect to which the Operator represents and undertakes: [4]

(*a*) That he is the sole owner, in possession and entitled to possession, and that the property is subject only to the following claims, liens, or encumbrances as to each of which the subordination agreement of the holder is attached:

None

(*b*) ~~[illegible]~~

3. *Exploration project.* The Operator, within Thirty (30) days from the date of this contract shall commence work on a project of exploration for [5] Beryl, Mica, etc.; shall prosecute the work efficiently, expertly, in a workmanlike manner, in accordance with good mining standards, with suitable and adequate equipment, materials, and labor, all properly designed to bring the project to completion within a period of [6] Fourteen (14) Months from the date of this contract. The exploration project and the work to be performed are more fully described on Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, is made a part of this contract.

4. *Performance of the work.* The work shall be performed by the Operator, under his sole direction and control: *Provided,* That with the consent of the Government and its written approval of the contract or contracts, all or any part of the work may be performed by the Operator through contract or contracts with independent contractors. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

5. *Fixtures and improvements.* The Operator shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of the exploration project without any allowance for the use, rental value, depreciation, depletion, or other cost of acquiring, owning, or holding possession thereof. Any additional facilities, buildings, and fixtures, to be purchased, installed, or erected by the Operator, with the estimated cost of each, to which the Government will contribute currently its agreed pro rata share, are listed in Exhibit "A" attached hereto. The difference between the cost of such additional facilities, buildings, or fixtures, and the salvage value thereof at the conclusion of the work, shall be charged as a cost of the project to which the Government has contributed its pro rata share.

6. *Operating equipment.* Any operating equipment to be rented, purchased, or furnished by the Operator, with the allowable rental, purchase price, or depreciation, as the case may be, is listed under appropriate headings in Exhibit "A" attached hereto. As to equipment purchased for the project, the Government will contribute its agreed pro rata share of the cost thereof, and the difference between the cost and the salvage value at the conclusion of the work shall be charged as a cost of the project to which the Government has contributed its pro rata share.

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] State name, address, and nature of organization if any.
[3] Give legal description or enough to identify the property.
[4] Strike out the provision not applicable.
[5] Name of mineral.
[6] Not in excess of 2 years.

7. *Title to and disposition of property.* All facilities, buildings, fixtures, equipment, or other items costing more than $50 each, paid for or purchased with funds contributed jointly by the Operator and the Government, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the termination of the contract, if they have any salvage value, shall be disposed of for their joint account unless the Government, in writing, waives its interest in any such items. The Government may require the dismantling, severance from land, and removal of any such items in order to realize its interest in the salvage value thereof, and the cost of any such removal and of the disposal of the items shall be for the joint account of the parties in proportion to their respective interests.

8. *Labor and supervision.* An itemized schedule of labor, by numbers and classes (miners, muckers, millmen, etc.), and of supervisors, by numbers and positions, with the maximum wages or salaries that may be paid to each as an allowable cost of the project is set forth in Exhibit "A" attached hereto.

9. *Rehabilitation and repairs.* A statement of the cost of any necessary rehabilitation or repairs to put existing facilities, buildings, installations, and fixtures into useful and operable condition and which are to be allowed as costs of the project is included in Exhibit "A."

10. *Allowable costs of the project.* The costs of the project in which the Government will participate are limited to the necessary, reasonable, direct costs of performing the exploration work, including the costs of materials, supplies, engineering, power, water, analytical work, accounting, and utilities, including items of equipment costing less than $50 each; and the costs referred to in Articles 5, 6, 8, and 9, and the exhibits annexed to and referred to in this contract. Although the Government may pay part of the cost of new or additional facilities, structures, buildings, and equipment, only the depreciation on such items, computed as indicated in Articles 5 and 6, will be charged as a cost of the project. No items of general overhead, corporate management, interest, taxes, or any other indirect costs not expressly allowed by these provisions, or work performed or costs incurred before the date of this contract, shall be allowed as costs of the project in which the Government will participate.

11. *Accounts and audits.* The Operator shall keep suitable records and accounts of operations, which the Government may inspect and audit at any time. The Government may at any time require an audit of the Operator's records and accounts by a certified public accountant, the cost thereof to be treated as a cost of the project. The Operator shall keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract.

12. *Progress reports.* The Operator shall provide the Government with monthly reports of work performed under the contract upon forms to be provided by the Government. Each monthly progress report shall bear the certification of the Operator and shall constitute the Operator's invoice of costs incurred on the project during the period covered by the report.

13. *Payment to the Operator.* The monthly progress report (invoice), to the extent approved by the Government, shall be processed for payment by the Government. Payment shall be made in the amount of 90 percent of the approved costs incurred; *Provided,* That the aggregate total of all sums paid by the Government under this agreement shall not exceed $ 20,772.00, which is 90 percent of the agreed estimated total cost of this project, $ 23,080.00.

14. *Final reports by Operator.* Upon completion of the project or termination of this contract, the Operator shall provide the Government with a comprehensive geologic and engineering report, including an estimate of ore reserves, to the best of his ability. Four copies of all reports shall be furnished to the Government.

15. *Repayment by Operator.* If, upon the completion of the exploration project or termination of the contract, the Government considers that a discovery or development has resulted from the work from which commercial production of ore may be made, the Government, within 6 months thereafter, shall so certify to the Operator, particularly describing and delimiting its estimate of the discovery or the development. Thereafter, if and as ore is produced as a result of such discovery or development, the Operator and his successor in interest shall be and become obligated to pay to the Government a percentage royalty on the net smelter returns or other net proceeds realized from such ore, concentrates, or metal produced within ten (10) years from the date of this contract, until the total amount contributed by the Government, without interest, is fully repaid or said 10 years have elapsed, whichever occurs first, as follows:

Of net smelter returns or other net proceeds not in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent.

Of net smelter returns or other net proceeds in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent, plus one-half (½) percent for each additional full fifty cents ($0.50) in excess of eight dollars ($8.00) per ton of ore, but not in excess of a maximum of five (5) percent.

This obligation to repay from net returns or proceeds shall be and remain a claim and lien upon the mineral deposit which is the subject of the exploration project and upon any production resulting from such discovery or development, in favor of the Government, until fully paid, or until said 10-year period has elapsed; and this claim and lien and the Government's right to repayment shall survive any termination of the contract, whether by completion of the exploration project or otherwise. This article is not to be construed as imposing any obligation on the Operator or his successor in interest to produce ore from any such discovery or development.

16. *No assignment of contract.* Without the written consent of the Government, the Operator shall not assign or otherwise transfer or hypothecate this contract or any rights thereunder.

17. *Termination and completion.* The Government may, at any time, by written notice to the Operator, terminate this contract: (*a*) If the Operator fails to provide his share of the money necessary to prosecute operations pursuant to the terms of the contract; (*b*) if the Operator, in the opinion of the Government, fails to prosecute operations pursuant to the terms of the contract; or (*c*) if in the opinion of the Government, operations up to the time of the notice have not indicated the probability of making any worthwhile discovery and in the opinion of the Government further operations are not justified. Upon the completion of the project or any termination of the contract the Operator shall render to the Government a full and final accounting of his operations under the contract and his expenditures of money; shall dispose of any unused materials, supplies, and equipment for the joint account of the Operator and the Government in the proportion of their respective interests; and shall pay to the Government its pro-rata share of any money remaining.

Executed in sextuplicate the day and year first above written.

Black Hills Keystone Corporation
(Operator)

By H. E. Wallace
President & Treasurer

THE UNITED STATES OF AMERICA

By C. Mittendorf
Director
Production Expansion Division
Defense Minerals Administration

U. S. GOVERNMENT PRINTING OFFICE 16—64060-1

EXHIBIT "A"

Performance of Work:

Work will consist of:

Sub-Project 1:

Four pegmatite dikes, (No's. 1, 2, 3, and 4), are to be explored by diamond drilling to determine the continuity and lateral extent in depth as well as the mineral content.

This program will consist of about 2050 feet of diamond drill hole of BX size or larger at an estimated cost of $10,250.00. The diamond drilling will be limited to 850 feet of drill hole for dikes No's. 1 and 2 and 1200 feet of drill hole to dikes no's. 3 and 4.

The location, extent, and direction of all diamond drill holes to have the prior approval of the Government field engineers. All sampling to be supervised by Government field engineers. This work in Sub-Project 1 to be completed within seven months from the date of the contract, and the drilling is to be done by a contractor.

Sub-Project 2:

If the exploration program in Sub-Project 1 encounters mineralization which in the opinion of the Government field engineers justifies additional exploration of these pegmatites, then a part or all of the following work if approved by them will be done. This work will consist of 325 feet of crosscutting and 190 feet of drifting both having a cross section size of 7 x 5 feet. This work to consist of 90 feet of drift and 200 feet crosscut exploring Dike No. 3, and 100 feet of drifting and 125 feet of crosscutting exploring Dike No. 4. This project is estimated to cost $12,830.00.

Cost of the Project:

Sub-Project 1:

Dikes 1 & 2 - 850 feet diamond drill hole @ $5.00 per foot	$ 4,250.00
Dikes 3 & 4 - 1200 feet diamond drill hole @ $5.00 per foot	6,000.00
1/ Total Sub-Project 1	$10,250.00

1/ Estimated total cost of the diamond drilling program.

Sub-Project 2:

Dike No. 3 - 90 feet drifting @ $25.00/ft.	$ 2,250.00
200 feet crosscutting @ $22.00/ft.	4,400.00
Dike No. 4 - 100 feet drifting @ $25.00/ft.	2,500.00
125 feet crosscutting @ $22.00/ft.	2,750.00
Miscellaneous preparatory expenses	930.00
Estimated total Sub-Project 2	$12,830.00
Total Cost of Project	$23,080.00

The attached map outlines the drifting and crosscutting to be done by Sub-Project No. 2.

Sub-Project No. 1:

Diamond drilling contracted @ $4.50/ft. 2050 feet	$ 9,225.00
Core handling, transportation of an engineer-superintendent and samples	725.00
Miscellaneous expense, supervision, engineering	300.00
Estimated total Diamond drilling cost	$10,250.00

Sub-Project No. 2:

Estimated Cost per foot of Drifting and Crosscutting
(Cross section size 7 x 5 feet)

	Drifting	Crosscutting
Labor	$ 15.00	$ 13.50
Miscellaneous Expense	10.00	8.50
1/ Estimated cost per foot	$ 25.00	$ 22.00

1/ Estimated cost includes supervision, labor, supplies, rentals, sampling, office transportation of an engineer-superintendent, workmen, supplies and samples.

Fixtures and Improvements:

Does not apply to this contract.

Operating Equipment:

To Be Rented

Rental from operator of all neccessary mining equipment to drive the drifts and crosscuts, including compressor rock drills with accessories, mine cars and small tools together with the necessary mine rail, rail ties and spikes @ $350 per month.

Labor and Supervision:

Sub-Project 1

Engineer-Superintendent part time @ $50.00/month - 6 months

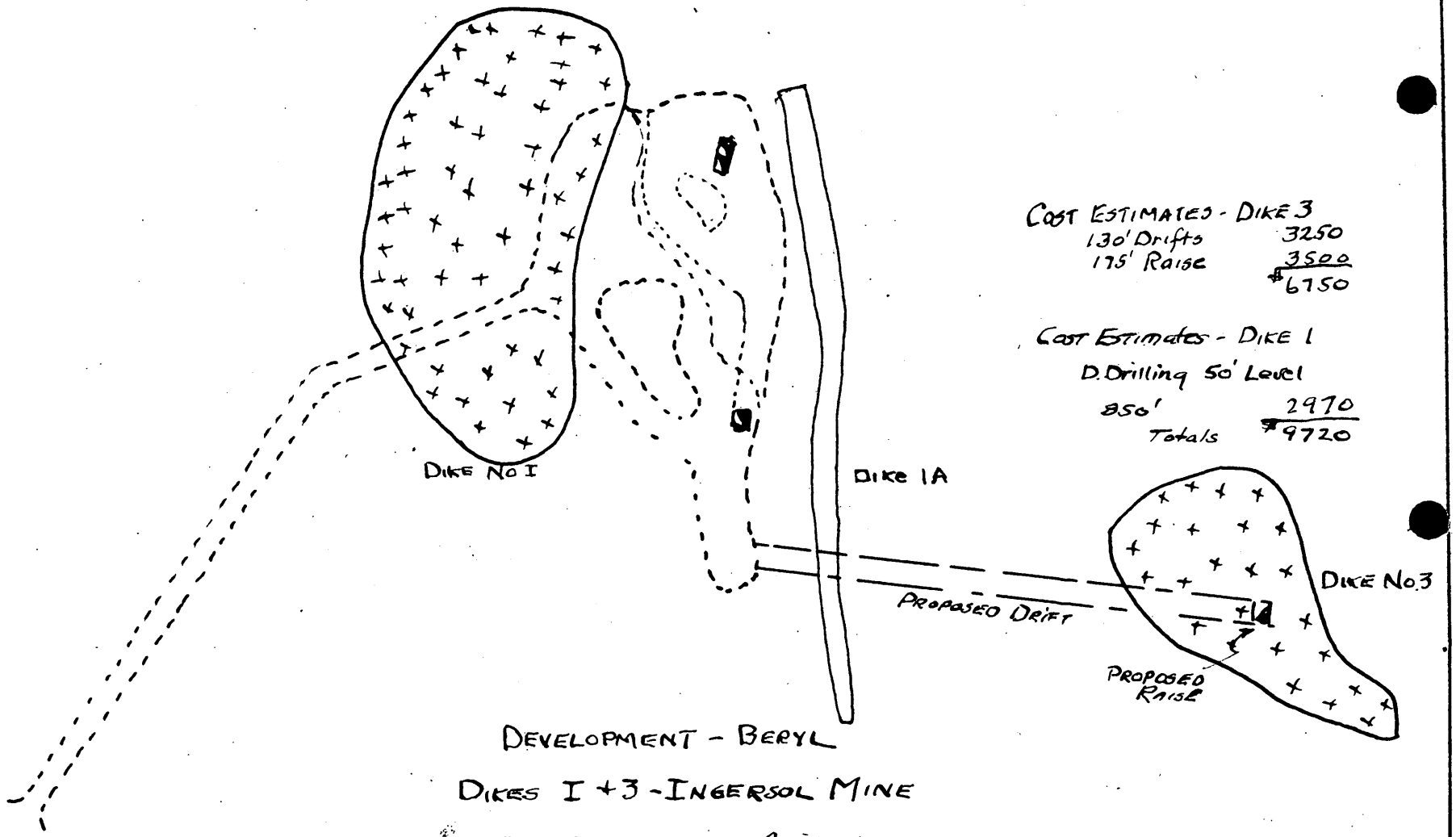
Sub-Project 2

1 - Engineer-Superintendent part time 6.5 mos. @ $50.00/month
1/ 1 - Miner @ $1.25/hr.
1/ 1 - Mucker @ $1.10/hr.
1/ 1 - Laborer @ $1.19/hr.

1/ Does not include overtime pay, contract bonus or insurance (unemployment, social security and compensation) estimated at 7% of payroll.

Rehabilitation and Repairs:

Does not apply to this contract.



Cost Estimates - Dike 3

130' Drifts	3250
175' Raise	3500
	$6750

Cost Estimates - Dike 1

D. Drilling 50' Level	
850'	2970
Totals	$9720

DEVELOPMENT - BERYL

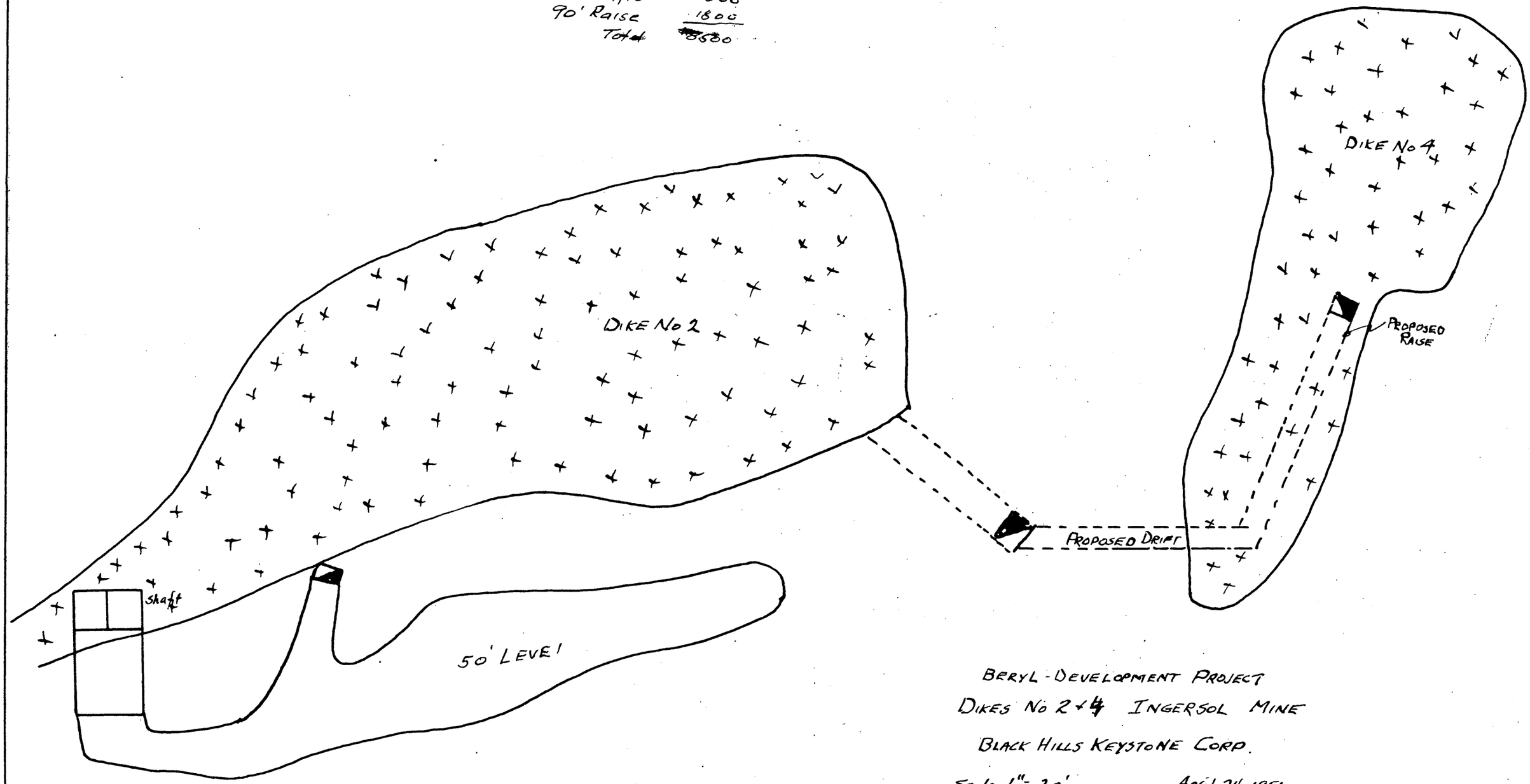
DIKES I + 3 - INGERSOL MINE

Scale 1" = 40' April 25, 1951

BLACK HILLS KEYSTONE CORP.

COST ESTIMATES

1200' D. Drilling	$4200
100' Drifts	2500
90' Raise	1800
Total	$8500



BERYL - DEVELOPMENT PROJECT

DIKES No 2 + 4 INGERSOL MINE

BLACK HILLS KEYSTONE CORP.

Scale 1" = 20' April 24, 1951

KEYSTONE S. Dak.

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. DMA-812X

Date received 5/18/51

Participation

Black Hills Keystone Corp.
530 Fifth Avenue
New York 19, N.Y.

Name and address of applicant

Date May 14, 1951

FILL IN THIS BLOCK

Date of application April 26, 1951 Estimated cost $20,000.00

Mineral or metal Beryl, Columbite- Cassiterite uranium Percentage of Government participation 90%

Location of mine Keystone, S.D.

Date of filing MF-100 May 21, 1951 DMA Docket Number, if available DMA-812X

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. None
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)? As much as may be required by Govt.

*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. By rail. Applicants mills at Keystone.

*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.

Black Hills Keystone Corp.
(Name of company)

By F. E. Wallace
(Signature of authorized official)

May 14, 1951
(Date)

President & Treasurer
(Title)

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

Financial Statement Fiscal year 1950

Assets

Current Assets	$ 65,087.99
* Capital Assets	52,771.17
	$ 117,859.16

Liabilities & Net Worth

Current Liabilities & Net Worth

Current Liabilities	$ 3,082.16
Other Liabilities	39,157.97**
Net Worth	75,619.05
	$ 117,859.16

* Mining Lands carried at nominal value

** This sum owed to officers of company exclusively.

a. Ingersoll Group of Mining Claims, Mineral Survey No. 720, patented lands owned in fee by Applicant. Keystone Mining District, T 2S R6 E BHM. See attached plats covering project of exploration giving details of areas to be explored.

They consist of diamond drilling and subsequent Proposed Drift and Raise to explore Dike 4 adjacent to Dike 2. Dike 4, has been prospected along the outcrop and shows substantial beryl crystals all along the exposed outcrop. See attached plat marked Dike No. 2 & 4.

Similar exploration is to be carried out to explore Dike 3, which lies some 175 ft. above Dike 1. See Plat attached Marked Dike 1 & 3. On Dike 3, the outcrop of which shows numerous beryl crystals is to be explored in manner similar to Dike 4.

Attention is further called to Dike marked 1A. This outcrop which extends a length of some 150 as outlined on plat with a width of 6' to 10' has substantial showings of cassiterite and columbite. It is proposed to cross-cut this Dike in drifting to Dike 3. Should it be warranted it is proposed to do some work on this Dike also However as the exploration project is primcipally for beryl ore it is not included in the estimate. However there is a good possibility that this Dike marked 1A may contains substantial quantities of uranium ores. In Dike 2, we have uncovered a vein some 6' wide containing uraninite which according to AEC runs as high as 6% U_3O_8. This ore is of complex occurence including both columbite and cassiterite. Further details will be given in the Technical data form.

The Requirements & Costs

The Cost Estimates are set forth as follows:

Dike 1 & 3

Diamond Drilling	850'	Cost	$2970.00	
Drifts 130'			3250.00	
Raise 175'			3500.00	$9720.00

Dikes 2 & 4

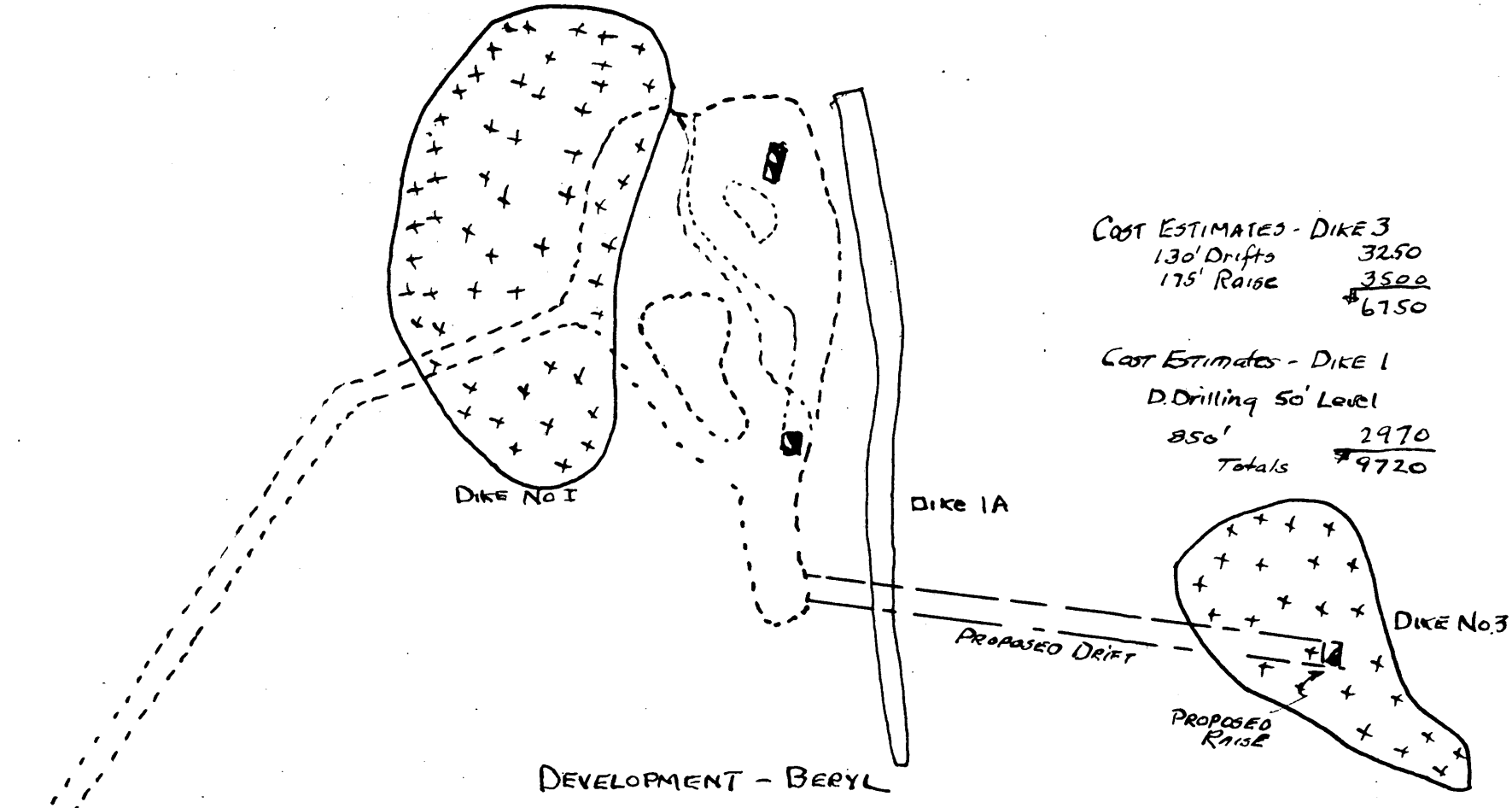
Diamond Drilling	1200'	Cost	$4200.00	
Drifts 100'			2500.00	
Raise 90'			1800.00	
				$8500.00

Contingencies	$1780.00
Total	$20,000.00

Schedule of projects.

Diamond drilling to be contracted by firm normally used for such projects by Bureau of Mines. Time about 90 days from beginning of work. Drifts and raise to be contracted under supervision of the applicants, as approved by DMA. Time about 6months or longer depending on weather and other natural conditions. In any event within one year.

Funds can be paid by DMA as required by progress of work.



COST ESTIMATES - DIKE 3

130' Drifts	3250
175' Raise	3500
	$6750

COST ESTIMATES - DIKE 1

D. Drilling 50' Level	
850'	2970
Totals	$9720

DEVELOPMENT - BERYL

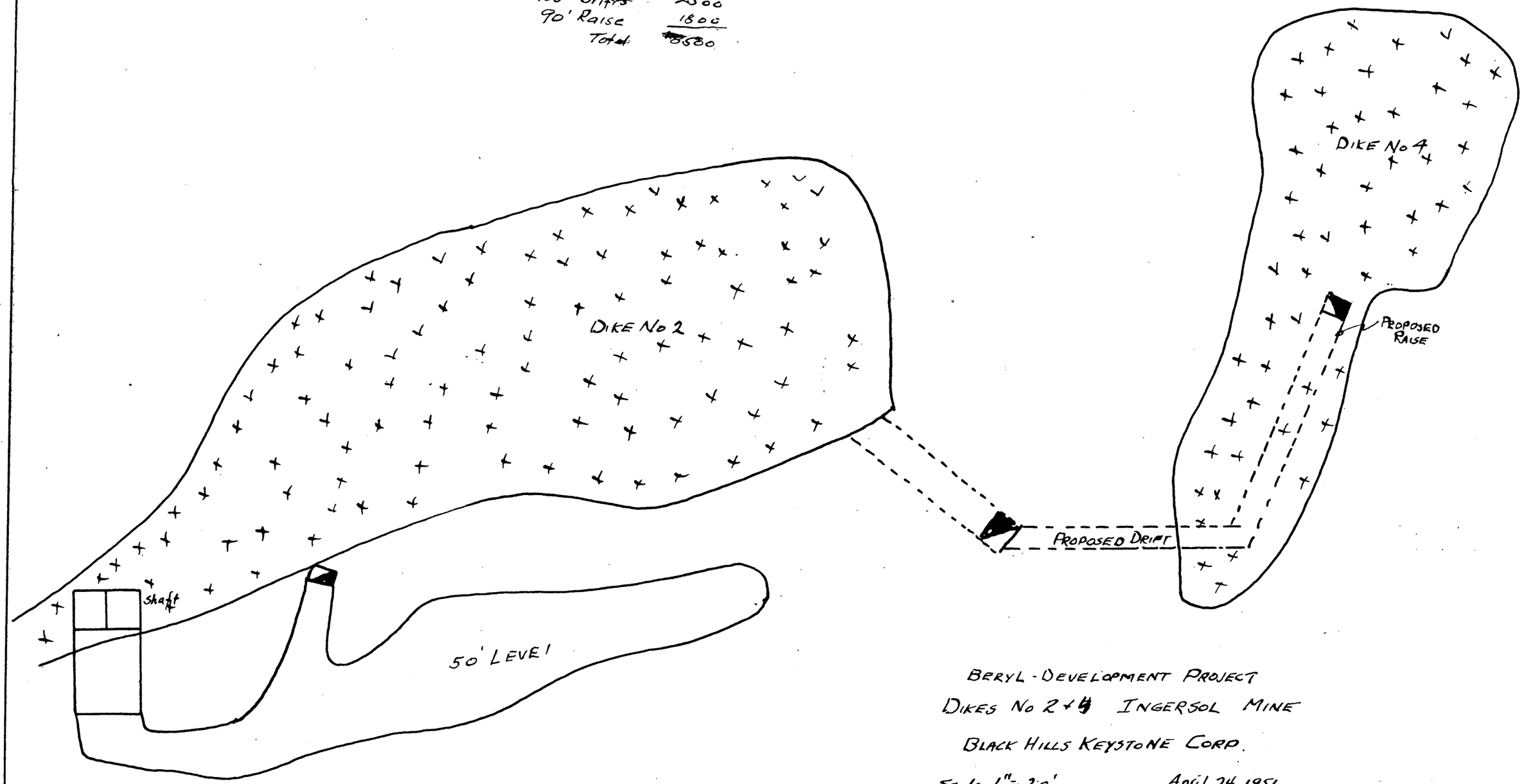
DIKES I + 3 - INGERSOL MINE

Scale 1" = 40' April 25, 1951

BLACK HILLS KEYSTONE CORP.

COST ESTIMATES

1200' D. Drilling	$4200
100' Drifts	2500
90' Raise	1800
Total	$8500



BERYL - DEVELOPMENT PROJECT

DIKES No 2 + 4 INGERSOL MINE

BLACK HILLS KEYSTONE CORP.

Scale 1" = 20' April 24, 1951

KEYSTONE S. Dak.

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. DMA-812 X

Date received 5/16/51

Participation

Black Hills Keystone Corp.
530 Fifth Avenue
New York 19, N.Y.

Name and address of applicant

Date May 4, 1951

FILL IN THIS BLOCK

Date of application April 26, 1951

Estimated cost $15,500.00

Mineral or metal Beryl

Percentage of Government participation 90%

Location of mine Keystone, South Dakota

Date of filing MF-100 April 26, 1951

DMA Docket Number, if available DMA-812 X

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.

Black Hills Keystone Corp. (Name of company) By F. E. Wallace (Signature of authorized official)

May 10, 1951 (Date) President & Treasurer (Title)

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—04067-1 U. S. GOVERNMENT PRINTING OFFICE

Company is sole owner
There are no claims, liens, or encumbrances whatsoever

Not Leased

Financial Statement fiscal year 1960

Current assets	[illegible]
Capital assets	[illegible]
	117,[illegible]5.00
Current liabilities.....	[illegible].16
Other liabilities.....	[illegible]0,1[illegible]7.07
Net worth	75,[illegible]19.07
	117,[illegible]59.00

Total to owners of property

The company is prepared to invest all sums that may be required under the terms of this application whether in cash or equipment or both as may be required by the regulations.

a. The listing full Group of Claims consist of some 150 acres of mining Claims Mineral Survey No. 1010 and adjacent unpatented mining claims of what is known as Sylvia Lode and part of Juniper Lode. See attached Plat. [illegible] PC H. [illegible].

Ore to be processed at Mill belonging to company situated on the adjacent Ingersoll Claims. See plat attached. Hand sorted ore as recovered in adequate tonnages can be shipped direct via C[illegible] without further processing. However beryl on this property occurs as a dissemination of small crystals for the most part in matrix of albite and quartz. It is proposed in this project to produce a milling grade of ore by sorting out after crushing on a sorting [illegible] as much waste as possible prior to hauling to mill.

Beryl is the principal ore found in this mine and the surface showing indicate a beryl zone some 6 ft. in width surround the entire dike core.

It is proposed by driving a tunnel some 100 ft. below the outcrop to contact the heart of the dike thus making available if conditions remain uniform some 100,000 tons of low grade beryl ore that will average about [illegible] beryl. (See sketch attached). Prior to driving this tunnel diamond drilling as provided for in this application will serve to confirm the outlines of the dike and reveal other pertinent information.

Surface operations to date have produced some [illegible] tons of beryl from mining of the beryl zone as well as some [illegible] tons of high grade pure white mica free from all stain or contamination that can be processed for flake mica or ground at the mill for micronica.

The time required to complete the exploration project is estimated at not more than six months.

It is anticipated that this plant should be sufficient to carry through the project and that within this month operation should be well under way to produce an essential component of beryl ore and a fish meal operation.

the Sitting Bull Claims have been thoroughly prospected and explored and the availability of large tonnages of beryl seems assured. The property is well known to the Bureau of Mines and has been inspected a number of times by the latter.

Ore from this property has been sampled by the Bureau of Mines and investigations carried out by the College Park, Md. Branch of the Bureau confirm the belief that it is feasible to make good recoveries of the beryl by electrostatic methods. Under date of Dec.4,1950 Mr. P. J. Gross Chief, Mineral Technology Division Region VIII, forwarded a report to our company of the results obtained with electrostatic separation of our Sitting Bull beryl ore which which showed a concentrate of 14% by weightwas recovered from an average sample of beryl ore containing small crystals embedded in quartz-albite matrix.

The company proposes to employ a firm approved by the Government to undertake the diamond drilling as outlined, as the first step in the project.

Upon completion of this work and approval thereof, the work of the driving the tunnel will be undertaken, a crushing plant with sorting belt will be installed and ores from the operation immediately processed.

No provision is made in this exploration project for cost of this equipment and installation.

It is proposed to use these drifts in driving the tunnel and raise and therefore as the situation warrants employ such miners and other labor as required to bring to completion not only the work required to put the operation in production.

No amounts figures and all life time be given in detail except that the total sums submitted are considered to be ample to cover the actual cost of operation without any profit whatsoever to the company.

As the work progresses further data will be furnished

The sum of $10,000.00 is considered as being required for the work as outlined.

Form MF-100
(March 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Form approved.
Budget Bureau No. 42-R1026.

GENERAL TECHNICAL DATA
FOR USE UNDER THE
DEFENSE PRODUCTION ACT OF 1950

NOT TO BE FILLED IN BY APPLICANT

Docket No. Dma-812X

Date received 5/16/51

Black Hills Keystone Corp.
530 Fifth Avenue
New York 19, N.Y.

Name and address of applicant

Date May 5, 1951

INSTRUCTIONS

This form is to be filed with Defense Minerals Administration, Department of the Interior, Washington 25, D. C. It should be accompanied by appropriate application form when a specific type of Government assistance is requested, in the form of (1) loan, (2) purchase contract, (3) Government guarantee of a private loan, (4) Necessity Certificate pursuant to the provisions of Sec. 124–A (Amortization Deduction) of Internal Revenue Code, 1950, (5) priorities or allocation of mining equipment, and maintenance, repair and operating supplies, and (6) other forms of Government assistance that might arise under the Act. Submit four (4) signed copies of the form and accompanying papers. Name and address should be stamped or typed on each sheet of this form and all accompanying papers. *When a question is inapplicable it should be so stated on the form.* Additional sheets may be attached in answering any questions or in supplying additional information. (IF YOU CANNOT ANSWER A QUESTION, SO STATE.) If a question is answered elsewhere indicate where answered. It is not necessary to answer it again.

GENERAL TECHNICAL DATA

Supply the following information on separate sheets, arranged, numbered, and lettered as indicated:

1. Materials produced:
   (*a*) What are the chief mine, mill, or smelter products?
   (*b*) What are the byproducts, if any?
2. Name(s) and type(s) of mine(s), mill(s), smelter(s), refinery(ies), pit(s), quarry (ies), drilling operation(s). Include old names of property, if any. Show extent of workings, including the following:
   (*a*) Linear feet of shafts.
   (*b*) Linear feet of drifts and crosscuts.
   (*c*) Linear feet of tunnels or adits.
   (*d*) Linear feet of other mine openings (explain briefly).

