Surname copy

700

Murphy
Ellis

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

OCT 15 1956

Mr. Laurence W. Rhoades
Vice President
Pictograph Mining and Uranium, Inc.
325 Second Avenue
Edgemont, South Dakota

Re: Docket No. DMEA-4282 (Uranium)
Range Lease
Fall River County, South Dakota

Dear Mr. Rhoades:

Reference is made to Mr. W. M. Traver's letters, dated July 10 and August 17, 1956, and the Acting Administrator's letter, dated September 14, requesting additional information needed to process the subject application.

As we have not received any reply to our letters, we are considering your application as having been withdrawn and are placing it in our inactive files.

We regret the necessity of taking such action, however, it is taken without prejudice to your proposed project. If at some future time you desire to reopen this case, you may do so by filing a new application, referring to the subject application by the DMEA docket number, and furnishing the information previously requested, together with any other information that you think might be helpful.

Sincerely yours,

C. O. Mittendorf

Administrator

FMMurphy/gla
10-15-56
cc to: Admr.'s Reading File
Docket
Messrs. JECrawford, 3643
THKiilsgaard, 5224
JOHosted, 3210, GSA
Code 700, Mr. Murphy
DMEA Field Team, Region III (2)

R.C.S.

Surname copy 700

Murphy
Johnson

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

Mr. Lawrence W. Rhoades
Vice President
Pictograph Mining and Uranium, Inc.
325 Second Avenue
Edgemont, South Dakota

Re: Docket No. DMEA-4282 (Uranium)
Runge Lease
Fall River County, South Dakota

Dear Mr. Rhoades:

Reference is made to Mr. W. M. Traver's letters, dated July 10 and August 17, 1956, requesting additional information needed to processthe subject application.

We wish to cooperate with you fully in allowing ample time to supply the requested information; however, we cannot indefinitely postpone action on an application. Therefore, if we do not receive the requested information within thirty days from the date of this letter, we will assume that you are no longer interested in proceeding with your application, and will consider it as having been withdrawn.

Sincerely yours,

Frank E. Johnson (by F.T.M.)
ACTING Administrator

FTMurphy/gla
9-13-56
cc to: Admr.'s Reading File
Docket
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
Code 700, Mr. Murphy
DMEA Field Team, Region III (2)

R.L.A.

9/13/56 gla

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

RECEIVED SEP 13 1956

224 New Customhouse
Denver 2, Colorado

September 11, 1956

Memorandum

To: Secretary to the Operating Committee, DMEA

From: DMEA Field Team, Region III

Subject: Docket No. DMEA-4282 (Uranium) Pictograph Mining & Uranium, Inc. (Runge Lease) Fall River County, South Dakota

We have had no reply to our letters to the subject applicant dated July 10 and August 17, 1956, copies of which have been forwarded your office.

We presume the applicant is no longer interested in his proposed exploration project.

We recommend that you write the applicant and give him thirty days in which to submit the amendment to his DMEA application.

DMEA Field Team, Region III

W. M. Traver

By W. M. Traver
Executive Officer.

8/20/56

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

August 17, 1956

224 New Customhouse
Denver 2, Colorado

Mr. Lawrence W. Rhoades
Vice President
Pictograph Mining and Uranium, Inc.
325 Second Avenue
Edgemont, South Dakota

Re: Docket DMEA 4282 (Uranium)
(Runge Lease) Fall River County,
South Dakota

Dear Mr. Rhoades:

Your letter of July 6, 1956 stated that you would request an amendment to the captioned docket since you had already drilled out an ore body on the property listed in your application. Our letter to you of July 10, 1956 explained the requirements for an amendment to your DMEA application.

We have had no reply from you, and we are wondering if you are still interested in an exploration program. If you are interested, will you please amend your present application so that we may continue to process it. If you are not interested, will you please so advise so that we can close our records on this docket.

Very truly yours,

W. M. TRAVER,

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

HMC:ab

cc: Sec. Op. Comm. (2)
Harshman
Shaw (2)
Docket 4282
Chron.

RECEIVED
AUG 30 1956

7-13-56

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

July 10, 1956

224 New Customhouse
Denver 2, Colorado

Mr. Lawrence W. Rhoades
Vice President
Pictograph Mining and Uranium, Inc.
325 Second Avenue
Edgemont, South Dakota

Re: Docket DMEA 4282 (Uranium) Range Lease,
Fall River County, South Dakota

Dear Mr. Rhoades:

This will acknowledge receipt of the original and five copies of your letter dated July 6, 1956 regarding an Amendment to the captioned application.

There are no blanks for making an Amendment to a DMEA application. The requirements for an Amendment will be fulfilled by submitting to this office in quadruplicate the following information:

1. Refer to DMEA 4282 and give your reasons for requesting any changes in your original program of exploration.

2. Detailed map of the area you intend to explore showing the location of all your proposed work, also the results of any work done previously on the property.

3. Describe fully your proposed work and the location of the proposed exploration work with relation to your blocked-out ore.

4. Available geologic data which can give support to your proposed exploration work.

5. Your estimate of costs to complete your proposed exploration.

When we receive the above information, we will continue to process your application.

Very truly yours,

W. M. TRAVER,

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

RECEIVED
JUL 13 1956

HMC:ab
cc: Chair. Op. Comm. (2)
Docket 4282
Harshman
Shaw (2)
Chron.

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Mineral Deposits Branch
Building 25, Denver Federal Center
Denver, Colorado

4282

July 3, 1956

DMEA
Date Rec'd.
JUL 3 1956
BUREAU OF MINES
Denver, Colorado

Mr. Matthew J. Brown, President
Pictograph Mining and Uranium Co., Inc.
Edgemont, South Dakota

Dear Matt:

I have talked to the people down here who know about such things, and they say you can make an amendment to your DMEA proposal to include any different area of the Runge lease or the Adolph group or both.

Such a new proposal should be prepared in quadruplicate and sent to:

Mr. W. M. Traver, Executive Officer
DMEA Field Team, Region III
224 New Customhouse
Denver, Colorado

The new proposal should include maps of the area you intend to explore and a detailed explanation of the program you propose. In addition, it should include any geologic data you can give in support of the proposal.

If you send in such a proposal, please refer to DMEA Docket Number 4282 in order that it will be properly referred to your original proposal.

In any event, in order to stop action on your present proposal, we would like to have you send an original and five carbon copies of a letter expressing your intent to change your program to Mr. Traver.

I will be happy to discuss the geology of your property either with you or your representative at any time.

Sincerely yours,

Robert W. Schnabel
Geologist

Copy to: Harshman
Traver
Shaw

RWSchnabel:arh

DMEA
Date Rec'd.

JUL 9 1956

BUREAU OF MINES
Denver, Colorado

July 6, 1956

Mr. W. M. Traver, Executive Officer
D M E A Field Team, Region 3
224 New Customhouse
Denver, Colorado

RE: DMEA DOCKET # 4282

Dear Mr. Traver:

Since we have already drilled out an ore body on the property listed on our recent DMEA application we do not wish to proceed further with it. However, we are planning to make an ammendment to this application to cover another area of Runge Lease. Will you please send us the necessary blanks for making this ammendment?

Yours truly,
Pictograph Mining & Uranium Co., Inc.

Lawrence W. Rhoades
Vice President

6-4-56

DMEA
Date Rec'd.

JUN 1 1956

BUREAU OF MINES
Denver, Colorado

May 31, 1956

RECEIVED
JUN 4 1956

Memorandum

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

From: Superintendent, Denver Experiment Station, Reg. III

Subject: Docket DMEA 4282 (Uranium), Pictograph Mining and Uranium Company, Inc., (Runge Lease) Fall River County, South Dakota

The application on Pictograph Mining and Uranium Company, Inc., in the amount of $71,200.00 was received in this office on May 31, 1956.

A field examination will be made and suitable report prepared by an engineer from the Denver office.

JOHN F. SHAW

John F. Shaw

cc: W. M. Traver (2)
E. N. Harshman
J. F. Shaw
Sec. Op. Comm. (2)

6-1-56

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

RECEIVED
JUN - 1 1956

May 29, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: J. F. Shaw (2) (With brochure)
E. N. Harshman

From: Field Team, Region III

Subject: DMEA Docket 4282 (Uranium) Pictograph Mining and Uranium Company, Inc. (Bunge Lease) Fall River County, South Dakota

Enclosed is the subject application in the amount of $71,200.00. A field examination and suitable report are requested.

Also attached for your information are a copy of a letter from the Chairman, Operating Committee dated May 23, 1956 and memoranda of review of the application by John E. Crawford and N. E. Nelson.

Will you please return the brochure with the Report of Examination.

DMEA Field Team, Region III

J. W. Townsend

By J. W. Townsend
Acting Executive Officer

Enclosures

RMC:ab

cc: Chair. Op. Comm. (2)
Docket 4282
Chron.

rname copy

700

Murphy
J L Kadane
Martin
Hyman

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

MAY 23 1956

Mr. W. M. Traver
Executive Officer
DMEA Field Team, Region III
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA-4282 (Uranium)
Pictograph Mining and Uranium
Company, Inc.
Runge Lease
Fall River County, South Dakota

Dear Mr. Traver:

The captioned application is referred to Region III Field Team for a field examination and recommendation.

Enclosed are copies of memoranda, dated May 10 and 21, 1956, by J. E. Crawford, USBM, and N. E. Nelson, USGS, respectively, relating to the application.

In the event the Field Team recommends a project to explore the subject leased lands, it should advise the Applicant that we will require six copies of the Owners' Consent to Lien, signed by Arnold Runge and Bertha Runge.

Sincerely yours,

W. S. Martin
ACTING Chairman, Operating Committee

Enclosures

APPROVED:

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

Thor H. Kiilsgaard
Member, Geological Survey

FMMurphy/gla
5-22-56
cc to: Admr.'s Reading File
Operating Committee
Docket
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
Code 700
Mr. Murphy

P.C.K.

Surname copy

700
Murphy
Kerwin
Geehan
Kilgaard
Martin
H Johnson

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

MAY 23 1956

Mr. Matthew J. Brown, President
Pictograph Mining & Uranium Co., Inc.
325 Second Avenue
Edgemont, South Dakota

Re: Docket No. DMEA-4282 (Uranium)
Runge Lease
Fall River County, South Dakota

Dear Mr. Brown:

The application for assistance in exploring your property, under the captioned docket number, has been reviewed by the Rare and Miscellaneous Metals Division of the Defense Minerals Exploration Administration. It has been referred for a field examination to:

Mr. W. M. Traver
Executive Officer
DMEA Field Team, Region III
224 New Customhouse Building
Denver 2, Colorado

The Regional Office will contact you at the earliest opportunity in regard to your project.

Sincerely yours,

G. O. Mittendorf (for)

Administrator

FTMurphy/gla
5-22-56
cc to: Admr.'s Reading File
Docket
Code 700
Mr. Murphy
DMEA Field Team, Region III (2)

R.G.G.

5/22/56

IN REPLY REFER TO:

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

RECEIVED
MAY 22 1956

May 21, 1956

Re: DMEA 4282
Pictograph Mining & Uranium Co.
Runge property
Fall River Co., Wyoming
$71,200.00 - Uranium

Memorandum

To: E. W. Ellis, Defense Minerals Exploration Administration

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

Subject: Review of application.

The applicant requests assistance in exploring by drilling a large area probably underlain by a member of the Inyan Kara group from which uranium ore production has been made at nearby mines.

Aerial and ground radiometric surveys are said to have shown a large anomalous area at the easterly end of the property and drilling has been done near the center. The AEC drilled several holes, in one of which "about 1 foot of commercial ore was encountered at 125 feet." In 10 of the 28 holes drilled by the applicant "uraninite type ore was encountered from 124 to 140 feet," and a 5,000 ton ore body is considered blocked out by the applicant. The grade of the material is not given.

Referral to the Field Team for appropriate action is recommended.

N. E. Nelson

N. E. Nelson

5-11-56

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

RECEIVED
MAY 11 1956

May 10, 1956

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

From: John E. Crawford, Bureau of Mines Member
Uranium Commodity Committee

Subject: Application for Assistance, DMEA Docket 4282, Pictograph Mining & Uranium Co., Inc., Fall River County, S. Dak.

I have reviewed the attached application for assistance, DMEA Docket 4282, Pictograph Mining & Uranium Co., Inc., Fall River County, S. Dak., dated April 27, and received in this office May 8, 1956. I have also discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

The Pictograph Mining and Uranium Co. has applied for DMEA assistance to explore for uranium on the Runge lease which consists of 2,840 acres located within the Edgemont mining district, Fall River County, S. Dak. The exploration project would be divided into three stages. Stages I, II, and III would include 23,800, 15,000, and 15,000 feet of plug drilling, respectively. All drilling is based on a unit cost of $1.15. Other items included in the exploration program are 750 chemical analyses at $5. per assay and 100 hours of bulldozing at a unit cost of $12. The total estimated cost of the project is $71,200.

The applicant states that the exploration program is designed to (1) outline gross geologic features with Stage I, (2) investigate the areas of greatest favorability with Stage II, and (3) offset holes that have penetrated ore with Stage III.

Twenty-eight holes have been drilled on the property of which 10 holes have reportedly penetrated an average thickness of 6 feet of ore.

The entire exploration project could be more clearly defined and outlined. Stage I appears to be of a prospecting nature, and would warrant further review by the field team.

We recommend that the application be referred to the field for appropriate action and inasmuch as the AEC may have considerable information on the area it would be advisable that the field team consult with D. L. Everhart, Acting Chief, Denver Exploration Branch, Atomic Energy Commission. Information contained in the application indicates that the AEC has probed the holes drilled by the applicant.

John E. Crawford

John E. Crawford

Attachment

May 8, 1956

Pictograph Mining and Uranium Co., Inc.
325 2nd Street
Edgemont, South Dakota

Subject: DMEA 4282
Re: Runge Lease

Gentlemen:

The receipt of your application dated April 27, 1956 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA 4282 and referred to the Rare and Miscellaneous Metals Division.

Kindly identify all future correspondence relating to your application by this docket number.

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division

00932

May 8, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number

There is listed below the assigned docket number to an application recently received from Region III.

DMEA
4282 Pictograph Mining & Uranium Co., Inc.

Robert E. Adams
Chief, Operation's Control
and Statistics Division

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

RECEIVED
MAY 8 - 1956

May 4, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Application for DMEA Aid (Uranium) Pictograph Mining and Uranium Company, Inc. (Runge Lease), Fall River County, South Dakota

Enclosed are three copies of the subject application in the amount of $71,200.00.

One copy of the application is being retained in our file.

DMEA Field Team, Region III

By W. M. Traver
Executive Officer

Enclosures

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

DMEA
Date Rec'd.
MAY 3 1956

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

RECEIVED
MAY 7 - 1956
BUREAU OF MINES
Denver, Colorado

APPLICATION FOR AID IN AN EXPLORATION PROJECT, PURSUANT TO DMEA ORDER 1, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

Not to be filled in by applicant

Docket No. 4282
Metal or Mineral Uranium
Date Received May 7, 1956
Estimated Cost $71,200.00
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Pictograph Mining & Uranium Co., Inc. 325 2nd. Ave. Edgemont, So. Dak. A Delaware Corp. Matthew J. Brown-Pres. Lawrence M. Rhoades-V.Pres. All of Edgemont, So. Dak.

(*b*) If other than an individual, add to your name above whether a corporation, partnership, etc., and the name of the State in which incorporated or otherwise organized.

(*c*) If a corporation, add to above statement, titles, names and addresses of officers.

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

2. *General.*—Read DMEA Order 1, "Government Aid in Defense Exploration Projects," before completing this application. Submit this application and all accompanying papers in quadruplicate (four copies), with your name and address on each sheet of the application and on all accompanying papers. Where sufficient space is not provided on the form for all required information, state it on an accompanying paper, with a reference in each case to the instruction to which it refers by number. Comply with all applicable instructions; or, if not applicable, so state. File the application with Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest field executive officer thereof.

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract Supplement 3 (a)

(*b*) State any mine name by which the property is known. Runge Lease

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Lessee

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property.

(*e*) If you own the land, describe any liens or encumbrances on it

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. Supplement 3 (f) & Plate "C" Maps in pocket folder

4. *Physical description.*—(*a*) Describe in detail any mining or exploration operations which have been or now are being conducted upon the land, including existing mine workings and production facilities. State your interest, if any, in such operations. Also describe accessibility of mine workings for examination purposes. Supplement 4 (a)

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

(*c*) Describe the geologic features of the property, including mineralization, type of deposit (vein, bedded, etc.), and your reasons for wishing to explore. Illustrate with maps or sketches. Send with your application (but not necessarily as a part of it) any geologic or engineering report, assay maps, or other technologic information you may have, indicating on each whether you require its return to you. Geology Report-Ralph B. Hall--Do not return

(*d*) State the facts with respect to the accessibility of the project: Access roads, distances to shipping, supply and residence points. See "Location" Page 2 Geology Report

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power.
All necessary items immediately available.

16—66551-1

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

(*b*) Describe fully the proposed work, including a map or sketch of the property showing a plan (and cross sections if needed) of any present mine workings, and the location of the proposed exploration work as related to such features as contacts, veins, ore-bearing beds, etc. Geology Report and Supplement 5 (b)

(*c*) The work will start within 30 days and be completed within 5 months from the date of an exploration project contract.

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations. Supplement 5 (d)

6. *Estimate of costs.*—Furnish a detailed estimate of the costs of the proposed work (you will have to use a separate sheet), under the following headings. Add the totals under all headings to give the estimated total cost of the project:

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.).

(*b*) *Labor, supervision, consultants.*—Include an itemized schedule of numbers, classes and rates of wages, salaries or fees for necessary labor, supervision and engineering and geological consultants. Supplement 6

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel.

(*d*) *Operating equipment.*—Furnish an itemized list of any operating equipment to be rented, purchased, or which is owned and will be furnished by the Operator, with the estimated rental, purchase price, or suggested use-allowance based on present value, as the case may be.

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project. None

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project.

(*g*) *Miscellaneous.*—Furnish a detailed list showing the cost of repairs to and maintenance of operating equipment (not including initial rehabilitation or repairs of the Operator's equipment), analytical work, accounting, workmen's compensation and employers' liability insurance, and payroll taxes. Supplement 6

(*h*) *Contingencies.*—Give an estimate of any necessary allowances for contingencies not included in the costs stated above.

NOTE.—No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs.

7. (*a*) Are you prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation (Sec. 7, DMEA No. 1)? Yes

(*b*) How do you propose to furnish your share of the costs?

[X] Money [ ] Use of equipment owned by you [ ] Other

Explain in detail on acompanying paper.

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief.

Dated April 27, 1956

Pictograph Mining & Uranium Co., Inc.
(Applicant)

By Matthew J. Brown, Pres.
Lawrence H. Rhoades - V. Pres.

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

U. S. GOVERNMENT PRINTING OFFICE 16—66551-1

DRILLING PROPOSAL

RECEIVED
MAY 7 - 1956

Edgemont, S. Dak.
April 26, 1956

Pictograph Mining & Uranium Co., Inc.
Edgemont, S. Dak.

Gentlemen:

Edgemont Mining and Uranium Corporation makes the following drilling proposal for Pictograph Mining & Uranium Co., Inc., on the site known as the Runge Property.

It is to be understood that there will be no core drilling but that sampling will be made at intervals agreed upon by the two parties. Samples will be turned over to Pictograph Mining & Uranium Co., Inc. for assaying.

The maximum depth of a single drill hole will not exceed 450 feet. Drill site locations will be furnished by Pictograph Mining & Uranium Co., Inc.

Using a Failing "1500" drill, Edgemont Mining & Uranium Corporation proposes a price of $1.15 per linear foot, with stand-by time $15.00 per hour.

It is understood by both parties that this constitutes a proposal, with contract to be drawn on its approval.

Sincerely yours,

A. Ludwig
President

COPY OF BID

Hot Springs, South Dakota
March 26, 1956

Pictograph Mining & Uranium Co., Inc.
Edgemont, South Dakota

Mr. Rhoades:

My bid on drilling the Runge Property north of Edgemont will be as follows:

Non-Core Drilling

0-100	feet----------	$1.00	per	foot
100-200	"	1.15	"	"
200-300	"	1.35	"	"
300-400	"	1.55	"	"
400-450	"	1.80	"	"

Any casing, cementing, blind holes, and work over will be done at standby rates of $12.00 per hour with Pictograph furnishing the material.

Pictograph will furnish all roads, drill sites and towing.

McGuire Drilling Co. will furnish rigs, men, bits, drilling mud, and all necessary equipment to drill with. McGuire will drill with air as much and as far as possible.

McGuire Drilling Co.
2010 Detroit Ave.
Hot Springs, South Dakota

O. M. McGuire Jr.

COPY OF BID

RECEIVED
MAY 7 - 1956

Box 225
Boulder, Colorado
March 18, 1956

Pictograph Mining & Uranium Co., Inc
325 Second Avenue
Edgemont, South Dakota

Attention: Matthew J. Brown

Dear Mr. Brown:

Regarding your drilling on the 2,840 acres of the Runge Lease, in Fall River County, South Dakota, I will drill this property under the following terms:

Drilling Depth	Plug Drilling
0'----450'	$1.15 per foot

I will start drilling when requested if rigs are available, but in no event later than 10 days after notice to commence. I will complete the program no later than 4 months after notice to proceed. It is understood that you will have an engineer in the field to handle core if any and to probe the holes. Also, you are to furnish access roads to the drilling sites.

I understand that this program amounts to approximately 35,000 feet.

If these terms are agreeable to you, kindly sign your acceptance in the space below.

Yours very truly,
A. F. Ormsbee Drilling Cont.

Supplement #3(a)

RECEIVED
MAY 7 - 1985

Lease #1
NW¼ S5, T8S, R3E, BHM
Unpatented claims Omaha #1, 5 Inc. SW¼ S5
Lincoln #1, 5 Inc. SW¼ S5
Denver 1, 2, & 3 SW¼ SE¼ S5

Lease #2
S½ Sec. 6, T8S, R3E, BHM
Unpatented claims Hastings 1, 5 Inc. NE¼ S6, T8S, R3E
Chicago 1, 5 Inc. " " " "

Lease #3
Unpatented claims Buda 1, 5 Inc. NW¼ S6, T8S, R3E
Dunlap 1, 5 Inc. NW¼ S6, T8S, R3E
St. Paul 1, 5 Inc. E½ S1, T8S, R2E
Dexter 1, 5 Inc. " " " "
Dallas 1, 5 Inc. " " " "
Boston 1, 5 Inc. " " " "

Lease #4
W½ S1 and NE¼ S2 both in T8S, R2E

Lease #5
NW¼ S2 and N½ S3 both in T8S, R2E
Unpatented claims Adam 1 & 2 NW¼ NE¼ S3, T8S, R2E

Lease #6
SE½ SE¼ S33, T7S, R2E
SW¼ SW¼, NE¼ SW¼, N½ SE¼, SE¼ SE¼ S34, T7S, R2E
Unpatented claims Adam 3, Eve 1, 2 &3 and Lillith 1 Located in SE¼ SW¼ and SW¼ SE¼ Sec. 34 all in T7S, R2E, BHM

Lease #7
Unpatented claims Bob 1, 5 Inc. NE¼ S34, T7S, R2E
Dave 1, 5 Inc. " " " "
Sam 1, 3 Inc. SE¼ NW¼ S34, T7S, R2E.

Name of claim		Book No.	Page
Bob	1	31 Misc.	337
	2	31 "	338
	3	31 "	338
	4	31 "	339
	5	35 "	148
Dave	1	31 "	339
	2	31 "	340
	3	31 "	340
	4	31 "	341
	5	35 "	149
Sam	1	31 "	341
	2	31 "	342
	3	35 "	149
Lincoln	1	35 "	440
	2	35 "	440
	3	35 "	441
	4	35 "	441
	5	35 "	442
Denver	1	35 "	442
	2	35 "	443
	3	35 "	443
Omaha	1	35 "	444
	2	35 "	444
	3	35 "	445
	4	35 "	445
	5	35 "	446
Dunlap	1	35 "	455
	2	35 "	455
	3	35 "	456
	4	35 "	456
	5	35 "	457
Buda	1	35 "	457
	2	35 "	458
	3	35 "	458
	4	35 "	459
	5	35 "	459
Chicago	1	35 "	460
	2	35 "	460
	3	35 "	461
	4	35 "	461
	5	35 "	462
Hastings	1	35 "	462
	2	35 "	463
	3	35 "	463
	4	35 "	464
	5	35 "	464
St. Paul	1	35 "	468
	2	35 "	469
	3	35 "	469
	4	35 "	470
	5	35 "	470

Cont.

Supplement # 3(f) Cont.

Name of claim		Book No.	Page
Dexter	1	35 Misc.	471
	2	35 "	471
	3	35 "	472
	4	35 "	472
	5	35 "	473
Boston	1	35 "	473
	2	35 "	474
	3	35 "	474
	4	35 "	475
	5	35 "	475
Wallas	1	35 "	476
	2	35 "	476
	3	35 "	477
	4	35 "	477
	5	35 "	478
Eve	1	35 "	485
	2	35 "	486
	3	35 "	486
Lillith	1	35 "	487
Adam	1	35 "	484
	2	35 "	484
	3	35 "	485

Supplement 4 (a)

Exploration work has been done from the air and a radiometric grid survey made on the W½ of Sec. 5 and the E½ of Sec. 6. A broad anomaly was mapped from the results of this exploration and is noted on Plate "A" of the accompanying Geology report.

Very recently the AEC has drilled several holes on this property. In the AEC #18 hole shown on plate (B) about 1 ft. of commercial ore was encountered at 125 ft. Locations were recommended and located by Bob Schnaubel and Garland Gott of the U.S. Geological Survey.

We have drilled 28 holes in the NE¼ Sec. 1 and the NW¼ Sec. 6, most of which are noted on plate "B". The average depth of these holes is 144 ft. In 10 of these holes a uraninite type ore was encountered from 124 to 140 ft. Average thickness of commercial grade ore is 6 ft. We have estimated an ore reserve of about 5,000 tons blocked out so far in this area. The highest chemical assay run to date is .78 U3O8. These holes have been probed with AEC. gamma ray probe, records of which should be available in the Rapid City office.