   Indicate whether mine is flooded or not. Describe any pumping problems. Give size or productive capacity.
3. For each operation listed above supply the following:
   (*a*) Distance and direction from nearest town and shipping point.
   (*b*) Mining district.
   (*c*) Township, Section, Range.
   (*d*) County, State.
4. (*a*) State whether or not property is now in operation, and if in operation, by whom operated.
   (*b*) Are you operating this property as:
   - ☐ Owner.
   - ☐ Lessee.
   - ☐ Contractor.
5. Number of years in production _____

   If not in production or operation, estimated date when production will begin _____
6. Experience of operators:

   Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who manage the project.
7. History:
   (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for suspension of operation.
   (*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.

8. Names and addresses of Officers, Directors, or Partners, and in addition thereto, the five largest stockholders if applicant is a corporation.

Name and Address (a)	Official Title (If officer is also director indicate by "D") (b)	Total of Annual Salary, Commissions, Bonuses, Etc., Received From Applicant and Affiliates During Last Fiscal Year (c)	Estimated Net Worth Outside of Interest in Applicant (d)	Number of Shares Held in Applicant Corporation: Common (e)	Number of Shares Held in Applicant Corporation: Preferred (f)	Life Insurance Carried for Benefit of Applicant: Amount (g)	Life Insurance Carried for Benefit of Applicant: Net Cash Surrender Value After Loans (h)
			000 omitted				
William K. Wallace D.	President	-	500,	100	-	-	-
Winifred D. Wallace D.	VP	-	1500,	100	-	-	-
	Total		x x x x x			x x x x x	x x x x x

If more lines are needed continue on separate sheet.

9. Capital Stock Issues:

For Corporate Applicants

Item	Authorized (a)	Outstanding (b)	Par Value (c)	Number of Shares Outstanding (d)	Dividend Rate Last Paid* (e)
Common stock	$ 20,000	$ all	$ $100.00	200	15% 1945
Preferred stock	$	$	$		

*Indicate period covered.

allearning since invested in developing property

10. Production:

~~See Line 18, for explanation~~

Item	Kind of Product (a)	1948 Total (b)	1949 Total (c)	1950 Total (d)	Present Average Monthly (e)
1. Quantity of product mined or quarried (Short, long, metric tons; barrels; pounds; etc.)					
2. Quantity of product processed (specify unit of measure and type of process)					
3. Quantity and grade of product sold or shipped (specify units of measure)					

11. Do you contemplate a change in the present average monthly rate of production? If so, state estimated maximum monthly production and basis of change.

See Line 18.

12. Ore or Mineral Reserves:

(*a*) Describe the ore or mineral deposit briefly. Accompany the application by any available report on the geology and ore reserves.

(*b*) If deposit is other than placer:

(1) Submit assay plans and/or sections showing location and size of proved (measured) and probable (indicated) ore or mineral reserve.

(2) State the tonnage (indicate type of ton) and grade of each class of ore reserve, as above, and show how computed. Tabulated total ore reserve as follows:

TOTAL ORE OR MINERAL RESERVES

Ore or Mineral Reserve	Estimated Tons (a)	Metal or Mineral Content Per Ton (Grade) (b)	Gross Value Per Ton (c)	Recoverable Unit Value Per Ton (d)	Estimated Cost of Production Per Ton (e)
Measured (proved)	The exploration work preceded by diamond drilling is expected to confirm ore reserves at some 100,000 tons of beryl ore averaging 2%-3%				
Indicated (probable)					

(*c*) If placer:

(1) Give estimated total yardage and average marketable mineral content of each deposit.

(2) Submit map showing location of placer deposit and surrounding area, with all test holes or pits. Submit logs of each hole and test pit with depth and average value of each.

(3) Describe gravel, stating whether fine, medium or coarse; loose, tight, cemented, or frozen, and whether it contains stumps or boulders more than 1 foot in diameter; if so, how large, and in what proportion.

(4) Describe bedrock, giving type (granite, sandstone, shale, etc.) and state whether it is hard or soft, smooth, uneven or rough.

(5) Describe overburden, stating whether loose, tight, or cemented; fine or coarse textured; furnish estimate of average thickness and total amount.

(6) Tabulate the reserves using the form outlined above for ore or mineral reserves.

13. Access Roads:

Give road distances to shipping, supply and residence points, stating kind and condition of roads.

14. Water Supply:

State source and quantity of water available for operations and whether sufficient for all seasons of year.

15. Power:

State amount of power used, rate per hour, and source thereof.

16. Labor:

State number and classes (miners, muckers, millmen, etc.) of men employed during a recent representative payroll period.

17. Equipment and Facilities:

Describe present equipment on the property, including buildings. (State condition.) List major pieces of equipment now owned or controlled and in serviceable condition available for this operation.

18. Are there any particular conditions or circumstances affecting your operations that are not described above? If so, explain.

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.

Black Hills Keystone Corp.
(Name of company)

By F. C. Wallace
(Signature of authorized official)

May 10, 1951
(Date)

President & Treasurer
(Title)

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—63792-1

a. Beryl
b. Columbite, mica

Sitting Bull Group of Claims Mineral Survey 1820. Patented.
Open Cut and underground

a. none
b. 60 ft.
c. none
d. 150 ft. of workings to prove up face of property at exposed outcrop

a. One mile, Keystone, S.D.
b. Keystone
c. T2S R6E BHM
d. Pennington County, SouthDakota

a. Not now being operated, but fully equipped with compressor mine rails and cars etc. needed for exploration project.

Property has been thoroughly prospected and examined, but not actually operated because of the nature of the beryl occurence in small crystals has made it uneconomic hitherto to use hand sorting methods and opening up of property has been held up for this reason. Once exploration work completed in about three months property could be placed in production with newer technics now available.

The Black Hills Keystone Corp. has been engaged in mining for beryl and other rarer minerals since 1933 continuously under the same management. The applicant and the engineer in charge of operations have produced from its adjacent Ingersoll properties more beryl ore - hand sorted - than any other mine in the United States to date. The Sitting Bull Claims owned by the Applicant from samples taken and by numerous indications appears to be one of the richest sources of beryl now known. These claims were first prospected by the Beryllium Corp. in 1931 and the latter took out some 10 tons of beryl in fairly large crystals by hand methods. The reason that the working of this property has been delayed ins because from the nature of the occurence of beryl ore it has hitherto been wasteful and uneconomic to exploit same. However as above stated this is nolonger the case.

Distance to shipping point about one mile, supplies about same thought trucks can discharge within radius of mine. Residence from mile to three miles. Condition of road two thirds of distance is on U.S.Highway 16, then by private road in good condition to proposed tunnel site.

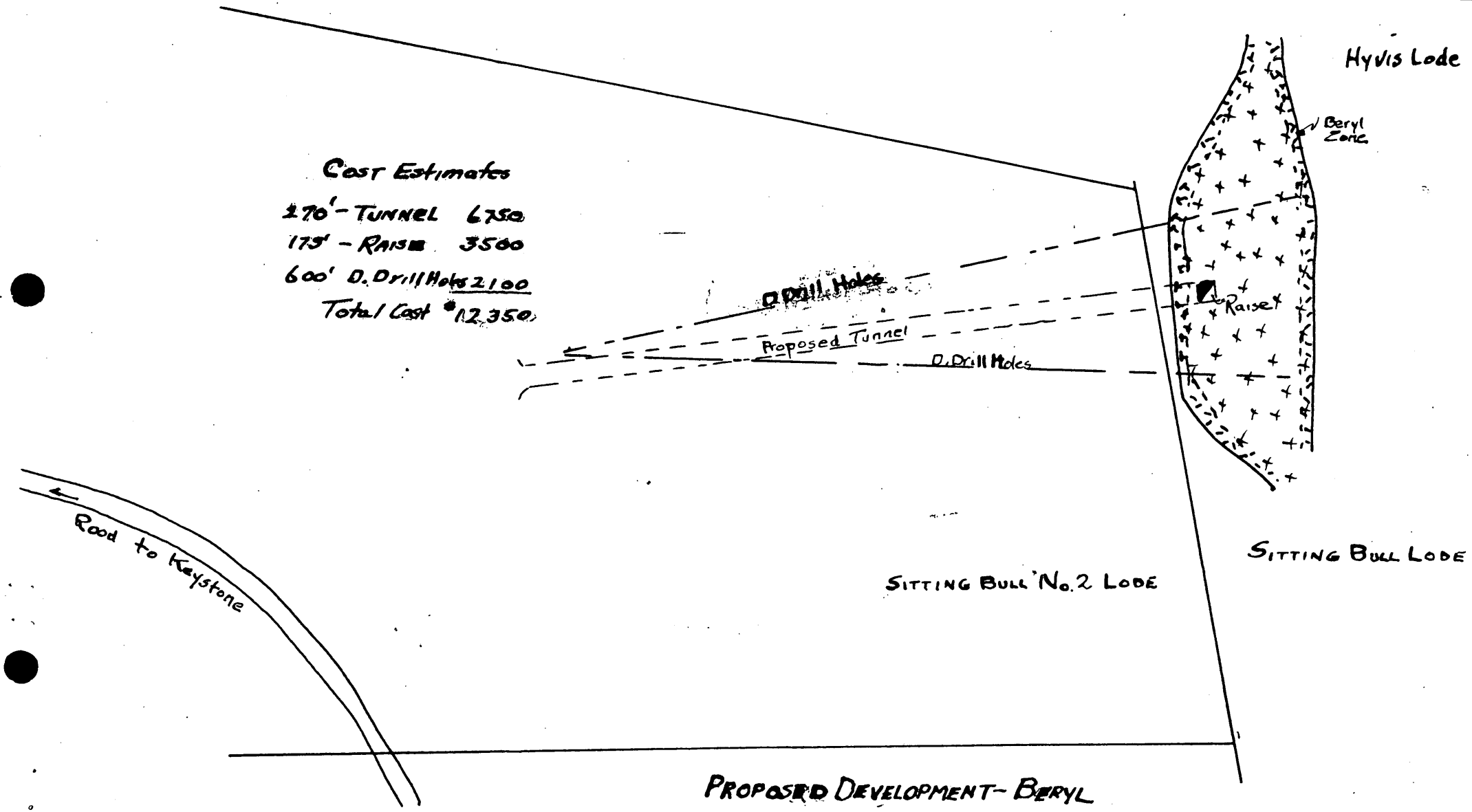
Water used to date hauled to premises. However well can be driven when work in progress to meet all needs.

Compressor used in operations to date gas driven. However there is a power sub-station within 100 yards of mine that could furnish all needed power.

There is adequate mine labor available. It is tight at the moment but men with adequate mining experience to be found in the Keystone-Hill City -Custer area

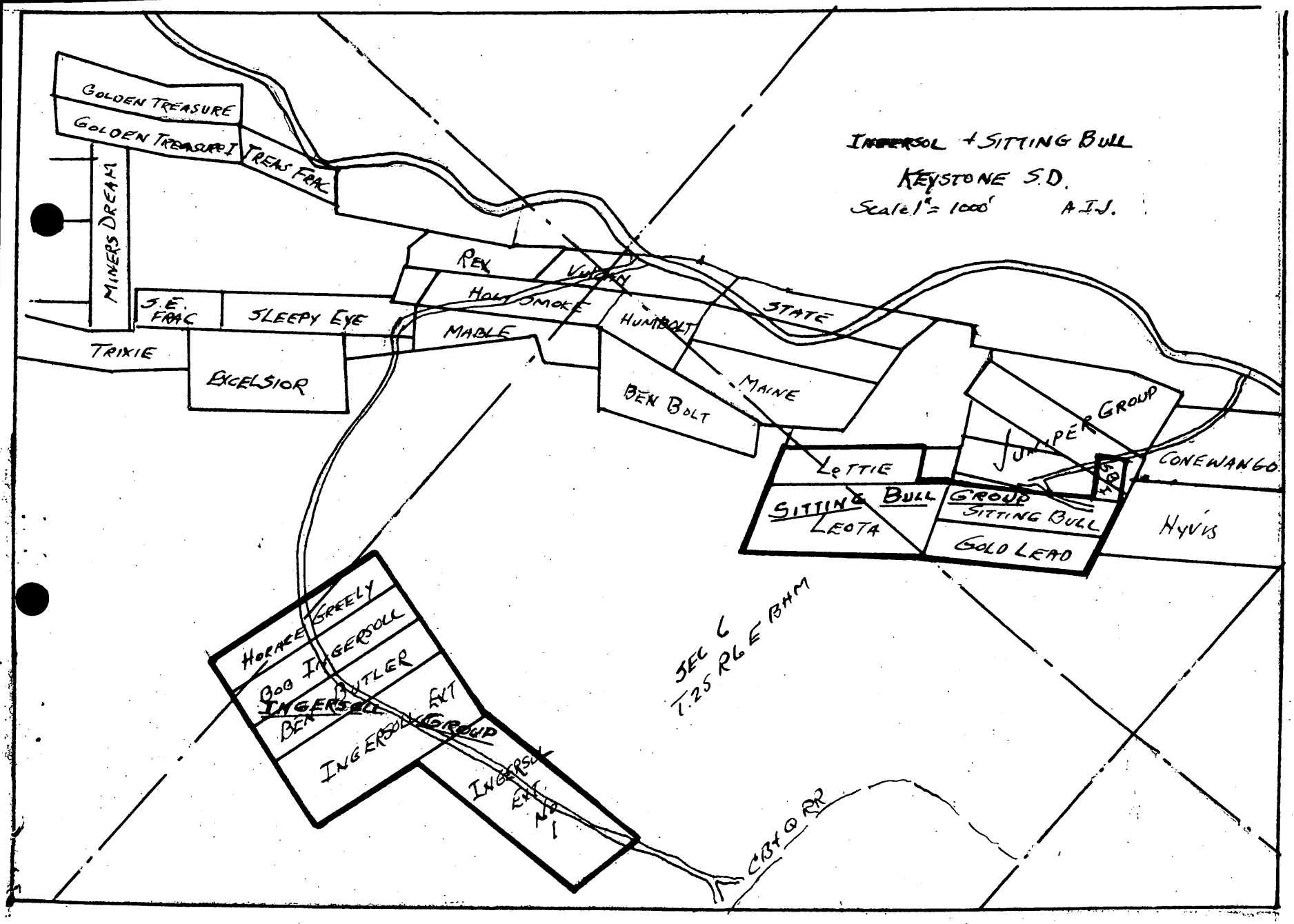
Equipment - 210 cu.ft Worhtington compressor - Gas driven but can be readily converted to be motor driven
S-91 Sullivsn stoper drill Joy Mfgr. S-2 with hose,fittings, pipe line etc. Tool house etc. New.
Mine ore chute and bin 40-tons, new.
Mine cars -2 with 75 ft. of track laid
Miscellaneous equipment

The reason why no figures are available covering items 10,11,12 above is that this mine has never been placed in actual production and only minor quantities have over a period of years been produced of which no records were kept as they were incidental to prospecting. We have described the property in other items covering 12 and estimates of reserves seem substantiated by extent of dike and showings to date.



PROPOSED DEVELOPMENT - BERYL
SITTING BULL LODE
BLACK HILLS KEYSTONE CORP. - KEYSTONE, S.D.

April 24, 1951 Scale 1" = 50'
A.E.J


INGERSOL + SITTING BULL
KEYSTONE S.D.
Scale 1" = 1000'
A.I.J.
GOLDEN TREASURE
GOLDEN TREASURE I
TREAS FRAC
MINERS DREAM
S.E. FRAC
SLEEPY EYE
TRIXIE
EXCELSIOR
REX
VINCENT
HOLY SMOKE
MABLE
HUMBOLT
STATE
MAINE
BEN BOLT
JUMPER GROUP
CONEWANGO
LETTIE
SITTING BULL
LEOTA
GROUP
SITTING BULL
GOLD LEAD
HYVIS
HORACE GREELY
BOB INGERSOLL
INGERSOLL
BEN BUTLER
INGERSOLL GROUP
EXT
INGERSOLL
EXT
NO 1
SEC 6
T.25 R6E BHM
CB&Q RR

Form MF-100
(March 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Form approved.
Budget Bureau No. 42-R1026.

GENERAL TECHNICAL DATA
FOR USE UNDER THE
DEFENSE PRODUCTION ACT OF 1950

NOT TO BE FILLED IN BY APPLICANT

Docket No. Dma-812 X

Date received 5/21/51

Black Hills Keystone Corp.

530 Fifth Avenue
New York 19, N.Y.

Name and address of applicant

Date May 14

INSTRUCTIONS

This form is to be filed with Defense Minerals Administration, Department of the Interior, Washington 25, D. C. It should be accompanied by appropriate application form when a specific type of Government assistance is requested, in the form of (1) loan, (2) purchase contract, (3) Government guarantee of a private loan, (4) Necessity Certificate pursuant to the provisions of Sec. 124-A (Amortization Deduction) of Internal Revenue Code, 1950, (5) priorities or allocation of mining equipment, and maintenance, repair and operating supplies, and (6) other forms of Government assistance that might arise under the Act. Submit four (4) signed copies of the form and accompanying papers. Name and address should be stamped or typed on each sheet of this form and all accompanying papers. *When a question is inapplicable it should be so stated on the form.* Additional sheets may be attached in answering any questions or in supplying additional information. (IF YOU CANNOT ANSWER A QUESTION, SO STATE.) If a question is answered elsewhere indicate where answered. It is not necessary to answer it again.

GENERAL TECHNICAL DATA

Supply the following information on separate sheets, arranged, numbered, and lettered as indicated:

1. Materials produced:
   (*a*) What are the chief mine, mill, or smelter products?
   (*b*) What are the byproducts, if any?
2. Name(s) and type(s) of mine(s), mill(s), smelter(s), refinery(ies), pit(s), quarry (ies), drilling operation(s). Include old names of property, if any. Show extent of workings, including the following:
   (*a*) Linear feet of shafts.
   (*b*) Linear feet of drifts and crosscuts.
   (*c*) Linear feet of tunnels or adits.
   (*d*) Linear feet of other mine openings (explain briefly).

   Indicate whether mine is flooded or not. Describe any pumping problems. Give size or productive capacity.
3. For each operation listed above supply the following:
   (*a*) Distance and direction from nearest town and shipping point.
   (*b*) Mining district.
   (*c*) Township, Section, Range.
   (*d*) County, State.
4. (*a*) State whether or not property is now in operation, and if in operation, by whom operated. in operation
   (*b*) Are you operating this property as:
   - ☒ Owner.
   - ☐ Lessee.
   - ☐ Contractor.
5. Number of years in production 18 years

   If not in production or operation, estimated date when production will begin
6. Experience of operators:

   Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who manage the project.
7. History:
   (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for suspension of operation.
   (*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.

8. Names and addresses of Officers, Directors, or Partners, and in addition thereto, the five largest stockholders if applicant is a corporation.

Name and Address (a)	Official Title (If officer is also director indicate by "D") (b)	Total of Annual Salary, Commissions, Bonuses, Etc., Received From Applicant and Affiliates During Last Fiscal Year (c)	Estimated Net Worth Outside of Interest in Applicant 000 omitted (d)	Number of Shares Held in Applicant Corporation: Common (e)	Number of Shares Held in Applicant Corporation: Preferred (f)	Life Insurance Carried for Benefit of Applicant: Amount (g)	Life Insurance Carried for Benefit of Applicant: Net Cash Surrender Value After Loans (h)
William K. Wallace	Pres. D	-	500	100	-	-	-
Winifred D. Wallace	VP. D.	--	1,500	100	-	-	-
	Total	-	x x x x x	200	-	x x x x x	x x x x x

If more lines are needed continue on separate sheet.

9. Capital Stock Issues:

For Corporate Applicants

Item	Authorized (a)	Outstanding (b)	Par Value (c)	Number of Shares Outstanding (d)	Dividend Rate Last Paid* (e)
Common stock	$20,000.00	$ all	$ 100.00	200	15% -1945
Preferred stock	$	$	$		

*Indicate period covered.

10. Production: *'49 '50 only operated part time

Item	Kind of Product (a)	1948 Total (b)	1949* Total (c)	1950* Total (d)	Present Average Monthly (e)
1. Quantity of product mined or quarried (Short, long, metric tons; barrels; pounds; etc.) s. tons	lithium beryl etc. mica, spar	3,109	715	506	
2. Quantity of product processed (specify unit of measure and type of process)	-	-	-	-	
3. Quantity and grade of product sold or shipped (specify units of measure) s. tons		2,867.84	623.68	1112.06*	

* Sales from stock pile

11. Do you contemplate a change in the present average monthly rate of production? If so, state estimated maximum monthly production and basis of change. Expansion to 125 tons processed beryl ore and of other ores

12. Ore or Mineral Reserves:

(a) Describe the ore or mineral deposit briefly. Accompany the application by any available report on the geology and ore reserves.

(*b*) If deposit is other than placer:

(1) Submit assay plans and/or sections showing location and size of proved (measured) and probable (indicated) ore or mineral reserve.

(2) State the tonnage (indicate type of ton) and grade of each class of ore reserve, as above, and show how computed. Tabulated total ore reserve as follows:

TOTAL ORE OR MINERAL RESERVES

Ore or Mineral Reserve	Estimated Tons (a)	Metal or Mineral Content Per Ton (Grade) (b)	Gross Value Per Ton (c)	Recoverable Unit Value Per Ton (d)	Estimated Cost of Production Per Ton (e)
		Beryl			
Measured (proved)					
Indicated (probable)	In mine On dumps	150,000 100,000	$30.00 $10.00	2%-3%	10% BeO $150.00

(*c*) If placer:

(1) Give estimated total yardage and average marketable mineral content of each deposit.

(2) Submit map showing location of placer deposit and surrounding area, with all test holes or pits. Submit logs of each hole and test pit with depth and average value of each.

(3) Describe gravel, stating whether fine, medium or coarse; loose, tight, cemented, or frozen, and whether it contains stumps or boulders more than 1 foot in diameter; if so, how large, and in what proportion.

(4) Describe bedrock, giving type (granite, sandstone, shale, etc.) and state whether it is hard or soft, smooth, uneven or rough.

(5) Describe overburden, stating whether loose, tight, or cemented; fine or coarse textured; furnish estimate of average thickness and total amount.

(6) Tabulate the reserves using the form outlined above for ore or mineral reserves.

13. Access Roads:

Give road distances to shipping, supply and residence points, stating kind and condition of roads.

14. Water Supply:

State source and quantity of water available for operations and whether sufficient for all seasons of year.

15. Power:

State amount of power used, rate per hour, and source thereof.

16. Labor:

State number and classes (miners, muckers, millmen, etc.) of men employed during a recent representative payroll period.

17. Equipment and Facilities:

Describe present equipment on the property, including buildings. (State condition.) List major pieces of equipment now owned or controlled and in serviceable condition available for this operation.

18. Are there any particular conditions or circumstances affecting your operations that are not described above? If so, explain.

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.

Black Hills Keystone Corp.
(Name of company)

By W. R. Wallace
(Signature of authorized official)

May 18, 1951
(Date)

President & Treasurer
(Title)

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—63792-1

Black Hills Keystone
Corp.

Ingersoll Mine

a. Chief products are: Beryl
Lithium ores:
Amblygonite
Spodumene
Lepidolite
Mica
Quartz
Feldspar
Columbite
Cassiterite
Uranium ores

b. By-products:
From floatation of Lithium ores:
Microlite
Columbite- uranium - cassiterite
concentrate

Ingersoll Mine, Patented Mineral Survey No.720; 100-ton mill, fully equipped for beneficiation of lithium ores can be converted to beneficiation of beryl with slight modificaitions of flow sheet. Open cut, shaft, tunnel, dry.

a. Dike No.1 2 compt. 5'x50'
   Dike No.2 2 compt. 50' incline
b. Dike No.2 50' level -135' - Surface level 135'
   Dike No.1 50' level 80'. Tunnel level 480'
c. Raise Dike No.1 78' Dike No.2 65'

d. Open cut Dike 1 60' x 110' Dike No.2 70x 100'

Not flooded

a. Distance to town 2-1/2 miles. To shiiping point companies own loading siding 5/8 of a mile

b. Keystone mining district

c. T-2S, R-6E. BHM

d. Penningto County, South Dakora

a. Property in operation by Owner

b. As Owner

a. The Applicant has been President of the company engaged in mining beryl and other ores since 1933. His general business experience includes : President of the White River Lumber Co. that owned and operated a tract of some 67, 000 acres of timber along the White River in Arkansas; Director of the Kalamazoo Paper Co. of Kalamazoo,Michigan; real estate management; investment management etc.

b. The management of the project will be in charge of a graduate mining engineer of wide experience in pegamtite and other mining who has been in the employ of the company since its inception in 1933. He has directed operations ~~xxxxxxx~~ of the Applicant and other Black Hills mining operations since 1930 and has wide experience in this field.

Company has been engaged in rare minerals mining since 1933. It developed techniques for the beneficiation of lithium ores in cooperation with the Bureau of Mines,College Park Md station in 1941-42, and in the latter year built a new mill on the property which was operated sucessfully for three years in the beneficiation of Lepidolite. This 100-ton mill is at present not operating but it is beleived can be with slight modification of its flow sheet be adapated to the beneficiation of beryl. Much work along these lines has been done by the companyand the Bureau of Mines has and is at present carrying on work with the companys ores with a view to working out an economically sound technique.

One of the essential features isto assure an adequate beryl ore supply and while all indications are that the company as well as others in the Keystone-Custer mining district have very adequate supplies of beryl ore as shown by testing of existing dumps etc. the program of exp,oration as outlined in the proposals herewith would materially confirm the factual presence of very large reserves of beryl ore essential to a succesful beneficiation program.

The company profitably beneficiated some 10,000 tons of Lepidolite and its plant is is AI operating condition at present and available for beryl beneficiation, because when plat was built it was laid out with the idea of ultimately using this mill for beryl production ona commercial scale and our program when carried through will produce without much extension of equipment some 125-150 tons of 10%BeO per month and this capacity can be greatly increased as operating efficiency is improved.

In addition to Lithium and Beryl ores, the company during the last war produced and sold to Metals Reserve substantial tonnages of Columbite and Cassiterite. EVery recently it was found that these ores contains substantial amounts of uranium ores. These ores have been tested by AEC - New York and some run as high as 6% U308. However no extensive exploration has as yet been undertaken for these ores as it is planned to operate the property with a view to extracting all of the values, rather than gouge for just one ore.

For this reason production has been limited pending the development of suitable beneficiation techniques for beryl. In the mean time mica, feldspar and other easily identified ores have been mined and sold but the company has not operated at anything like capacity.

Reports on the property are available in various annual publications of the Bureau of Mines and USGS. To date only two of the five large dikes have been opened up and the three remaining seem from outcrop measurements to be far more extensive than any yet mined and the latter have only been partly opened up and worked from surface levels.

b. Within a radius of some 5 miles there are various other rare minerals properties that have been in production for many years. The Etta Mine has produced large tonnages of Spodumene, The Peerless has produced mica and beryl. The Edison is now being operated by the Lithium Co. of America. With a radius of some 25 miles from the companies mill is the richest rare minerals mining district in the United States and very ample supplies of beryl too low grade for any other but beneification would afford very ample resveres in addition to the ore that can be produced by the Applicant should the market demand an expnasion beyond presently forseeable needs of beryl ore.

c. We would refer to Bureau of Mines and USGS files covering work done on beryl as well as annual reports published by the Bureau which give some idea of our past perfromance though the methods of production used were by hand sorting and as such quite inefficient to commercial to say nothing of defense needs.

The Ingersoll Mine consists of five pegmatite dikes of which to date only two have been opened up. These dikes lie on the same strike and are separated from e ach other by lenses of slate varying in thickness from 200' to 1000'.

The core of Dike No. 1 consists of of a massive body of Lepidolite from which some 10,000 tons have been mined down to the 50' level were the ore body seems to expand. This 50' is some 280' below the outcrop.
Surrounding the core is a mica-beryl zonevarying in width from 10' to 30'. In this zone on Dike No.1, numerous large beryl crystals have been mined the largest of these weighed 61 tons. Mica,Spar Columbite, cassiterite have been recovered in the mining for beryl as well as large tonnages of mica. In the process of Lepidolite beneficiation in the company mill as a by-product a substantial tonnage of a heavy mineral were recovered by tabling. Within the year this ore was found to contain up to 6% U_3O_8, as analysed by AEC - New York. It is beleived that the beneficiation of beryl from Dike ore will yield very considerable tonnages of uranium ores. While it may not be profitable to operate for uranium ores as such, as a by product it would be a commercially sound venture.

The core of Dike No. 2 consists of Spoudmene. Here no Lepidolite is found as in Dike No.1, no Spodumene is found. Also in Dike No. 2, large beryl crystals have been found the largest weighing 35 tons. In Dike two recently there was uncovered a mica conglomerate ore body containing substantial percentages of of columbite and this ore also carries uranium. This ore body has to date not been fully explored but the indications are very favorable.

Dike No.1A and Dike No.3, lie above Dike No. 1 and the outcrop of Dike No.1A shows a fine grained ore body extending some 150 in length and about on average 10' in width. This outcrop shows indications of a Mica conglomerate similar to that of Dike 2, which contains columbite and uranium ores and as part of the exploration program it is proposed to cross-cut this Dike at depth of about 200' below the outcrop on the way to,Dike 3 and if values are encountered a subsequent exploration program is proposed. The present proposal however is confined to drifting to Dike No.3 which lies about 100' beyond Dike 1A and then runa raise to the outcrop where substantial showing of beryl are to be found.

Dike 4, lies in a similar relation to Dike 2, as that above outlined However here the outcrop is far more extensive and shows up to height of some 50' and is rich in beryl mica and at depth may prove to be joined with Dike 1, it is proposed to contact it on the 50' level. Plans and sketches have been included with Form MF-103 forwarded May 14th. As the project is concerned with beryl ores primarily other tonnages have not been included, but can be furnished if required.

-13-

Shipping point private siding on CB&Q RR belonging to company 5/8 of a mile from mine. Road good.

Residence and supply points: Private road through property about one mile, then two miles on U.S.Highway 16. Private road fair. U.S.Highway excellent.

-14-

Water Supply: Deep well adjacent to mine and mill, adequate at all times for needs of normal operations. If additional water supplies should be needed can be pumped from Battle Creek adjacent to property. Mill has 20,000 gallon storage tanks

-15-

Power Sub-station at Mine with private power line connected with Black Hills Power & Light transmission line. Present connected load 50 kilowatts. Can be increased to any required amount.

-16-

Number of men recently employed 6. 2 miners 4 muckers. Operations have been curtailed pending mechanization of operations and milling of beryl contingent on exploration program

The principal items of equipment are:

Milling Plant

1- 10 x 20 Jaw Crusher Pacific Model 10420 Type ICH No.252 - 25 HP Motor
1- 2' Symons Cone Crusher No.257-Reg.No.212757-30 HP motor.
1- Conditioner - Denver Equipment Co 4'x4' with Allis Chalmers motor Serial 709 D - 1 new tank.
1- Akins Classifier - order No.60-37-3 with 1 HP Westinghouse motor
1- Conditioner dismantled - motor used on 1 cell flotation unit.
1- Dryer -25'x42"-with 41/2HP.motor serial 25304
1- Exhauster- Type Mx size 30 order No.41J-24288 with piping.
1- Elevator- 5x8 buckets - 10"belt-5 ply-45' centers head pulleys-motor
1- Elevator 5x8 buckets -32' centers-with 3 HP.motor
1- Portland type drum filter 5'x4'
1- Denver 3 cell-Suba # 18 sp.Flotation unit
2- Gyrotset Screens 3'x10' Double deck open type-with 5 HP motors
1- Denver Equipment CO Diaphram pump size 4
1- Deming pump-filtrate pump for filter.
1- F.E.Meyer Depp well pump 5 HP motor - 350' head
2- # 6 rougher tables serial 3850-5
2- wildfley tables 6x15
1- 10x12 Denver Equipment Co. Thickener No.H 210B-3 HP motor.
1- 8x10 Denver Equipment Co.Thickener with Diaphram pump F 258 Z
1- Vacuum pump
1- Denver Fire Clay burner and blower for dryer furnace
1- Dryer furnace with piping
1- 4 unit Denver Equipment Co.reagent feeder.
1- Blower compressor-size 7½4- with 5 HP motor.
1- Single cell-flot cell-Denver Equipment Co.
Motors complete with starting equipment and v- belt drives.
Piping and conduit to all motors complete with switchboard.
Mill layout has 2 coarse ore - bins 2 intermediate ore - bins
4 fine ore - bins.Concentarte bins and finish bins - 4-50ton units.
Mill building - 92 feet long - 50 feet wide - and total height 60 feet.
All in A-1 condition. Mill built in 1942

Mine Plant

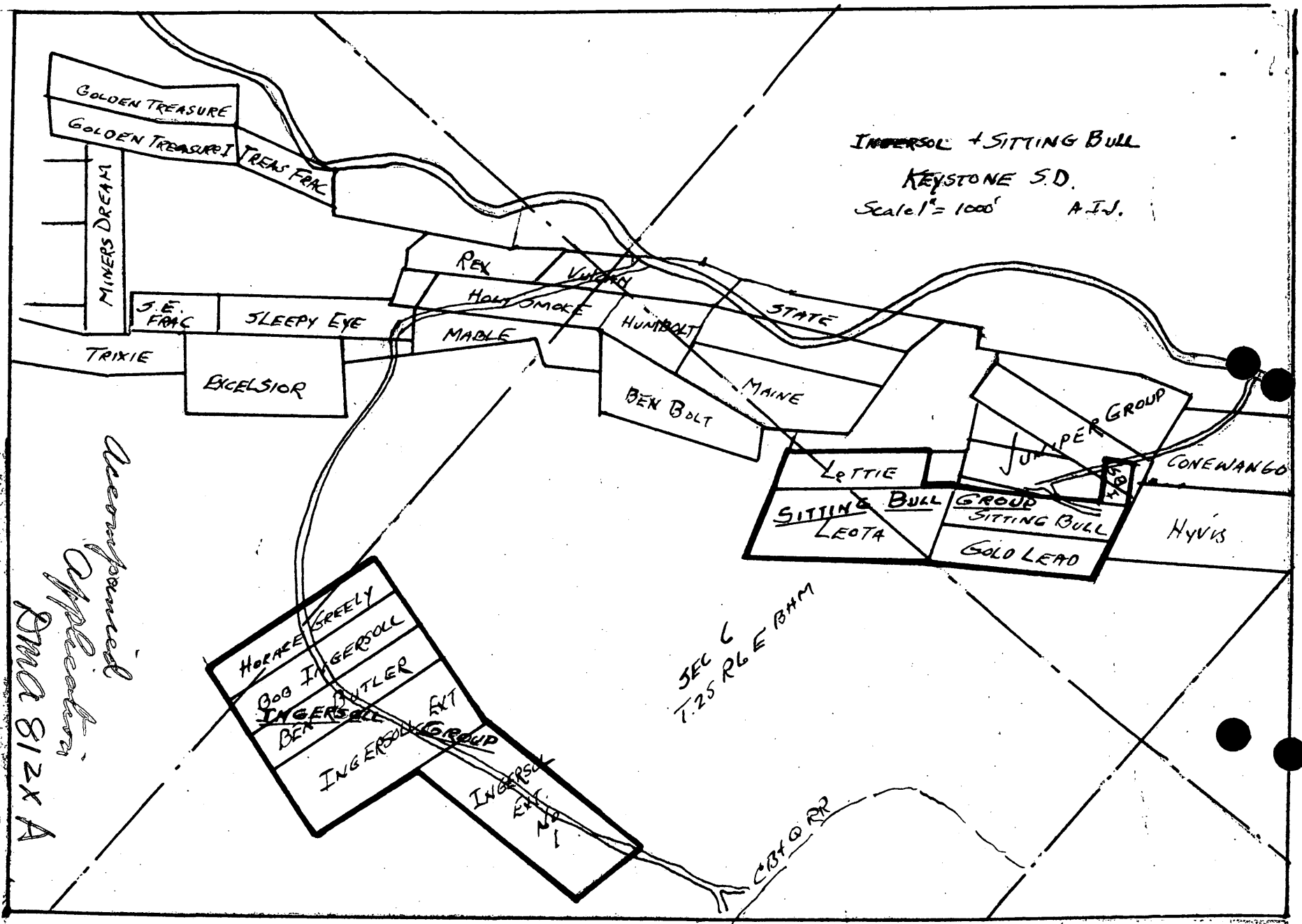
1- Gardner Denver WBH compressor 7½x53 / 4x5- with 50 HP motor and starter
1- Gardner Denver G.D.9 mucking machine.
1- Mine hoist with 10 HP.motor drive - Dike No.2.
1- Air driven hoist - converted from steam drive -Dike No.1.
1- R 91 stoper drill- Gardner Denver
1- S 91 Sullivan stoper drill- Gardner Denver,Joy Mafg.Co. - S 2
1-G.D. #79 drifter with shell mounting etc.
1- G.D. 79 drifter converted to jackhammer mounting.
1- S55 jackhammer drill -Gardner Denver
1- Ingersoll Rand jackhammer -dry type
1- Compressor Bldg. 12x16.
1- Blacksmith shop - 14x18.