Supplement #5 (b)

Proposed work consists of an initial stage, drilling 53 holes spaced at 300ft. intervals to an average depth of 450 ft. Holes to be located on lines shown on Plate "A" accompanying Geologic Report. This depth is recommended to explore the entire section of Inyan Kara including all of the known mineralized zones, and is to bottom in the top of the Morrison formation. This is estimated to be at an average depth of 450 ft. Total footage to be drilled on first stage 23,800 ft.

Proposed work for second stage to consist of holes drilled to reach the bottom of channel outlined by first stage. This stage not to exceed 15,000 ft. of drilling.

Proposed work for third stage consists of holes drilled to outline any areas of abnormal radioactivity. To outline and confine any areas where ore grade material is found in first two stages. This stage not to exceed 15,000 ft.

The holes are to be drilled with a rotary drill and will have a minimum diameter of 2 7/8 in.

The project will be supervised by the applicant. The holes will be logged and geologic sections drawn by Mr. R. B. Hall.

Supplement 5 (d)

/

The applicant has had about 3 years experience in uranium mining and exploration. In this time the applicant has supervised the drilling programs privately financed by the Pictograph Mining & Uranium Co., Inc.

The program will be under the direction of R. B. Hall who has a Masters Degree in Geology from Boston University and has had better than 3 years experience in uranium geology in this area with the AEC.

Supplement 6.

Independent Contracts		
1 rst. Stage 23,800 ft. at $1.15 per ft.		$27,370.00
2 nd. Stage 15,000 ft. at $1.15 per ft.		17,250.00
3 rd. Stage 15,000 ft. at $1.15 per ft.		17,250.00
		$61,870.00

	Day		
Supervision	$10.00		
Geologist	$25.00		
		$35.00	
Accounting	$4.00		
Travel	4.80		
		$8.80	
		$43.80 per day for 100 days	4,380.00
			$66,250.00

Chemical analysis 750 samples at $5.00	$3,750.00
Bull Dozer work 100 hr. at $12.00 per	1,200.00
	$4,950.00

If the loan is approved the bid submitted b Edgemont Mining & Uranium Corp., which is enclosed, will be accepted. The per foot price on this bid was used in the above calculations.

RECEIVED

L E A S E

The parties to this agreement are Arnold Runge and Bertha Runge, hereinafter referred to as the party of the first part, Lessors, and Pictograph Mining & Uranium Company, a corporation, hereinafter referred to as the party of the second part, Lessee.

PURPOSE

The purpose of this agreement and covenant is to grant to the Lessee the right to mine, develop and explore the properties hereinafter described, for minerals that may be found thereon or therein, except gas and oil, and set forth the rights, duties and obligations thereto on the part of each of the parties to this agreement.

PROPERTY

The property covered by this agreement and lease is as follows, to-wit:

The Northwest Quarter (NW¼) of Section Five (5), Township 8, South, Range 3, E. B. H. M. in Fall River County, South Dakota;

and the following unpatented lode mining claims situated in Fall River County, South Dakota;

Omaha Nos. 1-5 inclusive, in SW¼, Sec. 5
Lincoln Nos. 1-5 inclusive, in SW¼, Sec. 5
& Denver Nos. 1, 2 & 3, In SW¼SE¼, Sec. 5

WARRANTIES BY LESSORS

The Lessors covenant that they are the owners of the surface rights in all of the above described premises, and the minerals or mineral rights in the Northwest Quarter (NW¼) of Section Five (5). They further covenant that there are no conflicting claims, and that there are no other surface owners who have a right to damage claims by reason of injury to the surface; they covenant that they have rights of way in and to the premises above described for all purposes connected with exploration, drilling, development and mining, and that they are under no disability that would impair their rights to execute this agreement.

TERM

The term of this agreement shall be three years, with renewal privileges for like periods, if active operation, exploration, drilling or mining operations or any of them, are being carried out on any of the properties owned by the first parties and leased to the second parties either in this lease or other leases.

CONSIDERATION

The Lessee for the execution of this agreement has been paid the sum of $1.00 and other good and valuable consideration, receipt of which is hereby acknowledged; and they shall further pay to the Lessors herein a sum of money equal to 15% of any and all amounts paid by the purchaser or purchasers of any minerals or materials produced and sold, from the property above described and herein leased, which said amount shall include all bonuses and premiums excluding only haulage and development allowances, which are to be retained by the Lessee; and all payments made under this lease are to be made within ten days of receipt of such payments by the Lessee.

REPORTS

The Lessee shall furnish true copies of all smelter or reduction returns on the minerals or materials produced from the property herein leased. Such true copies shall be furnished at the time payment is made to the Lessors.

WARRANTIES BY LESSEE

The Lessee covenant that all their operations on said premises shall be carried on in a good, minerlike manner, to the end that the recoverable material may be marketed and sold to the best advantage of the parties to this lease. The Lessee covenant that they will save and hold the Lessors harmless from any and all liability arising out of their operations. They will cause all necessary affidavits of annual labor to be filed, so as to preserve the Lessors' interest in said claims, do any necessary assessment work, and see that all posts nominating the boundaries to the various claims are kept erect and in such fashion that notice is given of the existence of such claims. The Lessee may terminate this agreement and all obligations hereunder, when in their opinion it is uneconomical to proceed further with the purpose and requirements of this lease. Upon reaching such opinion, the Lessee shall give written notice to the Lessors of such intention to terminate, shall pay any and all accrued rentals required under this lease, and any filing fee necessary to record a release of this lease. The Lessee shall perform at least $3,000.00 work on any of the Runge properties leased by the Lessee whether in this lease or other lease between the parties hereto, during the second year, and shall perform at least $5,000.00 work on any of the Runge properties leased by Lessee whether in this lease or other lease between the parties hereto, during the third year. Lessee covenant that they will be responsible for any damage to livestock, fences, and/or other improvements on said premised caused by their mining operations on said premises. Lessee further agree that they will not open up any roads for public use, and that the use of all roads on the premises shall remain private, and for the use of Lessors and Lessee exclusively.

CERTIFICATION

The Lessee agree to secure necessary certifacation for the sale of ores from the above described premises, from the A. E. C., and agree to reassign said certification to the Lessors at the expiration of this lease.

CONSENT TO LOANS FROM AGENCIES

The Lessee contemplate securing assistance from administrative agencies of the United States of America for the purpose of assisting in financing development, exploration and mining of materials designated as "critical" and "strategic", and if such assistance is sought, the Lessors herein grant consent.

COMPENSATION INSURANCE

The Lessee hereby covenant and agree that they will carry adequate workmen's compensation insurance to cover their employees while exploration, mining and development are being carried on on the above described premises.

ASSIGNMENT

This lease may not be assigned by the Lessee herein without first obtaining written consent from the Lessors herein.

PARTIES BOUND

This agreement shall be binding upon the parties hereto, their heirs, successors, legal representatives and assigns.

IN WITNESS WHEREOF, the parties hereto have hereunto set

L E A S E
Runge - Pictograph Mining & Uranium Co., Inc.

their hands and seals this 8th day of ~~March~~ April, 1955

_____

_____
LESSORS

PICTOGRAPH MINING AND URANIUM CO.
A Corporation,

BY_____

_____
Lessee

STATE OF SOUTH DAKOTA)
SS.
COUNTY OF FALL RIVER)

On this the 8th day of ~~March~~ April, 1955, before me, the undersigned Notary Public within and for said County and State, personally appeared Arnold Runge and Bertha Runge, known to me to be the persons who are described in and who executed the within and foregoing instrument and acknowledged to me that they executed the same.

_____
Notary Public

My commission expires 1-8-57.

STATE OF SOUTH DAKOTA)
SS.
COUNTY OF FALL RIVER)

On this the 8th day of ~~March~~ April, 1955, before me, the undersigned Notary Public within and for said county and State, personally appeared Matthew J. Brown and Lawrence W. Rhoades, who acknowledged themselves to be the_____and _____, respectively, of Pictograph Mining & Uranium Co., Inc., and that they, as such _____and _____, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by themselves as _____ and _____.

_____
Notary Public

My commission expires 1-8-57.

L E A S E

PARTIES

The parties to this agreement are Arnold Runge and Bertha Runge, hereinafter referred to as the party of the first part, Lessors, and Pictograph Mining and Uranium Company, a corporation, hereinafter referred to as the party of the second part, Lessee.

PURPOSE

The purpose of this agreement and covenant is to grant to the Lessee the right to mine, develop and explore the properties hereinafter described, for minerals that may be found thereon or therein, except gas and oil, and set forth the rights, duties and obligations thereto on the part of each of the parties to this agreement.

PROPERTY

The property covered by this agreement and lease is as follows, to-wit:

The South Half of Section Six, Township 8 South, Range 3, E. B. H. M., in Fall River County, South Dakota;

and the following described unpatented lode mining claims situated in Fall River County, South Dakota:

Hastings Nos. 1-5 inclusive,
and Chicago Nos. 1-5 inclusive,
all in NE¼ of Sec. 6, T. 8 S., R. 3, E.B.H.M.

WARRANTIES BY LESSORS

The Lessors covenant that they are the owners of the surface and minerals in the South Half (S½) of Section Six (6), T. 8, S. Range 3, East B. H. M., and the surface only in the above described Northeast Quarter (NE¼) of Section Six (6), and that they are the owners of the claims staked thereon. They further covenant that they have rights of way in and to the premises above described for all purposes connected with exploration, drilling, development and mining, and that they are under no disability that would impair their rights to execute this agreement. They further covenant that there are no conflicting claims, and that there are no other surface owners who have a right to damage claims by reason of injury to the surface.

TERM

The term of this agreement shall be three years, with renewal privileges for like periods, if active operation, exploration, drilling of mining operations or any of them, are being carried out on any of the properties owned by the first parties and leased to the second parties either in this lease or other leases.

CONSIDERATION

The Lessee for the execution of this agreement has paid the sum of $1.00, receipt of which is hereby acknowledged; and they shall further pay to the Lessors herein a sum of money equal to 15% of any and all amounts paid by the purchaser or purchasers of any minerals or materials produced and sold from the property above described and herein leased, which said amount shall include all bonuses and premiums excluding only haulage and development allowances, which are to be retained by the Lessee; and all payments made under this lease are to be made within ten days of receipt of such payments by the Lessee.

REPORTS

The Lessee shall furnish true copies of all smelter or reduction returns on the minerals or materials produced from the property herein leased. Such true copies shall be furnished at the time payment is made to the Lessors.

WARRANTIES BY LESSEE

The Lessee covenant that all their operations on said premises shall be carried on in a good, minerlike manner, to the end that the recoverable material may be marketed and sold to the best advantage of the parties to this lease. The Lessee covenant that they will save and hold the Lessors harmless from any and all liability arising out of their operations. They will cause all necessary affidavits of annual labor to be filed, so as to preserve the Lessors' interest in said claims, do any necessary assessment work, and see that all posts nominating the boundaries of the various claims are kept erect and in such fashion that notice is given of the existence of such claims. The Lessee may terminate this agreement and all obligations hereunder, when in their opinion it is uneconomical to proceed further with the purpose and requirements of this lease. Upon reaching such opinion, the Lessee shall give written notice to the Lessors of such intention to terminate, shall pay any and all accrued rentals required under this lease, and any filing fee necessary to record a release of this lease. The Lessee shall perform at least $3,000.00 work on any of the Runge properties leased by Lessee whether in this lease or other leases between the parties hereto, during the second year, and shall perform at least $5,000.00 work on any of the Runge properties leased by Lessee whether in this lease or other lease between the parties hereto, during the third year. Lessee covenant that they will be responsible for any damage to livestock, fences, and/or other improvements on said premises caused by their mining operations on said premises. Lessee further agree that they will not open up any roads for public use, and that the use of all roads on the premises shall remain private, and for the use of Lessors and Lessee exclusively.

CERTIFICATION

The Lessee agree to secure necessary certification for the sale of ores from the above described premises, from the A. E. C., and agree to reassign said certification to the Lessors at the expiration of this lease.

CONSENT TO LOANS FROM AGENCIES

The Lessee contemplate securing assistance from administrative agencies of the United States of America for the purpose of assisting in financing development, exploration and mining of materials designated as "critical" and "strategic", and if such assistance is sought, the Lessors herein grant consent.

COMPENSATION INSURANCE

The Lessee hereby covenant and agree that they will carry adequate workmen's compensation insurance to cover their employees while exploration, mining and development are being carried on on the above described premises.

ASSIGNMENT

This lease may not be assigned by the Lessee herein without first obtaining written consent from the Lessors herein.

PARTIES BOUND

This agreement shall be binding upon the parties hereto, their heirs, successors, legal representatives and assigns.

IN WITNESS WHEREOF, the parties hereto have hereunto set

their hands and seals this 9th day of ~~March~~ April, 1955.