4 mine ore bins - Dike No.1 - 50 tons capacity
3mine ore bins - Dike No.2 40 tons capacity
1- Car hoist - Dike No.1 motor drive.
2- mine columns - with arm attachments etc.
1- Sorting belt - motor drive - 16" belt - installed Dike No.1.
1- Sorting room - Dike No.1. 16x20.
8- Mine cars - 2 roller bearing balance straight bearing type.
Drill steel - 1" Q O. -estimate 1600#.
Pipe lines installed -Compressor to Dike # 1 and 2 -est.2400'.
Mine track - 700 feet installed Dike No.1 - 800' est.Dike No.2.
Dike No.2 - Trestle 45' - Height 24' - tracked.
Mill approach -Trestle 40'-tracked -height 16'.

Attention may be called to the fact that since the last war operations of the mine have been curtailed awaiting such time as the presently wasteful techniques of beryl and other ore recover by hand sorting methods could be replaced by the milling of the entire ore body and the recovering of all values contained rather than continuing as at present to waste more than 50% of the values through handing sorting methods in vogue.

If the Exploration project as outlined proves the ore bodies of the Mine to be such as seems indicated it is proposed to mechanize the mine completely operate ona 3 shift schedule and produce beryl ore on a commercial scale as well as all of the by-products including Columbite Uranium and Lithium ores in such substantial tonnages as are so urgently needed by national defense. In is confidently beleived that this is feasible to-day. It might be added that both the College Park and the Rapid City stations of the Bureau have done substantial work with our beryl ores and are presently engaged on this project. College Park also is working on our Columbite-Uranium and have assured me that a separation seems feasible, while the electrostatic separation work done there on our beryl is most encouraging. Rapid City station also reports very good progress.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 2 1 1951
LANDON F. STROBEL
Executive Secretary


INGERSOLL + SITTING BULL
KEYSTONE S.D.
Scale 1" = 1000'
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GOLDEN TREASURE
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TREAS FRAC
MINERS DREAM
S.E. FRAC
SLEEPY EYE
TRIXIE
EXCELSIOR
REX
VULCAN
HOLY SMOKE
MABLE
HUMBOLT
STATE
BEN BOLT
MAINE
JUMPER GROUP
CONEWANGO
LETTIE
SITTING BULL
LEOTA
GROUP
SITTING BULL
GOLD LEAD
HYVIS
HORACE GREELY
BOB INGERSOLL
BEN BUTLER
INGERSOLL EXT
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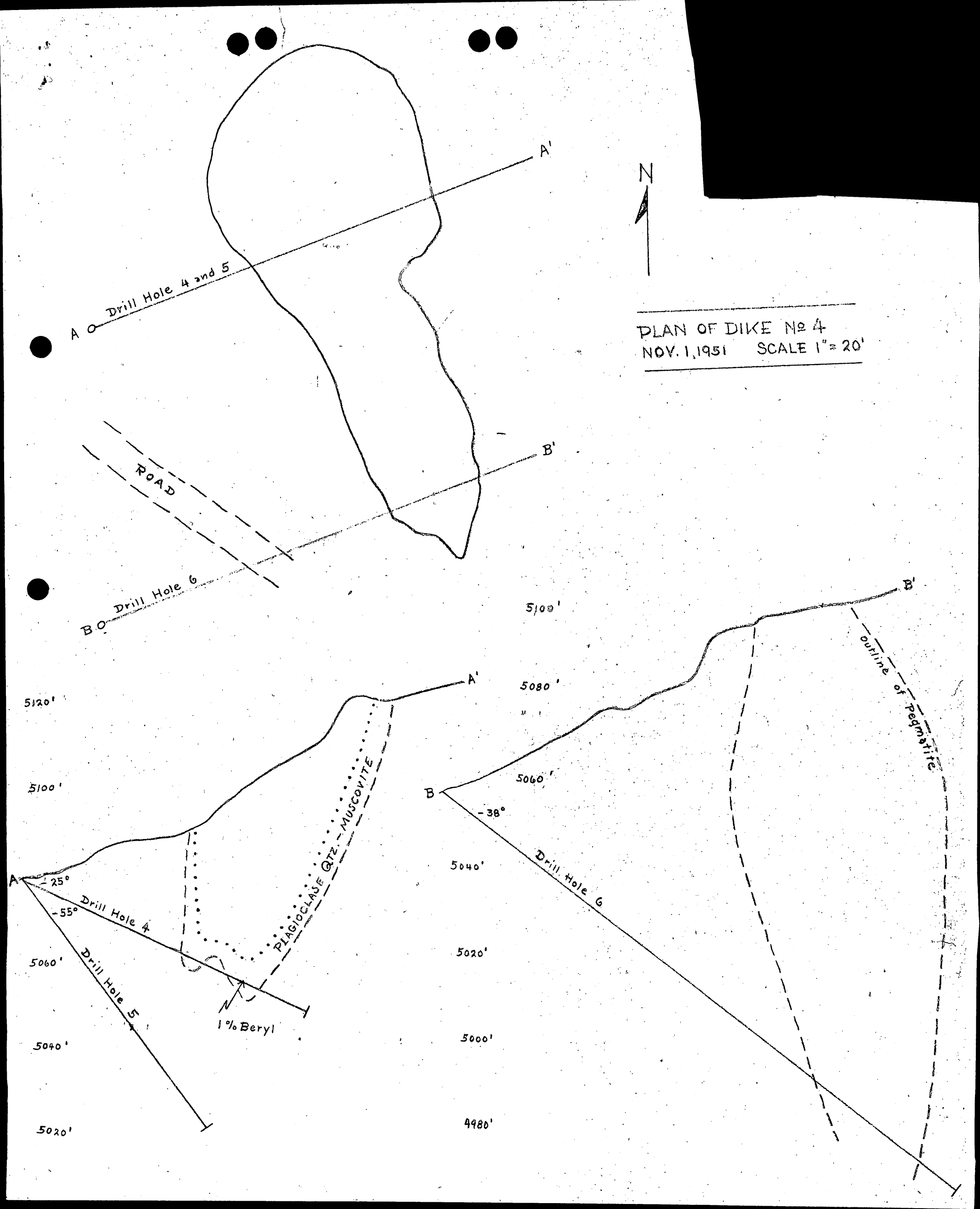
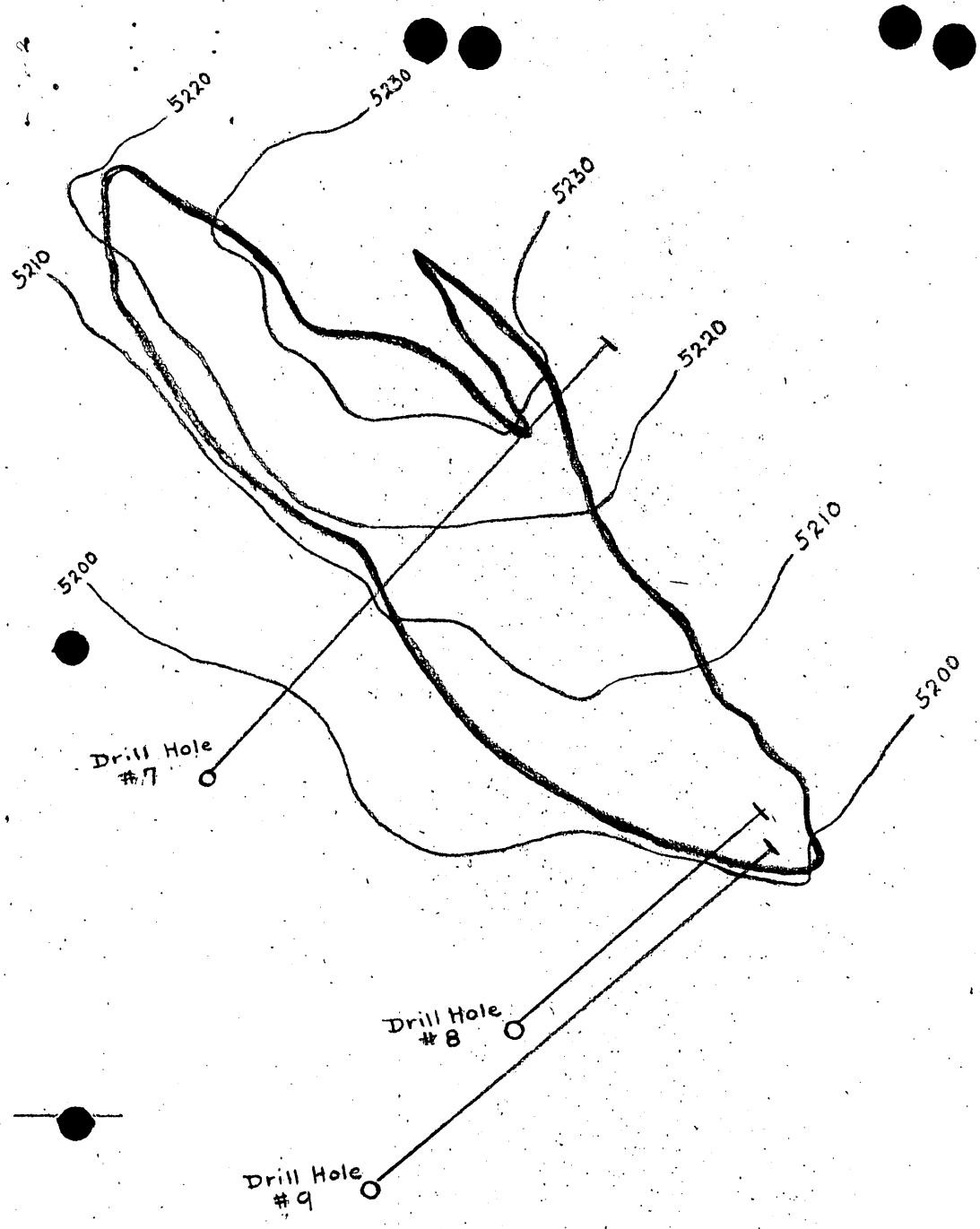
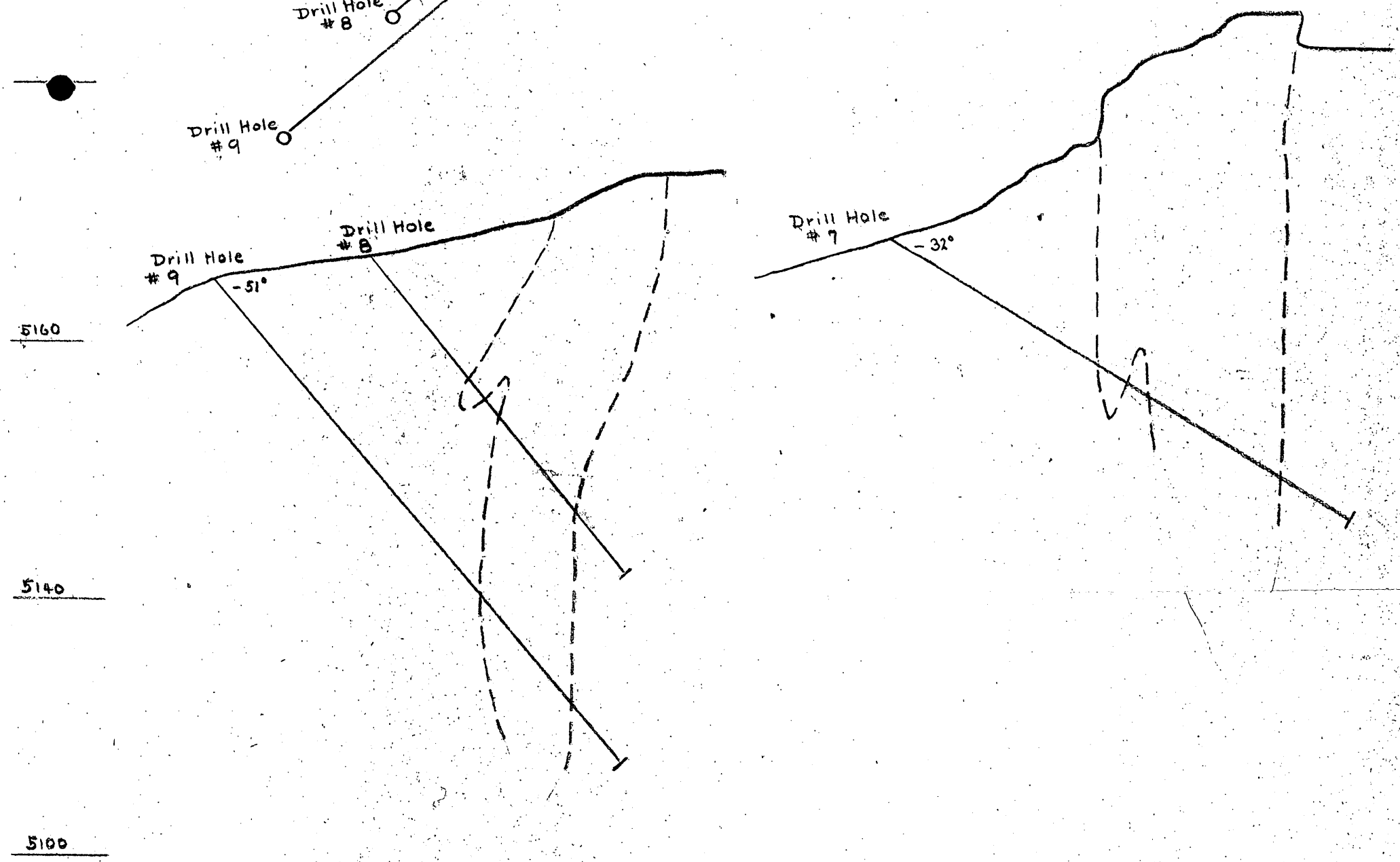
INGERSOLL EXT No 1
SEC 6
T.25 R6E BHM
C B & Q RR
Unconformed
Application
DMA 812 X A

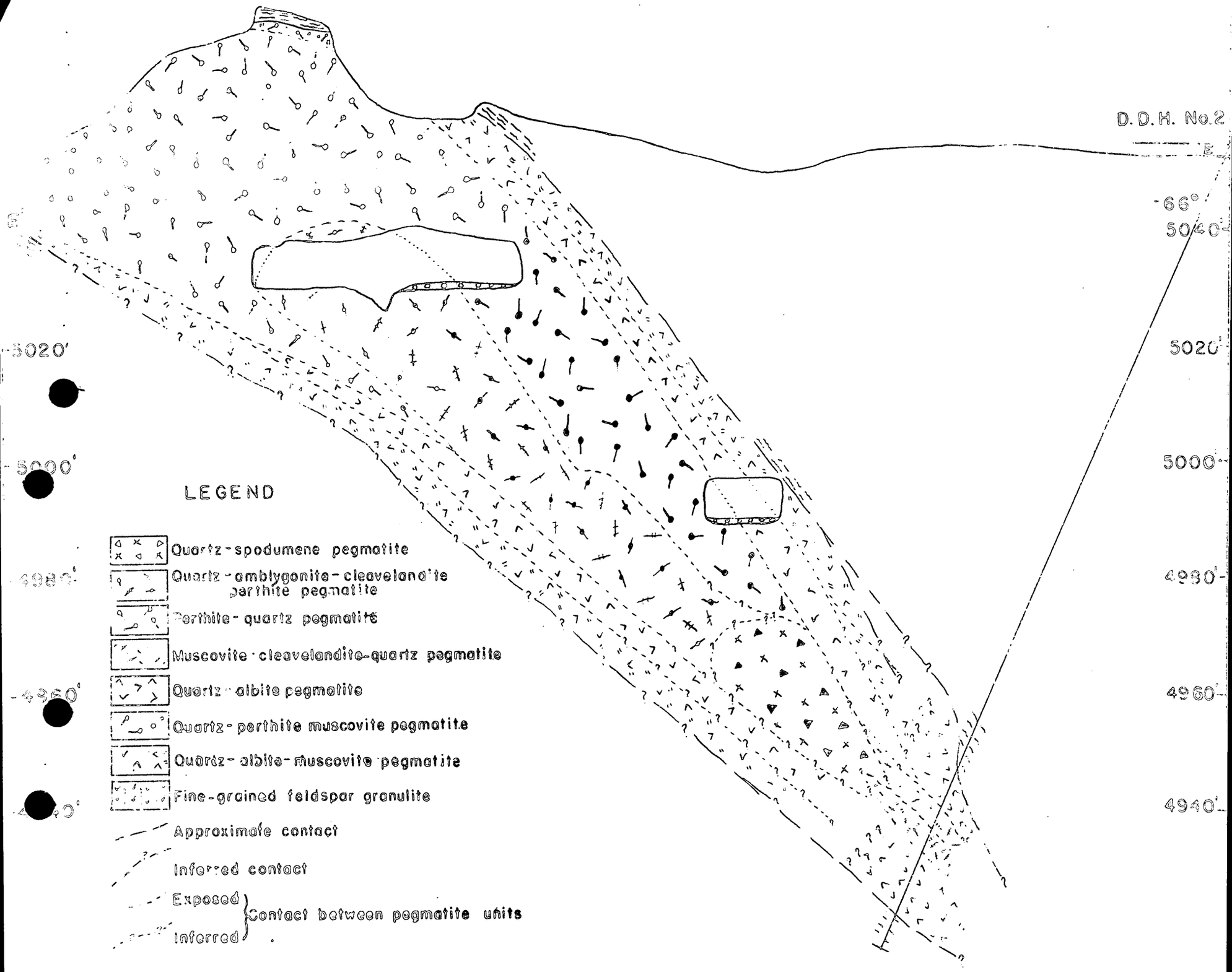

PLAN OF DIKE № 4
NOV. 1, 1951 SCALE 1" = 20'
N
A
A'
Drill Hole 4 and 5
B
B'
Drill Hole 6
ROAD
5120'
5100'
5080'
5060'
5040'
5020'
5000'
4980'
-25°
-55°
-38°
Drill Hole 4
Drill Hole 5
Drill Hole 6
PLAGIOCLASE QTZ. - MUSCOVITE
1% Beryl
Outline of Pegmatite



N

PLAN OF DIKE No 3
DEC. 1, 1951 SCALE 1" = 20'

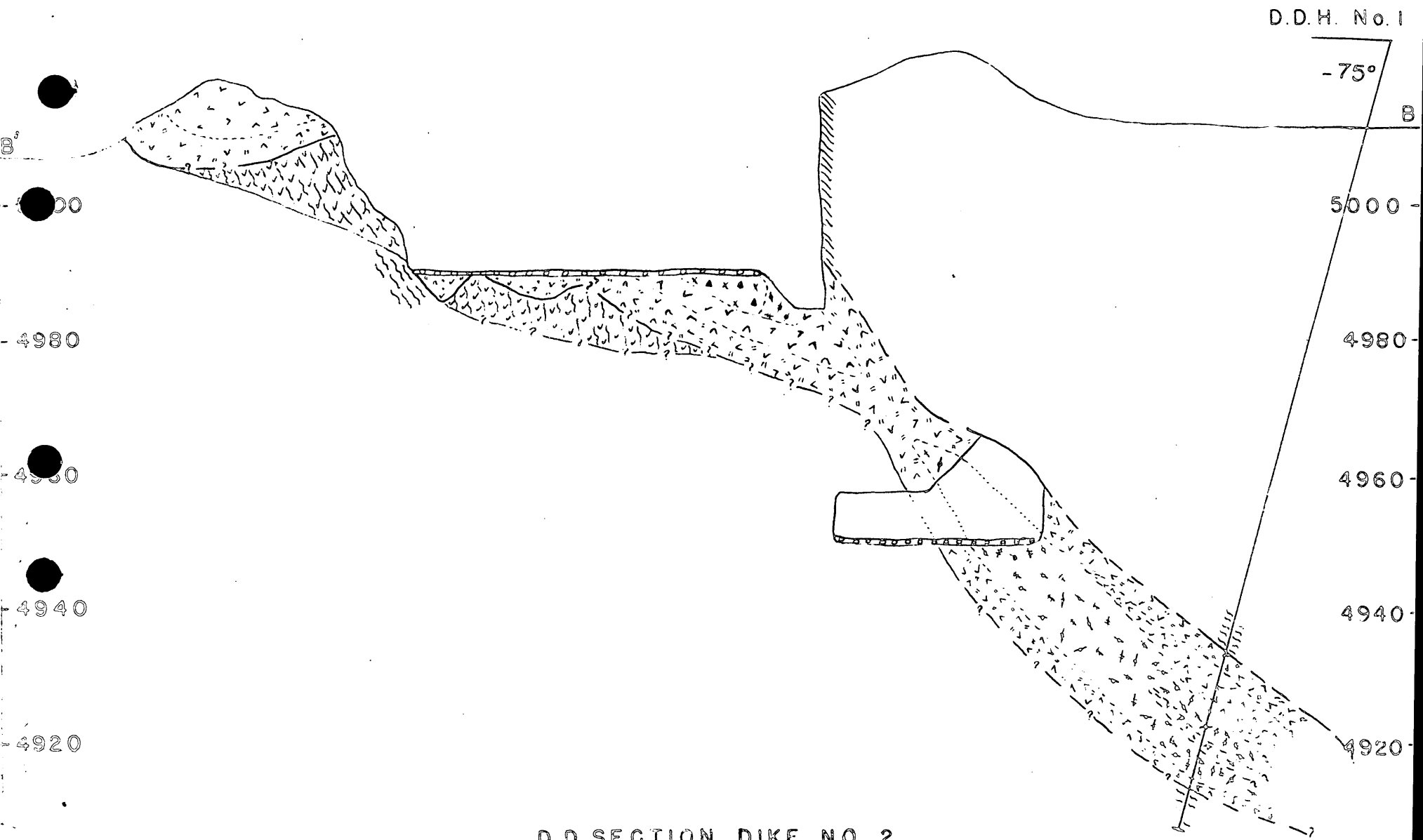




D.D. SECTION, DIKE NO. 2

BOB INGERSOLL MINE, KEYSTONE, PENNINGTON COUNTY, SO. DAKOTA

0 20 40



D.D. SECTION, DIKE NO. 2

BOB INGERSOLL MINE, KEYSTONE, PENNINGTON COUNTY, SO. DAKOTA

0 20 40

Form I-1017 Rev.
Form approved by
Comp. Gen., U.S.
August 20, 1951

DEPARTMENT OF THE INTERIOR

VOUCHER AND SCHEDULE OF PAYMENTS

Sheet 1 of 2

Bureau or Office: Defense Minerals Exploration Administration

D. O. Voucher No.

Bu. Schedule No. 2

Location of Transmitting Office	Station No.	D. O. Symbol
Minneapolis 8, Minnesota	14-23-050	409

Appropriation Summary: (Symbol and amount)

14X1401 - $5,234.65

PAID BY

(For use of paying office)

(1) Bureau Voucher No.	(2) Payee, and if necessary, address, invoice no., or other identification	(3) AMOUNT	(4) D. O. Check No.
	Mayer & Thiede Mining Co. Rm. 1625, 37 W. VanBuren Chicago 5, Illinois Contract No. IDM-E-342	767.24	
	Stewart & Roseberry 119 N. 10th Street Custer, South Dakota Contract NO. IDM-E-165	21.42	completed 26097020
	Black Hills Keystone Corp. 530 Fifth Avenue New York 19, N. Y. Contract No. IDM-E-99	115.74	completed 26097021
	Calumet & Hecla, Inc. 1 Calumet Avenue Calumet, Michigan Contract No. IDM-E-98 Project: 8,11,13	2,064.92	
	Duncan & Himebaugh Custer, South Dakota Contract No. IDM-E-496	864.00	
	TOTAL	$5,234.65	

Pursuant to authority vested in me, I certify that the items listed herein are correct and proper for payment from the appropriation(s) designated.

7/27/53
(Date)

L. A. Hill (Authorized Certifying Officer)

U. S. GOVERNMENT PRINTING OFFICE—1951—968901

Form 1F-104 (Rev.)
(April 1952)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1036.3.
Approval expires 6-30-53.
Defense Minerals Administration
RECEIVED NOV 1952

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of July 21st - August 15, 1952 Docket No. DMEA 812X Docket 812x Contract No. JUNE 99
Operator's Name Black Hills Keystone Corp Minerals Beryl - mica
Address Keystone, S. Dak.
Contract Amount, $25,000.00 Government Participation 90 % Amount, $20,772.00

ITEMS OF COSTS	FOR OPERATOR'S USE: Monthly Total	Totals Previously Reported	Totals To Date	FOR GOVERNMENT USE ONLY: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	$1236.00	$4538.62	$5774.62	1236.00	4538.62	5774.62
Bulldozing						
Crosscutting						
Drifting						
Corp Bonds		75.00	75.00	-	75.00	75.00
(2) Labor and Supervision:						
Labor						
Supervision	50.00	365.00	415.00	50.00	365.00	415.00
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Supplies		40.00	40.00			
Power		125.00	125.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis						
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
TOTALS	$1286.00	$5,143.62	$6,429.62	1286.00	4978.62	6261.62

I certify that the above bill is correct and just and that payment therefor has been received.

Date Oct. 1-52 *Payee Black Hills Keystone Corp

Per [signature] Title Resident Engineer

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

→ NOTE.—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.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 1041.66

Signature L. A. Hill
(Authorized Certifying Officer)

Date NOV - 3 1952 Vou. No. 16
(See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. IdmE-99 in accordance with the terms of the contract.

Signature D.H. Mullen Title Supervising Engineer Date OCT 23 1952

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature O.B. Weaham Title Ex A/ Date OCT 27 1952

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

U. S. GOVERNMENT PRINTING OFFICE 205675

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151
Approval expires 6-30-53.

Defense Minerals Administration
RECEIVED
NOV 1 1952

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of July 21-Aug 15 1952 Docket No. DMEA 84-X Contract No. Docket 81-X ZONE 99

Operator's Name Black Hills Keystone Corp

Address Keystone, S. D.

Minerals Beryl- mica

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT	
							Units	Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Ft.	1286.00	256	$6429.62	1211.5 ~~955.5~~	5.31 ~~6.73~~	2050	85.00
Churn								
Auger								
Stripping								
Trenching								
Test Pits								
Roads and Trails								
TOTAL DISTRIBUTED COSTS		1286.00	256	$6429.62				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		1286.00		$6429.62				$10,250.00

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

Date Oct. 1, 1952 Operator Black Hills Keystone Corp

Per [signature] Title Res. Engineer

REMARKS:

NOTE.—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.

(Instructions on reverse)

(For Government use only)

INSTRUCTIONS

Preparation of Form MF–104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF–104A has been designed to tie in with Form MF–104 for both monthly and cumulative costs. The "Total Costs" on Form MF–104A for each month should equal the monthly "Total Costs" as reported on Form MF–104. This is also true of the "Total Costs To Date".

In preparing Form MF–104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

U. S. GOVERNMENT PRINTING OFFICE 205676

Narrative.

Work on TVEA Project 212 at the Ingersoll Mine was started again on July 21st when the drilling contractor started setting up equipment. Drilling was started on hole No. 12 July 23rd and was completed to a depth of 108 feet on Aug 1st. Pegmatite was contacted at a depth of 80 feet and cut at 102 feet. Most of the pegmatite was albite with quartz and mica as accessory minerals. This hole was drilled at an angle of -76 degrees.
Hole No. 13 was completed to a depth of 148 feet with 6' of schist at the end of the hole. The pegmatite was contacted at a depth of 114.6' and extended to a depth of 142'. From 122.6 to 125.6 drilling was in mica. The hole was drilled at an angle of -66½ degrees.

Sections showing the two drill holes are included and a plan of the open cut on like two with the direction of drilling indicated.

A. I. Johnson

Hole 12 108 ft deep
13 148
256

MF-10
(April 1

Budget Bureau No. 42-R1036.
Approval expires 6-30-51.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

E-99

STRATEGIC AND CRITICAL MINERAL EXPLORATION PROGRAM
OPERATOR'S MONTHLY PROGRESS REPORT

Operators are to submit monthly reports to the designated field representative of the Defense Minerals Administration. Reports are to be submitted in quadruplicate prior to the 15th day of the month following the reporting period.

Narrative.—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered is to be furnished.

Maps.—Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

Cost Accounts.—All applicable parts of this form are to be filled in. This report will form the basis for payments of the Government's participating share of expenses. Audits of accounts will be made from time to time.

CERTIFICATION

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

Black Hills Keystone Corporation
(Name of Company)

By Glen Walker
(Signature of Authorized Official)

February 15, 1952
(Date)

Resident Engineer
(Title)

NOTE.—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.

16—64068-1

MONTHLY SUMMARY COST STATEMENT

Name of operator: Black Hills Keystone Corporation
Project No. DMA: 013 [illegible] 99
Total contract amount: 30,000.00
Government participation percent: 90%

Distribution of Expenditures for Month of Dec. 1951 & Jan. 1952

Item	Monthly Total	Totals Previously Reported	Totals to Date	For Government Use Only: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals to Date
Wages and salaries	100.00	265.00	365.00	$100.00	$265.00	$365.00
Equipment purchase [1]						
Equipment rental [2]						
Buildings						
Explosives						
Repair parts						
Other supplies: lumber		40.00	40.00	--	40.00	40.00
Power		125.00	125.00	--	125.00	125.00
Transportation						
Withholding taxes						
Compensation insurance						
Other insurance						
Contract work	2004.50	2534.12	4538.62	2,004.50	2,534.12	4,538.62
Other (specify): 14 core boxes	35.00	40.00	75.00	35.00	40.00	75.00
Total	2139.50			2,139.50	3,004.12	5,143.62
Totals previously reported		3004.12		165.=	Previously	05
Totals to date			5143.62	1974.50		

FOR GOVERNMENT USE ONLY

Checked by: E. O. Benyon
Entered by:
Approved by: D. H. Meeker Supervising Engineer
Amount approved for payment: 1974.50
Remarks:

[1] Enter total purchase price in month purchase is made.
[2] Payments for rental of equipment or prorated depreciation on equipment owned by contractor.

16—64068-1

MONTHLY PROGRESS NARRATIVE

Hole 10 on Dike 1 of the Bob Ingersoll property was started on November 19, 1951 and completed January 20, 1952. Total depth of the hole is 332.0 feet.

The hole entered pegmatite at 265.5 and went out at 317.0, or a thickness of 51.5 feet along the hole. True thickness of the pegmatite is 23.5 feet. This is taken at elevation of 4,928.0 or midway between the point where the deposit was entered and passed through.

Dike 1A, a narrow pegmatite approximately 50 feet east of Dike 1, was not cut by the hole.

MONTHLY PROGRESS NARRATIVE

Hole #11 collared in dike #4 January 25, 1952 was drilled to a total depth of 90 ft. February 4, 1952. It strikes N 72½ degrees E and dips 17 degrees from horizontal. This hole cut 46 feet of pegmatite between 39.5 & 85.5 feet.

The purpose of this hole was to determine a suspected local thickening of the deposit. The amount of core indicated no appreciable increase in thickness over that obtained in the 3 holes previously drilled in this dike.

The core drilling project on this property was stopped February 5, 1952 on W. K. Wallace's instructions. It was originally planned to core drill #2 dike on the Bob Ingersoll property of the Black Hills Keystone Corporation.

Resident Engineer.

Black Hills Keystone Corporation
530 - Fifth Avenue
New York City, N. Y.

RECEIVED
JAN 25 1952
U.S. DEPT. OF INTERIOR
BUREAU OF MINES
MINNEAPOLIS, MINN.
REGION V

DISTRIBUTION OF WAGES AND SALARIES FOR MONTH OF Dec. 1951 & Jan. 1952

Name of operator Indi Hills Keystone Corporation
Project No. DMA 012 [illegible] 1[illegible] 00
Total contract amount 35,000.00
Government participation percent 90%

Type	Number	Man-Shifts	Rate	Total
Miners			$	$
Muckers				
Trammers				
Timbermen				
Pumpmen				
Hoistmen				
Surface				
Samplers				
Assayers				
Shift bosses				
Mechanics				
Electricians				
Blacksmiths				
Carpenters				
Drill runners				
Drill helpers				
Teamsters				
Manager				
Superintendent (C. C. Clarke)	1	2 Months	50.00 per Mo	100.00
Engineers				
Geologists				
Bookkeeper				
Foreman				
Clerks				
Stenographers				
Other				
Total				100.00

Note.—Show only that portion of supervisory, office, and engineering salaries that is chargeable to this project.

FOR GOVERNMENT USE ONLY

Checked by E. O. Benyon
Entered by
Approved by O. H. Mullen Supervising Engineer
Remarks

16—64068-1

EXPLORATION UNIT COST AND PROGRESS REPORT FOR MONTH OF Dec. 1951 & Jan. 1952

Name of operator Black Hills-Keystone Corporation
Project No. DMA 812 X-A Idm E 99
Total contract amount $23,080.00
Government participation, percent 90%

Item	Costs					Progress				
	Wages [1] and salaries	Equipment [2]	Supplies	Other [3]	Total	Unit	Units this month	Units previously reported	Units to date	Units authorized by contract
Drifting										
Crosscutting										
Raising										
Shafts										
Winzes										
Drill holes	0.237	(Contract)		4.833	5.07	foot	422	533.5	1955.5	
Overburden										
Rehabilitation and preparation										
Geology and geophysics										
Trenching										
Sampling and assaying										
Roads and trails										
Test pits										
Other (specify)										
Totals	0.237			4.833	5.07		422	533.5	1955.5	

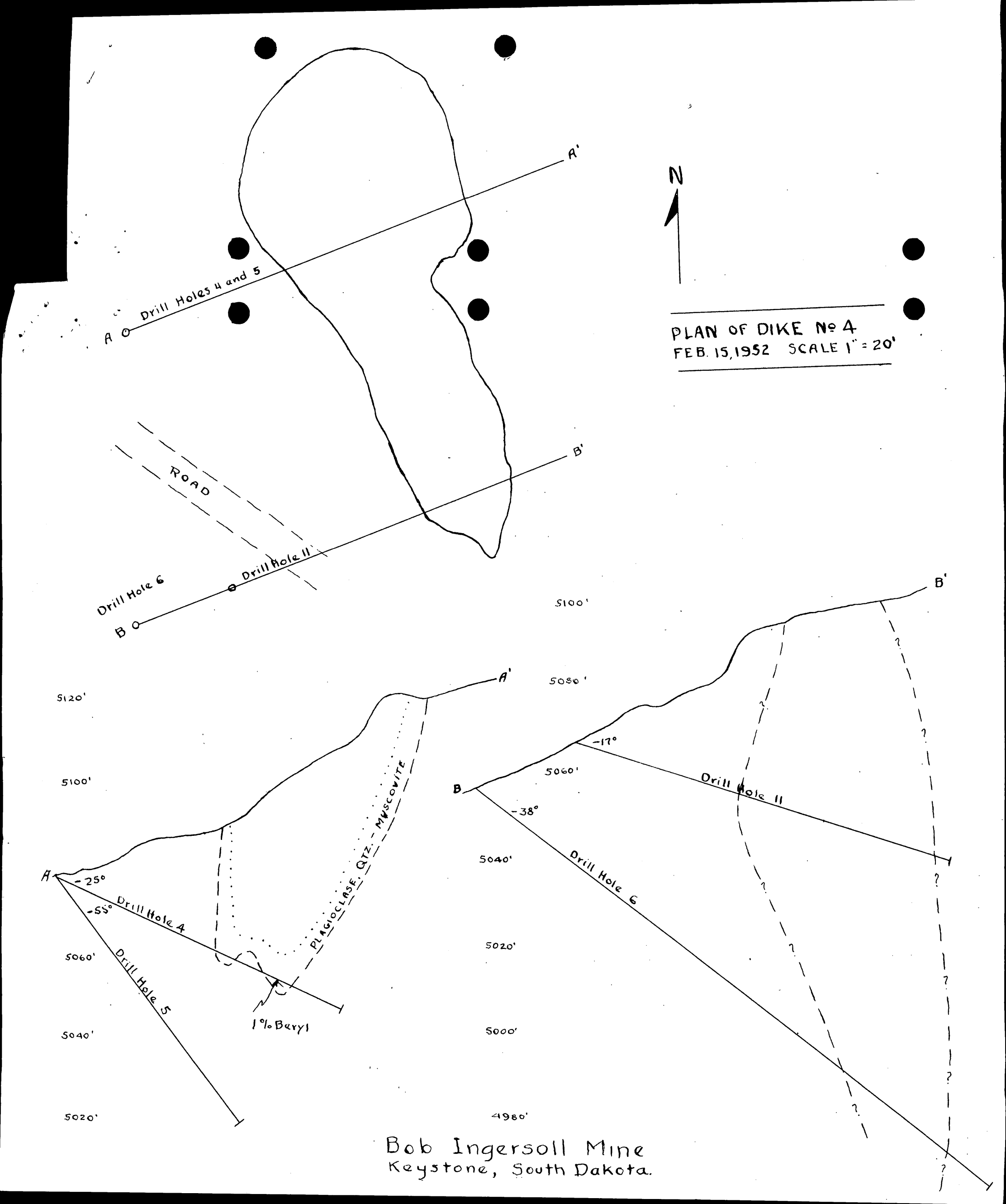
[1] Prorate supervisory, engineering, and office salaries in proportion to man-shifts of direct labor.
[2] Prorate charges for equipment that is not exclusively for one type of job (such as compressors) against authorized units of work in each category.
[3] Where entries in the "Other" column (above) are more than 25 percent of the total expenditures, a breakdown of this item should be made.

16—64068-1 U. S. GOVERNMENT PRINTING OFFICE

RECEIVED FEB 25 1952 DEPT. OF INTERIOR BUREAU OF MINES MINNEAPOLIS, MINN. REGION V

FOR GOVERNMENT USE ONLY

Checked by E. O. Benson
Entered by
Approved by D. H. Mullen Supervising Engineer
Remarks



Bob Ingersoll Mine
Keystone, South Dakota.

MF-104
(April 1951)

Budget Bureau No. 42-R1036.
Approval expires 6-30-51.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Department of the Interior
Defense Minerals Administration
RECEIVED
JAN 21 1952

STRATEGIC AND CRITICAL MINERAL EXPLORATION PROGRAM
OPERATOR'S MONTHLY PROGRESS REPORT

Operators are to submit monthly reports to the designated field representative of the Defense Minerals Administration. Reports are to be submitted in quadruplicate prior to the 15th day of the month following the reporting period.

Narrative.—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered is to be furnished.

Maps.—Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

Cost Accounts.—All applicable parts of this form are to be filled in. This report will form the basis for payments of the Government's participating share of expenses. Audits of accounts will be made from time to time.

CERTIFICATION

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

Black Hills Keystone Corporation
(Name of Company)

By /s/ Fremont F. Clarke
(Signature of Authorized Official)

December 3, 1951
(Date)

Manager
(Title)

NOTE.—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.

16—64068-1

MONTHLY SUMMARY COST STATEMENT

Name of operator: Black Hills Keystone Corporation
Project No. DMA: 812x-a, Contract Idm E-99
Total contract amount: $23,080.00
Government participation percent: 90%

Distribution of Expenditures for Month of November 1951

Item	Monthly Total	Totals Previously Reported	Totals to Date	For Government Use Only: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals to Date
Wages and salaries	142.60	122.40	265.00	142.60	122.40	265.00
Equipment purchase [1]						
Equipment rental [2]						
Buildings						
Explosives						
Repair parts						
Other supplies	40.00	-	40.00	40.00	-	40.00
Power						
Transportation ~~cores and hauling~~ of samples	125.00	-	125.00	125.00	-	125.00
Withholding taxes						
Compensation insurance						
Other insurance						
Contract work	1,140.00	1,394.12	2,534.12	1,140.00	1,394.12	2,534.12
Other (specify) 6 core boxes	15.00	25.00	40.00	15.00	25.00	40.00
Total	1,462.60	1,541.52	3,004.12	1,462.60	1,541.52	3,004.12
Totals previously reported	1,541.52					
Totals to date	3,004.12	1,541.52	3,004.12			3,004.12

FOR GOVERNMENT USE ONLY

Checked by: E. O. Binyon
Entered by:
Approved by: D. H. Mullen, Supervising Engineer
Amount approved for payment: $1,316.34
Remarks:

[1] Enter total purchase price in month purchase is made.
[2] Payments for rental of equipment or prorated depreciation on equipment owned by contractor.

16—64068-1

65

Strategic and Critical Mineral Exploration
Program DMA 812x-a, Idm E-99

Operation Monthly Progress Report November 1951

Dike 3 was intersected by drill holes 7, 8 and 9.

Drill hole 7, bearing north 44 degrees east was drilled for a length of 80 feet and intersected the dike at a vertical depth of 60 feet.

Drill hole 8, bearing N. 50 degrees E was drilled for a length of 63 feet intersecting pegmatite at a depth of 50 feet.

Drill hole 9 bearing N. 51 degrees E. was drilled in the same plane as No. 8 for a length of 97 feet and intersected pegmatite at a 75-foot depth.

Drilling terminated at hole 9, October 15, 1951 at which date the drill was moved, to hole 10, dike 1. Drilling is in progress on this hole which is projected to intersect Dike 1 at approximately 250 feet below the collar of the hole.

Logging of drill holes 7, 8 and 9 is in progress.

/s/ Fremont F. Clarke

DISTRIBUTION OF WAGES AND SALARIES FOR MONTH OF November 1951

Name of operator: Black Hills Keystone Corporation
Project No. DMA: 812x-a, Contract Idm E-99
Total contract amount: $23,080.00
Government participation percent: 90%

Type	Number	Man-Shifts	Rate	Total
Miners			$	$
Muckers road work	2	10 plus	$1.10/hr.	92.60
Trammers				
Timbermen				
Pumpmen				
Hoistmen				
Surface				
Samplers				
Assayers				
Shift bosses				
Mechanics				
Electricians				
Blacksmiths				
Carpenters				
Drill runners				
Drill helpers				
Teamsters				
Manager				
Superintendent				
Engineers	1	1 month	50.00	50.00
Geologists				
Bookkeeper				
Foreman				
Clerks				
Stenographers				
Other				
Total				142.60

Note.—Show only that portion of supervisory, office, and engineering salaries that is chargeable to this project.

FOR GOVERNMENT USE ONLY

Checked by: E. O. Binyon
Entered by:
Approved by: D. H. Mullen, Supervising Engineer
Remarks:

16—64068-1

EXPLORATION UNIT COST AND PROGRESS REPORT FOR MONTH OF November 1951

Name of operator: Black Hills Keystone Corporation
Project No. DMA: 812x-a, Contract Idm E-99
Total contract amount: $23,080.00
Government participation, percent: 90%

Item	Costs					Progress				
	Wages [1] and salaries	Equipment [2]	Supplies	Other [3]	Total	Unit	Units this month	Units previously reported	Units to date	Units authorized by contract
Drifting										
Crosscutting										
Raising										
Shafts										
Winzes										
Drill holes			40.00	1,140.00	1,180.00	foot	240	293.5	533.5	2,050.00
Core handling & transp. of samples				125.00	125.00					
Rehabilitation and preparation										
Geology and geophysics										
Trenching										
Sampling and assaying										
Roads and trails	92.60				92.60					
Core boxes				15.00	15.00					
Other (specify) Engineering	50.00				50.00					
Totals	142.60		40.00	1,280.00	1,462.60					

[1] Prorate supervisory, engineering, and office salaries in proportion to man-shifts of direct labor.
[2] Prorate charges for equipment that is not exclusively for one type of job (such as compressors) against authorized units of work in each category.
[3] Where entries in the "Other" column (above) are more than 25 percent of the total expenditures, a breakdown of this item should be made.

16—64068-1 U. S. GOVERNMENT PRINTING OFFICE

FOR GOVERNMENT USE ONLY

Checked by: E. O. Binyon
Entered by:
Approved by: D. H. Mullen, Supervising Engineer
Remarks:

MF-104
(April 1951)

Budget Bureau No. 42-R1036.
Approval expires 6-30-51.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 22 1952

STRATEGIC AND CRITICAL MINERAL EXPLORATION PROGRAM
OPERATOR'S MONTHLY PROGRESS REPORT

Operators are to submit monthly reports to the designated field representative of the Defense Minerals Administration. Reports are to be submitted in quadruplicate prior to the 15th day of the month following the reporting period.

Narrative.—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered is to be furnished.

Maps.—Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

Cost Accounts.—All applicable parts of this form are to be filled in. This report will form the basis for payments of the Government's participating share of expenses. Audits of accounts will be made from time to time.

CERTIFICATION

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

Black Hills Keystone Corporation
(Name of Company)

By /s/ Fremont F. Clarke
(Signature of Authorized Official)

November 10, 1951
(Date)

Manager
(Title)

NOTE.—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.

16—64068-1

MONTHLY SUMMARY COST STATEMENT

Name of operator: Black Hills Keystone Corporation
Project No. DMA: 812x-a, Contract Idm E99
Total contract amount: $23,080.00
Government participation percent: 90%

Distribution of Expenditures for Month of October 1951

Item	Monthly Total	Totals Previously Reported	Totals to Date	For Government Use Only: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals to Date
Wages and salaries	122.40		122.40	122.40	-	122.40
Equipment purchase [1]						
Equipment rental [2]						
Buildings						
Explosives						
Repair parts						
Other supplies						
Power						
Transportation						
Withholding taxes						
Compensation insurance						
Other insurance						
Contract work	1,394.12		1,394.12	1,394.12	-	1,394.12
Other (specify)						
10 core boxes	25.00		25.00	25.00	-	25.00
Total	1,541.52		1,541.52	1,541.52	-	1,541.52
Totals previously reported	None	None	None	None	None	None
Totals to date	1,541.52		1,541.52	1,541.52	-	1,541.52

FOR GOVERNMENT USE ONLY

Checked by: E. O. Binyon
Entered by:
Approved by: D. H. Mullen, Supervising Engineer
Amount approved for payment: $1,387.37
Remarks:

[1] Enter total purchase price in month purchase is made.
[2] Payments for rental of equipment or prorated depreciation on equipment owned by contractor.

16—64068-1

FILLMORE DRILLING COMPANY
CONTRACTORS
Deadwood, South Dakota
32 Lincoln Avenue
October 16, 1951

In account with
Black Hills Keystone Corporation
503 5th Ave.
New York 19, N. Y.

Invoice No. 2 - 51

* *

Core Holes No. 4 - 5 - 6
Bob Ingersol Mine, Keystone, S. Dak.

Item	FOOTAGE	UNIT PRICE	TOTAL
Hole No. 4	72 ft.	$4.50	$ 324.00
"	furnishing water 72 ft.	.25	18.00
Hole No. 5	71.5 ft.	4.50	321.75
"	furnishing water 71.5 ft.	.25	17.87
Hole No. 6	150.0 ft.	4.50	675.00
"	Furnishing water 150 ft.	.25	37.50
10 core boxes			25.00
		Total	$1,419.12

1394.12

I certify that the above bill is correct and just; that payment therefor has not been received : that all statutory requirements as to American production and labor standards, and all conditions of purchase applicable to the transactions have been complied with; and that State or local taxes are not included in the amounts billed.

Fillmore Drilling Company

M. F. Fillmore, Owner

Approved:

Fremont F. Clarke
Res. Engineer

Strategic and Critical Mineral Exploration Program
DMA 812 X-A Idm-E99

Operation Monthly Progress Report for October 1951

Narrative:

A contract was signed August 3, 1951 for a beryl, mica including other pegmatite minerals exploration program on the Bob Ingersoll group of claims located 2-1/2 miles from Keystone, Twp. 2-S, Range 6 E. Black Hills Meridian.

The objective of the initial drilling program is to determine the extent, mineral content and configuration of dikes 1, 2, 3 and 4. If the exploration drilling program results justify additional exploration, then with the approval of Government field engineers further exploration will be undertaken in the form of drifts and cross-cuts.

Dike 4 was intersected with three drill holes72.0', 71.5', and 150' in length.

As the drilling of this dike is part of a coordinated plan to evaluate the possibilities of dikes 1, 2, 3, and 4 which are closely adjacent to each other, conclusions regarding the findings to date are withheld until all 4 dikes are drilled. The logging of the drill cores is in progress.

/s/ Fremont F. Clarke

DISTRIBUTION OF WAGES AND SALARIES FOR MONTH OF October 1951

Name of operator
Project No. DMA
Total contract amount
Government participation percent

Type	Number	Man-Shifts	Rate	Total
Miners			$	$
Muckers	2	8-1/2	1.10/hr	72.40
Trammers				
Timbermen				
Pumpmen				
Hoistmen				
Surface				
Samplers				
Assayers				
Shift bosses				
Mechanics				
Electricians				
Blacksmiths				
Carpenters				
Drill runners				
Drill helpers				
Teamsters				
Manager				
Superintendent				
Engineers		1 mo.	50.00	50.00
Geologists				
Bookkeeper				
Foreman				
Clerks				
Stenographers				
Other				
Total				122.40

Note.—Show only that portion of supervisory, office, and engineering salaries that is chargeable to this project.

FOR GOVERNMENT USE ONLY

Checked by E. O. Binyon
Entered by
Approved by D. H. Mullen, Supervising Engineer
Remarks

16—64068-1

EXPLORATION UNIT COST AND PROGRESS REPORT FOR MONTH OF October 1951

Name of operator: Black Hills Keystone Corporation
Project No. DMA: 812x-a, Idm E99
Total contract amount: $23,080.00
Government participation, percent: 90%

Item	Costs					Progress				
	Wages [1] and salaries	Equipment [2]	Supplies	Other [3]	Total	Unit	Units this month	Units previously reported	Units to date	Units authorized by contract
Drifting										
Crosscutting										
Raising										
Shafts										
Winzes										
Drill holes Contract $4.75	a foot	293.5'		1,394.12	1,394.12	foot	293.5	none	293.5	2,050
Overburden										
Rehabilitation and preparation										
Geology and geophysics										
Trenching										
Sampling and assaying										
Roads and trails										
~~Test pits~~				72.40	72.40					
Other (specify) Core boxes (10)				25.00	25.00					
Engineering				50.00	50.00					
Totals				1,541.52	1,541.52					

[1] Prorate supervisory, engineering, and office salaries in proportion to man-shifts of direct labor.
[2] Prorate charges for equipment that is not exclusively for one type of job (such as compressors) against authorized units of work in each category.
[3] Where entries in the "Other" column (above) are more than 25 percent of the total expenditures, a breakdown of this item should be made.

16—64068-1 U. S. GOVERNMENT PRINTING OFFICE

FOR GOVERNMENT USE ONLY

Checked by: E. O. Binyon
Entered by:
Approved by: D. H. Mullen, Supervising Engineer
Remarks:

Diamond Drill Hole No. 1, Dike No. 1, Ingersoll Mine
Keystone, South Dakota

Location of collar:	112 feet N. 85° E. from pit rim along section DD'
Elevation of collar:	5,220 feet
Inclination:	-83°
Bearing:	S. 85° W.
Length:	332 feet

Depth in feet	Description
257.0 - 265.5	Mostly quartzite, but very impure and containing phlogopite and probably diopside. The core resembles conglomerate but is probably really due to boudinaging along joints. Small needles of actinolite or cummingtonite occur along partings in the quartzite.
265.5 - 271.0	Pegmatite. Contact at 265.5 feet, angle 25°. A thin border zone, about 0.5 inch thick, and composed mainly of fine-grained muscovite and minor quartz, is present at the contact. Wall zone, cleavelandite pegmatite. The composition of the entire interval is about 90 percent cleavelandite, 4 percent green tourmaline, 1 percent beryl, and accessory apatite and muscovite. The cleavelandite is in course plates, averaging more than 0.1 foot in diameter. A beryl crystal, 0.1 foot in diameter, is located at 266.0 feet. At 265.8 feet is a small mass of amblygonite or beryl containing numerous small inclusions of tourmaline crystals. At 269.5 feet is a small fracture filling composed of small green tourmaline crystals. About 80 percent core recovery between 262 and 270 feet.
271.0 - 281.0(?)	Wall zone, muscovite-cleavelandite pegmatite. Composition: muscovite, 65 percent; cleavelandite, 24 percent; tourmaline, 6 percent; and accessory columbite-tantalite. The mica is yellow scrap mica and occurs as plus 2-inch books containing many inclusions of green tourmaline. The columbite-tantalite occurs at 281.0 feet in a mass of intergrown crystals, the largest of which is 1 inch in diameter. Possibly some microlite is intergrown with the columbite-tantalite. Core recovery is 70 percent between 270 and 276 feet.
281.0(?)-291.0(?)	Intermediate zone, cleavelandite pegmatite. Composition: cleavelandite, 88 percent; lepidolite, 5 percent; yellow muscovite, 3 percent; and accessory green tourmaline, quartz, cassiterite, and apatite. The accessory cassiterite occurs in small grains (0.1 inch) from 284 to 288 feet. The lepidolite is concentrated between 282.5 feet and 284.0 feet. From 286 to 288 feet is few percent of a bright yellow mineral which is clayey in texture and has a waxey luster. It is probably an alteration product from lepidolite.

Depth in feet	Description
281.0(?)-291.0(?) (cont.)	The yellow muscovite occurs from 288.5 to 289.5 feet in plus 1-inch books and may be a repetition of the mica zone. The lepidolite is gray and occurs in fine-grained aggregates. About 78 percent core recovery between 276 and 288.5 feet.
291.0(?)-301.5(?)	Intermediate zone, cleavelandite pegmatite. Composition: cleavelandite, 95 percent, and accessory fine-grained yellow muscovite or lepidolite, quartz, apatite, tourmaline, and amblygonite. At approximately 291.0 feet is a small amblygonite mass, 0.4 inch in diameter. The fine-grained mica is disseminated throughout the interval. The amblygonite possibly represents the remnants of the upper amblygonite-bearing zone. Core recovery 90 percent from 288.5 to 294 feet, and 100 percent from 294 to 305 feet.
301.5 - 305.8	Core, lepidolite-cleavelandite pegmatite. Composition: lepidolite, 70 percent; cleavelandite, 30 percent; and accessory apatite, microlite (?), and cassiterite. The accessory minerals are all in grains less than 0.1 inch in diameter.
305.8 - 309.5	Wall zone, cleavelandite pegmatite. Composed of 93 percent cleavelandite, 4 percent quartz, and accessory microlite (?), fine-grained yellow mica, apatite, cassiterite, and tourmaline. The cleavelandite is in plus 2-inch blades. The cassiterite is in small grains disseminated throughout the interval, and is estimated at less than 0.5 percent of the total interval.
309.5 - 318.0	Wall zone, cleavelandite pegmatite. Accessory columbite-tantalite (one thin plate occurs at 309.5 feet), muscovite, and apatite. A thin, 0.5 inch thick border zone occurs at the end of the interval.
318.0 - 332.0	Schist. Contact angle of 56° at 318.0 feet. The average bedding angle of the schist is about 40°. The strike of the schistosity is within 10° of being the same as that of the pegmatite contact. The schist is mostly thin-bedded and has some garnet. Porphryblasts of feldspar occur in the light colored beds for about 2 feet from the contact. From about 324 feet to the end of the hole the bedding is very irregular and the schist has more garnet and chlorite.
	End of hole at 332.0 feet.

Diamond Drill Hole No. 1, Dike No. 2, Ingersoll Mine
Keystone, South Dakota

Location of collar: 81.5 feet S. $43\frac{1}{2}^{\circ}$ E. from open cut along section B'B
Elevation of collar: 5,012 feet
Bearing: N. $43\frac{1}{2}^{\circ}$ W.
Length: 108 feet
Inclination: -75°.

Depth in feet	Description
0 - 36	Garnetiferous, quartz-mica schist - rich in biotite.
36 - 58	Thick-bedded quartzite cut by thin quartz veins. The quartzite contains sulphides and fibrous amphibole.
58 - 59.8	Schist, possibly containing pebbles.
59.8 - 62.0	Quartzite.
62.0 - 66.0	Conglomerate - pebbles up to 4 inches in diameter.
66.0 - 80.5	Biotite-rich schist containing a few thin quartzite beds. Schist somewhat spotted - andalusite?.
80.5 - 83.5	Pegmatite contact at 80.5. Contact angle approximately 67°. Wall zone. Composition: cleavelandite, 70 percent; quartz, 20 percent; muscovite, 9 percent; accessory apatite and cassiterite (?). Radial aggregates of cleavelandite are in excess of 0.1 foot in diameter. Small blebs of cassiterite occur throughout the interval.
83.5 - 90.0	Intermediate zone, cleavelandite-quartz pegmatite. About 90 percent cleavelandite.
90.0 - 94.0	Intermediate zone, cleavelandite-quartz-amblygonite pegmatite. Approximately 80 percent cleavelandite, 15 percent quartz, accessory columbite-tantalite and amblygonite. Both accessory minerals are fine-grained. Apparently remnant of quartz-amblygonite-cleavelandite-perthite pegmatite zone.
94.0 - 96.0	Intermediate zone, muscovite-cleavelandite-quartz pegmatite. An estimated 60 percent muscovite occurring mostly as yellow scrap mica cuttings in the drill core.
96.0 - 100.5	Intermediate zone, perthite-quartz pegmatite. The largest perthite crystal is approximately 1.5 feet in diameter. The quartz is fine-grained, filling the intervals between the perthite crystals.
100.5 - 101.8	Wall zone, quartz-cleavelandite-muscovite pegmatite. Approximately 20 percent of muscovite and 10 percent of cleavelandite. The muscovite is in plus 1-inch scrap mica books. A 1-inch crystal of beryl is located 0.3 feet from the contact.

Depth in feet	Description
101.8 - 108.0	Schist. No contact angle present. End of hole.

One might call the whole interval from 83.5 feet to 100.5 feet as part of the quartz-perthite-amblygonite-cleavelandite pegmatite. It is possible to separate the mica-bearing zone as a different zone.

Diamond Drill Hole No. 1, Dike No. 3, Ingersoll Mine
Keystone, South Dakota

Location of collar: 32 feet SW from pegmatite contact on section GG'.
Elevation of collar: 5,192 feet.
Inclination: -32°
Bearing: N. 54° E.
Length: 80 feet

Length in feet	Description
0 - 34.5(?)	Quartz-mica schist. Core recovery only 57 percent. Schist is spotted, containing rounded biotite knots from 0 to 20.0 feet. At 5.0 feet bedding and schistosity angle 30°. Bedding in general is poor. A few garnets are present and are bordered by biotite and chlorite. At 20.0 feet the schist is more like normal sandy schist with no noticeable bedding.
34.5(?)-34.6(?)	Approximate contact with pegmatite at 34.5 feet. Contact angle 26° (?). Border zone, fine-grained plagioclase-quartz-muscovite pegmatite. About 50 percent plagioclase, 25 percent quartz, and 20 percent muscovite. Accessory blue apatite. At 35.0 feet are schist fragments, but are probably spalled off pieces at the beginning of the run.
34.6 - 39.5(?)	Wall zone, cleavelandite-quartz pegmatite. Composition: 75 percent cleavelandite, 15 to 20 percent quartz, 3 percent muscovite, and accessory blue apatite and columbite-tantalite. The quartz and cleavelandite average about 0.7 inch in grain size, and the apatite 0.1 inch. At 38.6(?) is a small, 1-millimeter thick blade of columbite-tantalite.
39.5(?)-44.5(?)	Schist contact at approximately 39.5(?). Very poor recovery - less than 30 percent for this interval. Drillers log lists 44.0 feet as contact of schist with pegmatite.
44.5(?) - 46.0	Pegmatite contact at approximately 44.5 feet. Wall zone, cleavelandite-quartz-muscovite pegmatite. Composition questionable due to poor recovery but probably 45 percent each of cleavelandite and quartz and 5 to 10 percent of muscovite. Accessory apatite and green tourmaline. Grain size averages 1 inch.
46.0 - 50.0	Wall zone, muscovite-quartz pegmatite. Drillers record that it was mostly muscovite, which came out in the sludge. Core recovery less than 0.5 feet, and that was ground-up mica which the drillers had taken from the sludge. Composition probably over 70 percent muscovite. The remainder is quartz and a couple of 1-inch perthite crystals.
50.0 - 51.5	Wall zone, cleavelandite-quartz-muscovite pegmatite. The core has a lot of vugs lined by pale-green, 1-millimeter thick, apatite crystals. One small, 3-millimeter in diameter

Length in feet	Description
50.0-51.5 (cont).	hexagonal cast may have been a beryl crystal. At approximately 51.0 feet are a couple of small, 2-millimeter thick grains of cassiterite associated with cleavelandite and muscovite (yellow lithia mica). Composition about 55 percent cleavelandite, 28 percent quartz, 15 percent lithia mica and accessory apatite, cassiterite, and perthite.
51.5 - 55.5	Intermediate zone, quartz-cleavelandite pegmatite. About 65 percent quartz and 30 percent cleavelandite, 3 percent yellow mica, accessory amblygonite, cassiterite, perthite, and apatite. Average grain size is about 1 inch. At approximately 54.0 feet is a 1- by 4-millimeter grain of cassiterite and a 10- by 4-millimeter crystal of amblygonite. Core recovery about 68 percent.
55.5 - 64.1	Intermediate zone, perthite-quartz pegmatite. Interval contains about 80 percent perthite, 12 percent quartz, 5 percent cleavelandite (rimming the perthite crystals) and accessory muscovite, apatite, and cassiterite (1 millimeter thick grain of cassiterite).
64.1 - 66.5	Wall zone, cleavelandite-quartz-muscovite pegmatite. Composition 53 percent cleavelandite, 27 percent quartz, 10 percent beryl, 7 percent muscovite, and accessory blue tourmaline and apatite. The muscovite books are all of scrap quality and average about 1.5 inches in diameter. One, and possibly more, beryl crystals at 66.3 feet, with a minimum diameter of at least 0.2 inches and possibly 0.4 inches.
66.5 - 67.0	Border zone, quartz-muscovite pegmatite, fine-grained, about 0.1 inch or less average grain size. Composition 50 percent quartz, 35 percent muscovite, 8 percent tourmaline, 5 percent plagioclase, and accessory apatite.
67.0 - 74.0	Schist contact at 67.0 feet - no contact angle recovered. Quartz-mica schist containing garnet (1-3 millimeter diameter), biotite knots, and muscovite aggregates which are probably replaced staurolite or sillimanite. Schist is bedded, having grayish, graphite-rich beds 6 inches to a foot thick. Abundance of quartz stringers.
74.0 - 80.0	Conglomerate. Actual limits of the conglomerate thickness are very questionable due to many quartz stringers and lenticular bedding. Pebbles range from 0.2 inch to 10 inches in diameter. Most of the pebbles are impure quartzite and do not appear to have been elongated much. End of hole at 80.0 feet.

Diamond Drill Hole No. 1, Dike No. 4, Ingersoll Mine
Keystone, S. Dak.

Location of collar: 47 feet S. $72\frac{1}{2}^{\circ}$ W. from the pegmatite contact in section GG'.
Elevation of collar: 5,078 feet.
Inclination: -25°
Bearing: N. $72\frac{1}{2}^{\circ}$ E.
Length: 72 feet

Length in feet	Description
0 - 21.?	Quartz-mica schist, poor core recovery. At about 13 feet, bedding angle 28°, schistosity approximately parallel.
21.? - 30.?	Conglomerate. Possibly the beginning is at 16 feet, but core recovery is poor between 21 and 31 feet, core recovery only 2.3 feet. Conglomerate matrix is graphite-bearing schist containing considerable garnet and biotite. The pebbles have a coarse-grained sandy composition, almost quartzitic, and are very similar to those found on top of the ridge east of the Ingersoll mine.
30.? - 41.?	Quartz-mica schist. At 31.? feet schistosity makes an angle of 50°. At 33.0 feet is 0.5 feet of quartz stringers.
41.? - 46.3?	Reworked schist, apparently along the contact of the pegmatite. The rock is about 80 percent quartz and the remainder is fragments of altered schist and 3 to 5 percent of muscovite in blades as much as 0.3 inches across. A few percent of tourmaline and plagioclase in the schist. This may represent a quartz vein, but it looks more like reworked schist along pegmatite contact.
46.3? - 51.9	Biotite-rich quartz-mica schist, highly contorted and cut by many quartz veinlets. Schistosity is poor but at 51.0 feet, angle is 65°.
51.9 - 53.5	Pegmatite contact at 51.9 feet, angle 20° to 30°. Wall zone, plagioclase-quartz-muscovite pegmatite, fine-grained, averaging 0.2 inch in grain size. Composition: 65 percent plagioclase, 23 percent quartz, 11 percent muscovite, and accessory tourmaline.
53.5 - 55.3	Wall zone, cleavelandite-quartz-muscovite pegmatite. Approximately 60 percent cleavelandite, 30 percent quartz, 10 percent muscovite. Cleavelandite in sprays up to 1.5 inches across. Quartz and muscovite average about 0.4 inch in diameter.
55.3 - 56.3	Same composition as above interval, except for several beryl crystals, the largest of which is about 1 inch in diameter. Over this short interval the beryl percentage is about 4 percent. Accessory garnet.

Length in feet	Description
56.3 - 58.3	Wall zone, mainly cleavelandite, but containing 5 to 10 percent muscovite. The cleavelandite is fairly coarse-grained, in excess of 2 inches.
58.3 - 59.8 (?)	Wall zone, cleavelandite-quartz pegmatite. One beryl crystal 0.7 inch in diameter at 58.4 feet. The last foot of the core is badly ground up. The composition of the whole interval of pegmatite from 51.9 to 59.8 is about 65 percent cleavelandite, 25 percent quartz, and 9 percent muscovite. The beryl percentage is 0.66 percent (3.1 square inches of surface area of beryl).
59.8? - 72.0	Schist contact at 59.8 (?) feet. No contact angle visible. The schist is rather micaceous and rich in biotite. The schistosity and cleavage is variable along the core. The core parallels a quartz vein from 60.0 to 62.7 feet. Several quartz and feldspar veinlets all along the core.

Diamond Drill Hole No. 2, Dike No. 2, Ingersoll Mine
Keystone, South Dakota

Location of collar: 129 feet S. $43\frac{1}{2}^{\circ}$ E. from open cut in section EE'
Elevation of collar: 5,052 feet
Inclination: -66°
Bearing: N. $43\frac{1}{2}^{\circ}$ W.
Length: 148 feet

Depth in feet	Description
0 - 21	No core.
21 - 29.9(?)	Garnetiferous schist, thin-bedded and containing many thin quartz veins.
29.9(?) - 50.0	Massive quartz vein. Contains a few fragments of schist. Only 25 percent core recovery.
50.0 - 61.0	Micaceous, garnet-bearing schist. Thin-bedded and containing greenish beds interbedded with darker beds.
61.0 - 63.5	Conglomerate, excellent pebbles.
63.5 - 66.0	Quartzite.
66.0 - 78.5	Garnet-bearing schist, thin-bedded and containing chlorite.
78.5 - 114.0	Interbedded quartzite, massive sandy schist and micaceous schist. Bedding angle decreases to 25° - 30° near contact. Most of the other bedding angles have been 60° - 70°. Schist tourmalinized near contact of pegmatite.
114.0 - 114.5	Pegmatite. Contact angle approximately 20°. Border zone composed of fine-grained pink cleavelandite, quartz and muscovite.
114.5 -121.5	Wall zone (?), composed of cleavelandite-quartz pegmatite. Estimated 53 percent cleavelandite and 35 percent quartz. Cleavelandite is white (except on outer edge of zone where cleavelandite is flesh colored). Blades of cleavelandite are over 0.1 foot in diameter. Accessory fine-grained apatite and muscovite. A pale green beryl crystal at 115.5 feet is 0.1 foot in diameter. Beryl content of the interval is 0.5 to 0.7 percent.
121.5 - 125.5	Muscovite-cleavelandite pegmatite. Large books of yellowish scrap mica. Three feet of the interval is solid muscovite. Core recovery is 100 percent.
125.5 - 130.1	Core. Cleavelandite-quartz-lepidolite pegmatite. Lepidolite content estimated at 15 percent. A few small crystals of amblygonite (less than 1 inch diameter) occur at 128 feet. Accessory apatite and cassiterite (?). Cassiterite occurs as subhedral crystals 0.1 to 0.2 inch in diameter.

Depth in feet	Description
130.1 - 141.8	Wall zone(?). Cleavelandite-quartz pegmatite. Quartz is estimated at 12 percent. Also an estimated 3 percent of muscovite. Several vugs lined with apatite and cleavelandite occur near the contact. A 0.1 foot-thick border zone composed of quartz and muscovite occurs at the contact.
141.8 - 148	Schist. Contact angle 72°. Mostly thick, massively-bedded schist.
148	End of hole.

Diamond Drill Hole No. 2, Dike No. 3, Ingersoll Mine
Keystone, South Dakota

Location of collar:	21 feet SW of pegmatite contact along section HH'.
Elevation of collar:	5,196 feet
Inclination:	-51°
Bearing:	N. 54° E.
Length:	63 feet

Length in feet	Description
0 - 25.0(?)	Quartz-mica schist containing garnet, mica knots, and abundant fine-grained black tourmaline crystals in interval from 19.5 to 24.0 feet. Schistosity angle, 55°.
25.0(?)-26.5(?)	Pegmatite contact at 25.0(?), contact angle 55° (?). Wall zone, cleavelandite-quartz-muscovite pegmatite. Quartz and cleavelandite nearly same percentage but cleavelandite may be 5 to 10 percent higher. Composition estimated at 50 percent cleavelandite, 40 percent quartz, 5 to 10 percent muscovite, and accessory apatite. Average grain size about 0.1 inch.
26.5(?) - 32.0	Quartz-mica schist. No contact angle present. Contains small pegmatite stringers but no tourmaline needles.
32.0 - 36.0	Pegmatite, contact at 32.0, contact angle 45°. Wall zone, cleavelandite-quartz-muscovite pegmatite. Composition: 50 percent cleavelandite, 35 percent quartz, 12 percent muscovite, 1 percent tourmaline, and accessory columbite-tantalite. Two thin plates of columbite-tantalite; the largest measures 4 inches along the side of the core, but is only about 1 millimeter thick. Grain size ranges from 0.05 inch to 1 inch and the average is about 0.7 inch.
36.0 - 41.8	Wall zone, cleavelandite-quartz-muscovite pegmatite. Nearly equal amounts of cleavelandite and quartz. Composition estimated at 40 percent cleavelandite, 38 percent quartz, 14 percent muscovite, 3 percent tourmaline, 1 to 2 percent amblygonite, ½ percent cassiterite. The cassiterite grains are from 0.1 to 0.3 inch in diameter and the amblygonite averages about 0.5 inch; the largest crystal was about 1 inch in diameter.
41.8 - 46.0	Intermediate zone, quartz-cleavelandite pegmatite. About 70 percent quartz, 25 percent cleavelandite, 5 percent muscovite, and accessory perthite. Core recovery less than 50 percent - presumably mainly quartz lost.
46.0 - 48.0	Wall zone, cleavelandite-quartz-muscovite pegmatite. About 6 percent muscovite and 45 percent each of cleavelandite and quartz. Probably 4 percent of phosphates (unknown) and accessory amblygonite and apatite.

Length in feet	Description
48.0 - 50.5	Wall zone, cleavelandite-quartz-muscovite pegmatite. There is 30 percent of muscovite in this interval because of a solid 0.8 foot stretch of muscovite. Composition: 40 percent cleavelandite, 30 percent quartz, 30 percent muscovite, and accessory black tourmaline and apatite. A border zone from 50.3 to 50.5 feet is composed of quartz and muscovite and has an average grain size of approximately 0.1 inch.
50.5 - 52.0	Schist contact at 50.5 feet, angle 40°. Quartz-mica schist containing altered and fresh garnet.
52.0 - 63.0	Conglomerate. Pebbles vary considerable in size - the largest is 4 inches, plus. General appearance is the same as in hole No. 1. Actual bottom limit of the conglomerate may be before the bottom of the hole is reached. End of hole at 63.0 feet.

Diamond Drill Hole No. 2, Dike No. 4, Ingersoll Mine
Keystone, S. Dak.

Location of collar:	47 feet S. $72\frac{1}{2}^{\circ}$ W. from pegmatite contact in section GG'
Elevation of collar:	5,078 feet
Inclination:	-55°
Bearing:	N. $72\frac{1}{2}^{\circ}$ E.
Length:	71.5 feet

Description

Entire hole in schist and quartzite.

Diamond Drill Hole No. 3, Dike No. 3, Ingersoll Mine
Keystone, S. Dak.

Location of collar:	50.5 feet SW of pegmatite contact along section HH'
Elevation of collar:	5,181.5 feet
Inclination:	-52
Bearing:	N. 54° E.
Length:	97.0 feet

Length in feet	Description
0 - 64.9	Quartz mica schist. Core not logged from 0 to 57.0 feet. From 57.0 feet to 64.9 feet the schist is mainly massive, quartz-rich schist with many quartz veins. No trustworthy bedding or schistosity is present. A few knots of muscovite present. Schist is highly altered from approximately 64.0 feet to the contact and some tourmaline added to this schist.
64.9 - 67.8	Pegmatite contact at 64.9, contact gradational. Wall zone, cleavelandite-quartz-muscovite pegmatite. Composition: 75 percent cleavelandite, 20 percent quartz, 2 to 5 percent muscovite, and accessory apatite, tourmaline, apatite, and cassiterite. Whole interval except first 0.5 feet is solid cleavelandite containing small grains of the other minerals.
67.8 - 75.5	Intermediate zone, perthite-quartz-cleavelandite pegmatite. Composition: 55 percent perthite, 35 percent quartz, 5 percent cleavelandite, and 4 percent amblygonite. Largest perthite crystals are at least 2 feet thick along the core. At 71 feet is about 0.3 foot of amblygonite in plates 0.5 inches or more thick. Cleavelandite occurs only as small plates mainly concentrated near the borders of the unit.
75.5 - 78.3	Core, quartz-lithia mica-pegmatite. This probably represents the innermost unit in the pegmatite. Perthite occurs in the first foot, from 75.5 to 76.5 feet. The perthite is of smaller size than in the previous unit. Composition: 60 percent quartz, 35 percent lithia mica, 3 to 4 percent perthite, and accessory cleavelandite. Average grain size of the core is 0.5 inch.
78.3 - 81.2	Intermediate zone, cleavelandite-muscovite pegmatite. Composition: about 85 percent cleavelandite, 8 percent muscovite, 4 percent quartz, 2 percent fine-grained apatite, and accessory green tourmaline, cassiterite (2 to 4 millimeter crystals), and columbite-tantalite (1 millimeter thick plate). The apatite is very fine-grained and sugary, but the cleavelandite and muscovite average about 1 inch in diameter.
81.2 - 84.0	Intermediate zone, quartz-cleavelandite-phosphate pegmatite. You could break this interval into a separate zone on basis of phosphate. Composition: 60 percent quartz.