_____

_____
LESSORS

PICTOGRAPH MINING AND URANIUM COMPANY,
A Corporation,

By_____

_____
LESSEE

STATE OF SOUTH DAKOTA)
) SS.
COUNTY OF FALL RIVER)

On this the 9th day of ~~March~~ April, 1955, before me, the undersigned Notary Public within and for said County and State, personally appeared Arnold Runge and Bertha Runge, known to me to be the persons who are described in and who executed the within and foregoing instrument and acknowledged to me that they executed the same.

_____
Notary Public

My commission expires 1-8-57.

STATE OF SOUTH DAKOTA)
SS.
COUNTY OF FALL RIVER)

On this the 9th day of ~~March~~ April, 1955, before me, the undersigned Notary Public within and for said County and State, personally appeared Matthew J. Brown and Lawrence W. Rhoades, who aaknowledged themselves to be the _____ and _____, respectively, of Pictograph Mining and Uranium Company, a corporation, and that they, as such _____ and _____, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by themselves as such _____ and _____.

_____
Notary Public

My commission expires 1-8-57.

#3

L E A S E

PARTIES

The parties to this agreement are Arnold Runge and Bertha Runge, hereinafter referred to as the party of the first part, Lessors, and Pictograph Mining and Uranium Company, a corporation, hereinafter referred to as the party of the second part, Lessors.

PURPOSE

The purpose of this agreement and covenant is to grant to the Lessee the right to mine, develop and explore the properties hereinafter described, for minerals that may be found thereon or therein, except gas and oil, and set forth the rights, duties and obligations thereto on the part of each of the parties to this agreement.

PROPERTY

The property covered by this agreement and lease is as follows, to-wit:

The following described unpatented lode mining claims, situated in Fall River County, South Dakota:

Buda Nos. 1-5 inc., and Dunlap Nos. 1-5 inc., in NW¼ of Sec. 6, T. 8 S., R. 3 E. B. H. M. and St. Paul Nos. 1-5 inc., Dexter Nos. 1-5 inc., Dallas Nos. 1-5 inc., and Boston Nos. 1-5 inc., in E½ of Sec. 1, T. 8 S., R. 2 E.B.H.M.

WARRANTIES BY LESSORS

The Lessors covenant that they are the owners of the lode mining claims described above and herein leased. They further covenant that they have rights of way in and to the premises above described for purposes of all kinds in connection with exploration, drilling, development and mining; that there are no other surface owners who have a right to damage claims by reason of injury to the surface; that there are no conflicting claims; and that they are under no disability that would impair their right to execute this agreement.

TERM

The term of this agreement shall be three years, with renewal privileges for like periods, if active operation, exploration, drilling or mining operations or any of them, are being carried out on any of the properties owned by the Lessors herein and leased to the Lessee either in this or any other lease.

CONSIDERATION

The Lessee for the execution of this agreement has paid the sum of $1.00 and other good and valuable consideration, receipt of which is hereby acknowledged; and they shall further pay to the Lessors herein a sum of money equal to 15% of any and all amounts paid by the purchaser or purchasers of any minerals or materials produced and sold from the property above described and herein leased, which said amount shall include all bonuses and premiums excluding only haulage and development allowances, which are to be retained by the Lessee; and all payments made under this lease are to be made within ten days of receipt of such payments by the Lessee.

REPORTS

The Lessee shall furnish true copies of all smelter or reduction returns on the minerals or materials produced from the premises herein leased. Such true copies shall be furnished at the time payment is made to the Lessors.

WARRANTIES BY LESSEE

The Lessee covenant that all their mining operations on said premises shall be carried on in a good, miner like manner, to the end that the recoverable material may be marketed and sold to the best advantage of the parties to this lease. The Lessee covenant that they will save and hold the Lessors harmless from any and all liability arising out of their operations. They will cause all necessary affidavits of annual labor to be filed, so as to preserve the Lessors' interest in said claims, do any necessary assessment work, and see that all posts nominating the boundaries of the various claims are kept erect and in such fashion that notice is given of the existence of such claims. The Lessee may terminate this agreement and all obligations hereunder, when in their opinion it is uneconomical to proceed further with the purpose and requirements of this lease. Upon reaching such opinion, the Lessee shall give written notice to the Lessors of such intention to terminate, shall pay any and all accrued rentals required under this lease, and any filing fee necessary to record a release of this lease. The Lessee shall perform at least $3,000.00 work on any of the Runge properties leased by lessee whether in this lease or any other lease between the parties hereto, during the second year. Lessee shall perform at least $5,000.00 work on any of the Runge properties leased by Lessee whether in this lease or other lease between the parties hereto, during the third year. Lessee covenant that they will be responsible for any damage to livestock, fences, and/or other improvements on said premises caused by their mining operations on said premises. Lessee further agree that they will not open up any roads for public use, and that the use of all roads on the premises shall remain private, and for the use of Lessors and Lessee exclusively.

CERTIFICATION

The Lessee agree to secure necessary certification for the sale of ores from the above described premises, from the A. E. C., and agree to reassign said certification to the Lessors at the expiration of this lease.

CONSENT TO LOANS FROM AGENCIES

The Lessee contemplate securing assistance from administrative agencies of the United States of America for the purpose of assisting in financing development, exploration, and mining of materials designated as "critical" and "strategic", and if such assistance is sought, the Lessors herein grant consent.

COMPENSATION INSURANCE

The Lessee hereby covenant and agree that they will carry adequate workmen's compensation insurance to cover their employees while exploration, mining and development are being carried on on the above described premises.

ASSIGNMENT

This lease may not be assigned by the Lessee herein without first obtaining the written consent of the Lessors herein.

PARTIES BOUND

This agreement shall be binding upon the parties hereto, their heirs, successors, legal representatives and assigns.

IN WITNESS WHEREOF, the parties hereto have hereunto set

L E A S E
Runge - Pictograph Mining and Uranium Company, Inc.

RECEIVED
MAY 8 - 1956

their hands and seals the 10th day of ~~March~~ April, 1955.

_____

_____
LESSORS

PICTOGRAPH MINING AND URANIUM CO.,
A Corporation,

By _____

_____
LESSEE

STATE OF SOUTH DAKOTA)
SS.
COUNTY OF FALL RIVER)

On this the 10th day of ~~March~~ April, 1955, before me, the undersigned Notary Public within and for said County and State, personally appeared Arnold Runge and Bertha Runge, known to me to be the persons who are described in and who executed the within and foregoing instrument and acknowledged to me that they executed the same.

_____
Notary Public

My commission expires 1-8-57.

STATE OF SOUTH DAKOTA)
SS.
COUNTY OF FALL RIVER)

On this the 10th day of ~~March~~ April, 1955, before me, the undersigned Notary Public within and for said County and State, personally appeared Matthew J. Brown and Lawrence W. Rhoades, who acknowledged themselves to be the _____ and _____ respectively, of Pictograph Mining and Uranium Company, a corporation, and that they, as such _____ and _____, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by themselves as such _____ and _____.

_____
Notary Public

My commission expires 1-8-57.

#4

L E A S E

PARTIES

The parties to this agreement are Arnold Runge and Bertha Runge, hereinafter referred to as the party of the first part, Lessors, and Pictograph Mining and Uranium Company, a corporation, hereinafter referred to as the party of the second part, Lessee.

PURPOSE

The purpose of this agreement and covenant is to grant to the Lessee the right to mine, develop and explore the properties hereinafter described, for minerals that may be found thereon or therein, except gas and oil, and set forth the rights, duties and obligations thereto on the part of each of the parties to this agreement.

PROPERTY

The property covered by this agreement and lease is as follows, to-wit:

> The West Half (W½) of Section 1 and the Northeast Quarter (NE¼) of Section 2, both in Township 8 South, Range 2 East B. H. M., in Fall River County, South Dakota.

WARRANTIES BY LESSORS

The Lessors covenant that they are the owners of the surface and mineral rights in the above described premises. They further covenant that there are no other surface owners who have a right to damage claims by reason of injury to the surface; that there are no conflicting claims. They covenant that they have rights of way in and to the premises above described for all purposes connected with exploration, drilling, development and mining, and that they are under no disability that would impair their right to execute this lease.

TERM

The term of this agreement shall be three years, with renewal privileges for like periods, if active operation, exploration, drilling or mining operations or any of them, are being carried out on any of the properties owned by the first parties and leased to the second parties either in this lease or other lease or leases.

CONSIDERATION

The Lessee for the execution of this agreement has paid the sum of $1.00 and other good and valuable consideration, receipt of which is hereby acknowledged, and they shall further pay to the Lessors herein a sum of money equal to 15% of all amounts paid by the purchaser or purchasers of any minerals or materials produced and sold from the property above described and herein leased, which said amount shall include all bonuses and premiums excluding only haulage and development allowances, which are to be retained by the Lessee; and all payments made under this lease are to be made within ten days of receipt of such payments by the Lessee.

REPORTS

The Lessee shall furnish true copies of all smelter or reduction returns on the minerals or materials produced from the property herein leased. Such true copies shall be furnished at the time payment is made to the Lessors.

WARRANTIES BY LESSEE

The Lessee covenant that all their operations on said premises shall be carried on in a good, minerlike manner, to the end that the recoverable material may be marketed and sold to the best advantage of the parties to this lease. The Lessee covenant that they will save and hold the Lessors harmless from any and all liability arising out of their operations. They will cause all necessary affidavits of annual labor to be filed, so as to preserve the Lessors'

WARRANTIES BY LESSEE (cont.)

interest in said property, do any necessary assessment work, and see that all posts nominating the boundaries to the various claims are kept erect and in such fashion that notice is given of the existence of such claims. The Lessee may terminate this agreement and all obligations hereunder, when in their opinion it is uneconomical to proceed further with the purpose and requirements of this lease. Upon reaching such opinion, the Lessee shall give written notice to the Lessors of such intention to terminate, shall pay any and all accrued rentals required under this lease, and any filing fee necessary to record a release of this lease. The Lessee shall perform at least $3,000.00 work on any of the Runge properties leased by Lessee whether in this lease or any other lease between the parties hereto, during the second year; and shall perform at least $5,000.00 work on any of the Runge properties leased by Lessee whether in this lease or any other lease between the parties hereto during the third year. Lessee covenant that they will be responsible for any damage to livestock, fences and/or other improvements on said premises caused by their mining operations on said premises. Lessee further agree that they will not open up any roads, for public use, and that the use of all roads on the premises shall remain private, and for the use of the Lessors at the expiration of this lease.

CONSENT TO LOANS FROM AGENCIES

The Lessee contemplate securing assistance from administrative agencies of the United States of America for the purpose of assisting in financing development, exploration and mining of materials designated as "critical" and "strategic", and if such assistance is sought, the Lessors herein grant consent.

COMPENSATION INSURANCE

The Lessee hereby covenant and agree that they will carry adequate workmen's compensation insurance to cover their employees while exploration, mining and development are being carried on on the above described premises.

ASSIGNMENT

This lease may not be assigned without first obtaining the written consent of the Lessors herein by the Lessee .

PARTIES BOUND

This agreement shall be binding upon the parties hereto, their heirs, successors, legal representatives and assigns.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands and seals this 10th day of ~~March~~ April, 1955.

_____

_____
LESSORS

PICTOGRAPH MINING AND URANIUM CO.,
A Corporation,

By_____

_____
LESSEE

L E A S E
Runge - Pictograph Mining and Uranium Co., Inc.

STATE OF SOUTH DAKOTA)
SS:
COUNTY OF FALL RIVER)

On this the 10th day of ~~March~~ April, 1955, before me, the undersigned Notary Public within and for said County and State, personally appeared Arnold Runge and Bertha Runge, known to me to be the persons who are described in and who executed the within and fore - going instrument and acknowledged to me that they executed the same.

_____
Notary Public

My commission expires 1-8-57.

STATE OF SOUTH DAKOTA)
SS.
COUNTY OF FALL RIVER)

On this the 10th day of ~~March~~ April, 1955, before me, the undersigned Notary Public within and for said County and State , personally appeared Matthew J. Brown and Lawrence W. Rhoades, who acknowledged to me that they were the _____ and _____ respectively of Pictograph Mining and Uranium Company, a corporation, and that they as such _____ and _____, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by themselves as _____ and _____.

_____
Notary Public

My commission expires 1-8-57.

5

L E A S E

PARTIES

The parties to this agreement are Arnold Runge and Bertha Runge, hereinafter referred to as the party of the first part, Lessors, and Pictograph Mining and Uranium Company, a corporation, hereinafter referred to as the party of the second part, Lessee.

PURPOSE

The purpose of this agreement and covenant is to grant to the Lessee the right to mine, develop and explore the properties hereinafter described, for minerals that may be found thereon or therein, except gas and oil, and set forth the rights, duties and obligations thereto on the part of each of the parties to this agreement.

PROPERTY

The property covered by this agreement and lease is as follows, to-wit:

> The Northwest Quarter (NW¼) of Section Two (2), & the North Half (N½) of Section Three (3) including the unpatented lode mining claims described as Adam No. 1 and Adam No. 2, located in the NW¼NE¼ of Section Three(3); all in Township 8, South of Range Two (2), East B. H. M., in Fall River County, South Dakota.

WARRANTIES BY LESSORS

The Lessors covenant that they are the owners of both the surface and minerals in the East Half of the Northeast Quarter of Section Three; of the surface of the Northwest Quarter of the Northeast Q uarter of Section Three; and of half of the minerals as well as the surface of the Northwest Quarter of Section Three and the Southwest Quarter of the Northeast Quarter of said Section Three; that they own both the surface and the minerals of the North Half of the Section Two; all in Township 8, South of Range Two (2), East B. H. M., in Fall River County, South Dakota. They further covenant that they are the owners of the above described unpatented lode mining claims, which are situated upon land in which they own the surface and the Government owns the minerals. They covenant that there are no conflicting claims, and that there are no other surface owners who have a right to damage claims by reason of injury to the surface; they covenant that they have rights of way in and to the premises above described for all purposes connected with exploration, drilling, development, and mining, and that they are under no disability that would impair their right to execute this agreement.

TERM

The term of this agreement shall be three years, with renewal privileges for like periods, if active operation, exploration, drilling or mining operations or any of them, are being carried out on any of the properties owned by the first parties and leased to the second parties either in this lease or other leases.

CONSIDERATION

The Lessee for the execution of this agreement has paid the sum of $1.00 and other good and valuable consideration, receipt of which is hereby acknowledged; and they shall further pay to the Lessors herein a sum of money equal to 15% of any and all amounts paid by the purchaser or purchasers of any minerals or materials produced and sold from the property above described and herein leased, which

CONSIDERATION (cont.)

said amount shall include all bonuses and premiums excluding only haulage and development allowances, which are to be retained by the Lessee; and all payments made under this lease are to be made within ten days of receipt of such payments by the Lessee.

REPORTS

The Lessee shall furnish true copies of all smelter or reduction returns on the minerals or materials produced from the property herein leased. Such true copies shall be furnished at the time payment is made to the Lessrs.

WARRANTIES BY LESSEE

The Lessee covenant that all their operations on said premises shall be carried on in a good, minerlike manner to the end that the recoverable materials may be marketed and sold to the best advantage of the parties to this lease. The Lessee covenant that they will save and hold the Lessors harmless from any and all liability arising out of their operations. They w ill cause all necessary affidavits of annual labor to be filed, so as to preserve the Lessors' interest in said claims, do any necessary assessment work, and see that all posts nominating the boundaries to the various claims are kept erect and in such fashion that notice is given of the existence of such claims. The Lessee may terminate this agreement and all obligations hereunder, when in their opinion it is uneconomical to proceed further with the purpose and requirements of this lease. Upon reaching such opinion, the Lessee shall give written notice to the Lessors of such intention to terminate, shall pay any and all accrued rentals required under this lease, and any filing fee necessary to record a release of this lease. The Lessee shall perform at least $3,000.00 work on any of the Runge properties leased by Lessee whether in this lease or other lease between the parties hereto, during the second year, and shall perform at least $5,000.00 work on any of the Runge properties leased by Lessee whether in this lease or other lease between the parties hereto, during the third year. Lessee covenant that they will be responsible for any damage to livestock, fences, and/or other improvements on said premises caused by their mining operations on said premises. Lessee further agree that they will not open up any roads for public use, and that the use of all roads on the premises shall remain private and for the use of Lessors and Lessee exclusively.

CERTIFICATION

The Lessee agree to secure necessary certification for the sale of ores from the above described premises, from the A. E. C., and agree to reassign said certification to the Lessors at the expiration of this lease.

CONSENT TO LOANS FROM AGENCIES

The Lessee contemplate securing assistance from administrative agencies of the United States of America for the purpose of assisting in financing development, exploration and mining of materials designated as "critical" and "strategic", and if such assistance is sought, the Lessors herein give consent.

L E A S E
Runge - Pictograph Mining and Uranium Company, Inc.

COMPENSATION INSURANCE — The Lessee hereby covenant and agree that they will carry adequate workmen's compensation insurance to cover their employees while exploration, mining and development are being carried on on the above described premises.

ASSIGNMENT — This lease may not be assigned by the Lessee herein without first obtaining the written consent of the Lessors herein.

PARTIES BOUND — This agreement shall be binding upon the parties hereto, their heirs, successors, legal representatives and assigns.

IN TESTIMONY WHEREOF, the parties hereto have hereunto set their hands and seals this 11th day of ~~March~~ April, 1955.

_____

_____
LESSORS

PICTOGRAPH MINING AND URANIUM COMPANY,
A Corporation,

By_____

_____
LESSEE

STATE OF SOUTH DAKOTA)
SS.
COUNTY OF FALL RIVER)

On this the 11th day of ~~March~~ April, 1955, before me, the undersigned Notary Public within and for said County and State, personally appeared Arnold Runge and Bertha Runge, known to me to be the persons who are described in and who executed the within and foregoing instrument and acknowledged to me that they executed the same.

_____
Notary Public

My commission expires 1-8-57.

STATE OF SOUTH DAKOTA)
SS.
COUNTY OF FALL RIVER)

On this the 11th day of ~~March~~ April, 1956, before me, the undersigned Notary Public within and for said County and State, personally appeared Matthew J. Brown and Lawrence W. Rhoades, known to me and who acknowledged themselves to be the _____ and _____ respectively, of Pictograph Mining and Uranium Company, a corporation, and that they, as such _____ and _____, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by themselves as _____ and _____.

_____
Notary Public

My commission expires 1-8-57.

L E A S E

PARTIES

The parties to this agreement are Arnold Runge and Bertha Runge, hereinafter referred to as the parties of the first part, Lessors, and Pictograph Mining and Uranium Company, a corporation, hereinafter referred to as the party of the second part, Lessee.

PURPOSE

The purpose of this agreement and covenant is to grant to the Lessee the right to mine, develop and explore the properties hereinafter described, for minerals that may be found thereon or therein, except gas and oil, and set forth the rights, duties and obligations thereto on the part of each of the parties to this agreement.

PROPERTY

The property covered by this agreement and lease is as follows, to-wit:

> The South Half of the Southeast Quarter (S½SE¼) of Section Thirty-three (33); the Southwest Quarter of the Southwest Quarter (SW¼SW¼), the Northeast Quarter of the Southwest Quarter (NE¼SW¼), the North Half of the Southeast Quarter (N½SE¼) and the Southeast Quarter of the Southeast Quarter (SE¼SE¼) of Section Thirty-four (34), and the unpatented lode mining claims known as Adam No. 3, and Eve No. 1, Eve No. 2 and Eve No. 3, and Lillith No. 1, located in the SE¼SW¼ and SW¼SE¼ of Section 34; all in Township 7 South of Range 2 East B. H. M., inFall River County, South Dakota.

WARRANTIES BY LESSORS

The Lessors covenant that they are the owners of the surface and minerals in the deeded land above described which is not staked; that they are the owners of the surface of the above described property on which the above named lode mining claims are situated, and the minerals by virtue of their ownership of said claims. They further covenant that there are no conflicting claims, and that there are no other surface owners who have a right to damage claims by reason of injury to the surface. They covenant that they have rights of way in and to the premises above described for all purposes connected with exploration, drilling, development and mining, and that they are under no disability that would impair their right to execute this agreement.

TERM

The term of this agreement shall be three years, with renewal privileges for like periods, if active operation, exploration, drilling or mining operations or any of them, are being carried out on any of the properties owned by the first parties and leased to the second parties either in this lease or other leases.

CONSIDERATION

The Lessee for the execution of this agreement has paid the sum of $1.00 and other good and valuable consideration, the receipt of which is hereby acknowledged; and they shall further pay to the Lessors herein a sum of money equal to 15% of all amounts paid by the purchaser or purchasers of any minerals or materials produced and sold from the property above described and herein leased, which said amount shall include all bonuses and premiums excluding only haulage and development allowances, which are to be retained by the Lessee; and all payments made under this lease are to be made within ten days of receipt of such payments by the Lessee.

REPORTS

The Lessee shall furnish true copies of all smelter or reduction returns on the minerals or materials produced from the property herein leased. Such true copies shall be furnished at the time payment is made to the Lessors.

WARRANTIES BY LESSEE

The Lessee covenant that they will carry on all their mining operations on said premises in a good, minerlike manner, to the end that the recoverable material may be marketed and sold to the best advantage of the parties to this lease. The Lessee covenant that they will save and hold the Lessors harmless from any and all liability arising out of their operations. They will cause all necessary affidavits of annual labor to be filed, so as to preserve the Lessors' interest in said claims, do any necessary assessment work, and see that all posts nominating the boundaries to the various claims are kept erect and in such fashion that notice is given of the existence of such claims. The Lessee may terminate this agreement and all obligations hereunder when in their opinion it is uneconomical to proceed further with the purpose and requirements of this agreement. Upon reaching such opinion, the Lessee shall give written notice to the Lessors of such intention to terminate, shall pay any and all accrued rentals required under this lease, and any filing fee necessary to record a release of this lease. The Lessee shall perform at least $3,000.00 work on any of the Runge properties leased by Lessee whether in this lease or other lease between the parties hereto, during the second year, and shall perform at least $5,000.00 work on any of the Runge properties leased by Lessee whether in this lease or other lease between the parties hereto, during the third year. Lessee covenant that they will be responsible for any damage to livestock, fences, and/or other improvements on said premises caused by their mining operations on said premises. Lessee further agree that they will not open up any roads for public use, and that the use of all roads on the premises shall be and shall remain private, and for the use of Lessors and Lessee exclusively.

CERTIFICATION

The Lessee agree to secure necessary certification for the sale of ores from the Above described premises, from the A. E. C., and agree to reassign said certification to the Lessors at the expiration of this Lease.

CONSENT TO LOANS FROM AGENCIES

The Lessee contemplate securing assistance from administrative agencies of the United States of America for the purpose of assisting in financing development, exploration and mining of materials designated as "critical" and "strategic", and if such assistance is sought, the Lessors herein grant consent.

COMPENSATION INSURANCE

The Lessee hereby covenant and agree that they will carry adequate workmen's compensation insurance to cover their employees while exploration, mining and development are being carried on on said above described premises.

ASSIGNMENT

This lease may not be assigned by the Lessee herein without first obtaining the written consent of the Lessors herein.

L E A S E
Runge - Pictograph Mining and Uranium Company, Inc.

PARTIES BOUND This agreement shall be binding upon the parties hereto, their heirs, successors, legal representatives and assigns.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands and seals this 11th day of ~~March~~ April, 1955.

_____

_____
LESSORS

PICTOGRAPH MINING AND URANIUM COMPANY,
A Corporation,

By_____

_____

STATE OF SOUTH DAKOTA)
SS.
COUNTY OF FALL RIVER)

On this the 11th day of ~~March~~ April, 1955, before me, the undersigned Notary Public within and for said County and State, personally appeared Arnold Runge and Bertha Runge, known to me to be the persons who are described in and who executed the within and foregoing instrument and acknowledged to me that they executed the same.

_____
Notary Public

My commission expires 1-8-57.

STATE OF SOUTH DAKOTA)
SS.
COUNTY OF FALL RIVER)

On this the 11th day of ~~March~~ April, 1955, before me, the undersigned Notary Public within and for said County and State, personally appeared Matthew J. Brown and Lawrence W. Rhoades, who acknowledged themselves to be the _____ and _____ respectively, of Pictograph Mining and Uranium Company, a corporation, and that they as such _____ and _____, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by themselves as _____ and _____.

_____
Notary Public

My commission expires 1-8-57.

L E A S E

PARTIES

The parties to this agreement are Arnold Runge and Bertha Runge, hereinafter referred to as the party of the first part, Lessors, and Pictograph Mining and Uranium Company, a corporation, hereinafter referred to as the party of the second part, Lessee.

PURPOSE

The purpose of this agreement and covenant is to grant to the Lessee the right to mine, develop and explore the properties hereinafter described, for minerals that may be found thereon or therein, except gas and oil, and set forth the rights, duties and obligations thereto on the part of each of the parties to this agreement.

PROPERTY

The property covered by this agreement and lease is as follows, to-wit:

The following described unpatented mining claims known as follows:

Bob No. 1 through 5, and Dave No. 1 through 5, located in NE¼, Sec. 34, and Sam Nol 1 through 3, located in SE¼NW¼, Sec. 34, all in Township 7 South of Range 2 East B. H. M., in Fall River County, South Dakota.

WARRANTIES BY LESSORS

The Lessors covenant that they are the owners of the above named and described unpatented lode mining claims; that there are no conflicting claims; that there are no surface owners who have a right to damage claims by reason of injury to the surface; they covenant that they have rights of way in and to the premises above described for all purposes connected with exploration, drilling, development and mining, and that they are under no disability that would impair their right to execute this agreement.

TERM

The term of this agreement shall be three years, with renewal privileges for like periods, if active operation, exploration, drilling or mining operations or any of them, are being carried out on any of the properties owned by the first parties and leased to the second parties either in this lease or other leases.

CONSIDERATION

The Lessee for the execution of this agreement has paid the sum of $1.00 and other good and valuable consideration receipt of which is hereby acknowledged; and they shall further pay to the Lessors herein a sum of money equal to 15% of any and all amounts paid by the purchaser or purchasers of any minerals or materials produced and sold from the property above described and herein leased, which said amount shall include all bonuses and premiums excluding only haulage and development allowances, which are to be retained by the Lessee; and all payments made under this lease are to be made within ten days of receipt of such payments by the Lessee .