Length in feet	Description
81.2 - 84.0 (cont.)	25 percent cleavelandite, and 5 to 10 percent phosphate (mostly lithiophillite, apatite, and an unknown deep blue phosphate mineral). The phosphates are in aggregates an inch across. Possibly a trace of amblygonite. From 78.3 to 84.0 feet is cleavelandite-quartz pegmatite by bulk composition. Neither muscovite or phosphate minerals are adequate to name as zone composition.
84.0 - 86.2	Wall zone, cleavelandite-quartz-muscovite pegmatite. Composition: 80 to 85 percent cleavelandite, 10 to 15 percent quartz, 5 to 7 percent muscovite, and accessory tourmaline and apatite. Average grain size is about 1 inch. From 85.7 to 86.2 is a fine-grained border zone consisting of quartz, muscovite, plagioclase and accessory apatite.
86.2 - 97.0	Schist contact at 86.2 feet, angle 71°. Quartz mica schist. Bedding angle varies from 30° to 45°. Bedding is good, garnet occurring in some of the thinner, grayish, graphite-bearing beds. At the end of the hole is a sandy, almost quartzitic 10-inch thick bed. Throughout the interval are 0.7 inch long rectangular pseudomorphs of muscovite bordered by biotite which were probably former staurolite crystals. End of hole 97.0 feet.

Diamond Drill Hole No. 3, Dike No. 4, Ingersoll Mine
Keystone, S. Dak.

Location of collar:	72 feet S. $72\frac{1}{2}^{\circ}$ W. from pegmatite contact in section JJ'
Elevation of collar:	5,055 feet
Inclination:	-37°
Bearing:	N. $72\frac{1}{2}^{\circ}$ E.
Length:	150 feet

Length in feet	Description
0 - 109.0	Presumably quartz-mica schist - did not log core in detail. Bedding angle 30° at 101.0 feet. Bedding due to layers richer in biotite that average 0.3 inch thick. Some biotite knots 1 to 2 millimeters thick. Some of these biotite knots have cores of muscovite and were probably originally staurolite crystals.
109.0 - 110.6	Pegmatite contact at 109.0 feet. Contact angle probably about 30°. A thin border zone 0.5 inch thick is present at the contact. The remainder of the interval is wall zone, composed of 50 percent quartz, 20 percent muscovite, 15 percent plagioclase, 13 percent perthite, and accessory apatite and beryl. The average grain size for the different minerals is: quartz, 1 inch; plagioclase, 0.5 inch; perthite, 6 inches; muscovite, 0.7 inch; and one 0.5 inch crystal of beryl found at 0.5 feet from the contact.
110.6 - 133.0	Intermediate zone, perthite-quartz-cleavelandite-muscovite pegmatite. Composition, 53 percent perthite, 31 percent quartz, 10 percent cleavelandite, 5 percent muscovite and accessory apatite. Most of the perthite is about 1 foot in diameter, and the largest about 2 feet. The quartz-rich matrix averages about 1 inch in diameter and the muscovite books slightly larger. The last 12 feet of interval is coarser-grained.
133.0 - 135.5	Intermediate zone, cleavelandite-quartz-muscovite-perthite pegmatite. Composition, 45 percent cleavelandite, 38 percent quartz, 11 percent muscovite, and 8 percent perthite. The average grain size of the cleavelandite and quartz is 0.8 inch. The perthite crystals are from 3 to 6 inches in diameter and considerably intergrown with cleavelandite and muscovite.
135.5 - 137.5	Wall zone, quartz-cleavelandite-muscovite pegmatite. The quartz and cleavelandite are present in equal amounts and muscovite constitutes about 10 percent of the zone. The average grain size is about 0.8 inch and the largest

Length in feet	Description
135.5 - 137.5 (cont)	muscovite book is only 1.5 inches. At 137.2 feet are two small beryl crystals 0.2 inch in diameter and 0.5 and 1.0 inch in length. At 136.7 feet is a small 0.3 inch crystal, probably lithiophillite.
137.5(?) - 150.0	Approximate contact at 137.5 feet. Schist, garnetiferous and containing light and dark beds about 0.1 inch in thickness. Lot of quartz stringers. End of hole at 150.0 feet.

Diamond Drill Hole No. 4, Dike 4, Ingersoll Mine
Keystone, South Dakota

Location:	Section JJ', 50.5 feet S. $72\frac{1}{2}^{\circ}$ W. from pegmatite contact
Bearing:	N. $72\frac{1}{2}^{\circ}$ E.
Elevation of collar:	5,060 feet
Inclination:	-17°
Length:	90 feet.

Depth in feet	Description
0 - 39.6	Garnet-bearing quartz-mica schist. A small quantity of chlorite present in rosettes. Rectangular-shaped aggregates of mica, probably pseudomorphs after staurolite crystals. Bedding irregular and contorted. Possibly a few feet of conglomerate at 34 feet, but is probably just contorted schist. A few beds, a foot thick, lack noticeable garnet.
39.6 - 41.4	Pegmatite. Contact angle good, 84°. Wall zone, plagioclase-quartz-muscovite pegmatite. Composition: plagioclase - 50 percent; quartz, 35 percent, muscovite, 14 percent, and accessory apatite. The first 0.3 feet of the interval is border zone composed essentially of fine-grained muscovite and lesser quartz and plagioclase. The average grain size of the interval is 0.4 inch. None of the mica is coarser-grained than 0.5 inch. Core recovery 100 percent.
41.4 - 43.0	Wall zone, cleavelandite-quartz-muscovite pegmatite. Composition: cleavelandite, 65 percent; quartz, 27 percent; muscovite, 5 percent; perthite, 3 percent. Average grain size is about 0.6 inch, except for the perthite crystals that average about 1.5 inches in diameter. Muscovite here and in the previous interval is all yellowish and averages about 0.4 inch in diameter.
43.0 - 55.0	First intermediate zone, cleavelandite-quartz-perthite-muscovite pegmatite. Composition: cleavelandite, 36 percent; quartz, 30 percent; perthite, 16 percent; muscovite, 15 percent; and accessory apatite and beryl. The perthite crystals average about 0.3 feet in diameter and the muscovite books average about 0.5 inch in diameter. The muscovite is yellowish colored and in small books. Cleavelandite and quartz average about 0.6 inch in average grain size. The perthite has many inclusions of quartz and muscovite and the cleavelandite is heavily stained. One small ($\frac{1}{2}$ inch) crystal of pale, greenish-white beryl. Core recovery 100 percent.
55.0 - 67.0	First intermediate zone, Cleavelandite-quartz-muscovite pegmatite. Composition: cleavelandite, 45 percent; quartz, 35 percent; muscovite, 17 percent; and accessory beryl, tourmaline, apatite, perthite, and phosphate minerals. The beryl percentage is estimated at 0.6 percent for the interval. All of the beryl crystals are small, less than 1 inch in diameter. Yellow muscovite occurs in small books intergrown with quartz. Possibly 1 percent of deep blue tourmaline in

Depth in feet	Description
55.0 - 67.0 (cont)	crystals up to 1.5 inch in diameter.
67.0 - 73.0	First intermediate zone, perthite-cleavelandite, quartz pegmatite. Composition: perthite, 50 percent; cleavelandite, 38 percent; quartz, 8 percent; muscovite, 2 percent; and accessory tourmaline, apatite, and a deep-blue mineral and a dark-green mineral coating vugs. These two unknown accessory minerals are found at the Big Chief pegmatite and are probably phosphates. Most of the perthite is coarse-grained, up to 1.5 feet in crystal size, but some of the crystals are only two or three inches in diameter. The cleavelandite occurs both as plus 1-inch blades and as fine-grained aggregates of sugary texture. Several small "vugs" are lined with phosphate minerals. The phosphates are in small, minus 0.2-inch grains. This interval is difficult to separate as a distinct zone since most of the perthite is concentrated between 70.0 and 73.0 feet. Core recovery 100 percent.
73.0 - 82.5	Wall zone, cleavelandite-quartz-muscovite pegmatite. Composition: cleavelandite, 60 percent; quartz, 22 percent; muscovite, 14 percent; perthite, 2 percent; and accessory apatite, tourmaline, beryl, amblygonite, and phosphate minerals. Cleavelandite is similar to that described in previous interval. One small 0.7 inch crystal of beryl. The phosphate minerals and the amblygonite are in small grains. Small 0.1 inch rounded grains of an unknown mineral are associated with the apatite and other phosphate minerals. The mineral resembles garnet in color and outline, but is anisotropic and tends to be altered and full of inclusions. It is possible that it could represent altered microlite.
82.5 - 84.5	Quartz pegmatite. Fracture filling ?? or crosscutting replacement portion of the pegmatite core. Essentially pure, massive quartz.
84.5 - 85.6	Wall zone, plagioclase-quartz-muscovite pegmatite. Average grain size about 0.2 inch. The last 0.4 feet of the interval is fine-grained muscovite and quartz representing the border zone.
85.6 - 90.0	Schist. Contact angle very poor, angle 45° to 80°. Contact is frayed and the schist has been tourmalinized for a few inches.
90.0	End of hole.

FILE COPY
SURNAME:

Referred to Chemistry

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C. 600

March 13, 1953

Memorandum

To: Administrator

From: Nonmetallic Minerals Division

Subject: A closing review - Docket No. DMEA-812A - Beryl-Mica
Contract No. Idm-E99
Property: Bob Ingersoll Group
Patent Survey No. 720
Section 6, T.2S., R.6E
Pennington County, South Dakota
Operator: Black Hills Keystone Corp.
(W. K. Wallace, President)
530 Fifth Avenue
New York 19, New York
Amount approved in contract $23,080.00
Total accepted cost $ 6,264.62
Government's share @ 90% $ 5,638.16
Project work started October 1, 1951
Stopped January 20, 1952, resumed work July 23, 1952 and completed Phase I August 15, 1952. Project stopped and Phase II never was started.

J.C. 3/18/53

Project not certified: There was no significant discovery of beryl or mica and the project was ended in accordance with the closing letter attached hereto.

Docket Summary:

5/13/51 Received application, MF-103.
5/23/51 Application acknowledged.
5/31/51 Letter - W. K. Wallace to Dr. Boyd, Re: Mill facilities.
6/8/51 Letter - Barr to Wallace acknowledging above.
6/20/51 Application referred to Region V for field examination.
7/13/51 Received field team examination report.
Report entitled Bob Ingersol Mine, Keystone District, Pennington County, South Dakota. By L. E. Shaffer, Minerals Technologist, USBM 6/10/51. They recommend a project. Phase I, Diamond Drilling $10,250, and Phase II, Drifts and Crosscuts $12,830.

8/9/51	Re-draft of a contract approved by Legal Division.
8/13/51	Contract Idm-E99 sent to Region V for signatures.
1/25/52	Received Progress Report MF-104 - 11/10/51 Received Progress Report MF-104 - 12/3/51
2/15/52	Date of Progress Report for January and February, 1952.
2/27/52	Letter from Region V. Work stopped 1/20/52.
3/19/52	Letter - Needham, Region V to Wallace asking if company intends to resume work.
3/31/52	Needham advises Wallace that contract is not terminated.
10/3/52	Report of Review by Jay Chambers, Auditor, accepted cost to date $4,978.62.
7/21/52	Drill contractor return to property to resume work.
11/7/52	July 21 to August 15. Progress report received. Drilled Hole 12 - 108', Hole 13 - 148'.
12/19/52	Final Field Team report received. By E. O. Bunyon, USBM, and J. A. Redden, USGS. Field Team recommends stopping project and concurred in by Operator's supervisor. Recommend no discovery.
1/6/53	Memo. Griffith, USBM concurs in recommendations of Field Team Report.

Project Cost: (As reported in Audit Review - Talbert 11/14/52).

The audit review disclosed the following facts in regard to the amount paid or to be paid the contractor:

Total cost as billed contractor	$6,429.62
Exceptions -	
By DMEA Finance Office $165.00	165.00
	$6,264.62

The contract called for a 90% participation of exploration expense by the United States Government. Therefore, payment to the contractor by the Government in the amount of $5,638.16 is considered valid and proper, provided that the Regional Executive Officer has accepted or will accept the project as having otherwise met the terms of the contract.

Resume:

The final examination report was made by E. O. Binyon and J. A. Redden. It is a comprehensive report, and together with logs of holes and maps, the description of the drilling on four distinct pegmatites is carefully made; some ten core drill holes were drilled at depths varying from 63 ft to 332 ft. This was Phase I or the diamond drilling portion of the contract. The results of the work of Phase I was unfavorable and, therefore, the work proposed for Phase II was never started.

A resume of the core drilling in Phase I is as follows:

Dike No.	Sec.	Hole No.	Inclination action	Depth Feet
1	D'-D"	1	- 83°	332
2	B'-B	1	75°	108
2	E'-E	2	66°	148
3	G -G'	1	32°	80
	H -H'	2	51°	63
3	H -H'	3	52°	97
4	G -G'	1	25°	72
4	G -G'	2	55°	71.5
4	J -J'	3	37°	150
4	J -J'	4	17°	90
				1211.5

The conclusion and recommendation of the field team is quoted as follows:

> "Phase I, core drilling, has not resulted in a significant discovery and has shown that the reserves of strategic minerals, beryl, mica and columbite-tantalite, are insufficient to warrant the additional exploration as outlined under Phase II, drifting and crosscutting." "It is recommended that Phase II of the contract not be started and that the project be terminated. A certificate of discovery is not recommended."

Unit Cost of Core Drilling:

A total of 1,211 feet of hole was core-drilled at a cost of $6,264.62 or at a unit rate of $5.17 per foot drilled.

Comment:

The pegmatite core samples were carefully logged and appraised by face counts of the cores and also exposures on the surface and in the underground workings by an examining engineer experienced in such appraisals. Probably the strongest reason for discontinuing the exploration was the thinning with depth of the pegmatite and small hope of increasing reserves. Reference is made to the individual logs of each hole and they contain the detailed analyses of the complex mineral relationships characteristic of the deposits. No equipment was purchased for the project.

The Nonmetallic Minerals Division concurs in the Field Team recommendation that the property should not be certified as a discovery.

Closing of Docket:

The project is not certified as a discovery and the books

closed in accordance with a closing letter sent the Operator and signed by the Administrator _____, 1953.

J. T. Robertson
Nonmetallic Minerals Division

Note: The final Audit Review and final Field Team Examination Report were received but the Final Operator's Report was not received. However, the Field Team report states:

"...the operator's representative is in agreement with the recommendation for termination of the contract."

In view of the above report from the field team, the Operator's final report is waived. Furthermore, the completion date of the contract was October 1, 1952 and has long since passed.

Copy of Operator's Final Summary Report received in Nonmetallic Minerals Division March 16, 1953.

JTRobertson:gad 3/16/53

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

☑ Audited | [redacted]ANALYSIS SHEET - DMEA PROJECT | [redacted]☑ Actual Cost

☐ Certified | Analysis as of [illegible] Incl. Voucher for Sept. 1952 | ☐ Agreed Unit Costs

Name Black Hills Keystone Corp. | Docket No. 812

State South Dakota | Commodity Beryl, Mica | Loan-E No. 99

OPERATION	AUTHORIZED Units	AUTHORIZED Cost	COMPLETED Units	COMPLETED Cost	[illegible]
Drifting & Crosscutting	D 190' C. 325'	$12,930.00	0	0	0
Raising					
Shafts					
Winzes					
Drilling (Specify)	2050'	$10,250.00	1211'	$6264.62	$6264.62
Surface Excavation					
Underground Excavation					
Roads and Trails					
Operating Equipment Purchased					
Surface Rehabilitation & Repairs					
Underground Rehabilitation					
New Building, Improvements, etc.					
Other (Specify)					
Totals		$23,080.00		$6264.62	$6264.62

Prepared by [illegible]

C O P Y

Wash MDA

UNITED STATES
DEPARTMENT OF THE INTERIOR

Defense Minerals Exploration Administration
Region V
2908 Colfax Avenue South
Minneapolis 8, Minnesota

Received
7/24/53 2

July 20, 1953

Memorandum

To: Special Assistant to the Regional Director, Region V

From: Executive Officer, Field Team, D.M.E.A., Region V

Subject: D.M.E.A. Docket 812, Contract Idm E-99
Black Hills Keystone, Bob Ingersoll Mine

We are in receipt of the Operator's Final Geological and Engineering Report, and therefore the money which was withheld from the last voucher can now be paid.

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

cc: Operating Comm. (2)
Dutton
Binyon

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$115.74 NO

Signature L.A. Hill
Authorized Certifying Officer

Date JUL 27 1953 Vou. No.

812

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 16 1953

~~WASHINGTON 25, D.C.~~
Region V
2908 Colfax Avenue South
Minneapolis 8, Minnesota

March 13, 1953

Memorandum

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

From: Executive Officer, Field Team, Region V

Subject: Docket DMEA-812x, Contract Idm E-99, Applicant's Final Report, Bob Ingersoll Mine

Transmitted herewith are the original and two copies of the subject report.

Mr. E. O. Binyon asked A. I. Johnson what action had been taken regarding the mutual termination agreement. He stated that Mr. Wallace had implied that the agreement had been signed and sent to Washington, D. C.

This office has no copy of the mutual termination agreement. Please advise whether or not the Washington office has the signed termination agreement; and if not, does the Washington office approve of termination action?

Walter E. Lewis

Walter E. Lewis, Acting Chief
Mining Division, Region V, for
A. B. Needham, Executive Officer
Field Team, Region V

Attachments

DMEA - 99 Docket 812 X

Fina l Summary Report- Diamond Drilling Project

Ingersoll Mine- Keystone, S. Dak.

Black Hills Keystone Corp.

This project was started October 1, 1951 with Hole Designated as Hole No. 4, being 1st hole of Dike No. 4. The project was started under the direction of Mr Fremont Clarke who supervised the project until the completion of Hole No. 10 on Dike No. 1 Jan. 20, 1952. Hole No. 11 , the 4th on Dike No. 4, was supervised by Mr. Glenn Walker the hole being completed Feb. 4th. The project was then held up until work was started on Holes Drilled on Dike No. 2, designated as No. 12 and 13. This work was supervised by Mr. A. I. Johnson and the drilling was completed August 15th 1952. The cores were logged by Mr. J. A. Redden, U.S.G.S., Custer, S. Dak. The geological studies had previously been completed by Mr. John B. Hanley, Mr. L. R. Page, and Mr M. P. Erickson as Strategic Mineral Investigations.

In order to summarize the projedt and to bring the pertinent facts to the fore a single map was prepared showing the general features and the several sections as outlined by the drilling. This represents a compilation of the work by the various individuals listed above that was pertinent to the summary. A total of 1211.5 feet of diamond drilling was completed at a total cost of $6,269.62. This is summarized in the table below:

Summary

Dike No. 4

Hole No.	Started	completed	Total depth	Total Pegmatite Ft. from to	*	**
4 (1st)	10/1- 51	10/5	72'	51.9 - 59.8	7.9	7.9
5 (2nd)	10/6	10/11	71.5	Schist		
6 (3rd)	10/11	10/17	150.0	109 - 137.5	28.5	23.8
11 (4th)	1/22-52	2/4	90.0	39.5 - 85.5	46.0	46.0
		Total Ft	383.5'			

Dike No. 3

Hole No.	Started	completed	Total depth	Total Pegmatite Ft. from to	*	**
7 (1st)	10/22-51	10/27	80.0	34.5- 39.5) 44.5- 67.0	27.5	24.2
8 (2nd)	10/29	11/8	63.0	24.7- 28.7) 32.0- 48.0	20.0	16.2
9 (3rd)	11/10	11/16	97.0	65.0- 86.5	21.5	14.1
		Total ft	240.0			

Dike No 1 and 1A

Hole No.	Started	Completed	Total depth	Total Pegmatite Ft. from to	*	**
10	11/19-51	1/20-52	332.0	265.5 317.9	51.5	32.2

*Pegmatite along drillhole. ** Pegmatite at right angles to dip

Summary Cont.

Dike No. 2

Hole No.	Started	Completed	Total depth	Total Pegmatite Ft.	from to	*	**
12 (1st)	7/23-52	8/1	108.0'	80.5	- 101.8	21.3	18.8
13 (2nd)	8/2 -	8/15	148.0	114.0	- 141.8	27.8	25.8
		Total Ft.	256.0				

Total Ft drilled in project 1211.5

The diamond drill holes were drilled along geological sections previously mapped by the U.S.G.S. and all holes drilled were located by the members of the field team of the DMEA and supervised by Mr. E.O. Binyon of the U.S. Bureau of Mines.

Dike No. 1 and 1 A

Drill hole No. 10, drilled at an inclination of -83 degrees S. 85 deg. W, was finished at a depth of 332 feet. A total of 51.5 feet of pegmatite was cut from an elevation of 4956' to 4900'. The hole was collared at an elevation of 5220'. The hole cut a thickness of dike of 32.2' at right angles to the dip. A study of the core indicated a hanging wall zone of 9.6', an intermediate zone of 12.4',a core of 2.67' and a foot wall zone of 7.55'. The core was principally lepidolite with accessory apatite, microlite and cassiterite in a matrix of cleavlandite. Both wall zones were Cleavelandite pegmatite. The hanging wall zone carried considerable muscovite with 1% beryl indicated in the first 3.4'. Both zones carried accessory columbite-tantalite and cassiterite. The intermediate zone was principally a cleavelandite pegmatite with some accessory amblygonite, cassiterite, apatite and muscovite. The area explored extended from 56 to 90 feet below the lowest level on this dike.

Dike No. 2

Two holes were drilled to contact Dike No. 2 designated as No. 12 and No. 13. Hole No. 12 was drilled along section BB' and Hole No. 13 along Section EE'. Drill Hole 12 cut thru 21.3' of pegmatite exposing a thickness of dike at that point of 18.8'. Hole No. 13 cut 27.8' of pegmatite or a total of 25.8' at right angles to the dip. Hole No. 12 indicated a cleavelandite pegmatite on both hanging and foot walls of the dike, with an intermediate zone of cleavelandite with coarse muscovite books. Interval 94-96 was 60% mica cuttings with accessory columbite and tantalite. The hanging wall dike zone was 9% mica (muscovite) with accessory apatite and cassiterite over a thickness of 2.66'. The intermediate zone 15 feet through was predominantly cleavelsndite with accessory columbite-tantalite, amblygonite and the segregated muscovite books. Hole No. 13 over a thickness of 25.8' exposed a hangingwall zone of 10.66' with large books of muscovite- a three foot interval 121.5-125.5 is mica with accessory beryl. Interval 114.5 to 121.5 averages 0.5 to 0.7 per cent beryl. A 4.25' core section had 15% lepidolite with accessory amblygonite and cassiterite. The foot wall zone was 10.9' thick of a cleavelandite- quartz pegmaite.

Dike No. 3

Three diamond drill holes were completed on this dike designated as No. 7, 8, & 9. Hole No. 9 was collared at an elevation of 5,181.5' and drilled at an inclination of -52 degrees N 54 deg. E to a depth of 97.0'. A total of 27.5' of pegmatite was cut representing a thickness of dike of 24.09'. A wall zone, 1.92', of 75% cleavelandite carried apatite, tourmalinemusoovite and cassiterite the balance quartz. An intermediate zone of 5.10 feet was 55% perthite and 35% quartz with small amounts of amblygonite. The core, representing 1.85' was a quartz-lithia mica pegmaite, with 35% lithia mica and accessory amblygonite. An intermediate zone of 1.92' with 85% cleavelandite carried accessory columbite-tantalite muscovite and apatite. An 1.85' section, predominantly quartz carried considerable cleavelandite with 5 to 10% phosphates. A wall zone of 80 to 85% cleavelandite with 5 to 7 per cent muscovite was 1.45' thick.

Hole No. 8 was driven along the same section to a depth of 63' and at an inclination of -51 deg. It was started at an elevation of 5,196'. A total of 20.0 feet of pegmatite was cut with an included member of schist of 5.5' from 26.5 to 32'. A thickness of 16.18' of pegmatite along this area indicated a cleavelandite -quartz muscovite pegmatite. Awall zone of 1.5' carried from 5 to 10% muscovite followed by schist and another wall zone of 3.50 and 5.10 feet with from 12 to 14 per cent muscovite. Accessory minerals were tantalite-columbite and cassiterite and also amblygonite. The intermediate zone of 3.66' was predominantly quartz with 5% muscovite. A wall zone of 1.75' and 2.17' were predominathy cleavelandite the latter section carrying 30% muscovite.

Hole No. 7 drilled on Section GG' at an eleavation of 5,192' and at an angle of -32 deg N 54 deg E was drilled to a depth of 80' cutting 27.5' of pegmatite representing a thickness of dike of 24.16'. Two wall zones separated by 5' fo schist and totaling 10.5' in thickness were predominately cleavelandite, quartz,muscovite pegma tite with mica values of from 3 to 70% or an average of some 27% according to the log. An intermediate zone of two sections 3.5 and 7.55' a quartz-cleavelandite pegmatite and a perthite-quzrtz pegmatite carried accessary cassiterite, amblygonite and muscovite. The wall zone, 2.12' thick, carried 10% beryl and 7% muscovite in a cleavelandite quartz matrix.

To summarize,the indications on Dike No. 3 are that it is potentially a mica dike with accessory beryl and columbite-tantalite together with some cassiterite. The dike is some 110' East of the nearest underground workings on Dike No. 1 on the 5040' elevation. As indicated by the sections showing holes 7,8 and 9 the lowest point contacted in the drilling program was 80' above this working level. In view of the altitude of the dike and its location the logical approach for its operation would be from the tunnel level on Dike No. 1.

Dike No. 4

Four holes were drilled on Dike No. 4 numbered 4,5,6 and 11. Hole No. 4 was drilled in Section GG' at an elevation of 5,078'. The hole was drilled to a depth of 72' N 72½ deg E and at an inclination of -25 deg. The drilling indicated the dike to bottom at approximately the elevation contacted in the drilling and as further substantiated by hole No. 5 which was entirely in schist. A total of 7.9' of pegmatite was cut which was practically all wall zone pegmatite carrying up to 10% muscovite and accessory beryl which varied from 0.66 beryl to 4 per cent beryl.

Hole No. 5 was drilled 47' S 72½ deg W from pegmatite contact in section GG' at an elevation of 5,078' and at an inclination of -55 deg to a depth of 71.5'. Only schist was contacted.

Hole No. 6 was drilled along section JJ' 72'S 72½ deg W from contact in section and at an elevation of 5,055', at an inclination of -37 minus 37 deg. The hole was drilled to a depth of 150'. A total of 46' of pegmatite was cut. Here the wall zone, 1.34' in thickness carried 20% mica with indicated beryl in crystals which were small. The intermediate zone of 18.8', a cleavelandite-quartz-muscovite-perthite pegmatite zone, carried some 5% muscovite but predominantly perthite, which was in large crystals. A second intermediate zone of 2.10 feet was a cleavelandite-quartz- muscovite zone carrying 11% mica. The wall zone, carrying 10% muscovite, indicated some beryl.

Hole No. 11 along Section JJ'- 50.5' S 72½ deg W from pegmatite contact was drilled at an elevation of 5,060' to a depth of 90' at an inclination of -17 deg. N 72½ deg E. It was drilled to a depth of 90.0' and cut 56.0 feet of pegmatite. The first 1.8' of wall zone carried 14% of muscovite, the second section 1.6',5% muscovite in a cleavelandite- quartz matrix. The intermediate zone in the 1st 12' carried 15% muscovite with accessory beryl andapatite, the next 12.0' carried 17% muscovite and accessory beryl, apatite and phosphate minerals with an estimated beryl percentage of 0.6. The next 6.0' indicated 8% muscovite in a perthite pegmatite with accessory apatite and phosphate minerals. This was followed by a wall zone of 9.5' principally cleavelandite pegmaite with 14% mica and accessory beryl apatite, amblygonite and phosphate minerals. Wall zone was a plagioclase-quartz- muscovite pegmaite of 1.1' preceded by 2.0' of quartz filling.

Some 25' of drifting on the Dike No. 2 level as indicated on the map would contact this dike south of section cut by drill hole No. 6. Drilling on Dike no. 4 with hold No. 6 cut the dike at a level some 18' below the cut level and 18' below the level of the inclined shaft. 110 feet of drifting would re required on the shaft level to intersection this section. It is estimated that some 30,000 tons of pegmatite has been indicatedto this level carrying 8.7% muscovitemica and accessory beryl. Some 21,800 tons are available to the cut level on Dike No. 2.

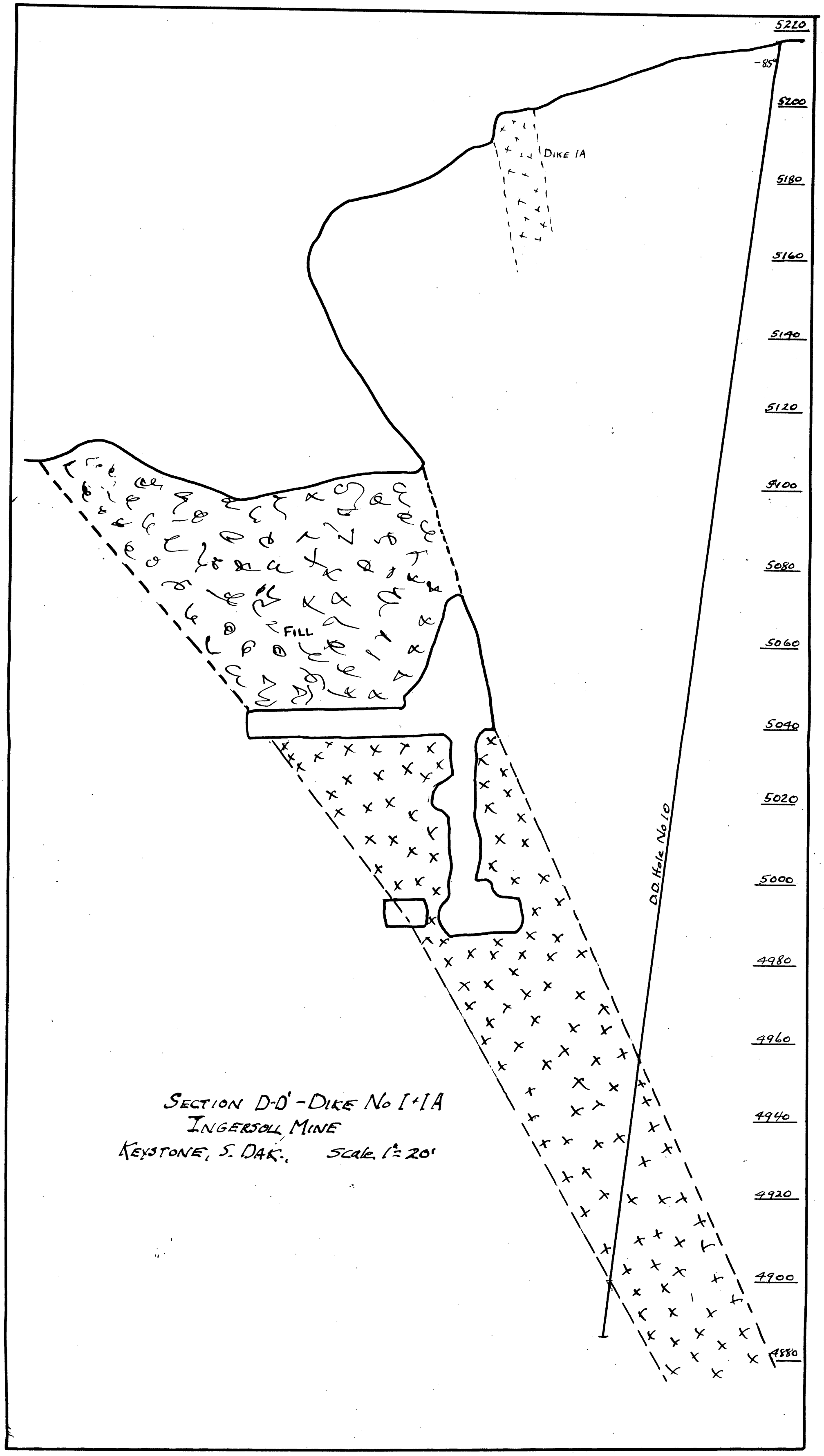
Conclusions

The drilling program has indicated reserves principally of muscovite mica with accessory beryl and columbite-tantalite in minor amounts. The drilling does not indicate sufficient beryl to warrant its exploitation for that mineral primarily but would supply a by-product in conjunction with the mining of mica (scrap) which is the high q uality white variety of muscovite.

The development costs to exploit the two undeveloped dikes No. 3 and No. 4 would not be too high as indicated by the relationships on the map.

A. I. Johnson

RECEIVED
MAR 13 1953
DEPT. OF INTERIOR
BUREAU OF MINES
MINNEAPOLIS, MINN.
REGION V



SECTION D-D' - DIKE No 1 + 1A
INGERSOLL MINE
KEYSTONE, S. DAK., SCALE 1" = 20'

-812

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

January 5, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 6 1953

Memorandum

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

From: Robert F. Griffith
Rare and Precious Metals Branch

Re: Beryl-Mica

Subject: DMEA Docket ~~8181-A~~ 812; Contract Idm-E99
Black Hills Keystone Corp., Ingersoll Mine,
Pennington County, South Dakota.

This office concurs with the final field report on subject project contract in regard to the recommendation that no certification be made.

Robert F. Griffith

Robert F. Griffith

5698 O.K.
5620

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D.C.~~
Region V
2908 Colfax Avenue South
Minneapolis 8, Minnesota

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 19 1952

December 16, 1952

Memorandum

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

From: Executive Officer, Field Team, Region V

Subject: Docket DMEA-812x-a, Contract Idm-E99
Black Hills Keystone Corporation

Here are the original and three copies of the Government Field Team report on the subject docket. Certification is not recommended.

We have not received a final report from the operator. We understand the owner is in Europe, but we have advised his representative in the Black Hills that a report is expected.

Following is the final accounting:

Total amount of contract	-	$20,772.00
Government share (90%)	-	18,694.80
Total amount spent	-	6,264.62
Government share (90%)	-	5,638.16
Amount available for General Fund	-	13,056.64

one copy only rec'd. Normal Cho 12-21-52

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

Attachments

ABNeedham:dg
cc Dutton
Mullen
Redden
Region V
files
df

cae 12-19

Reviewed by
DMEA OPERATING COMMITTEE
12-22-52
(date)

FINAL F.T. RPT

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 19 1952

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

FINAL REPORT

Bob Ingersoll Group

DMEA Docket 812X, Contract Idm E-99

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

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

Reviewed by
DMEA OPERATING COMMITTEE
12-22-52
(date)

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 19 1952

DMEA Docket 812X
Contract Idm E-99
Black Hills Keystone Corporation
530 Fifth Ave., New York 19, N. Y.
Bob Ingersoll Group, sec. 6, T. 2 S., R. 6 E., Pennington County, S. D.

Beryl-mica

SUMMARY

The exploration program for the Bob Ingersoll pegmatite deposit included two phases: Phase I, core drilling of dikes Nos. 1, 1A, 2, 3, and 4, with a maximum aggregate total footage of 2,050 feet of BX hole, and Phase II, underground exploration by drifts and crosscuts of dikes 3 and 4. A maximum of 325 feet of drift and 190 feet of crosscut were to be driven and Phase II was to be undertaken only if the results of Phase I indicated that additional exploration was warranted.

During the period from October 1, 1951, to August 15, 1952, the starting and completion dates respectively, a total of 10 holes, with an aggregate total footage of 1,211.5 feet, were drilled. The location, direction and inclination of the holes are shown on the accompanying sections. One hole was drilled on dike 1 and 1A, 2 holes on dike 2, 3 on dike 3, and 4 on dike 4.