REPORTS

The Lessee shall furnish true copies of all smelter or reduction returns on the minerals or materials produced from the property herein leased. Such true copies shall be furnished at the time payment is made to the Lessors.

WARRANTIES OF LESSEE

The Lessee covenant that they shall carry on all their mining operations on said premises in a good, minerlike manner to the end that the recoverable material may be marketed and sold to the best advantage of the parties to this lease. The Lessee covenant that they will save and hold the Lessors harmless from any and all liability arising out of their operations. They will cause all necessary affidavits of annual labor to be filed, so as to preserve the Lessors' interest in said claims, do any necessary assessment work, and see that all posts nominating the boundaries of said claims are kept erect and in such fashion that notice is given of the existence of such claims. The Lessee may terminate this agreement and all obligations hereunder, when in their opinion it is uneconomical to proceed further with the purpose and requirements of this lease. Upon reaching such opinion, the Lessee shall give written notice to the Lessors of such intention to terminate, shall pay any and all accrued rentals required under this lease, and any filing fee necessary to record a release of this lease. The Lessee shall perform at least $3,000.00 work on any of the R unge Properties leased by Lessee whether in this lease or other lease between the parties hereto, during the second year, and shall perform at least $5,000.00 work on any of the Runge properties leased by Lessee whether in this lease or other lease between the parties hereto, during the third year. Lessee covenant that they will be responsible for any damage to livestock, fences and/or other improvements on said premises caused by their mining operations on said premises. Lessee further agree that they will not open up any roads for public use, and that the use of all roads on the premises shall remain private and for the use of Lessors and Lessee exclusively.

CERTIFICATION

The Lessee agree to secure necessary certification for the sale of ores from the above described premises, from the A. E. C., and agree to reassign said certification to the Lessors at the expiration of this lease.

CONSENT TO LOAN FROM AGENCIES

The Lessee contemplate securing assistance from administrative agencies of the United States of America for the purpose of assisting in financing development, exploration, and mining of materials designated as "critical" and "strategic", and if such assistance is sought, the Lessors herein give and grant consent.

COMPENSATION INSURANCE

The Lessee hereby covenant and agree that they will carry adequate workmen's compensation insurance to cover their employees while exploration, mining and development are being carried on on the above described premises.

ASSIGNMENT

This lease may not be assigned by the Lessee herein without first obtaining written consent from the Lessors herein.

PARTIES BOUND

This agreement shall be binding upon the parties hereto, their heirs, successors, legal representatives and assigns.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands and seals this 12th day of ~~March~~ April, 1955.

_____

_____
LESSORS

PICTOGRAPH MINING AND URANIUM COMPANY,
A Corporation,

By_____

_____
LESSEE

STATE OF SOUTH DAKOTA)
SS.
COUNTY OF FALL RIVER)

On this the 12th day of ~~March~~ April, 1955, before me, the undersigned Notary Public within and for said County and State, personally appeared Arnold Runge and Bertha Runge, known to me to be the persons who are described in and who executed the within and foregoing instrument and acknowledged to me that they executed the same.

_____
Notary Public

My commission expires 1-8-57.

STATE OF SOUTH DAKOTA)
SS.
COUNTY OF FALL RIVER)

On this the 12th day of ~~March~~ April, 1955, before me, the undersigned Notary Public within and for said County and State, personally appeared Matthew J. Brown andLawrence W. Rhoades, known to me as, and who acknowledged themselves to be the _____ and _____ respectively, of Pictograph Mining and Uranium Company, a corporation, and that they as such _____ and _____, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by themselves as _____ and _____.

_____
Notary Public

My commission expires 1-8-57.

RECEIVED
MAY 7 - 1956

PRELIMINARY REPORT ON THE GEOLOGY OF THE RUNGE LEASE

by

RALPH B. HALL

JANUARY 1956

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PURPOSE

This investigation was made in an effort to determine the potentialities of the property known as the "Runge Lease", with respect to economic uranium deposits. The local geology is discussed in its relationship to the geology of adjacent producing uranium deposits. A tentative plan for future exploration is presented.

LOCATION

The "Runge Lease" is located within the Edgemont Mining District of Fall River County, South Dakota. A total of 2840 acres divided as follows makes up the lease.

W½, Sec. 5, T 8 s, R 3 East of the Black Hills Meridian

SW¼, SE¼, Sec. 5, T8s, R 3 E of the Black Hills Meridian

All of Sec. 6, E of the Black Hills Merdian

All of Sec. 1, T 8 s, R 2 E

N½, Sec. 2, " "

N½, Sec. 3, " "

E½, Sec. 34, T 7 S, R 2 E

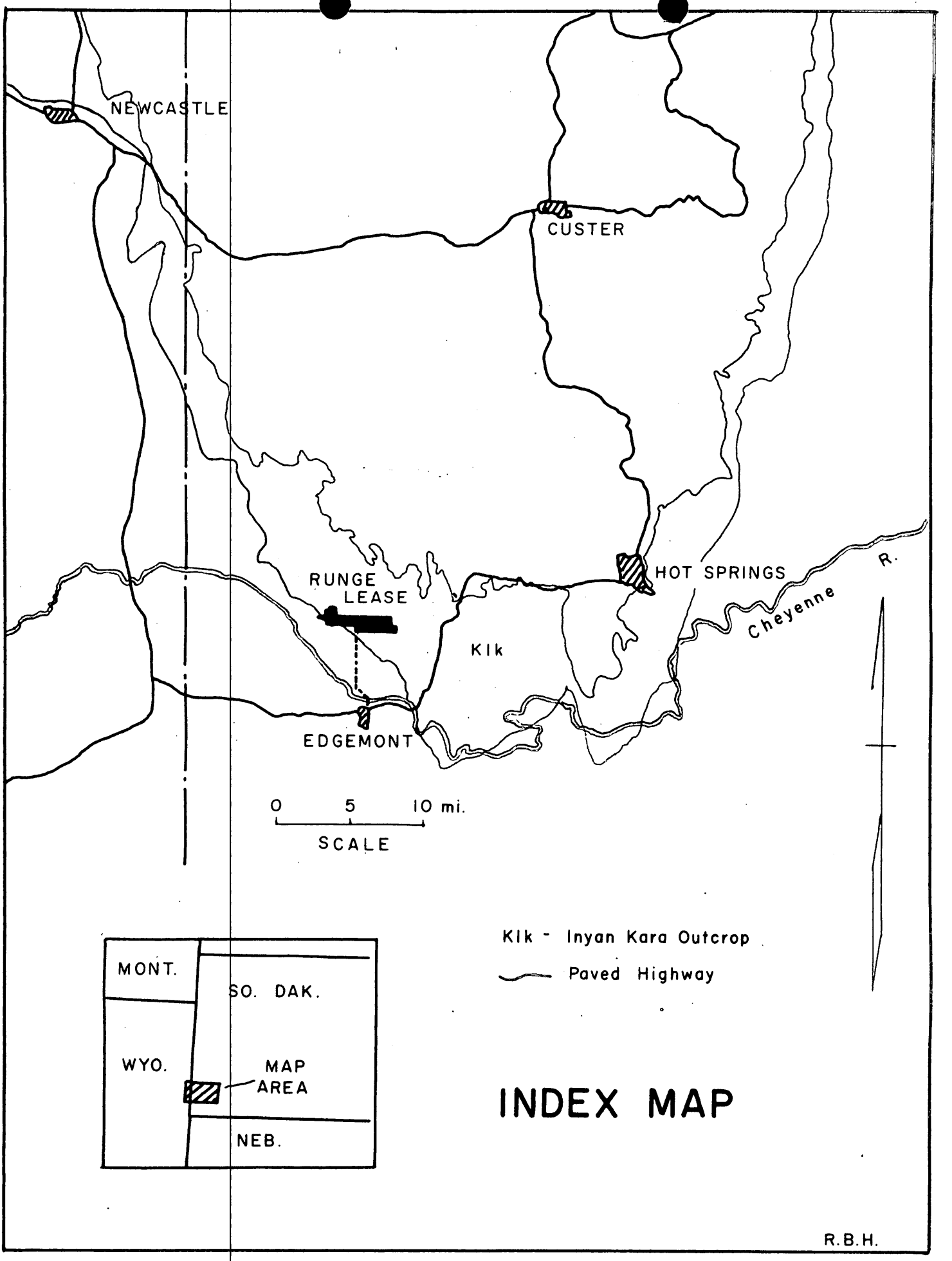
S½, SW¼, Sec. 34, " "

NE¼, SW¼, Sec. 34, " "

SE¼, NW¼, Sec. 34, " "

S½, SE¼, Sec. 35, " "

The nearest town is Edgemont, South Dakota which lies 4 3/4 miles due south. The greater portion of the property is easily accessable by any type of vehicle through the use of an all-weather, gravelled road directly from Edgemont. Various corners of the property can be reached by many trails that suffice in


NEWCASTLE
CUSTER
RUNGE
LEASE
HOT SPRINGS
Cheyenne
R.
Klk
EDGEMONT
0 5 10 mi.
SCALE
MONT.
SO. DAK.
WYO.
MAP
AREA
NEB.
Klk - Inyan Kara Outcrop
Paved Highway
INDEX MAP
R.B.H.

good weather but are apt to be impassable in wet weather and during the spring thawing season.

OWNERSHIP

The surface and mineral rights on this property are owned jointly by Arnold B. and Bertha Runge of Edgemont, South Dakota. The mineral rights have been leased to the Pictograph Mining Co., Inc. on a three year basis, renewable upon termination. The lease includes the owners consent to government aid in the contingency that a D.M.E.A. loan be approved upon application by the lessor. There has been no history of previous mineral production from this property.

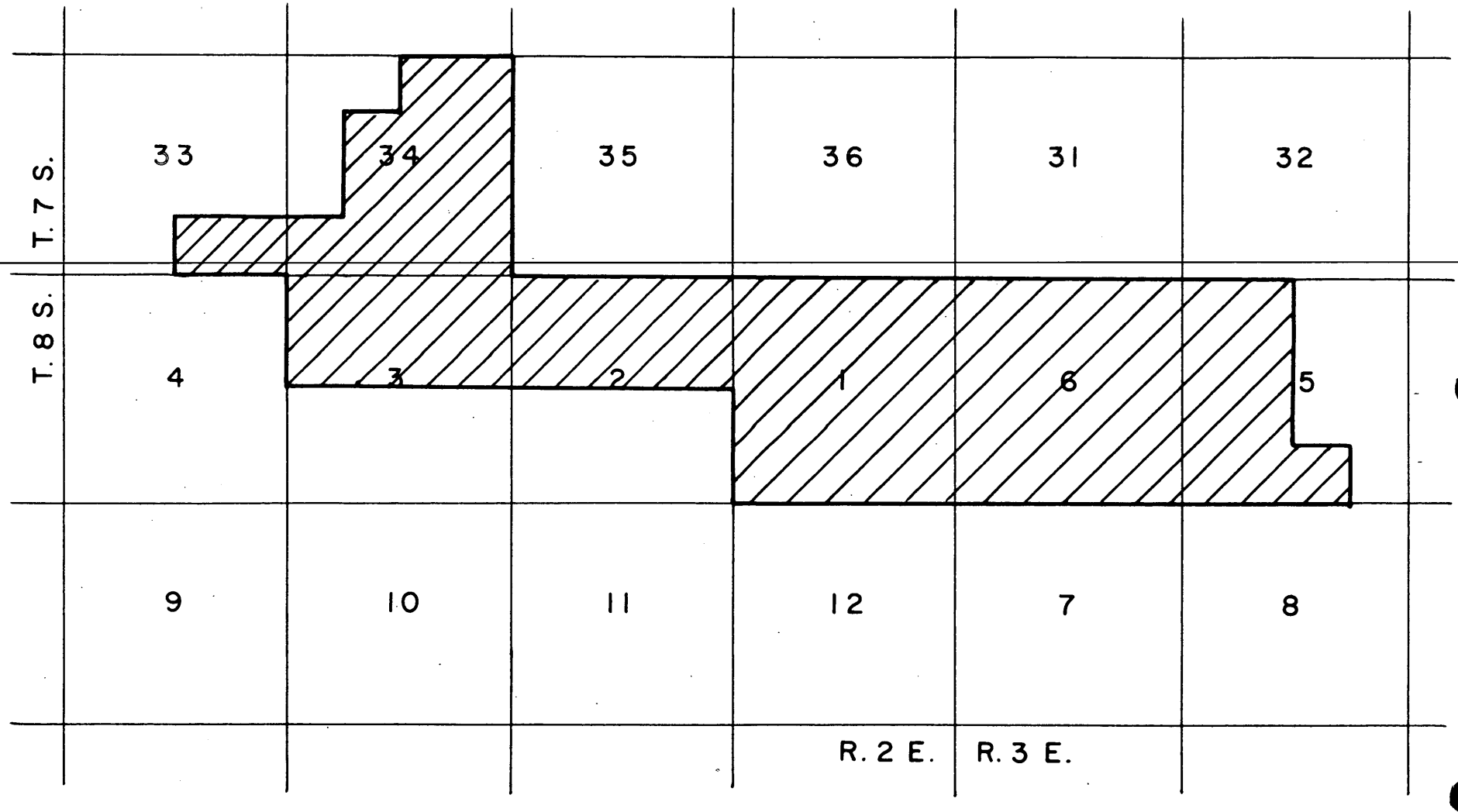
ACKNOWLEDGEMENTS

Much of the stratigraphic information was gained through personal communication with Garland Gott and Robert W. Schnabel of the U.S. Geological Survey who have covered this area as a part of a regional geologic mapping program.