Total expenditures for the project amounted to $6,262.62, of which the government's share, 90 percent, was $5,638.16. — ok

The results of the drilling indicated that none of the pegmatites had sufficient reserves of minable grade to warrant the additional exploration outlined under Phase II. Thickness and depth of the pegmatites, as shown on the sections prepared by the U. S. Geological Survey in 1943 and 1944, were proven to be extremely accurate and no significant increase in either depth or thickness was shown by the drilling. Most of the holes show a definite thinning of the dikes and from the angle of schist contacts, as well as zonal contacts, the extent in depth and thicknesses can be reasonably assumed to be as shown on the sections.

Previous estimates of grade and tonnage by the U. S. Geological Survey remain substantially the same; the only change that has resulted from the drilling is a change in the classification of the estimated tonnage from inferred to indicated. Tonnages formerly classed as inferred have been decreased with a corresponding increase in indicated tonnage. Present estimates are based on face counts of the cores and of the exposures in surface and underground workings.

CONCLUSIONS

Phase I, core drilling, has not resulted in a significant discovery and has shown that the reserves of strategic minerals, beryl, mica, and columbite-tantalite, are insufficient to warrant the additional exploration as outlined under Phase II, drifting and crosscutting.

RECOMMENDATIONS

It is recommended that Phase II of the contract not be started and that the project be terminated. A certification of discovery or development is not recommended.

The operator's representative is in agreement with the recommendation for termination of the contract.

DESCRIPTION OF THE WORK

The project was started October 1, 1952 and was completed on dikes Nos. 1, 3 and 4 by January 20, 1952. The applicant then ordered that the drilling be stopped.

Drilling was resumed on dike 2 on July 23, 1952 and was continued until August 15, 1952 when Phase I, core drilling, was completed.

Dike No.	Sec.	Hole No.	Bearing	Inclination	Depth feet
1	D'-D"	1	S. 85° W.	-83°	332
2	B'-B	1	N. 43½° W.	-75°	108
2	E'-E	2	N. 43½° W.	-66°	148
3	G-G'	1	N. 54° E.	-32°	80
	H-H'	2	N. 54° E.	-51°	63
3	H-H'	3	N. 54° E.	-52°	97
4	G-G'	1	N. 72½° E.	-25°	72
4	G-G'	2	N. 72½° E.	-55°	71.5
4	J-J'	3	N. 72½° E.	-37°	150
4	J-J'	4	N. 72½° E.	-17°	90
					1211.5

GEOLOGY

The Bob Ingersoll mine was mapped by the U. S. Geological Survey in 1943-44. Diamond drill holes were located on these maps and new cross-sections prepared along drill holes. Previous cross-sections were utilized wherever possible. All of the pegmatite core was logged and detailed logs accompany this report. Drill hole sections contain the mappable zones present in the core and use the same symbols as the plan maps and cross-sections prepared in 1943-44.

Exploration of Dike No. 1

One hole, 332 feet in length, was drilled to penetrate the pegmatite down-plunge at its thickest portion. The results of this hole are plotted on the drill hole section.

The pegmatite has a slightly greater thickness than was anticipated in previous sections but, nevertheless, is thinning with increasing depth. A thin lepidolite-bearing core was encountered and beryl occurs in the wall zone. Columbite-tantalite, microlite (?) and cassiterite (?) occur as a few small scattered crystals.

Based on exposures at the surface as well as in the drill core, it is estimated that the wall zone contains 0.5 percent beryl. Beryl was not noted in the inner zones of the pegmatite but probably exists. The grade of the quartz-cleavelandite pegmatite zone is probably less than 0.5 percent beryl.

The grade of the columbite-tantalite, microlite (?), and cassiterite (?) is impossible to estimate accurately. Previous recovery of heavy minerals from the milling of the lepidolite-bearing core amounted to about 1 pound per ton of rock. This is probably as accurate a guess as possible for the grade of the combined heavy minerals.

Exploration of Dike No. 2

Two holes were drilled in Dike No. 2. Drill hole No. 1 was drilled along section BB to determine if the pegmatite was thickening as indicated on the older cross-sections of the pegmatite. The drill section indicates that the thickening did not materialize and that the thickness remained constant. A thin mica-bearing zone was encountered and a cleavelandite-quartz zone. The other zones were anticipated from the previous cross-section.

Drill hole No. 2 was drilled along section E'E to encounter the pegmatite along its plunge direction. The pegmatite was approximately 7 feet thicker than was anticipated. A scrap mica-bearing zone and a lepidolite-bearing zone were encountered. All other zones were predictable from surface data. The thin lepidolite-bearing zone probably underlies the spodumene-bearing core that occurs at higher levels in the pegmatite.

Beryl occurs in the wall zone of the drill core and columbite-tantalite and cassiterite (?) occurs throughout all of the zones. A few very small crystals of amblygonite were also present.

The grade of the beryl and the heavy minerals, columbite-tantalite and cassiterite, is estimated to be the same as in Dike No. 1.

Exploration of Dike No. 3

Three holes were drilled in Dike No. 3. The pegmatite is thinning with depth, as was expected. An inner core of quartz-lepidolite pegmatite is exposed in one of the drill holes. Other "telescoped" zones surround the core, but these are not distinguished in the drill sections. These miniature zones contain muscovite, amblygonite and phosphate minerals.

Beryl was found in the wall zones of the drill core. The probable grade of the beryl in the wall zone between 0.2 and 0.5 percent. This estimate is based largely on surface exposures of the wall zone.

Columbite-tantalite and cassiterite (?) occur as accessory minerals - probably in less quantity than in Dikes 1 and 2. A few small crystals of amblygonite were also present, but the grade of the amblygonite probably is less than 1 percent. An estimated 40 percent of perthite occurs in the inner portion of the pegmatite.

Exploration of Dike No. 4

Four holes were drilled in Dike No. 4 to determine size and zonal structure. Hole 1 encountered the apparent keel of the pegmatite. The hole was entirely in wall zone material that contained 0.6 percent of fine-grained beryl.

Hole 2 was entirely in schist, confirming the plunge of the pegmatite.

Hole 3 penetrated the pegmatite at approximately 120 feet depth. Perthite-bearing inner zones constituted most of the drill core. The wall zone contains fine-grained beryl.

Hole 4 was drilled in the same section as hole 3, but at about 60 feet higher in elevation. Previous plunge evidence had indicated the possibility of a large "bulge" above drill hole 3. The "bulge" was 20 feet thinner than expected and hence no additional drilling was undertaken.

Dike No. 4 contains from 0.3 to 0.5 percent of beryl in the wall zone. The beryl is all fine-grained; the largest crystal was only 1 inch in diameter.

Except for a few thin plates of columbite-tantalite, the only other mineral of economic importance is perthite. Most of the perthite is less than 1 foot in diameter.

The drilling completed to date, in general, confirms the accuracy of previous cross-sections of the pegmatite. Significant increases in the thickness of any of the pegmatites or zones rich in strategic minerals have not been discovered. There is no new evidence to indicate that the pegmatites will enlarge or that the grade of strategic minerals will increase.

The drilling has changed the classification of some of the previously inferred tonnage to that of indicated tonnage. Since the Geologic Survey members engaged in pegmatite studies conventionally use a depth extension of 50 feet for inferred ore, or an even greater depth depending on surface conditions, the quantity of new pegmatite tonnage indicated and inferred from the drilling is relatively small.

The strongest reason to discontinue the exploration is that all work indicates the pegmatites are thinning with greater depth and that no increase in reserves can be expected.

EXPENDITURES

The total amount approved for Phases I and II of the project was $23,080, of which the government's share is $22,772. Total expenditures for the project which included only the first phase, core drilling, amounted to $6,264.62. Of this, the government's share of 90 percent amounted to $5,638.16, leaving an unexpended balance of the total government's share of $15,133.84.

During the first four months the project was in operation small amounts of feldspar, amblygonite, beryl and mica were produced; the exact tonnage and value are not known.

The project was a relatively efficient operation and was under competent supervision.

No equipment was purchased for the project.

FILE COPY
SURNAME:

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C. 600

Houk

NOV 24 1952

Mr. A. B. Needham
Executive Officer, DMEA
Field Team, Region V
2908 Colfax Ave., South
Minneapolis 8, Minnesota

Subject: Docket No. DMA-812X-A - Beryl-Mica
Black Hills Keystone Corp.
Ingersoll Mine
Pennington County, South Dakota
Contract No. Idm-E99

Dear Mr. Needham:

Reference is made to Docket No. DMA-812X-A, Black Hills Keystone Corp., Ingersoll Mine, Contract No. Idm-E99.

In checking our files, we find that we do not have a final field team report on the subject contract. The Defense Materials Procurement Agency is interested in learning the results of our exploration contract. This office would be pleased to receive the above information at an early date.

Sincerely yours,

(signed) FRANK E. JOHNSON (JHB)

Chairman, Operating Committee

Approved:

J. H. Hedges (JHB)
Member, Bureau of Mines

G. R. Finkel, Jr. (JHB)
Member, Geological Survey

LGHouk:gad 11/21/52

11-21-52

Copy to: Admr. R. File
Docket File
Operating Committee (2)
Mr. Norton, G-232 GSA Bldg.
Mr. Dietrich, 3526
Mr. Houk

FILE COPY
SURNAME:

800
Talbert

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

NOV 21 1952

Mr. A. B. Needham
Executive Officer
DMEA Field Team, Region V
2908 Calfax Avenue South
Minneapolis, Minnesota

Re: Docket No. DMA-812X-A
Contract No. Idm-299
Black Hills Keystone Corp.

Dear Mr. Needham:

A Report of Review covering the referenced project has been corrected, in accordance with the additional information furnished by your memorandum of November 18, 1952, and the original and two copies are enclosed herewith.

Sincerely yours,

11-21-52

(Signed) E. D. Talbert

E. D. Talbert, Acting Chief
Contract Administration and
Audit Division

Enclosure

EDTalbert/wb
November 21, 1952

Copy to: Docket
Admr. Reading File
Mr. Talbert

FILE COPY
SURNAME:
800
Talbert

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

Mr. A. B. Needham
Executive Officer
DMEA Field Team, Region V
2908 Celfax Avenue South
Minneapolis, Minnesota

NOV 14 1952

Re: DMA-812X-A, Idm-E99
Black Hills Keystone Corp.

Dear Mr. Needham:

Reference is made to a telephone conversation between you and Mr. Chambers on or about October 27 relative to the referenced project.

Mr. Chambers is out of the city at the present time, but before he left he advised me of the telephone conversation and requested that a revised Report of Review, to supplement the one issued by him on October 3, 1952, be prepared upon the receipt of a copy of a Form MF-104 covering additional work and costs on the project. This Supplemental Report of Review has been prepared and the original and two copies thereof are enclosed for distribution by you in accordance with section 3 of Supplement 4 to DMEA Circular 19.

It will be noted that an exception of $20.00 has been taken to the sub-contracted drilling costs of $1,236.00 claimed by the Operator on the final MF-104 covering the period of July 21 to August 15, 1952. The MF-104A indicates the footage drilled during this period as 256, for which a proper charge (@ $4.50 per ft. for drilling and $.25 per ft. for water) of $1,216.00 is applicable. This exception has been taken without benefit of a copy of either the sub-contract or the pertinent invoice; therefore it would be appreciated if the propriety of this exception is verified before acceptance and distribution of the Report of Review. If you do not concur please advise and return the Report.

Your attention is invited also to the provision, in the final paragraph of the Report of Review, that you have "accepted or will accept the project as having otherwise met the terms of the contract." This provision was deemed necessary since neither the Field Team's final report has been received nor have I personally determined through consultation with you that the project was satisfactorily prosecuted.

This office has no record of the receipt of copies of the approved sub-contract pertinent to this project; however, the Report of Review has been prepared on the premise that Mr. Chambers verified the unit rates and your approval thereof during his recent visit to Minneapolis. It is requested that a copy of the sub-contract be forwarded to this office to complete our records.

Sincerely yours,

(Signed) E. D. Talbert

E. D. Talbert, Acting Chief
Contract Administration and
Audit Division

S.H. 11-14-52

Enclosure

C
O
P
Y

Region V
2908 Colfax Avenue South
Minneapolis 8, Minnesota

August 29, 1952

Memorandum

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

From: Executive Officer, Field Team, Region V

Subject: Completed exploration projects

For your information, the following projects have been completed as to field work. Operator's final engineering and geological reports and the Government's final report have not been received on them; therefore, final official notice on termination and balance of funds available have not been made to you.

Docket	Contract	Operator	Date completed
812A	E99	Black Hills Keystone	8/3/52
1145	E11	Dodgeville - Jones	5/17/52
1227	E50	Vinegar Hill & Hancock	5/1/52
1315	E178	J. E. & L. M. Miller	8/20/52
1560	E42	Dodgeville - Weigle	3/31/52
1562	E168	Dodgeville - Pearson	6/3/52
1985	E171	Star Mining Co.	8/29/52
2078	E263	L. D. Pitts	8/29/52
2392	E352	Mineral Mills - Glenwood	7/16/52

As operator's reports, Government reports, and audit reports are made available to us, we will complete the projects officially and transmit notice with balance of funds available to you.

This serves only to keep you abreast of field activities.

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

ABNeedham:dg
cc Dutton
Mullen
Redden
Grosh
Broughton
Region V
files, DF

82

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~
Region V
2908 Colfax Avenue South
Minneapolis 8, Minnesota

May 6, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration
Region V
MAY 8 1952

Mr. W. K. Wallace, President
Black Hills Keystone Corporation
Keystone, South Dakota

Dear Mr. Wallace:

Reference is made to your DMEA Contract Idm-899, Docket DMA-[illegible]-a, for beryl exploration in the Black Hills.

This office has been directed, by way of Circular 19 issued by the Washington office of DMEA, to inform all operators of exploration projects that it will be necessary to support the original of the monthly reports (Form MF-104) with documentary proof of costs. Such proof shall consist of the original invoices (or certified copies were originals are not available), certified transcripts of payrolls, purchase orders, purchase contracts, and distribution statements (for costs to be distributed on a pro rata basis to the projects). The certification required is merely "Certified true copy (or transcript)", followed by the operator's signature.

Effective date of submitting such documentary support of costs is May 1, 1952. Therefore, all monthly reports submitted subsequent to that date shall include the supporting material. In the future, please submit five copies of Form MF-104.

If you are in doubt as to procedures, please feel free to contact our Rapid City office.

Sincerely yours,

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

ABNeedham:dk
cc Wallace, 530 5th Ave., NY
Bathen
Mallon
Madden
DMEA (Wash) 2
Region V
files
df

DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration
Region V
MAY 8 1952

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Code 800

~~WASHINGTON 25, D.C.~~
Region V
2908 Colfax Avenue South
Minneapolis 8, Minnesota

April 8, 1952

Memorandum

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

From: Executive Officer, Field Team, Region V

Subject: Operator's Monthly Progress Report for December 1951 and January 1952 - Docket DMA-812x-a, Contract Idm-E99 Black Hills Keystone Corporation

Here are two copies of the subject Operator's Monthly Progress Report as processed for payment, for your files.

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

Attachments

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 10 1952

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WAS[redacted]
Region V
2908 Colfax Avenue South
Minneapolis 8, Minnesota

March 31, 1952

Dx
DMA 812

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 2 - 1952

Mr. W. K. Wallace
c/o Doctors Hospital
East End Avenue at 87th Street
New York 28, New York

Dear Mr. Wallace:

Reference is made to your letter of March 26, 1952.

We are very sorry to learn of your illness and hope you will soon be recovered.

The last report-voucher you submitted has been sent for processing as of March 28 in the amount of $1,777.05. There was a suspension of $165.00 for road work in October and November 1951, which was not provided for in the contract. Excepting those two items, all payments to date have now been made.

No amendments to your contract are necessary to extend the date, since completion date is set at October 3. Your suspending operations because of controversial matters has our approval and the contract is not being terminated.

It is hoped you will soon resume operations, as we feel Dike 2 should be explored.

Best regards.

Sincerely yours,

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

ABNeedham:dt
cc Dutton
Mullen
Madden
DMEA (Wash) ?
Region V
files
dr

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.
Region V
2906 Selfax Avenue South
Minneapolis 6, Minnesota

March 19, 1952

Mr. W. K. Wallace
Black Hills Keystone Corp.
530 Fifth Avenue
New York, New York

Dear Mr. Wallace:

Reference is made to your Defense Minerals Exploration Contract Idm-199 for exploration at the Ingersoll group of dikes near Keystone, S. Dak.

Your combined monthly report (voucher) for December 1951 and January 1952 received by this office February 25, 1952, has been held up pending decision as to resumption of work at the project. The narrative report accompanying the above monthly statement advises that the core drilling was stopped February 5, 1952, on your instructions.

Please advise if it is your intention to resume exploration or whether you have terminated your contract, and we will proceed with final audit for complete payment.

Sincerely yours,

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

ABNeedham:dt

cc Mr. Wallace, Keystone, S. D.
Sutton
Mullen
DMEA (Wash.) 2
Region V
Files
Chf

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WA[redacted]
Region V
2908 Colfax Avenue South
Minneapolis 8, Minnesota

March 4, 1952

Memorandum

To: Donald H. Mullen, Supervising Engineer, Bureau of Mines, School of Mines Campus, Rapid City, South Dakota

From: Executive Officer, Field Team, Region V

Subject: Operator's Monthly Progress Reports
Docket DMA-812m-s, Contract Idm-E99, Ingersoll group
Black Hills Keystone Corporation

Referring to the subject reports for October, November, and December-January, it is noted there are items of $72.40 and $92.60 on the October and November reports, respectively, for road work which is not covered by the contract.

The project is (or was) operating on sub-project 1, which is core drilling, and no provision is made for cost of road work. The miscellaneous expense, supervision, engineering item for $300 is covered by the Engineer-Superintendent part-time item of $50 for six months; so road work cannot come under this item, because the total expended for road work plus the $200 for engineering-supervision will then have exceeded the $300 allowable by $65.

Because we are not certain as to future operations under this contract, we are holding process of the December-January voucher until we have word as to whether the project is to be furthered by the contractor or is officially terminated by the Field team.

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

/BNeedham:dt
cc Lutton
Reddem
LMBA (Wash) 2
Region V
files
df

Taken from Memo. 4/3/52 from Executive Officer, Region V to Operating Committee; Status of projects in re. to discoveries.

Other projects have not progressed far enough to make a determination as yet. They are such dockets as 812x-a, 1813x, 1554x, 1812x, 2073x, 2011x, and 2078x.

The foregoing is the status of all projects to April 1, 1952.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WA[redacted]
Region V
2908 Colfax Avenue South
Minneapolis 8, Minnesota

February 27, 1952

Memorandum

To: Special Assistant to the Regional Director, Region V

From: Executive Officer, Field Team, Region V

Subject: Operator's Monthly Progress Report for December 1951 and January 1952 - Docket DMA-612m-a, Contract Idm-E99
Black Hills Keystone Corporation
(Ingersoll group)

Here is the original of the subject report which is two months combined into one report and which can be processed for payment.

This voucher may be the last. The operator has ordered work stopped because he disagrees with the field team regarding location of future holes, and drill contractor has removed his equipment.

It is suggested a review of all vouchers be made before the final voucher is paid, in view of the discussions with the auditors who were here recently.

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

Attachment

ABNeedham:dt
cc Lutton
Mullen
DMA (Wash)
Region V
files
df

410

FILE COPY
SURNAME:

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

AUG 28 1951

F L Knouse
Mittendorf

a.z.l.

Mr. A. B. Needham
Executive Officer
DMA Region V
2908 Colfax Avenue, South
Minneapolis 8, Minnesota

Re: Docket No. D A 812X-A
Black Hills Keystone Corporation
Exploration Project Contract
Idm-899

Dear Mr. Needham:

We are enclosing your copy of the executed Contract No. Idm-899, with Exhibit "A" (3 pages), and two maps attached. A copy of this contract was returned by the operator, and a copy will be forwarded to the Regional Finance Officer by the Washington Finance Officer.

Sincerely yours,

C. O. Mittendorf (J.N.)

C. O. Mittendorf, Director
Production Expansion Division

J.F. 8/28

Enclosures

8/24/51
FLKnouse/meb
cc to: Admr's Reading File
Reports & Records
Messrs. Mittendorf/Olund
Barr
Arundale
Norton
Knouse
Docket

FILE COPY 410
SURNAME:

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

FLKnouse
Mittendorf

a.e.e.

Contract Service Section
General Accounting Office
4th Floor - New GAO Building
Washington 25, D.C.

Re: Docket No. DMA 812X-A
Black Hills Keystone Corporation
Exploration Project Contract
I&m-399

Gentlemen:

Enclosed for recording in your office is the original of executed Exploration Project Contract between the Operator named in the reference above and the Government of the United States.

Sincerely yours,

C. O. Mittendorf BJ 8/28

C. O. Mittendorf, Director
Production Expansion Division

Enclosure

FLKnouse/meb
8/24/51
cc to: Admr's Reading File
Reports & Records
Messrs.Mittendorf/Olund
Field Team,Reg.V(2)
Barr
Arundale
Norton
Knouse
Docket

FILE COPY
SURNAME:

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

COPY COPY

Mr. A. B. Needham
Executive Officer
DMA Region V
2908 Colfax Avenue South
Minneapolis 8, Minnesota

Re: Docket No. DMA 812X-A
Black Hills Keystone Corporation
Exploration Project Contract
Idm-E99

Dear Mr. Needham:

We are enclosing your copy of the executed Contract No. Idm-E99, with Exhibit "A" (3 pages), and two maps attached. A copy of this contract was returned by the operator, and a copy will be forwarded to the Regional Finance Officer by the Washington Finance Officer.

Sincerely yours,

/s/ C. O. Mittendorf
C. O. Mittendorf, Director
Production Expansion Division

Enclosures

8/24/51
FLKnouse/meb
cc to: Admr's Reading File
Reports & Records
Messrs.Mittendorf/Olund
Barr
Arundale
Norton
Knouse
Docket

Mr. Krause

BLACK HILLS KEYSTONE CORP.

KEYSTONE, SOUTH DAKOTA

WILLIAM KAY WALLACE
PRESIDENT

PLEASE REPLY TO:
530 FIFTH AVENUE
NEW YORK 17, N. Y.

August 21,1951

Mr. C.O.Mittendorf, Director
Production Expansion Division
Office of the Secretary
Department of the Interior
Washington 25, D.C.

Re: Docket No.DMA 812X-A-IDmE99
Exporation Contract

Dear Mr. Mittendorf:

Enclosed herewith please find as requested five copies of the above captioned contract duly executed.

We take note of the supplementary instructions and will see to it that they are carried out.

The actual work will be under the supervision of our local manager, Mr. Fremont F.Clarke, P.O.Box 62, Rapid City, South Dakota. He will be authorized to sign requisitions for payments under the contract on behalf of the company. Any inquiries regarding the actual execution of the terms of the contract should be taken up with him. Other matters kindly refer to our New York address as above.

Assuring you that we will do our best to carry the work forward to a successful conclusion in as brief a time as possible,

Sincerely yours

W. K. Wallace

President

Enclosures:

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 23 1951

FILE COPY
SURNAME:
410

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

R.E.C. F.L. Knouse
Mittendorf (J.H.)

August 13, 1951

Black Hills Keystone Corporation
530 Fifth Avenue
New York 19, New York

Re: Docket No. DMA 812X-A - IdmE99
Black Hills Keystone Corporation
Exploration Contract

Gentlemen:

We are enclosing the original and five copies of Exploration Contract No. DMA 812X-A -IdmE99, Black Hills Keystone Corporation, signed by me, together with five copies of Form MF-104 Monthly Progress Reports, and one copy of Int. 3337 "Questions and Answers on the Mineral Exploration Program."

If the terms of this contract meet with your approval, please sign all six copies, retain one copy, and return the original and four copies to this office. If any part of this contract does not meet with your approval, all of the copies of the contract must be returned to this office together with your proposed change, so it can be considered.

If the contract is signed by you, it will be in effect and four copies of Form MF-104 are to be completed and transmitted monthly to the office of the Executive Director, Region V, 2908 Colfax Avenue, Minneapolis 8, Minnesota. Additional copies of Form MF-104 may be obtained from the office of Region V.

In accordance with Article 4 of your contract, the contract to do the diamond drilling as outlined in this contract is subject to the approval of the Government field engineers.

Sincerely yours,

8/14

C. O. Mittendorf (J.H.)

C. O. Mittendorf, Director
Production Expansion Division

Enclosures-12

FLKnouse/meb
cc to: Admr.Reading File
Reports and Records
Docket copy
Messrs.Mittendorf,Olund
Barr
Norton
Region V (2)
Knouse
Chron.

FILE COPY
SURNAME:
140

Guthrie (P.J.H.)

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

August 9, 1951

Del'd by hand

Memorandum

To: Director, Production Expansion Division

From: General Counsel

Subject: Black Hills Keystone Corporation exploration contract -- Docket No. DMA-812X-A

The redraft of the contract in the captioned case, prepared to meet the objections raised in our memo of August 1, 1951, is approved as to legal form and sufficiency subject to proper execution by the Operator and subject to Government approval of any subcontracts under which work upon the project is to be performed.

Your file is returned herewith.

J. L. Hofflund

J. L. Hofflund
General Counsel

Attachment

RRGuthrie/ema

Copy to: R. R. Guthrie
J. L. Hofflund } Del'd by hand
Reports & Records Unit
Chron.

FILE COPY
SURNAME:

Guthrie 1410

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

August 1, 1951

Memorandum

To: Director, Production Expansion Division

From: General Counsel

Subject: Black Hills Keystone Corporation exploration contract -- Docket No. DMA-812X-A

We are unable to approve the contract in the subject case because of certain questions raised by the itemization of costs set forth in Exhibit A.

The Exhibit should state specifically that the costs set out therein are estimates or approximations in order to make it plain that the statement of allowable cost in paragraph 10 of the contract form takes precedence over the inclusion of any specific item or figure in the Exhibit. Further, the section "Operating Equipment to be Rented" includes items such as pipe, rail, ties and spikes, which are not strictly equipment, and which are probably to be purchased for the job rather than rented. If they are to be rented, a statement of the circumstances should be made. Compressed air is also listed as an item to be rented, whereas the Compressor itself is probably intended. Moreover, drill bits sharpening, explosives and transportation are not items to be rented and should be listed elsewhere. The item of transportation in this section and the office and transportation costs in the footnote to the estimated costs of drifting and crosscutting on Sub-Project 2 are not defined and could include indirect cost not allowable under paragraph 10 of the contract. Some clarification should be made of meaning of these items.

Your file is returned herewith.

J. L. Hofflund

J. L. Hofflund
General Counsel

Attachment
RRGuthrie/ema
Copy to: R. R. Guthrie
J. L. Hofflund } delivered by hand
Chron.
Files

Memorandum:

To: Director, Production Expansion Division
Defense Minerals Administration

From: Director, Supply Division
Defense Minerals Administration

Subject: Recommendation for Contract Approval

Name of Applicant: Black Hills Keystone Corporation
530 Fifth Avenue
New York 19, N. Y.

DMA No. 812-X-A (Ingersoll Mine)

Commodity: Beryl, Mica

Amount Requested: $ 20,000

Amount Approved: $ 23,080

Government Participation: 90 % $ 20,772

Tom Lyon
Tom Lyon

July 17, 1951

Memorandum

To: Chief, Industrial Minerals Branch

From: Chief, Programming and Planning

Subject: DMA-812-X; Beryl, Mica
Black Hills Aegystone Corp.
530 Fifth Avenue
New York 19, N. Y.

The prospective available supply of mica and beryl is far short of meeting defense requirements. Consequently, it is highly desirable that explorations for new domestic deposits be stimulated by any reasonable Government assistance to private interests. Any exploration project that holds promise of finding significant new reserves, merits consideration by the Defense Minerals Administration.

A. B. Parsons

RW:mas

cc: Reports and Records Unit
Mr. Barr
DMA File
Mr. Parsons
Mr. Norton
Mr. Mittendorf

July 1, 1951

Code 370

Memorandum

To: Chief, Industrial Minerals Branch

From: Chief, Programming and Planning

Subject: DMA-312-X; (Sitting Bull Mine); mica, beryl
Black Hills Keystone Corporation
630 Fifth Avenue
New York 19, N. Y.

The prospective available supply of mica and beryl is far short of meeting defense requirements. Consequently, it is highly desirable that explorations for new domestic deposits be stimulated by any reasonable Government assistance to private interests. Any exploration project that holds promise of finding significant new reserves, merits consideration by the Defense Minerals Administration.

W. D. Parsons

RW:mas

cc: Reports and Records Unit
Mr. Barr
Mr. Parsons
Mr. Norton
Mr. Mittendorf
DMA Files

Recommendation:

1) That an Exploration Aid Contract be granted in the amount of $23,080, Government Participation 90% in accordance with Exhibits attached.

2) That the work be authorized in 2 steps, the first, Stage "A" to consist of diamond drilling at a maximum cost of $10,250, the second, State "B" to consist of crosscutting and drifting at a maximum cost of $12,830.

3) That State "B" be authorized subject to satisfactory completion of State "A" and recommendation by Field Team that such work is justified by results obtained in State "A".

Docket DMA-812-X

EXHIBIT "A"

Stage "A" Work will consist of coring a maximum of 2,050' of diamond drill hole (BX or larger) on four different pegmatites on the property. Individual holes will range from 50' to 200' in depth. Location, depth and direction of all holes will be mutually agreeable to Field Team and Operator. Allowable cost $ 10,250, time limit 6 months.

Stage "B" Work will consist of a maximum of 90' of drifting and 205' of crosscutting on Dike # 3 and an approximate 50' crosscut to reach Dike #4 followed by a maximum of 100' of drifting and 75' of crosscutting in the Dike. Location and direction of all tunnells to be mutually agreeable to Field Team and Operator. Allowable cost $ 12,830, time limit 12 months.

Recapitulation of Costs

Stage "A"	2,050' of diamond drilling @ $5	$ 10,250
Stage "B"	190' drifts @ $25/ft.	4,750
	325' crosscuts @ $22/ft.	7,150
	Preparatory & miscellaneous	930
		12,830
	Total	$ 23,080

EXHIBIT "B"

Not Applicable.

EXHIBIT "C"

Stage "A"

Diamond drill contract 2,050' @ $4.50		$ 9,225
Core handling, transportation, testing		725
	Total	$ 9,950

Stage "B"

Rental from Operator of all necessary mining equipment, including compressor, drills, mine car, track, small tools etc. 9 months @ $ 350/month		3,150
Powder, gasoline, truck hire, bit replacement, etc.		1,750
	Total	$ 4,900

EXHIBIT "D"

Stage "A"

Superintendent part time 6 mos. @ $50		$ 300

Stage "B"

Suuerintendent part time 9 mos. @ $50		450
1 miner @ $1.25/hr. 9 mos.		2,530
1 mucker @ $1.10/hr. 9 mos.		2,230
1 laborer @ $1.19/hr. 9 mos.		2,230
	Total	$ 6,990
Payroll taxes 7%		490
	TOTAL	$ 7,480

EXHIBIT "E"

Black Hills Keystone Corporation
530 Fifth Avenue
New York 19, N.Y.

Docket No. DMA 812-A
Contract No Idm-E 99

Approved Monthly Reports

Date of Contract 3/8/51 Amt. $23,800

Work Suspended Mar 26, 1952 Resumed July 21 & completed Aug 15, 1952

		October 1951	November 1951	December 1951	July 21 Aug 15, 1952
1)	Independent Contracts	13941.2	1140 -	20045.0	1236 -
2)	Labor, Supervision, Consult.	12240	1426.0	100 -	50
3)	Oper. Material + Supplies		40 -		
4)	Oper. Equipment Rentals Purchase Allowance				
5)	Rehabilitation + Repair				
6)	New Building + Improvements				
7)	Miscellaneous	25 -	1500 125 -	35 -	
		$15 41.52	$14626.0	19745.0	1266 -

14626.0
19745.0
1266 -

Total $62244.62 This amount certified by Talbert, Auditor Nov. 14 1952

90% 56016

Nov 14 1952 Talbert Auditor

6264.62
5638.16
Final

90%

Out footage 293.5 ft
Drill No 4
Hole # 4 3 holes 72.0
" # 5 71.5
" # 6 150.0
293.5

Non footage 240 ft
Hole # 7 80 feet
Hole # 8 63 feet
Hole # 9 75
218

Dec footage 422 ft
955.5 Total last report

Hole # 12 108 ft.
Hole # 13 148 ft
256
1211.5 ft Total 11/12/52

~~6244.62 / 1211.5 = $5.16 Cost per ft of hole~~

6264.62 / 1211.5 = 5.17 cost per foot

Corrected

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 13 1951
LANDON F. STROBEL
Executive Secretary

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

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION V

DMA-812X

Bob Ingersoll Mine, Keystone District

Pennington County, South Dakota

L. E. Shaffer, Minerals Technologist
U. S. Bureau of Mines

July 10, 1951

ON SITE RPT.

DEFENSE MINERALS ADMINISTRATION
Report of Field Examination

by

L. E. Shaffer, Minerals Technologist
U. S. Bureau of Mines

Docket No.: DMA-812X
Property: Bob Ingersoll Mine
Applicant: Black Hills Keystone Corporation
Commodity: Beryl

Conclusions and Recommendations

As originally proposed, the project is for both exploration and preparation for mining. The suggested diamond drilling is exploration; the drifting and crosscutting could be exploration or development; the raises are preparation for mining.

The Bureau of Mines suggests that four dikes at the Ingersoll mine be explored by diamond drill holes to establish the continuity and mineral content. If warranted by the results of the diamond drilling, additional exploration in the form of drifting and crosscutting should be done to determine the size and grade of the beryl zones in the dikes. This second part of the exploration will be undertaken only if recommended by Bureau of Mines engineers, acting as consultants with the Management.

The diamond drilling part of the project will involve drilling about 2,050 feet of Bx (or larger) holes at a cost of $10,250. Drilling could start soon after the project is approved, and should be completed in about 6 months from the start of operations.

The second part of the project, if undertaken, will consist of about 325 feet of crosscuts and 190 feet of drifts. This second phase of the project would cost about $12,830 and would require from 6 to 8 months to complete.

Exhibit A

The Ingersoll pegmatites have been mapped in detail by the Geological Survey, and the mine has been described by numerous workers. Most of the following is abstracted from unpublished reports by the Geological Survey.

At least five dikes crop out at the Ingersoll property. Two of these have been extensively mined, and the other three have been partly explored. Dikes 1 and 2, from which all of the production has been made, are pipe-like pegmatites 90 feet by 70 feet, and 110 feet by 80 feet, respectively. Dike 3 lies 130 feet east of Dike 1; Dike 4 is 100 feet northeast of Dike 2. The fifth dike, known as Dike 1A, is near Dike 1 but has not been developed.

All of the dikes are zoned, but the zoning is not consistent from dike to dike. Minerals produced from Dike 1 include perthite, cleavelandite, mica, amblygonite, lepidolite, beryl, microlite, columbite-tantalite, and cassiterite. Dike 2 has produced mica, columbite-tantalite, spodumene, amblygonite, cleavelandite, perthite, and beryl. Production between 1922 and 1944 includes 607 tons of amblygonite, 8,090 tons of lepidolite, 409 tons of beryl, 1,760 tons of mica, 77 tons of spodumene, 4,575 tons of feldspar, 1.5 tons of cassiterite, 1,500 pounds of tantalite, 556 pounds of columbite, and 2,165 pounds of microlite concentrate.

Dike 3, one of the dikes to be explored, is a knob-like lenticular pegmatite about 114 feet long and 30 feet wide. It contains three zones: 1) a border zone of quartz and muscovite; 2) a wall zone of quartz, cleavelandite, and muscovite; and 3) a core of quartz, cleavelandite, perthite, and muscovite. The border zone is only a few inches thick, and the wall zone averages 5.5 feet throughout the dike.

Dike 4 is a lenticular pegmatite about 120 feet long and from 24 to 52 feet wide. At least five zones can be recognized in the dike. These include 1) a quartz-perthite-muscovite-plagioclase border zone, 2) a wall zone of similar rock, 3) an intermediate zone containing coarser perthite than the wall zone, 4) a cleavelandite-quartz-muscovite intermediate zone, and 5) a quartz core.

Beryl is found in the intermediate zone adjacent to the quartz core. The beryl-rich zone, which is 1 to 2 feet thick, contains about 0.5 percent beryl.

The Bureau of Mines suggests that all four main dikes be explored by diamond drilling. About 850 feet of drill hole would be needed for Dikes 1 and 2, and 1,200 feet of drill hole would be needed for Dikes 3 and 4. This drilling would cost about $10,250 and would require about 6 months to complete. If two drills were used the dikes could be drilled in about 3 months. All holes would be Bx or larger.

Hole locations would be determined by Bureau of Mines engineers in consultation with the Management of the Ingersoll mine.

If the drilling outlined above proves the continuity and beryl content of the dikes at depth, the Bureau of Mines suggests that additional exploration be done in Dikes 3 and 4 by crosscutting and drifting. This second phase of the exploration would not be undertaken without the advice and approval of engineers of the Bureau of Mines after consideration of the results of the drilling.

Dike 3 would be explored by about 90 feet of drift and 205 feet of crosscuts. Dike 4 would be reached by a 50-foot crosscut and explored with 100 feet of drift and 75 feet of crosscuts in the dike.

The above underground exploration would cost about $12,830, as tabulated below:

190 feet of drifts @ $25 a foot	=	$ 4,750
325 feet of crosscuts @ $22 a foot	=	7,150
Preparatory work and miscellaneous	=	930
Total		$12,830

This second phase of the project would require from 6 to 8 months to complete with one crew, and from 4 to 6 months with two crews.

Exhibit B

No additional structures will be needed for either part of the project as outlined above.

Exhibit C

Drilling suggested for the first part of the project would be contracted; no equipment would have to be purchased or rented. Equipment needed to drive the drifts and crosscuts is available at the property, and will be supplied by the applicant.

Exhibit D

Labor for the first part of the project would be supplied by the drilling contractor. Direct supervision would be furnished by the applicant.

If the second part of the exploration is undertaken, the following labor would be needed:

	Rate
1 miner	$ 1.25 an hour
1 mucker	$ 1.10 an hour
1 surface man	$ 1.10 an hour
1 supervisor, part time	$ 50.00 a month

Two crews could be used to cut the time required to complete the underground work. This would add one miner and one mucker to the above tabulation.

Exhibit E

No repairs are necessary for the existing buildings or facilities.

FILE COPY
SURNAME:

Barr
Moon
McKnight per Rose

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

June 20, 1951

Docket mailed 6/26/51

Black Hills Keystone Corp.
530 Fifth Avenue
New York, New York

Subject: DMA-812X
Beryl

Gentlemen:

Your application is being referred to Mr. A.B. Needham, 2908 Colfax Ave. So., Minneapolis 8, Minnesota, Executive Officer of the Field Team, Region V, for further information.

Sincerely yours,

Tom Lyon

Tom Lyon, Director
Supply Division

RW:mas

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

6/5/51

Defense Minerals Administration

Review of Application for Exploration Assistance

Docket No. 812 X

Commodity Beryl, Columbite etc

Total Amount $20,000 ~

Govt. Participation 90%

1. Name and Address of Applicant Black Hills Keystone Corp
530 Fifth Ave. New York 19, N.Y.

2. Location of Property 2½ mi. from Keystone, Pennington County, South Dakota

3. Mineral or metal Beryl, Columbite Is it listed in Section 9 of MO-5?

If not, application will be rejected.

4. Geologic probability of discovery—based on data in application (question #16, 17, 18, 20 and 22)*

Mines or Survey reports, etc., do you rate chances:

a) Good

b) Poor

c) None

d) Don't know—needs field examination

e) Is there an alternative and favorable project?
(If so, attach an explanation)

5. Is the applicant's right to the property clearly stated? Yes
(question 5, 6, 7)*

6. If applicant is a lessee, is a copy of the lease attached? No - owner

Does the lease have sufficient time to run to cover a future productive period? —

*question numbers are those of MF-103

7. Are subordination agreements necessary? No.

a) MF-201? —

b) MF-202 —

8. From the data presented, does the proposed project appear feasible from the point of view of:

a) Available manpower Yes.

b) Equipment and supplies Yes
(Question 14 plus general knowledge of availability)*

c) Accessibility (question 12)* Yes

d) Water (question 13)* Yes

e) Power (question 13)* Yes

Is a field check needed on any of these points? No

9. Does the experience of the applicant appear to be adequate to assure that he can properly conduct the proposed project? (question 4)* Yes

Is a field check needed on this point? No

10. Exhibit A. (questions 21 and 22)*

a) Is the project adequately described? Yes

If not, are there sufficient data given so that you can describe the project? _____ If so, attach a draft.

b) Is there an adequate map or sketch of the proposed work? Yes

c) Is the proposed work "exploration" under the definition of Section 8, MO-5? Diamond drilling - Yes; Drifting & Raising - doubtful.

If not, what part of it is?

The diamond drilling is exploration. Part of the drifting might be so considered but the raising is primarily for production purposes -

Is this part a worthwhile exploration project? Probably yes although details locations not given.

d) Are the cost estimates detailed? No

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data? No If so, attach a draft.

e) Are the cost estimates reasonable? Yes

f) Should more information be requested from applicant? by field team.

g) Is a field examination necessary to complete Exhibit A? Yes

11. Exhibit B (question 23-d)*

a) Is it applicable? No - 170 new buildings required for exploration program.

b) If so, are sufficient data furnished? — If so, attach a draft.

c) Is a field check needed? No

12. Exhibit C (question 23-e, f and g)*

a) Is it applicable? No - drilling to be contracted -

b) Sufficient data? No If so, attach a draft.

c) Are rents and charges reasonable? None contemplated

d) Is a field check needed? Yes

13. Exhibit D (question 23-a, b)*

a) Are there sufficient data? ~~Yes~~ No

b) Is the schedule adequate for the work proposed? Yes

c) Is the schedule excessive for the work proposed? No

d) Are the proposed wages and salaries reasonable? None

e) Is a field check needed? Yes - terms of contract

14. Exhibit E (question 23-c)*

a) Is it applicable? No rehabilitation required -

b) Sufficient data? —

c) Reasonable? —

d) Field check needed? No

15. In your judgment, can the proposed work be done in the proposed time? Yes

(All exploration must be completed within two years)

16. If field examination is not needed, attach your recommendation.

17. If field examination is needed, do you have any special instructions for the field team not indicated by your answers to the foregoing question? Check records at Bureau of Mines in Rapid City, SD. + of Geol. Surv. in Custer - Discuss location of holes + drilling work with applicant (A I Johnson, Keystone - representative of B.H.K. Corp.) + suggest application for production loan to cover underground work

Reviewed by Donald McCarty
BofM

Date 6/15/51

97692

6/15/81 Docket No. [illegible]MA 812X

Section 10 Exhibit A -

This mine has operated at times over the past 10 years & has produced sizable tonnages of various minerals, primarily lepidolite. The proposed project is to explore & develop three pegmatite dikes not previously tested at depth. Although the exact location of the diamond drill holes is not given, favorable sites can undoubtedly be selected.

The amount of drilling can be tentatively determined by consultation of the field team & the ~~compan~~ applicant's representative in Keystone.

The underground work, drilling & raising, is partly exploration & partly production preparation. This point can also be settled by the field team & the application amended in this connection

Section 11 Exhibit B

No new structures needed as those of the operating mine will be used

Section 12 Exhibit C

As the drilling is to be done by contract & the mine is presently operating no new equipment will be needed & none will have to be rented. Some of the applicant's tools & equipment may have to be rented but this item should be insignificant

~~Section 13 Exhibit D~~

~~As the property is currently operating no rehabilitation of structures will be necessary~~

6/15/51

DMA. 812 X

Section 13 - Exhibit D

As the drilling is to be contracted only minor labor if any, will be required. No is specified & the question should be discussed with the applicant as should the terms of the drill contract.

Section 14 Exhibit E

No rehabilitation or repairs to facilities should be needed

Section 16 - Recommendations

A field team should visit the property & discuss with the applicants representative the exploration work to be done & the definite location & extent of the drilling contemplated. The question of underground exploration & preparation for production should also be discussed.

A final decision will be largely dependent on the field teams findings but from the data in the application it is thought that the diamond drill work is acceptable & should be granted.

DMP

FILE COPY
SURNAME:

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

June 11, 1951

Black Hills Keystone Corporation
530 Fifth Avenue
New York 19, New York

Subject: DMA-812X
Re: Exploration Loan -
The Ingersoll Mine and
The Sitting Bull Mine

Gentlemen:

Receipt is acknowledged of your application and attachments of May 23, 1951 for an exploration loan under the Defense Production Act of 1950.

The application was assigned Docket Number DMA-812X and referred to Mr. James A. Barr, Chief, Industrial Minerals Branch on May 23, 1951.

In any future correspondence relating to your application, kindly refer to DMA-812X.

Sincerely yours,

LANDON F. STROBEL

Landon F. Strobel
Executive Secretary

LFSTROBEL:hb

Copy to: Mr. Strobel
Mr. Barr
Mr. Lyon
Files

FILE COPY
SURNAME:

Barr

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

June 8, 1951

Mr. William Ray Wallace, President
Black Hills Keystone Corp.
Holy Smoke Lodge
Keystone, South Dakota

Dear Mr. Wallace:

Subject: Docket DMA-812X

We have your letter of May 28, in regard to your milling facilities for beryl and lithium.

Your proposition will be given the fullest consideration.

Sincerely yours,

James Barr MP
James A. Barr, Sr., Chief
Industrial Minerals Branch

JABARR:mp

cc: Mr. Strobel
Mr. Barr
DMA Files

Bair

BLACK HILLS KEYSTONE CORP.

KEYSTONE, SOUTH DAKOTA

Air Mail

WILLIAM KAY WALLACE
PRESIDENT

PLEASE REPLY TO:
[redacted]

Holy Smoke Lodge
Keystone, S.D.

Dr. James Boyd
Administrator
Defense Minerals Administration
Department of the Interior
Washington 25, D.C.

May 28, 1951

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 31 1951
LANDON F. STROBEL
Executive Secretary

Dmc 812 X

Dear Dr. Boyd:

Thought to bring to your attention the fact that our company has been the largest producer of beryl in the United States and we have located on our property here a 100-ton floatation plant where we have beneficiated lithium ores ona commercial scale.

This mill could with slight modificiations be adapted to the beneficiation of beryl and is, I was advised only yesterday by a member of your Field Team DMA, the best suited for the purpose available and the latter advised me that in his opinion after he had spent several hours ona second inspection of our mines that we unquestionably had the best showing of beryl ores in the extensive dikes on our properties of any he had seen anywhere.

Mr. Ralston of your office is familiar with our mill and a project for its use was submitted to yourselves both directly in Washington after conference with Mr. Ralston early in April, as well as through your Field Office in Minneapolis.

I thought to call this matter to your attention in order that the matter may have fullest consideration without "political" implications, owing to the fact that it is rumored here that such political pressure is being brought to bear to make use of facilities much less suited to the beryl development program. While I am confident that you would not if you were informed about the matter countenance any such pressures, I feel it incumbent upon me to advise you accordingly inorder that the selection made be based exclusively on technical grounds and no others.

Thanking you for giving this matter your consideration

Very truly yours

F K Wallace

President

FILE COPY
SURNAME:

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

May 23, 1951

Black Hills Keystone Corporation
530 Fifth Avenue
New York 19, New York

Subject: DMA-812X
Re: Exploration Loan -
The Ingersoll Mine and
The Sitting Bull
(South Dakota)

My dear Sirs:

Receipt is acknowledged of your application and attachments of May 14, 1951 for an exploration loan under the Defense Production Act of 1950.

The application was assigned Docket Number DMA-812X and referred to Mr. James A. Barr, Chief, Industrial Minerals Branch on May 22, 1951.

In any future correspondence relating to your application, kindly refer to DMA-812X.

Sincerely yours,

LANDON F. STROBEL

Landon F. Strobel
Executive Secretary

LFSTROBEL:mab
cc: Strobel-2
Files
Barr
Lyon

FILE COPY
SURNAME:

Barr

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

May 21, 1951

Black Hills Keystone Corporation
Keystone Route
Rapid City, South Dakota

Gentlemen:

We have your application for exploration assistance docketed as DMA-812X, which will be processed as rapidly as possible.

Sincerely yours,

James Barr
MS

James A. Barr, Sr., Chief
Industrial Minerals Branch

JAB:dak

cc: Mr. Strobel
Mr. Barr
Files

DMA 812

856

Dma - 812X

BLACK HILLS KEYSTONE CORP.

KEYSTONE, SOUTH DAKOTA

WILLIAM KAY WALLACE
PRESIDENT

PLEASE REPLY TO:
530 FIFTH AVENUE
NEW YORK 17, N. Y.

May 18,1951

Defense Minerals Administration
Department of the Interior
Washington 25, D.C.

Gentlemen:

Referring further to our letter of May 14, in which was enclosed Form MF-103 Exploration Project, we would hand you herewith Form MF-100 as promised.

Trusting that these documents are now all in order and have reached you in time as required,

Very truly yours

BLACK HILLS KEYSTONE CORPORATION
By W. K. Wallace

President

WKW-mkj

May 16, 1951

BLACK HILLS KEYSTONE CORP.

NEW YORK

DMA 812

beryl

Owner 812

859

Mr. Barr

BLACK HILLS KEYSTONE CORP.

KEYSTONE, SOUTH DAKOTA

WILLIAM KAY WALLACE
PRESIDENT

PLEASE REPLY TO:
Keystone Route
Rapid City, S.D.

May 14,1951

The Defense Minerals Administration
Department of the Interior
Washington 25,D.C.

Gentlemen:

Enclosed herewith please form MF-103 Exploration Project duly executed pursuant to Mineral Order No.5.

We would refer to our letter of May 10, which is another part of the same project concerning Exploration for Beryl Ore.

Form No.MF-100 will be forwarded ina few days as all the required data is not available here. However it was suggested that the enclosed form with plat and sketches be sent at this time with notice of the Technical data to follow, especially as much of this information was included in the Form 100 forwarded last week. However more detailed data will be sent to your office as soon as possible. We trust that this will not cause any delay inconsideration of our petition.

Attached hereto please find a sketch showing the entire layout of the Ingersoll Mine, showing Dikes No.1 and No.2, so far developed as well as Dikes No.1A, No.3, No.4, adjacent thereto which form part of the Exploration Project; the location of the 100-ton Mill; storage bins; sorting sheds; roads of access as well as road to rail siding; compressor house, shops etc. which give a good idea of our present lay-out and proposed improvements. Also attached is a sketch of the Ingersoll and Sitting Bull mines showing their proximity and relative position in connection with the entire project as submitted.

Would appreciate hearing from you at your convenience whether our proposal meets with your approval, or whether further data is required which we will if possible be pleased to furnish.

Very truly yours
BLACK HILLS KEYSTONE CORP.
By W. K. Wallace
President

March 10, 1951

BLACK HILLS KEYSTONE CORP.

NEW YORK

DMA 812

beryl

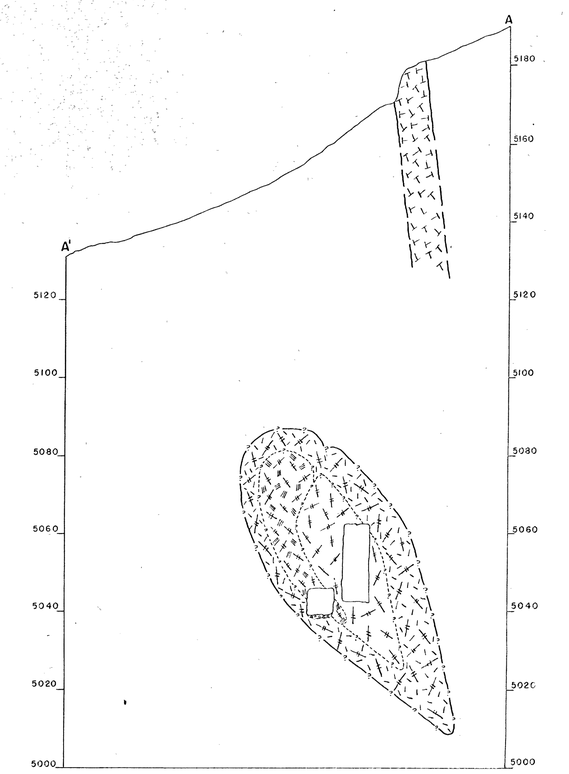
DMA 812

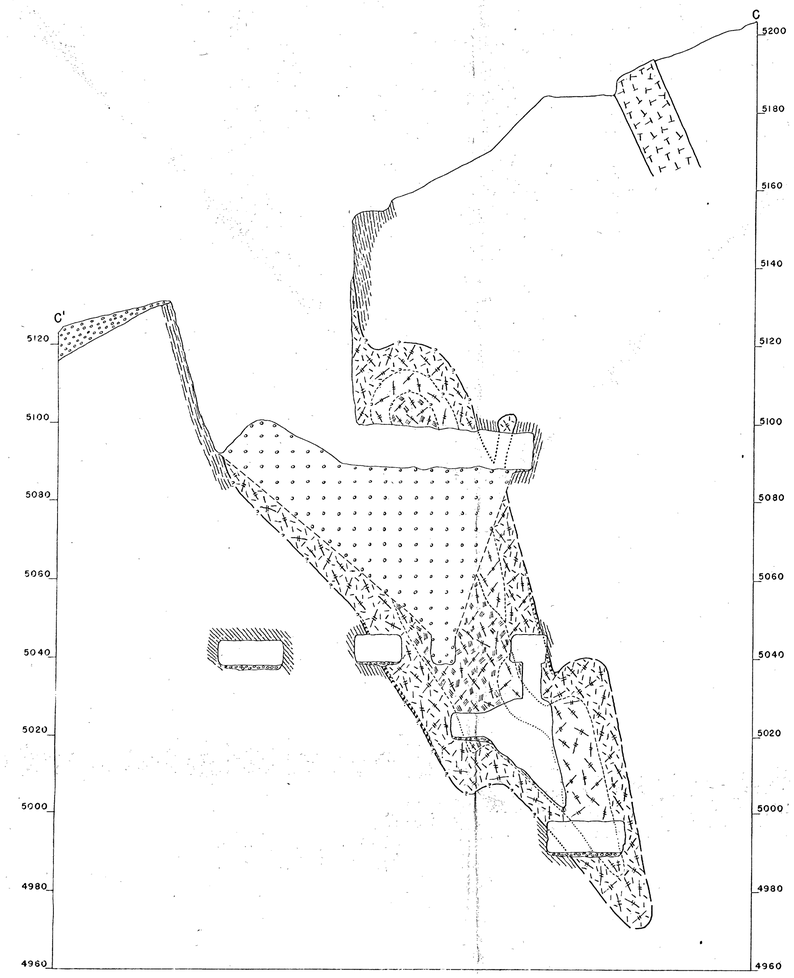
856

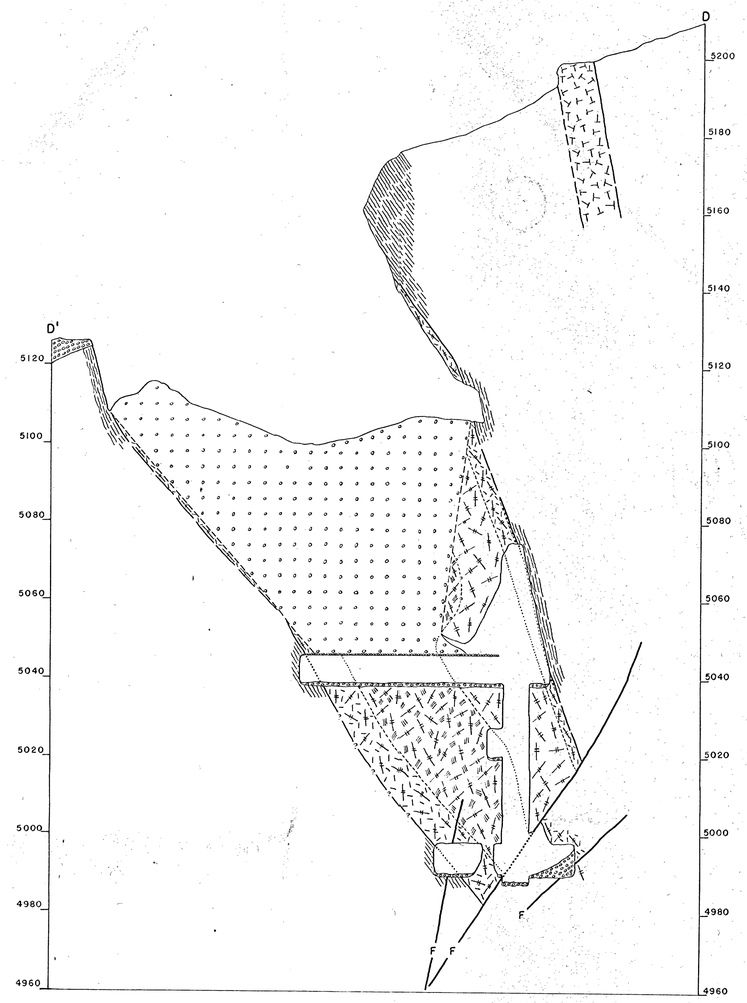
UNITED STATES, DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

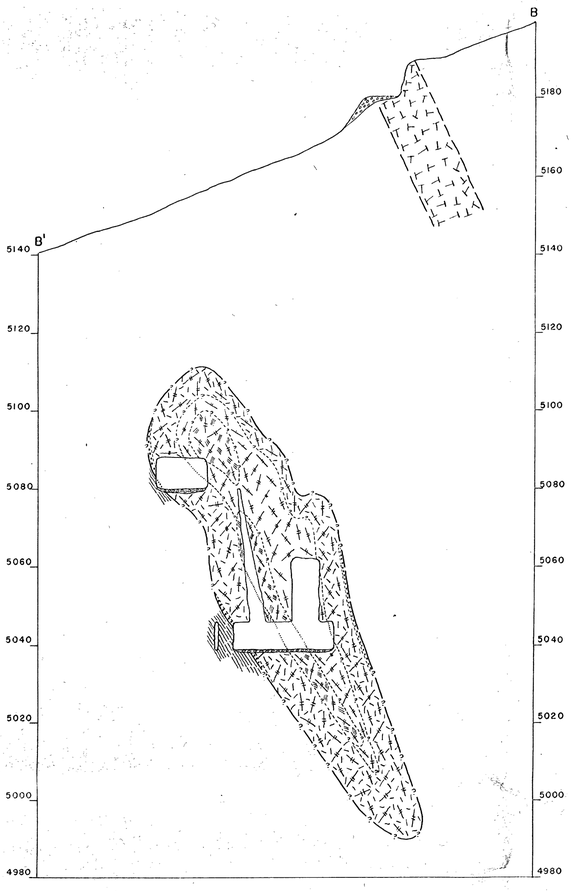
STRATEGIC MINERALS INVESTIGATIONS
PRELIMINARY MAP

GEOLOGIC SECTIONS

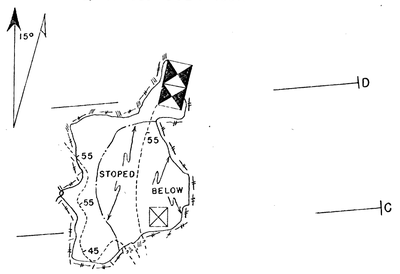






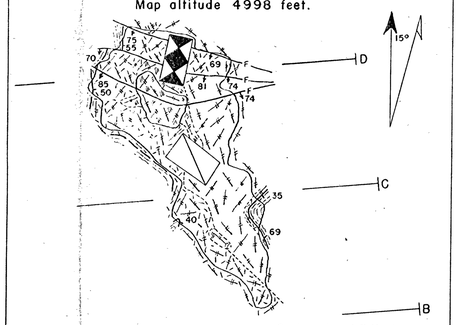


Geologic map of the 5020 level
Map altitude 5024 feet.

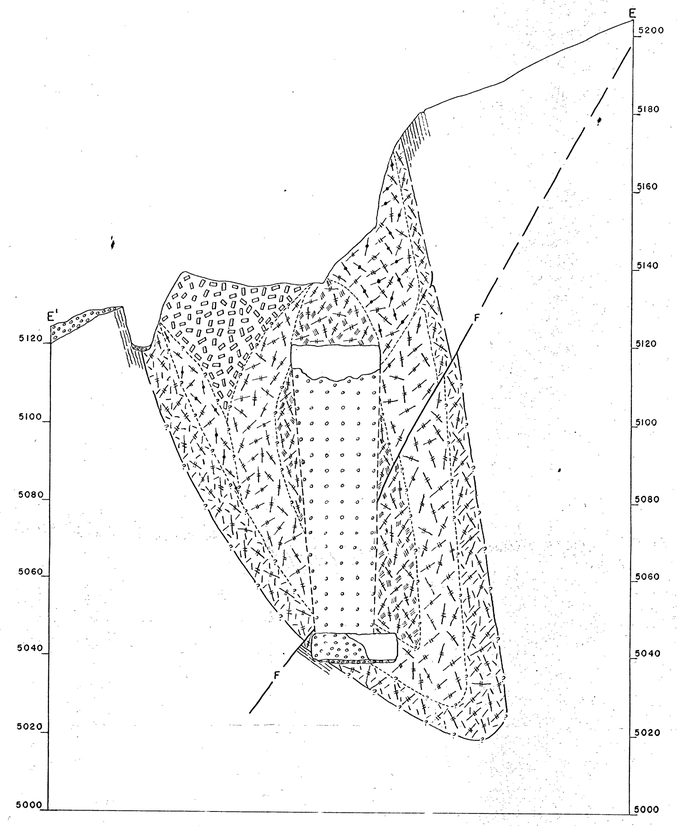


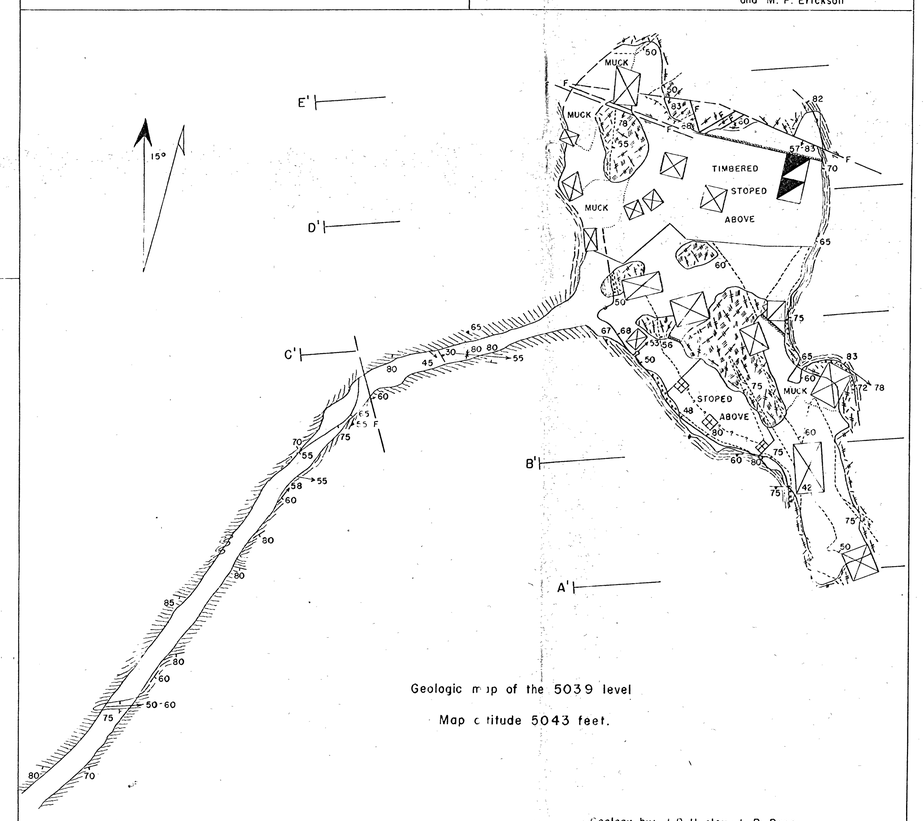
Geology by: J. B. Hanley
and M. P. Erickson

Geologic map of the 4990 level
Map altitude 4998 feet.



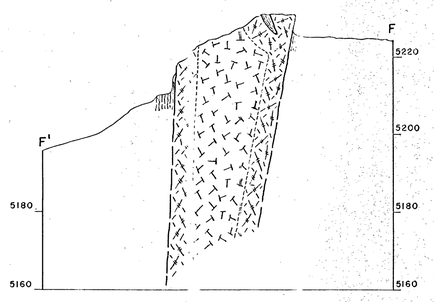
Geology by: J. B. Hanley
and M. P. Erickson





Geologic map of the 5039 level
Map altitude 5043 feet.

Geology by: J. B. Hanley, L. R. Page,
and M. P. Erickson



Geology by: John B. Hanley.

EXPLANATION

- Backfill
- Quartz-cleavelandite-lepidolite pegmatite
- Quartz-cleavelandite pegmatite
- Quartz-cleavelandite-amblygonite pegmatite
- Perthite pegmatite
- Cleavelandite-quartz-muscovite pegmatite
- Quartz-leavelandite-muscovite pegmatite
- Biotite-garnet-staurolite schist (pre-cambrian)

Zones — Dike No. 1

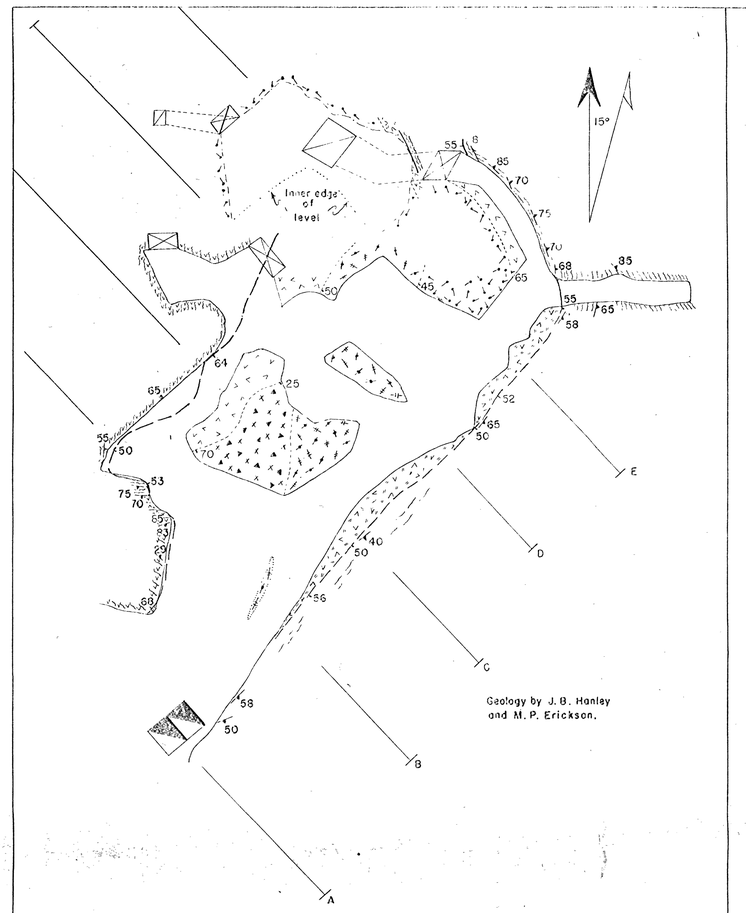
- Quartz-perthite-cleavelandite pegmatite
- Quartz-cleavelandite-muscovite pegmatite

Zones — Dike No. 3

- Strike and dip of beds
- Strike and dip of schistosity
- Fault
- Pitch of linear element
- Axis of minor syncline
- Contact, with dip
- Approximate contact
- Inferred contact
- Projected contact (in sections)
- Exposed / Inferred — contact between pegmatite units
- Head of vertical shaft
- Vertical shaft going above and below level
- Foot of vertical shaft
- Head of raise
- Foot of raise
- Wooden chute
- Barricades

20 0 20 40 60 80 FEET

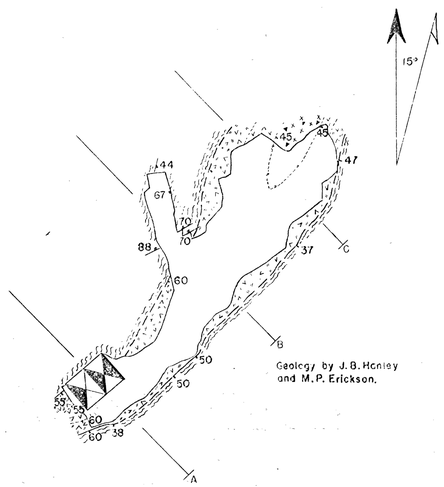
FIGURE 2.—GEOLOGIC MAPS OF THE UNDERGROUND WORKINGS, AND GEOLOGIC SECTIONS, DIKE NO. 1 AND DIKE NO. 3, BOB INGERSOLL MINE, KEYSTONE, PENNINGTON COUNTY, SOUTH DAKOTA.



GEOLOGIC MAP OF THE 4990 LEVEL

DIKE NO. 2

Map altitude 4990 feet

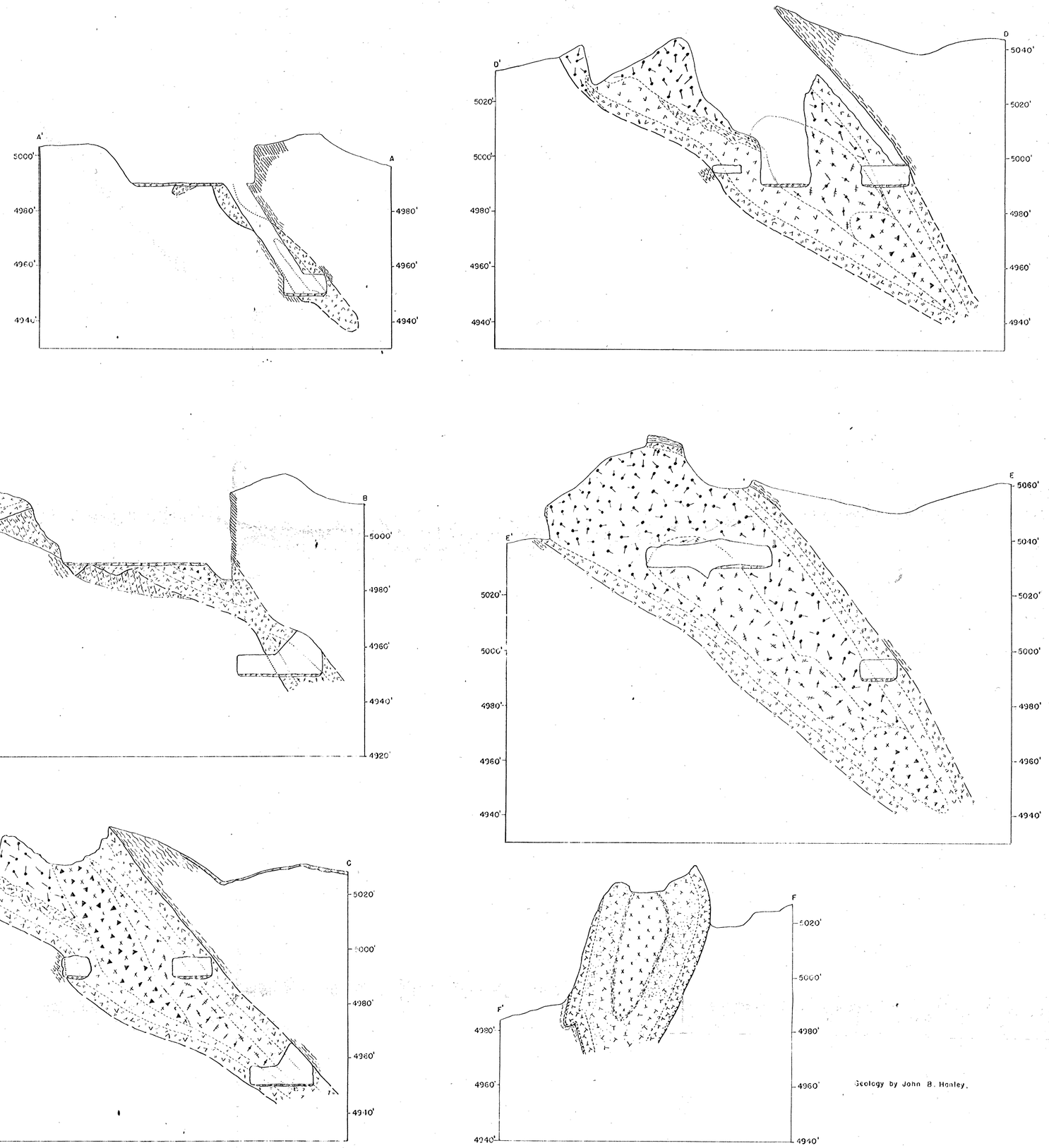


GEOLOGIC MAP OF THE 4950 LEVEL

DIKE NO. 2

Map altitude 4954 feet

GEOLOGIC SECTIONS



Geology by John B. Hanley.

EXPLANATION

Zones

- Quartz-spodumene pegmatite
- Quartz-amblygonite-cleavelandite-perthite pegmatite
- Perthite-quartz pegmatite
- Muscovite-cleavelandite-quartz pegmatite
- Quartz-albite pegmatite
- Quartz-perthite-muscovite pegmatite
- Quartz-albite-muscovite pegmatite
- Fine-grained feldspar granulite

} Dike No. 2

Zones

- Quartz pegmatite
- Cleavelandite-quartz-muscovite pegmatite
- Quartz-perthite-muscovite-plagioclase pegmatite (coarse-grained)
- Quartz-perthite-muscovite-plagioclase pegmatite (medium-grained)
- Quartz-perthite-muscovite-plagioclase pegmatite (fine-grained)

} Dike No. 4

- Biotite-garnet-staurolite schist (pre-cambrian)
- 50 Strike and dip of foliation
- 70 Strike and dip of joints
- 8 Pitch of linear element
- 64 Contact showing dip
- Approximate contact
- Inferred contact
- Contact between pegmatite units: Exposed; Inferred
- Projected contact between pegmatite units
- Head of inclined shaft
- Foot of inclined shaft
- Head of raise
- Foot of raise

20 0 20 40 60 80 100 Feet

FIGURE 4.—GEOLOGIC MAPS OF THE UNDERGROUND WORKINGS AND GEOLOGIC SECTIONS, DIKE NO. 2 AND DIKE NO. 4, BOB INGERSOLL MINE, KEYSTONE, PENNINGTON COUNTY, SOUTH DAKOTA.

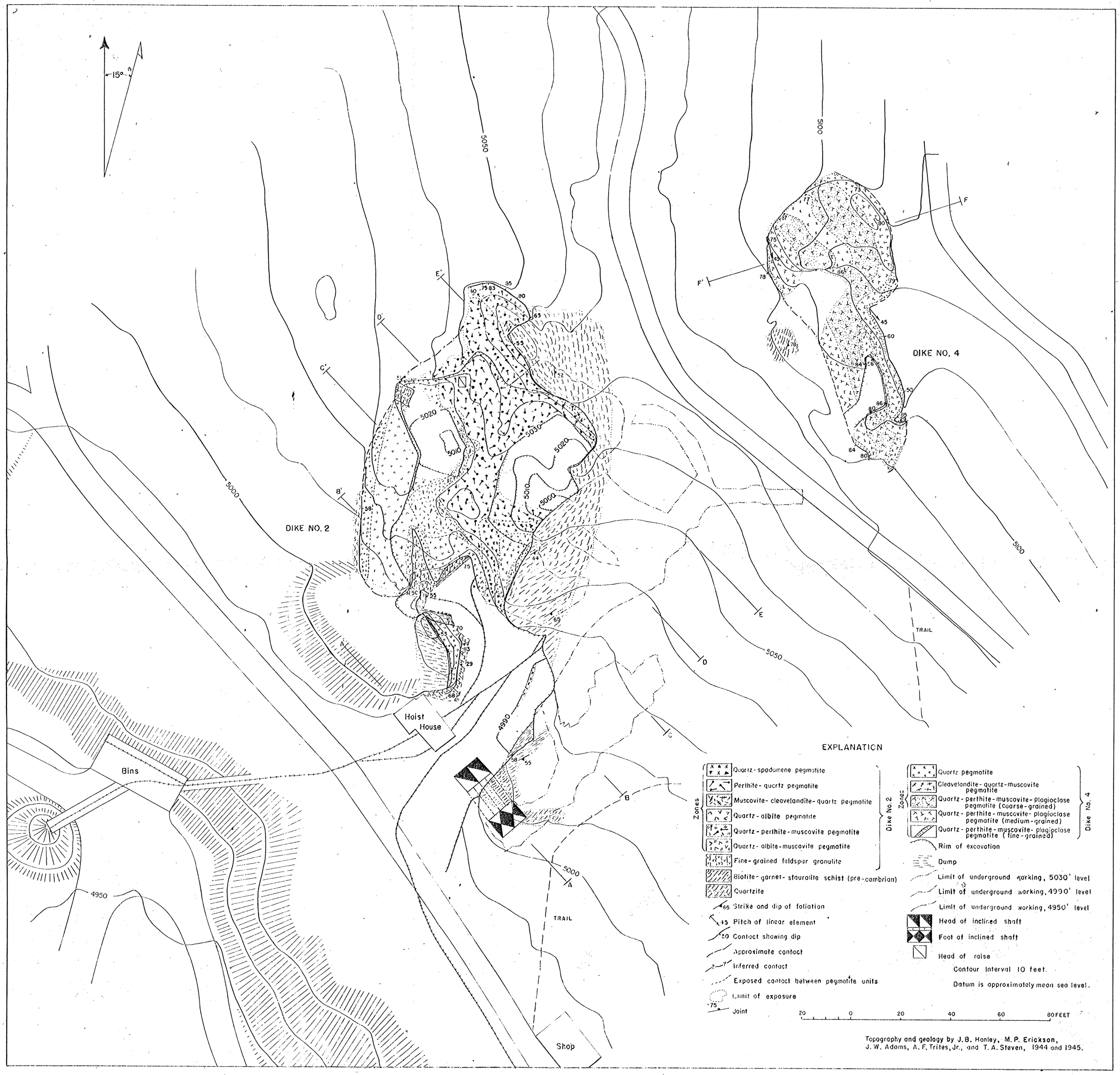


FIGURE 3 GEOLOGIC MAP OF DIKES NO. 2 AND NO. 4, BOB INGERSOLL MINE, KEYSTONE, SOUTH DAKOTA

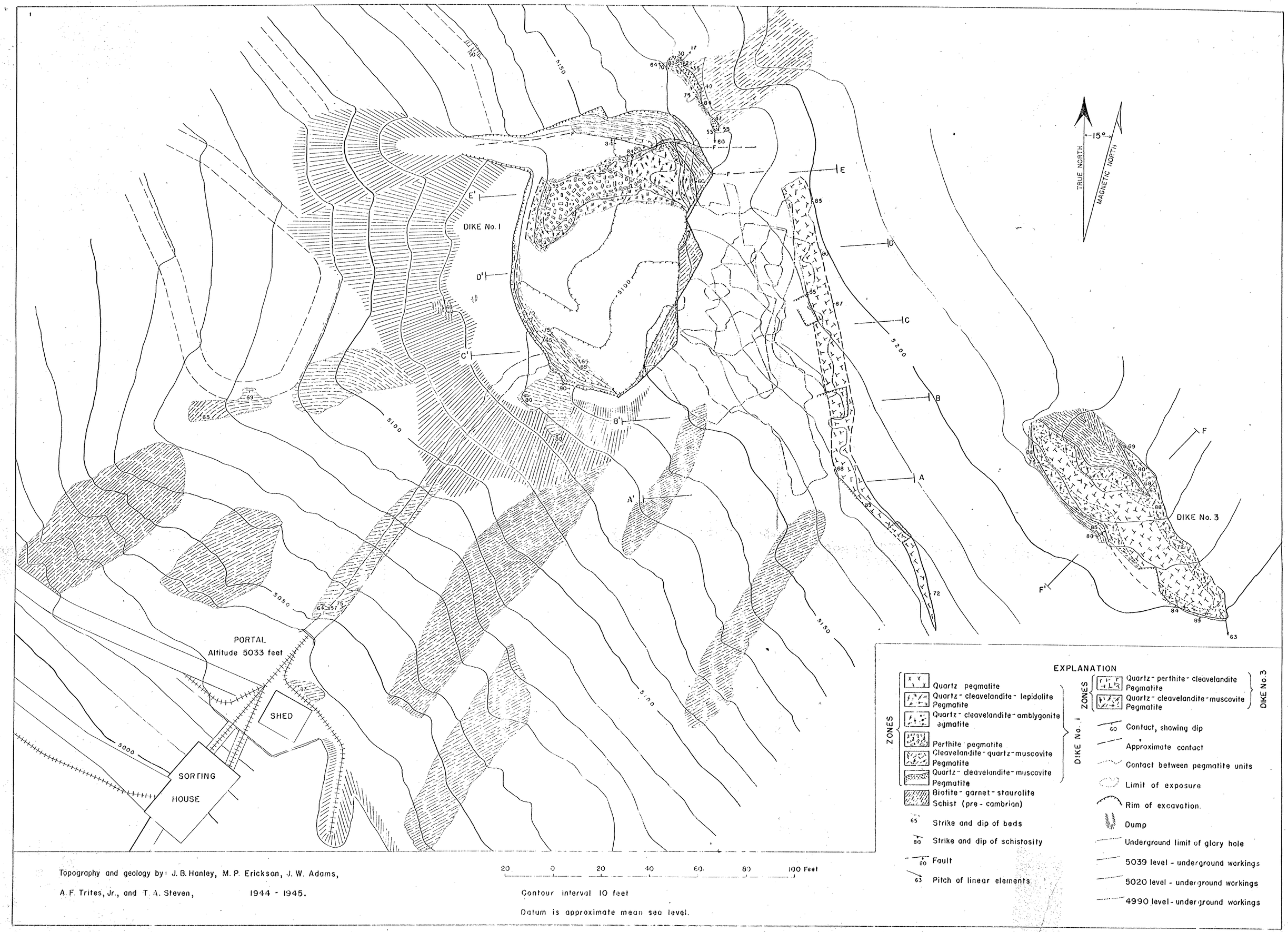
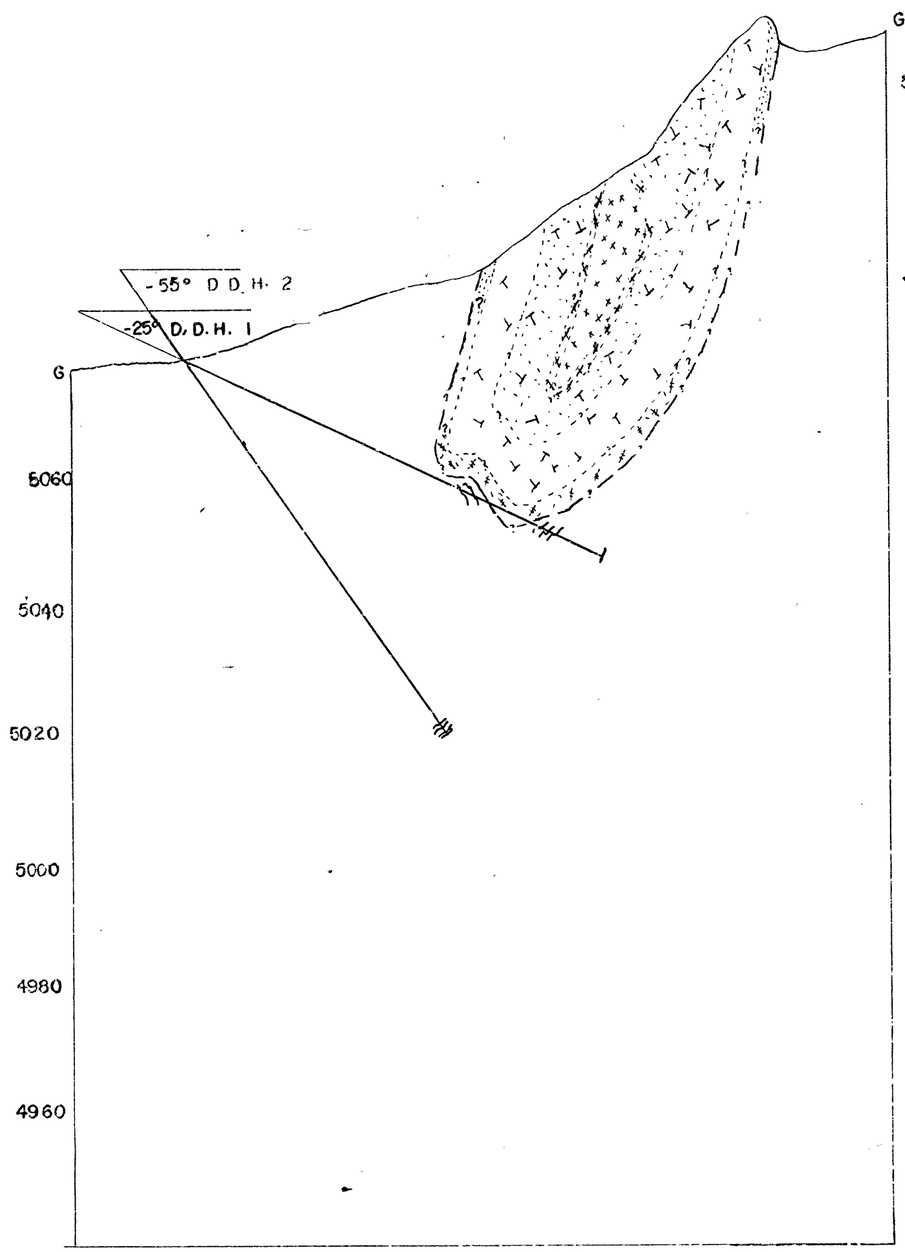
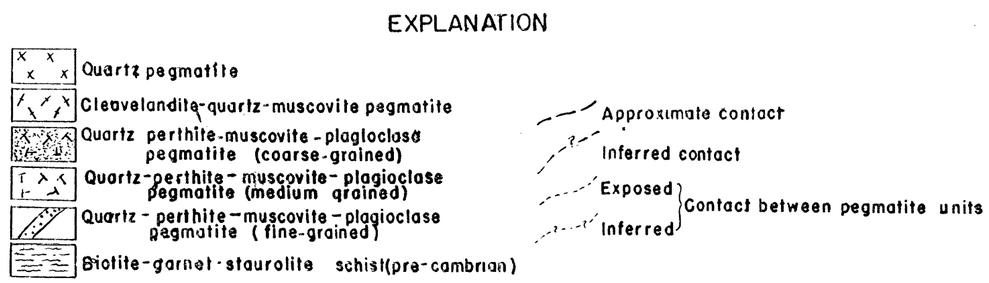
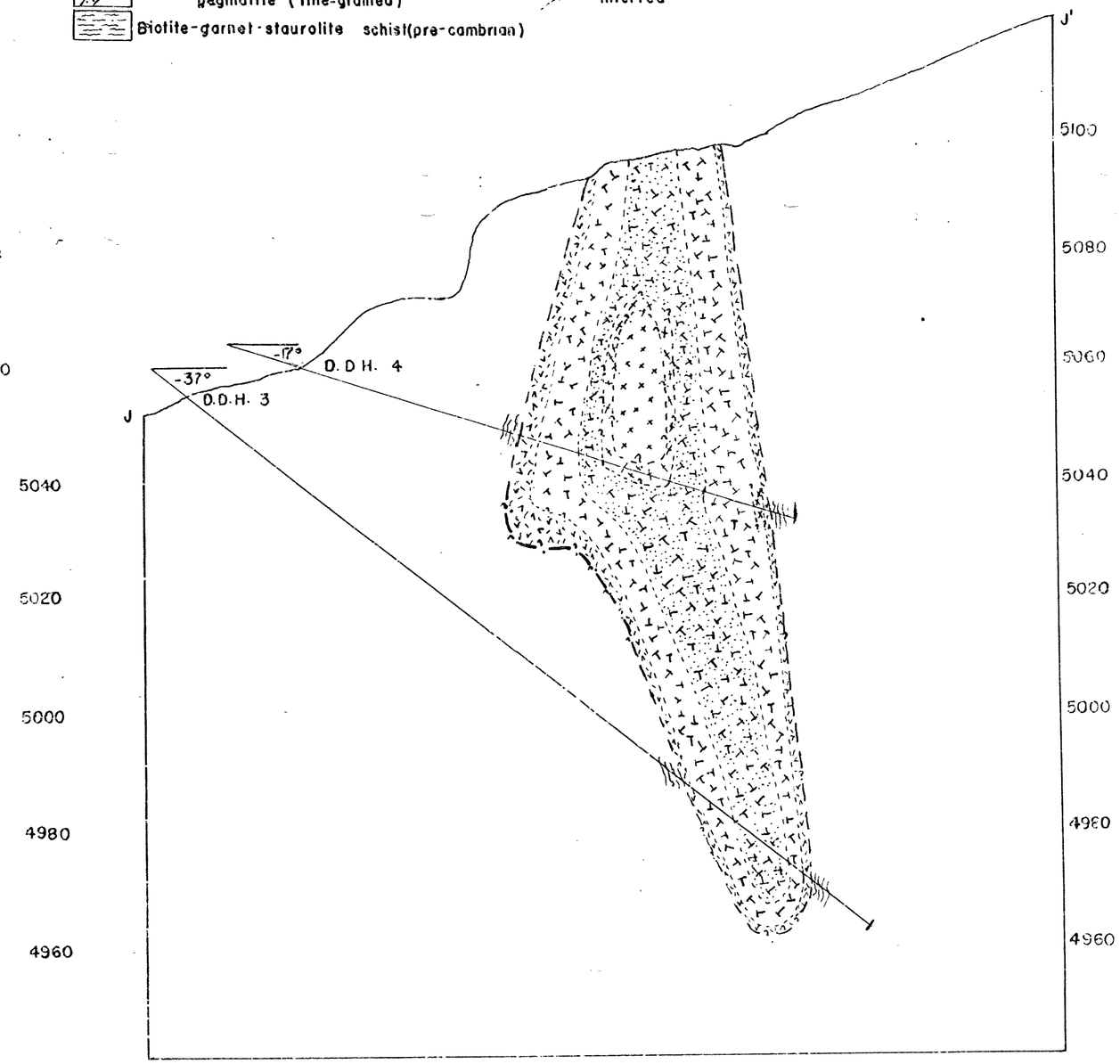


FIGURE 1. — GEOLOGIC MAP OF DIKES NO. 1 AND NO. 3, BOB INGERSOLL MINE, KEYSTONE, PENNINGTON COUNTY, SOUTH DAKOTA.

PREPARED FOR DEFENSE MINERALS EXPLORATION ADMINISTRATION

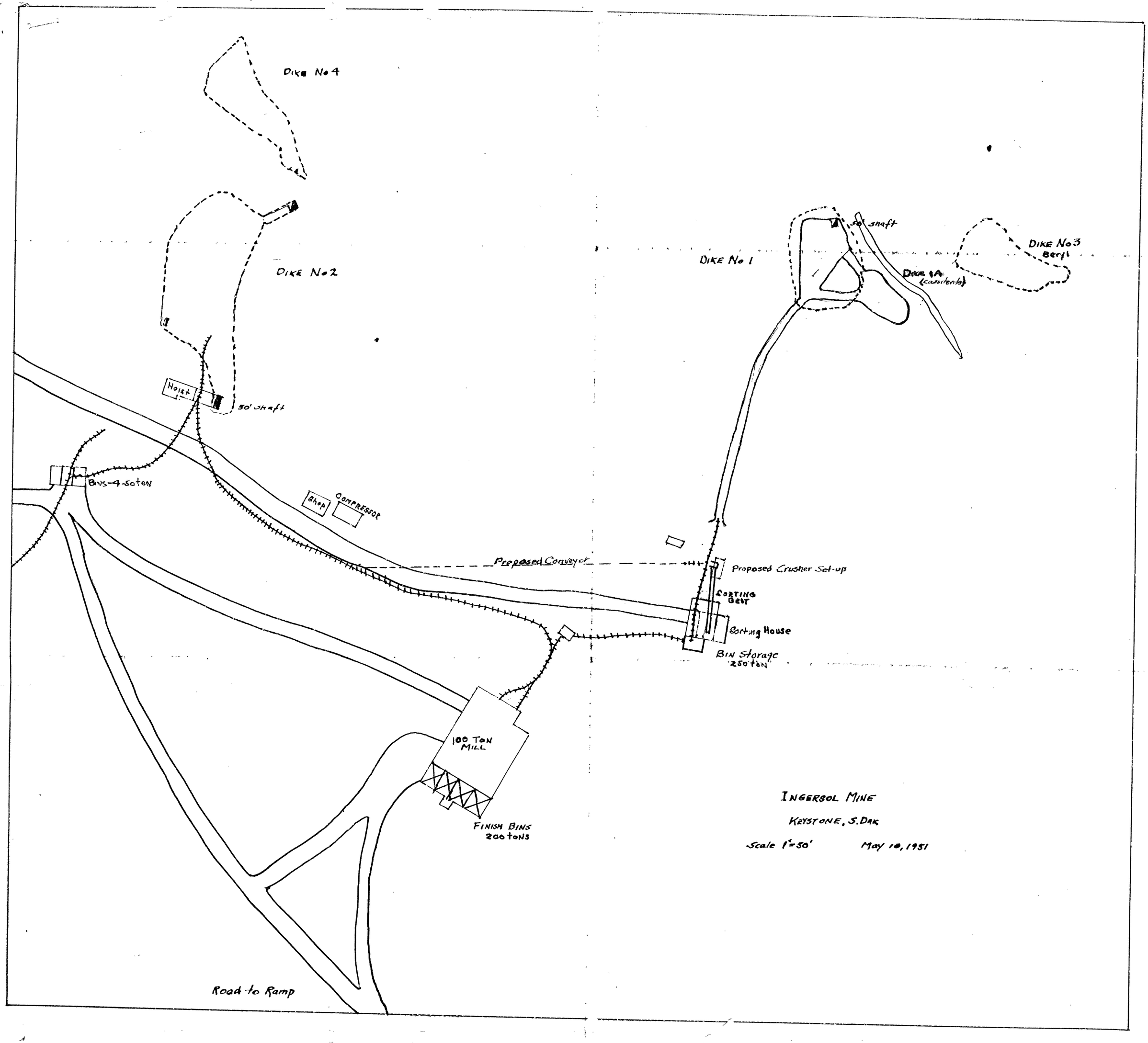




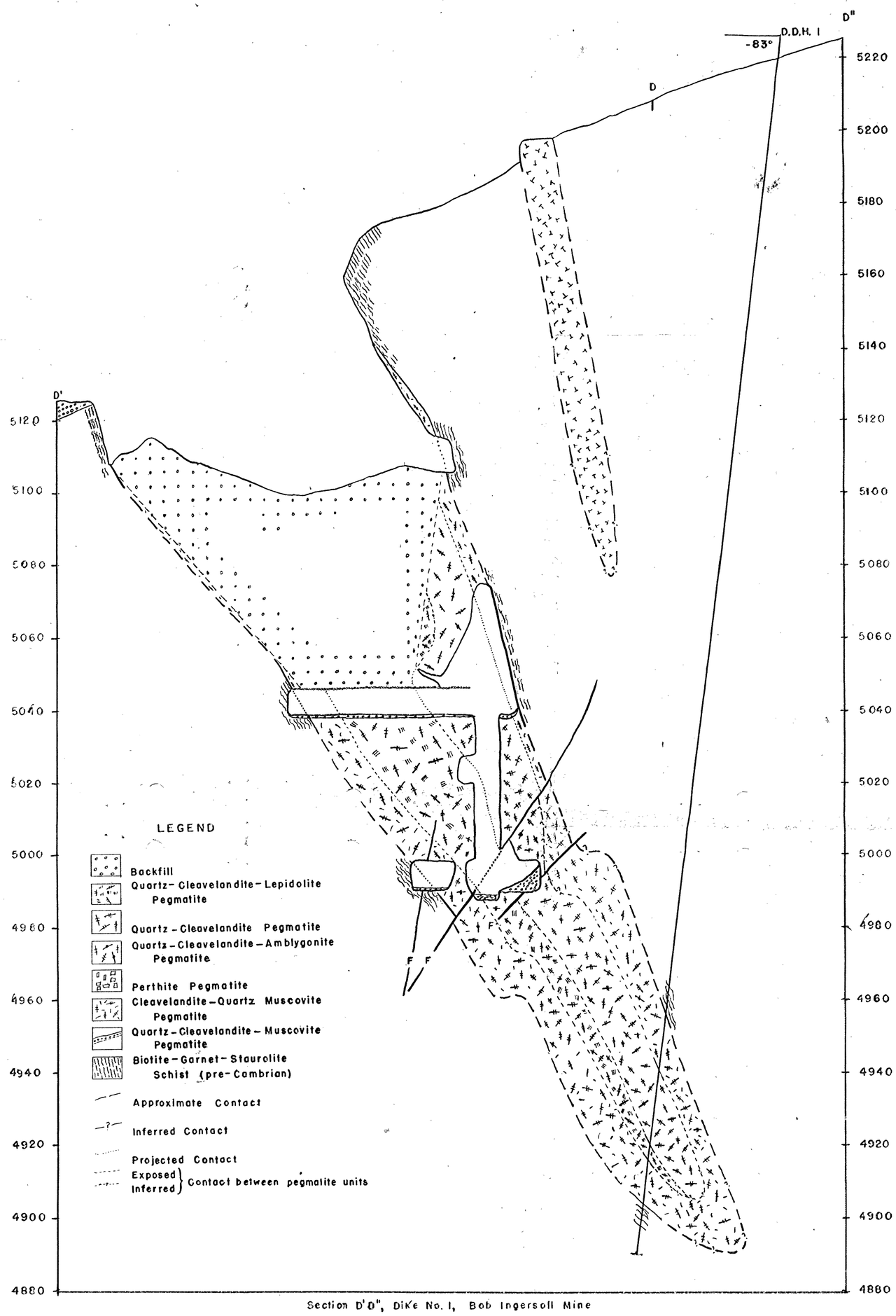


DIAMOND DRILL SECTIONS, DIKE NO. 4, BOB INGERSOLL MINE, PENNINGTON COUNTY, SOUTH DAKOTA, D.M.E.A. 812

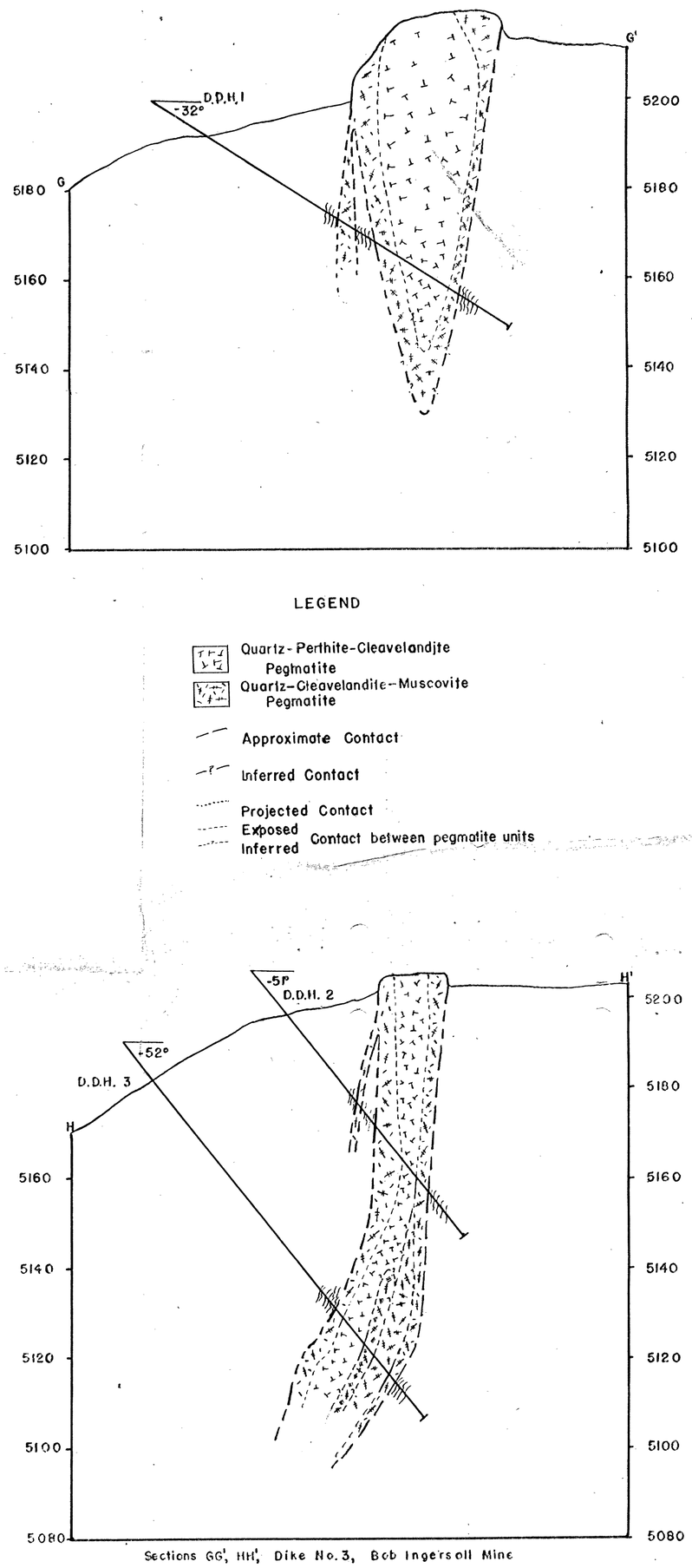
0 20 40 60 80 100


Dike No 4
Dike No 2
Hoist
50' shaft
Bins-4-50 ton
Shop
Compressor
Dike No 1
50' shaft
Dike 1A (cassiterite)
Dike No 3 Beryl
Proposed Conveyor
Proposed Crusher Set-up
Sorting Belt
Sorting House
Bin Storage 250 ton
100 Ton Mill
Finish Bins 200 tons
Road to Ramp
Ingersol Mine
Keystone, S.Dak
Scale 1"=50'
May 10, 1951

PREPARED FOR DEFENSE MINERALS EXPLORATION ADMINISTRATION



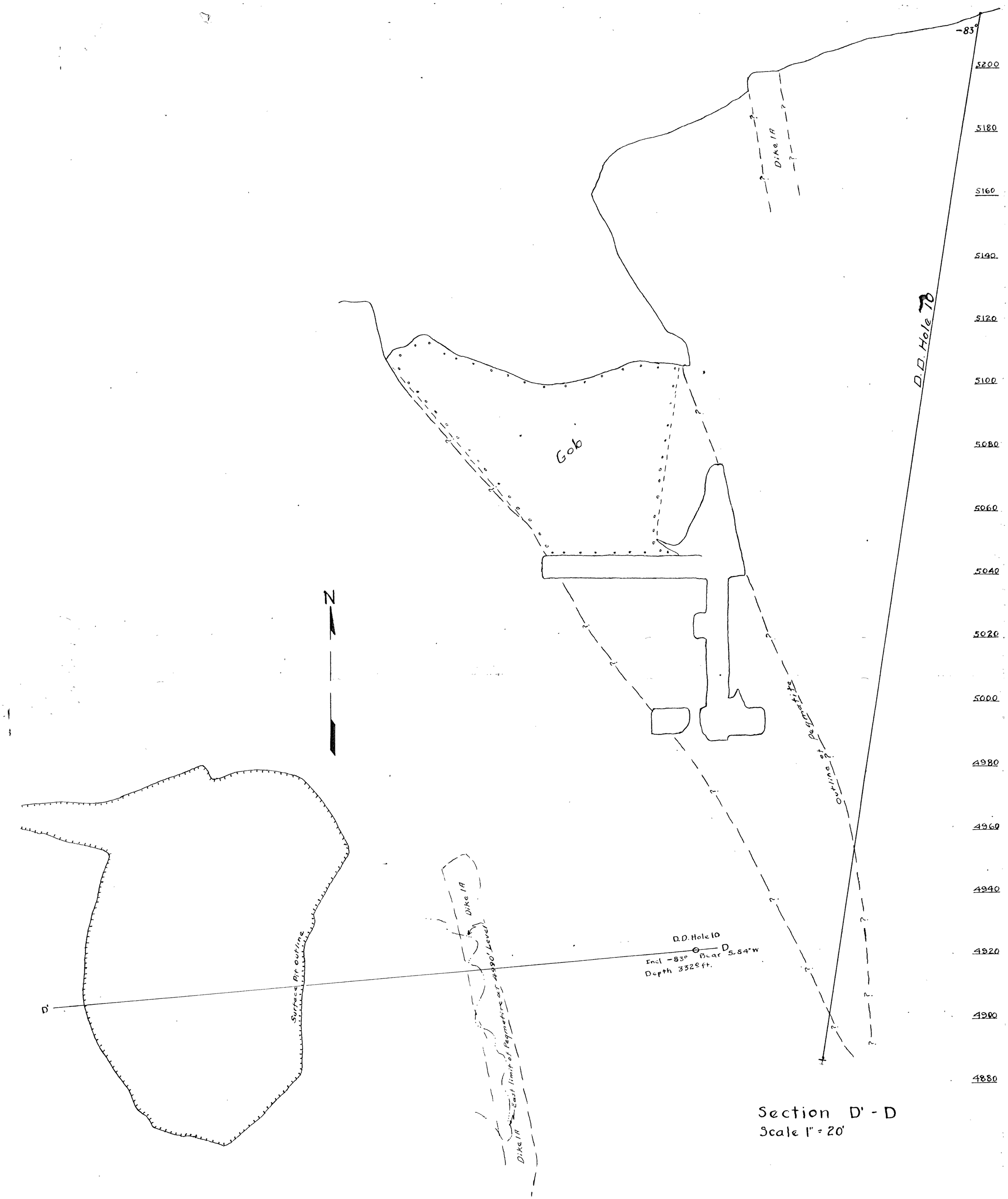
Section D'D", Dike No. 1, Bob Ingersoll Mine



Sections GG', HH', Dike No. 3, Bob Ingersoll Mine

DIAMOND DRILL SECTIONS, DIKES NOS. 1 AND 3, BOB INGERSOLL MINE, PENNINGTON COUNTY, SOUTH DAKOTA

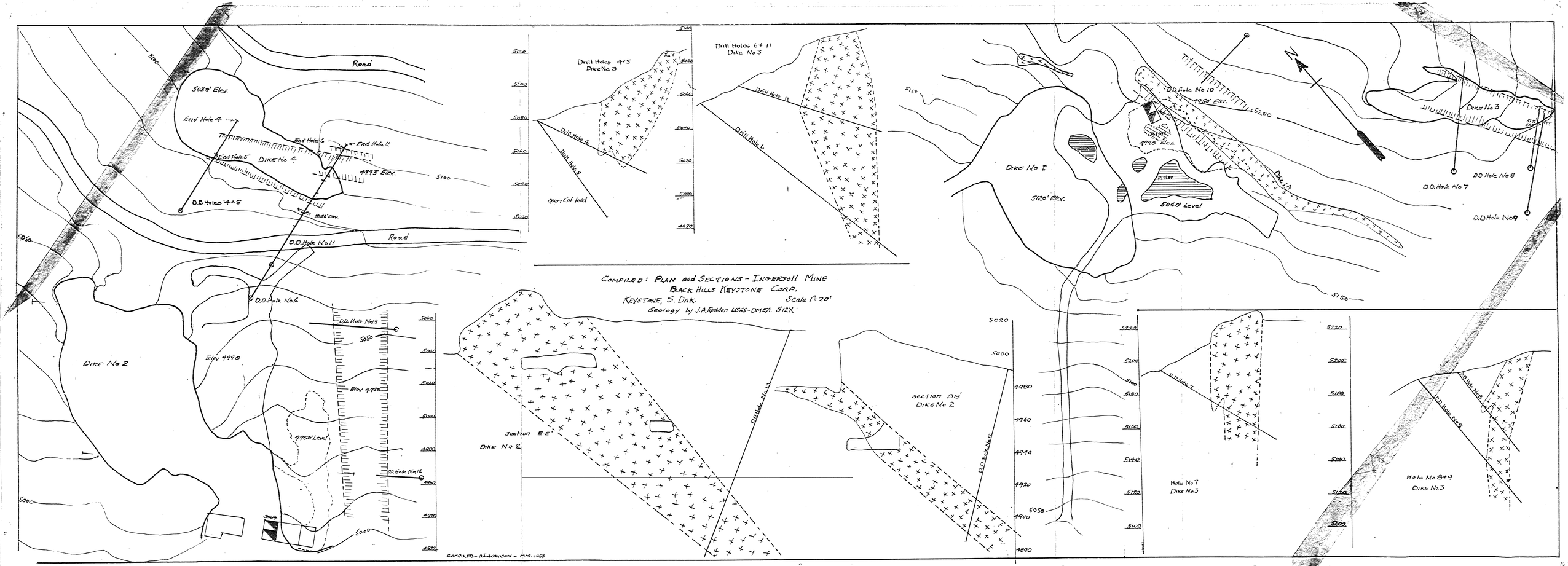
0 20 40 60 80 100



Plan of Dikes No.1 and 1A
Scale 1" = 20'

Section D' - D
Scale 1" = 20'

Bob Ingersoll Mine
Keystone, South Dakota.


Road
5080' Elev.
End Hole 4
End Hole 6
End Hole 11
End Hole 5
DIKE No 4
4995 Elev.
D.D. Holes 4+5
open cut level
D.D. Hole No 11
Road
D.D. Hole No 6
DIKE No 2
Elev 4990
Elev 4990
4950' Level
D.D. Hole No 13
D.D. Hole No 12
Shaft
Drill Holes 4+5
Dike No 3
Drill Hole 4
Drill Hole 5
Drill Holes 6+11
Dike No 3
Drill Hole 11
Drill Hole 6
DIKE No I
5120' Elev.
D.D. Hole No 10
4950' Elev.
4990' Elev.
5040' Level
DIKE 1A
DIKE No 3
D.D. Hole No 7
D.D. Hole No 8
D.D. Hole No 9
Section E-E
DIKE No 2
D.D. Hole No 13
section BB'
DIKE No 2
D.D. Hole No 12
Hole No 7
DIKE No 3
D.D. Hole No 7
Hole No 8+9
DIKE No 3
D.D. Hole No 8
COMPILED: PLAN and SECTIONS - INGERSOLL MINE
BLACK HILLS KEYSTONE CORP.
KEYSTONE, S. DAK.
Scale 1" = 20'
Geology by J.A. Redden USGS-DMEA. 512X
COMPILED - A.F. Johnson - MAR. 1968