GEOGRAPHY

Topographic relief varies with a maximum of approximately 370 feet. The deepest individual canyon measures only 90 vertical feet from rim to base. Essentially the area exhibits a gently southward dipping surface with sharply incised but shallow draws. Drainage on the eastern part of the property is to the south but swings to the southwest on the western part. This parallels the regional dip of the underlying sediments.

Vegetation is sparce with ponderosa pine confining itself



RUNGE LEASE - FALL RIVER COUNTY - SO. DAKOTA

to the head and slopes of the draws. Most of the surface is grass covered with occasional patches of sagebrush. Rock outcrops are poor with only the more resistant sandstones forming rims in the shallow canyone.

REGIONAL GEOLOGY

The Runge Lease is located within the resistant sediments that form the outermost hogback surrounding the Black Hills. In descending order this hogback is composed of the Fall River, Fuson, and Lakota formations which together are called the Inyan Kara froup. This group forms the basal unit of the Cretaceous sediments and is underlain by the Jurassic Morrison formation. The Cretaceous black shales of the Graneros formation lie conformably over the Fall River.

Structural deformation throughout the area is related to the Laramidian Black Hills uplift. A regional dip of 3 to 5 degrees to the south west is broken by several southward plunging anticlines with minor anticlinal noses and terraces superimposed upon their flanks.

Uranium production from the Inyan Kara group has been divided fairly equally between the Fall River and Lakota formations with only minor production from the Fuson. This group of sediments is composed generally of alternating sandstones, siltstones and claystones with a total thickness ranging between 350 and 550 feet.

LOCAL GEOLOGY

Surface - The surface features of the Runge property are controlled

by the top resistant sandstone of the Fall River formation. Only in the extreme southwesterm part of the property are there remnants of the soft, black fissile shales of the Skull Creek formation. The shallow draws do not cut deeper than 90 feet. through the Fall River formation. The northeastern corner of the property extends over the west rim of Red Canyon and exposes a geologic section to the base of the Fuson formation.

As outcrops are scarce on the Runge property the following lithologic descriptions are based upon exposures in the surrounding area. The Inyan Kara section has been divided into units that should be more or less consistant throughout the property. The units are described in descending order beginning with the uppermost member of the Fall River formation.

LITHOLOGY

	Description
Unit No. 1	
10 - 15 ft.	Gray to brown, fine grained, thin to medium bedded quartz sanstone. Average sorting and permeability with minor amounts of altered feldspar.
Unit No. 2	
20-50 ft.	Thinly bedded, gray to black, sandy siltstones, siltstones and clayey siltstones with frequent sandstone lenses thickening to a maximum of about 5 feet.
Unit No. 3	
10 - 20 ft.	Deep red clayey siltstones with occasional thin gray claystone partings. On the Runge property this unit is quite uniform in texture and is exposed frequently in the canyons and draws. Its conspicuous nature makes it a fine position marker.

In future drilling this horizon would make an ideal base for structural control.

Unit No. 4

60-90 ft. Thin to medium bedded, fine grained sandstones, fissile gray to black, siltstones and thin gray claystone partings. The lenticular sandstones vary in thickness from several inches to 10-12 feet. They generally pinch out in short distances and the thicker ones usually exhibit extensive cross stratification. This unit is referred to locally as "Verginia C. type Lithology". A large percentage of the uranium ore production in the Edgemont mining district has been from individual sandstone lenses of this unit.

Unit No. 5

0-80 ft. At the northeastern corner of the property on the rim of Red Canyon a massive, light to dark brown fine to medium grained sandstone is very prominant as a cliff former. This unit replaces the uppermost 2 units and most of the 3rd. The actual transition zone is not exposed and therefore it is not known whether this unit is a channel fill or simply a facies of the Upper Fall River.

Unit No. 6

0-30 ft. Laminated, black, fissile siltstones with thin, very-fine grained sandstone partings. When weathered, the fissility of this unit produces a characteristic paper-thin debris. These "paper shales" where present are generally considered to be the basal unit of the Fall River formation.

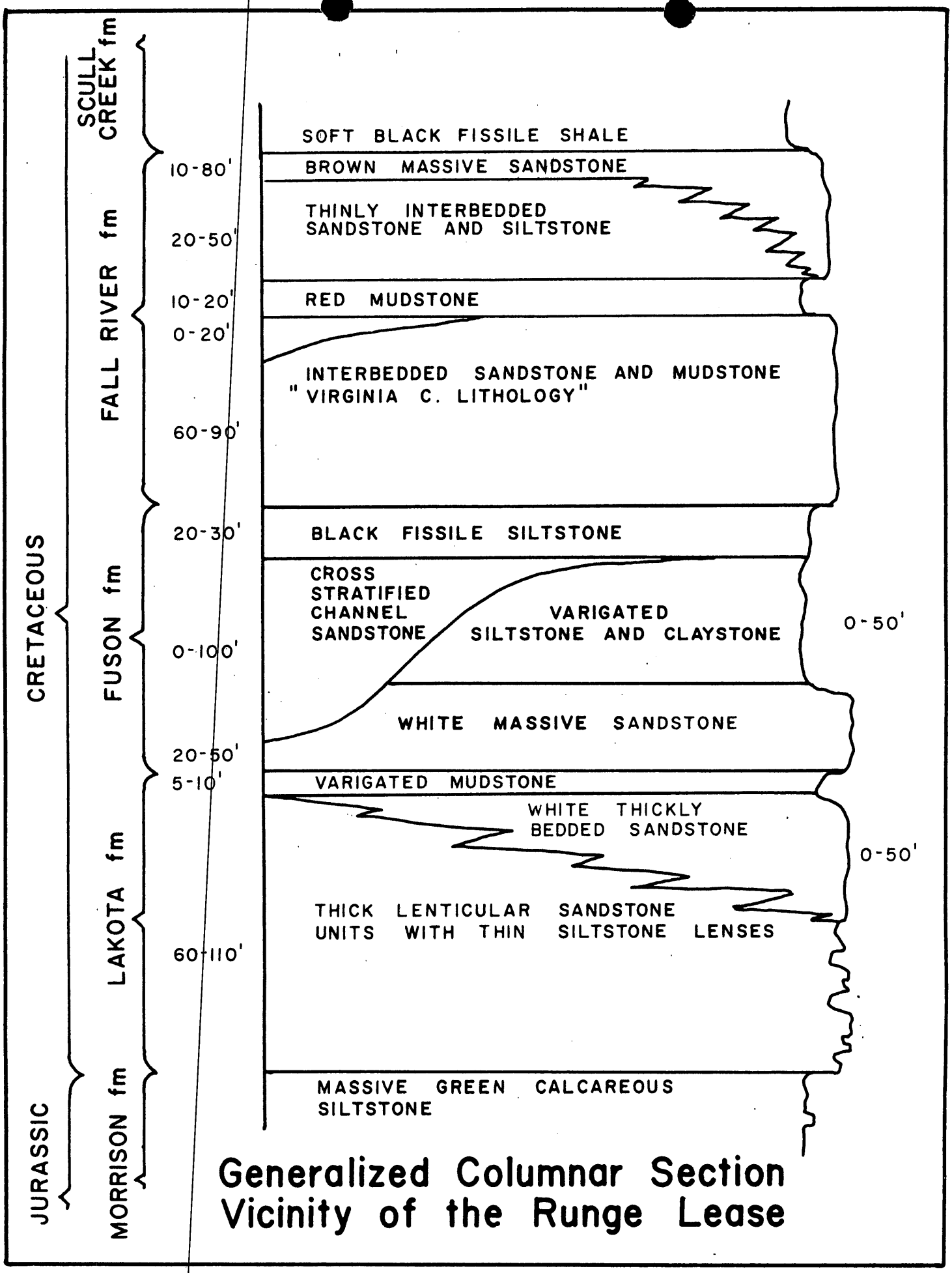
Unit No. 7.

0-50 ft. The upper unit of the fuson formation consists of of massive varigated claystones and siltstones. This unit is very incompetant and is generally covered by debris on the slopes.

Unit No. 8

20-50 ft. A massive, white, fine grainedd, quartz sandstone. It is well sorted and quite uniform in nature; generally conspicuous because of its light color and massive uniformity.

Unit No. 9	
10-15 ft.	Varigated claystones and siltstones, similar to those of the unit above the massive white sandstone.
Unit No. 10	
0-50 ft.	White, fine grained quartz sandstone texturally similar to the sandstone above. This unit however is thin to medium bedded and forms the basal unit of the Fuson formation.
Unit No. 11	
0-100 ft.	In Red Canyon, south of the eastern end of the Runge property is exposed the northern rim of a large paleo-stream channel. This channel is again exposed about one mile north of the northwest end of the property. Projecting between it is estimated that this channel should cut diagonally accross sections 1 and 6 of the Runge property. (See enclosed map). The upper edge of this channel begins at the base of the Fall River formation and cuts through much of the Fuson, possible well into the lower white, thin bedded sandstone. This unit is a brown, fine to coarse grained, poorly sorted, arkosic sandstone. Wherever exposed it exhibits extensive deltaic type, cross stratification.
Unit No. 12	
60-110 ft.	The Lakota formation is not exposed in the immediate vicinity but should generally confirm in character to the Lakota several miles distant. The top unit should consist of about 50 ft. of interbedded sandstone, siltstone and claystone with abundant carbonaceous seams. This would be underlain by a fine grained massive sandstone unit quite variable in thickness. Below this there should be 20-30 ft. of laminated black, carbonaceous siltstones and very-fine grained light gray sandstones.
Unit No. 13	
400 ft.-	Contact with Morrison formation - characteristic gray - green calcareous, silty claystone with occassional thin marl and limestone lenses.



Generalized Columnar Section Vicinity of the Runge Lease

STRUCTURE

The average strike of the sediments on the Runge property is N 75°W, swinging to the north on the west end. The dip averages about 3½ degrees to the southwest. Two major vertical joint sets are evident striking N 80° E and N 30°E with evidence of slight movement in many cases. Several indications of minor faulting were noted but could not be traced for any great distance.

Regional mapping by the U.S. Geological Survey has indicated a definate relationship between structure and localization of uranium ore deposits. The deposits generally lie on local flattenings of dip, either major structural terraces or more subtle very local structures.

KNOWN FAVORABLE HORIZONS

The lithologic horizon described as unit No. 4 has been the major uranium producer in the area north of the Runge property. It is a lenticular, interfingering type facies that should be present underlying all of the property except the extreme eastern edge. The change to the type sandstone of Unit No. 5 should take place within 2000 feet west of the Red Canyon Rim. All of the deposits in Unit No. 4 are similar mineralogically being secondary "carnotite type" deposits with a high vanadium content.

The thick massive sandstones of the Lakota formation have proven to be extensive uranium producers in the EDgemont District altough not immediately adjacent to the Runge property.

Actually there is reason to assume that almost any sandstone unit throughout the Inyan Kara group could be a potential ore host.

> "A statistical analysis of all known ore deposits and mineralized outcrops gives an empirical description of the ideal host rock in the Southern Black Hills as follows:--a fine-grained, gray to brown, thin-bedded, somewhat friable quartz sandstone. The quartz grains would be slightly vitreous, sub-round to sub-angular with good sorting. Permeability would be above average and medium to heavy jointing would be present. Carbonaceous material, altered feldspar, and devitrified volcanic ash would be present as accessories." 1.

Although channel type deposits are not common in the Edgemont district it is not unreasonable to assume that they may be important. The similarity between the Salt Wash member of the Morrison formation in the Calorado Plateau region and the Inyan Kara group of sediments is suggestive of similar ore controls. The control of uranium ore deposition by channeled type lithology in the plateau region is fairly well established. The location and outlining of the large paleo-stream channel (Unit No. 1) by U.S. Geological Survey personnel should increase the potential of the Runge property greatly.

RADIOACTIVITY

A number of small radioactive anomalies have been located on the Runge property. Frequency of occurrence of these anomalies around the section line between sections 5 and 6 initiated a radiometric grid survey of the W½ of Sec. 5 and the E½ of Sec. 6. This survey indicated a rather broad zone of abnormal ra-

dioactivity (see map). The individual "highs" in this zone do not seem to be significant in themselves but collectively they indicate a broad area of dispersed radioactive material. It is interesting to note that his radioactive zone coincides with the transition between "Virginia C" type lithology (Unit No. 4) and the massive rum forming sandstone (Unit No. 5).

CONCLUSIONS

The Runge property contains the full section of Inyan Kara sediments including all of the known uranium producing horizons. The most important of these, the Virginia C. type lithology (Unit No. 4) lies at shallow depths over the greater part of the property. As far as can be determined this horizon has a high potential wherever it is present. This potential is increased considerably with any local flattening of dip. Very close structural control should be exercised in the event of future drilling. This would tend to outline any favorable structure and thus lead to the most favorable areas.

The change from a lenticular, interfingering type lithology to a clean sandstone should favor mineral deposition through inhibition of the normal ground water flow. The estimated facies change between the Virginia C. lithology and the massive rim forming sandstone presents an ideal situation of this type and should be thoroughly investigated. The concentrated area of abnormal radioactivity coincidin with the facies change delineates the most favorable individual area on the Runge property.

The large paleo-stream channel (Unit No. 11) cuts diagonally across the apoperty, trending to the northwest (see map). This channel is estimated to attain a maximum thickness of 100 feet. The possibility of channel type ore deposite similar to those of the Colorado Plateau region ertainly exists. This particular channel is the first of its type identified and traced through the area. Delineation of this channel through deep drilling should be one of the first considerations in the exploration of the Runge property.

RECOMMENDATIONS

The lack of extensive outcrop of any of the favorable horizons precludes the use of drill holes to obtain the necessary geologic information. The drilling should be grouped into 3 separate stages.

1. Widely spaced drilling to outline gross geologic features.
2. Closely spaced drilling in areas of greatest favorability.
3. Offset holes outlining possible ore bodies.

The first stabe of drilling should attempt to locate the exact position of the deepest part of the channel sandstone and also determine the exact nature and position of the facies change between Units 4 and 11. It is suggested that 3 rows of drill holes trending N 35° E be placed as indicated on the topographic map at the end of the report. The holes should be spaced no further apart than 500 feet to insure adequate correlation. Close control should be dept upon structural conditions as drilling progresses. The deep red siltstone des-

cribed as Unit No. 3 would be an ideal marker bed upon which to base structure dontours.

The second stage of drilling should be planned according to the interpretation of the results of the first stage. Several rows of holes would be placed parallel to the trend of the base of the channel and parallel to the trend of the facies change. The holes would be more closely spaced in order of thoroughly explore the possibilities of uranium mineralization. If at this time any favorable structural conditions have been outlined, several holes should be expanded to check the poaaibility of uranium concentration in these areas.

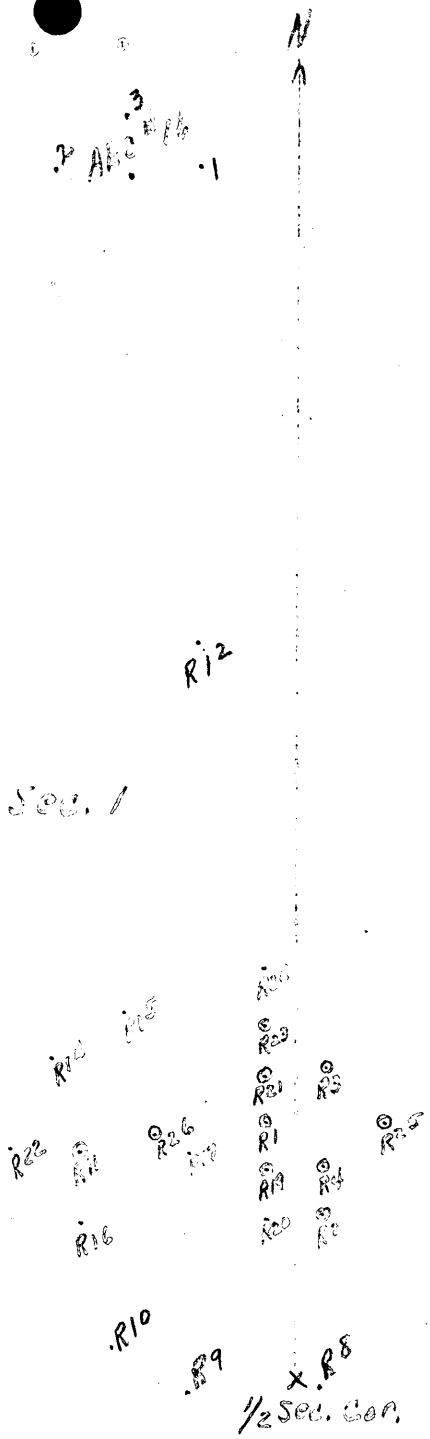
The third stage would outline any areas of abnormal radioactivity. If in the second stage of drilling any ore grade material were revealed, it should be outlined and confined.

Both first and second stage drilling should penetrate to the Morrison contact in order not to pass up the possibility of ore grade material in the Lakota sandstones. This should particularly be true of any drilling based upon structural information.

In all of the drilling the samples should be closely watched for all of the features that have been considered favorable for the concentration of uranium minerals. Such things as abnormal content of carbonaceous or trashy material, abrupt changes in type of cementation, a sharp pinchout or thinning of an horizon could be favorable indicators of near by uranium mineralization. It is suggested that the drilling be supervised by a geologist in order to more competently use the information gained.

BIBLIOGRAPHY

1. Hall, R.B., Geology of the Uranium Deposits of the Southern Black Hills, RME-1065 - U.S. Atomic Energy Comm. June, 1955

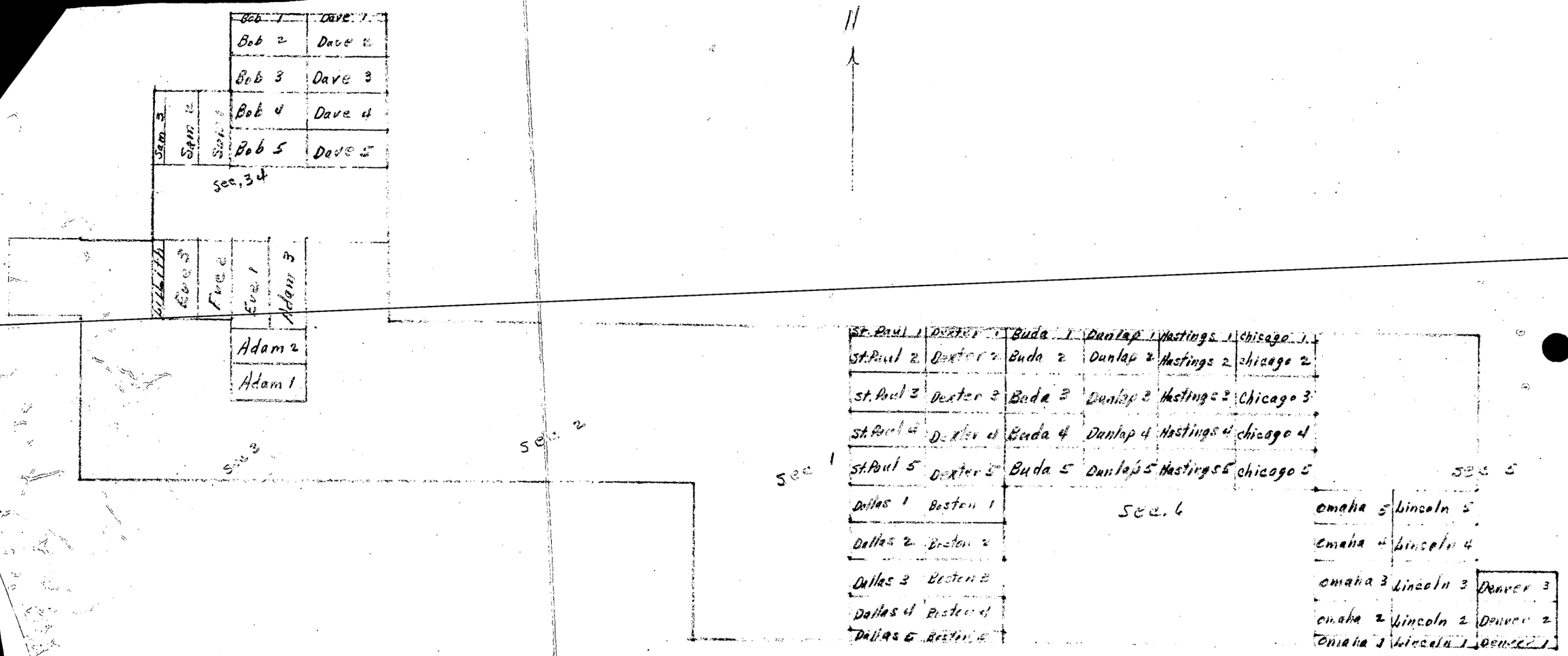


Scale 1" = 200'

⊙ Comm. Ore Hole

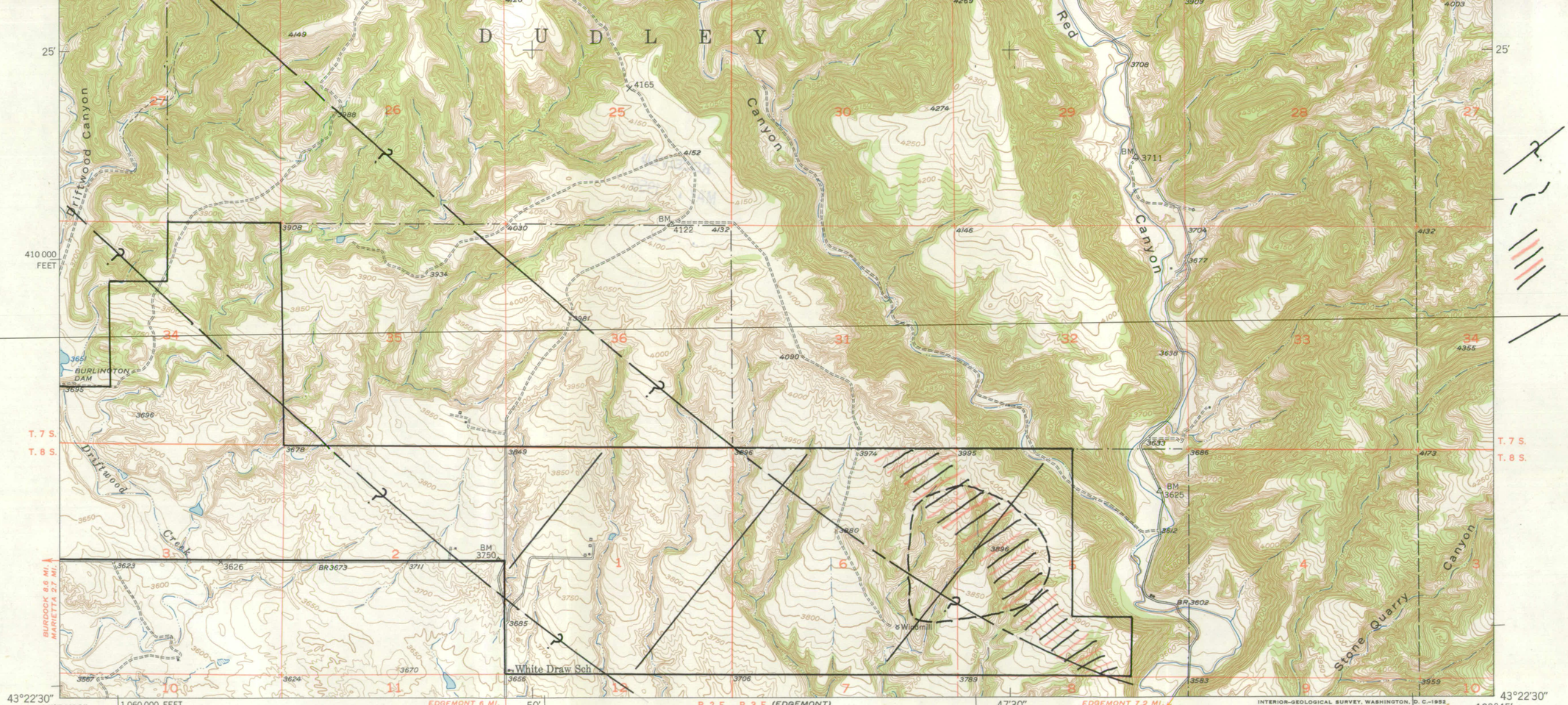
Plate "B"

MAY 5 - 1955



Claims on Range leases

Plate "C"



Estimated Limit of Channel

Limit of anomalous Area

Zone of Facies Change

Initial Lines of Drill Hole Alignment

Mapped, edited, and published by the Geological Survey as part of the Department of the Interior program for the development of the Missouri River Basin

Control by USGS and USC&GS

Topography from aerial photographs by multiplex methods
Aerial photographs taken 1948. Field check 1950

Polyconic projection. 1927 North American datum
10,000-foot grid based on South Dakota coordinate system, south zone

TRUE NORTH
MAGNETIC NORTH
14°
APPROXIMATE MEAN DECLINATION, 1950

SCALE 1:24000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION

Heavy-duty — 4 LANE | 2 LANE
Medium-duty — 4 LANE | 2 LANE
Light-duty
Unimproved dirt
U. S. Route
State Route

EDGEMONT NE, S. DAK.
N4322.5—W10345/7.5
1950

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, FEDERAL CENTER, DENVER, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST