(2)

700

Hmc
Field
Secy

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

DEC 19 1956

DMEA
DEPARTMENT OF THE INTERIOR
DEC 26 1956
REGION III
DENVER, COLORADO

Mr. Clark Chambers, President
Apsolon Uranium Corporation
Box 119
Ft. Duchesne, Utah

Re: Project No. [illegible] (Duchesne)
Field Office, Mineral Leasing
(OGL) and (OSM)
Uinta Mountains, Utah

Dear Mr. Chambers:

Your application for aid in an exploration project and other information available to us in connection concerning the above-named property have been reviewed.

Projects approved by the Defense Minerals Exploration Administration must, in the judgment, offer definite prospects of yielding materials of acceptable grade in quantities that will significantly improve the mineral supply position for the national defense program.

Careful study of all of the information, although noting some encouraging mineralization on your property, suggests to us that the probability of developing significant mineral reserves is not sufficiently promising to justify Government participation. We regret to advise you that, under these circumstances, your application for exploration assistance is denied.

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

Sincerely yours,

C. O. Mittendorf
Administrator

Copies To
Harshman (2)
Wilson
Hmc 12-26-56

T. Murphy/jen 12-17-56
cc to: Dock
Code 7.0
Mr. Murphy
Admr.'s Reading File
Operating Committee
Dir. Field Team, Reg. III (2)
Messrs. J. Crawford, Ex. 3643
T. Hillsgaard, Ex. 5224
J. Hosted, Ex. 3210, GAO

Application — Epsolon Uranium Corporation.

Note

Owner's Consent to Lien forms to be signed by Arthur F. Crosby and Frank Earl Cox must have "no cancellation clause" added

Berk

224 New Customhouse
Denver 2, Colorado

October 22, 1956

Memorandum

To: S. R. Wilson (w/brochure)
E. N. Harshman (2)

From: DMEA Field Team, Region III

Subject: Docket DMEA 3598 (Uranium) Epsolon Uranium Corporation (Kolob Mine Mineral Leases 8025, 8026) Washington County, Utah

The Chairman of the Operating Commitee advises that the Applicant has submitted one set each of the exhibits requested in the Ernest Wm. Ellis letter to the Applicant, dated June 28, 1956. A copy of the teletype from the Chairman is attached.

Some exploration work has been accomplished by the Applicant since the field examination of the property March 3, 1955. A supplemental report of examination therefore is requested. Will you please advise the Applicant the scheduled date for re-examination.

Please return the attached copy of the original brochure with the supplemental report of examination.

DMEA Field Team, Region III

By W. M. Traver
Executive Officer

Enclosure
WMC:ytl
cc: Secretary to the Operating Committee (2)
Docket 3598
Chron.

224

GSA TELETYPE CENTER
OCT 19 2 09 PM '56
DENVER, COLO.

WYB070-

WV093-DN WAF 31 I-BOM 35

WASHINGTON 10-19-56 309P

W M TRAVER EXECUTIVE OFFICER

DMEA FIELD TEAM DN

REOURLET OCTOBER 15, 1956, DOCKE NO. DMEA-3598, EPSOLON URANIUM CORPORATION. APPLICANT SUBMITTED ONLY ONE SET EACH OF THE REQUESTED EXHIBITS. HAVE ADVISED APPLICANT THAT YOU WILL CONTACT IT TO SCHEDULE DATE FOR REEXAMINATION.

GEORGE C SELFRIDGE CHAIRMAN OPERATING COMMITTEE

EF 310P

700

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

DMEA
DEPARTMENT OF THE INTERIOR
OCT 22 1956
REGION III
DENVER, COLORADO

OCT 22 1956

Mr. Clark Chadburn, President
Epsolon Uranium Corporation
Box 119
St. George, Utah

Re: Docket No. DMEA-3598 (Uranium)
Kolob Mine, Mineral Leases
8025 and 8026
Washington County, Utah

Dear Mr. Chadburn:

This is to acknowledge receipt of your letter, dated October 15, 1956, with which you submitted copies of the State of Utah's Consent to Assignment of the captioned leases to your corporation and, also, the copies of the Subordination Agreement duly executed.

We have been advised that a great deal of exploration work has been done on the above-referenced property since our field examination which was made on March 3, 1955. Therefore, we are requesting our Field Team to reexamine your property and submit its recommendation.

Mr. W. M. Traver, Executive Officer, DMEA Field Team, Region III, 224 New Customhouse Building, Denver 2, Colorado, will contact you in regard to scheduling the field examination.

Sincerely yours,

C. O. Mittendorf

Administrator

FMMurphy/gla
10-18-56
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)

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

Mr. Clark Chadburn, President
Epsolon Uranium Corporation
Box 119
St. George, Utah

Re: Docket No. DMEA-3598 (Uranium)
Kolob Mine, Mineral Leases
8025 and 8026
Washington County, Utah

Dear Mr. Chadburn:

This is to acknowledge receipt of your letter, dated October 15, 1956, with which you submitted copies of the State of Utah's Consent to Assignment of the captioned leases to your corporation and, also, the copies of the Subordination Agreement duly executed.

We have been advised that a great deal of exploration work has been done on the above-referenced property since our field examination which was made on March 3, 1955. Therefore, we are requesting our Field Team to reexamine your property and submit its recommendation.

Mr. W. M. Traver, Executive Officer, DMEA Field Team, Region III, 224 New Customhouse Building, Denver 2, Colorado, will contact you in regard to scheduling the field examination.

Sincerely yours,

G. O. Mitchell

Administrator

FMMurphy/gla
10-18-56
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)

6-303
(March 1947)

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
Salt Lake City, Utah

No. 4

Report to Mr. M. M. Gilkey

Chemical Laboratory Report

Date received November 6, 1956

DMEA

Date reported November 8, 1956

Serial No.	DESCRIPTION	Lot No.	eU_3O_8	cU_3O_8
	Epsolon Uranium Corp., Washington County, Utah DMEA-3598			
65955		DMEA 4	0.03	0.002
65956		DMEA 5	0.08	0.079

DMEA
DEPARTMENT OF THE INTERIOR
NOV 13 1956
REGION III
DENVER, COLORADO

cc: Traver
Wilson

Heber E. Peterson

U. S. GOVERNMENT PRINTING OFFICE 16—33553-3

Signed

224 New Customhouse
Denver 2, Colorado

October 29, 1956

Mr. Clark Chadburn, President
Epsolon Uranium Corporation
Box 119
St. George, Utah

Re: Docket DMEA 3598 (Uranium)
Kolob Mine (Mineral Leases 8025
and 8026) Washington County, Utah

Dear Mr. Chadburn:

This will acknowledge receipt of your letter, dated October 25, 1956, requesting information as to the date your property will be re-examined.

We have just been advised that a re-examination of the property is to be made on October 30, 1956.

Yours very truly,

Original signed by
W. M. TRAVER

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

HMC:ytl
cc
Sec. Op. Comm. (2)
Harshman (2)
S.R. Wilson
Docket 3598
Chron.

(3)

Hmc

Epsolon Uranium Corporation

ST. GEORGE, UTAH

DMEA
DEPARTMENT OF THE INTERIOR
OCT 29 1956
REGION III
DENVER, COLORADO

St. George, Utah,
Box 119
October 25, 1956.

Mr. W. M. Traver,
Executive Officer,
DMEA Field Team, Region 3,
224 New Customhouse Building,
Denver, 2, Colorado.

Re: Docket No. DMEA-3598 (Uranium)
Kolob Mine, Mineral Leases
8025 and 8026
Washington County, Utah.

Dear Mr. Traver:

By this time you know doubt have received a copy of the letter sent to us from the head office of the DMEA office in Washington, D. C., advising us they would advise you to re-examine our property.

Mr. Traver, we are so anxious to get this completed and our loan cleared for this corporation, and we were wondering if you would or could advise us when you could see time, or to have Mr. Gilke, from the branch of the Bureau of Mines in Salt Lake City, go over our property.

Mr. Gilke is acquainted with this property, and we presume you are aware that he went over our property before to examine this for our loan, and he has also advised us he went over part of it last month.

Trusting you will let us know as quickly as possible, when this work can be done, we remain,

Yours truly,

Clark Chadburn

Clark Chadburn, President
Epsolon Uranium Corporation

STANDARD FORM No. 14
APPROVED BY THE PRESIDENT
MARCH 10, 1926

TELEGRAM

OFFICIAL BUSINESS—GOVERNMENT RATES

FROM Department of the Interior

BUREAU DMEA

CHG. APPROPRIATION 14X4001(01) Revolving Fund, Defense Production Act, Interior (Allocated Working Fund to the Office of the Secy.)

U. S. GOVERNMENT PRINTING OFFICE 10—1728

DMEA
DEPARTMENT OF THE INTERIOR
OCT 22 1956
REGION III
DENVER, COLORADO

T E L E T Y P E

OCT 19 1956

FILE

W. M. TRAVER, EXECUTIVE OFFICER
DMEA FIELD TEAM, REGION III
224 NEW CUSTOMHOUSE BUILDING
DENVER 2, COLORADO

RECURIET OCTOBER 15, 1956, DOCKET NO. DMEA-3598, EPSOLON URANIUM CORPORATION. APPLICANT SUBMITTED ONLY ONE SET EACH OF THE REQUESTED EXHIBITS. HAVE ADVISED APPLICANT THAT YOU WILL CONTACT IT TO SCHEDULE DATE FOR REEXAMINATION.

George C. Selfridge

CHAIRMAN, OPERATING COMMITTEE

Confirmation
Region III

700

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

DMEA
DEPARTMENT OF THE INTERIOR
OCT 18 1956
REGION III
DENVER, COLORADO

OCT 15 1956

Mr. E. N. Harshman
Acting Executive Officer
DMEA Field Team, Region III
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA-3598 (Uranium)
Epsolon Uranium Corporation
Kolob Mine, Mineral Leases
8025 and 8026
Washington County, Utah

Dear Mr. Harshman:

In response to your memorandum of October 8, 1956, we are enclosing two copies each of the following letters:

Epsolon Uranium Corporation letter, May 28, 1956
Epsolon Uranium Corporation letter, June 22, 1956
Selbach Insurance Agency letter, July 11, 1956
Epsolon Uranium Corporation letter, October 4, 1956

A proposed contract was drafted after receiving the Field Team's recommendation of April 21, 1955. However, in view of your recommendation that if the Applicant submits the exhibits required, another field examination should be made, we will withhold the present draft.

In the event the Applicant does submit the exhibits, we will forward copies to the Field Team and request the field examination you recommend.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee

Enclosures

APPROVED:

Frank D. Lamb
Member, Bureau of Mines

Oscar H. Rudegaard
Member, Geological Survey

Copies sent to Harshman & Wilson

May 28, 1956

Mr. C. O. Mittendorf, Administrator
Defense Minerals Exploration Administration
Dept. of Interior
Interior Bldg
Washington 25, D. C.

Re: Docket No. DMEA-3598 (Uranium)

Dear Sir:

At the annual stockholders meeting of Epsolon Corp. a new board of directors was given the responsibility of managing the affairs of the Corporation.

It is the desire of the board of directors to request re-opening of DMEA-3598 and obtain the funds necessary to carry out a well planned exploration program.

In accordance with your latest correspondence requesting a written assignment from the State of Utah and also a performance bond, we are gathering this information and will be prepared to proceed when we receive your reply.

Very Truly Yours

Dee W. Schvaneveldt
General Manager

June 22, 1956

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

Re: Docket No. DMEA (Uran[illegible])
Kolob Mine, Mineral L[illegible]
8025 and 8026
Washington Coun[illegible]

Dear Mr. Ellis:

In reply to your letter of June 4, 1956. Negotiations have been made with Selbach Insurance Age[illegible] of Salt Lake City for the bonding required by DMEA.

The proposed exploration work will consist of same items as your field examiners and Mr. Chadburn agr[illegible] upon during the examination made on March 3, 1955.

One thirty foot audit and about thirty feet of overburden has been removed since the above mentioned field examination. In both of the above mentioned [illegible] favorable contact has been made with promising radio[illegible] anomaly areas.

Please help us expedite this loan in order to prove this property as soon as possible.

Very Truly Yours

Dee W. Schvaneveldt
General Manager

EMPLOYER'S GROUP
Insurance Company

Selbach Insurance Agency, Gen. Agts.
10 West Broadway, Salt Lake City 1, Utah

Mr. Ernest Wm. Ellis, Chief
Rare and Miscellaneous Metals Division
U.S. Department of the Interior
Defense Minerals Exploration Administration
Washington 25, D. C.

July 11, 1956

Dear Mr. Ellis:

Re: Docket No. DMEA-3598 (Uranium)
Kolob Mine, Mineral Leases
8025 and 8026
Washington County, Utah

We are enclosing a copy of the letter which you wrote to the above on June 28, 1956. Mr.Schvaneneldt has contacted us with regard to the second condition of your letter which is furnishing a Performance Bond of $7,000.00 in lieu of the Consent to Lien by the State of Utah.

We are in a position to issue such a bond and would be very happy to do so but before we can do this it will be necessary for us to determine the proper bond form and, in case you are going to use the standard form No. 25, it will be necessary for us to have the contract date and the contract number otherwise the bond won't mean anything. We have talked to a Mr. Gilkey of the B.M.E.A. here in Salt Lake and he states that he believes that Standard form No. 25 is the proper form to use.

If possible we would also like to have a copy of the contract in order that we may see what we are guaranteeing. We would propose to write this bond in the American Employers' Insurance Company.

Will you please let us know as soon as possible how this bond is prepared as I know the Epsolon Uranium Corporation is very anxious to comply with your requirements for this loan.

Thank you very much.

Sincerely yours,
SELBACH INSURANCE AGENCY
/s/ Jos. F. Ringholz
Joseph F. Ringholz

JFR:lm

c o p y

St. George, Utah,
October 4, [illegible]

[illegible] Mr. Ellis, Chief
[illegible] Miscellaneous,
[illegible] Division,
[illegible]ton, D. C.

Re: Docket No. DMEA-3598 (Uranium
Kolob Mine, Mineral Leases
8025 and 8026
Washington County, Utah.

[illegible] Ellis:

[illegible] to acknowledge your letter of June 28, 1956, and wish to [illegible] [illegible] sorry that we have not followed your requests up and [illegible] [illegible], but we have had many major changes in this organization [illegible] [illegible] asked me to dig into this matter, and get this outstanding [illegible] completed, so this company may obtain the loan which is [illegible] completed.

[illegible] the three exhibits you ask for, I have obtained the assignment [illegible] lease, and the six executed copies of the Consent to Lien, [illegible] requested.

[illegible] the one which is troubling us is, to obtain a performance bond to [illegible] of the Consent to Lien.

[illegible] have contacted three bonding houses, and they all demand a copy of the [illegible]osed contract, so they will know what they are assuring payment of [illegible]

[illegible] talked to your Mr. Wilson of the Department of mines in Salt Lake City, a[illegible] he advises me that we cannot get one of these.

[illegible] writing you Mr. Ellis, to see if you will not help us obtain this [illegible] so we can get this matter cleaned up.

[illegible] it absolutely necessary for us to have a bond, if the contract states [illegible] the money from this loan is to be paid for wages only, and these will [illegible] be paid until a wages bill is submitted to your offices in Salt Lake [illegible] Utah?.

[illegible] let us know by return mail, what your decision is on this matter.

Yours truly,

Epsolon Uranium Corporation.

224 New Customhouse
Denver 2, Colorado

October 8, 1956

Memorandum

To: Secretary to the Operating Committee

From: DMEA Field Team, Region III

Subject: Docket DMEA 3598 (Uranium) Epsolon Uranium Corporation (Kolob Mine, Mineral Leases 8025-8026) Washington County Utah

The Administrator's letter to the captioned Applicant, dated October 11, 1955, advised him that the subject docket is considered closed effective as of that date. In our file we have copies of letters from Ernest Wm. Ellis, dated June 4, June 28 and July 16, 1956, all of which were in reply to letters from the Applicant or his representative. We have no copies of the letters from the Applicant referred to in the Ernest Wm. Ellis letters.

We are advised by Mr. Stephen R. Wilson, Salt Lake Office, DMEA, that the Applicant is preparing to furnish the three exhibits requested in Mr. Ernest Wm. Ellis' letter, dated June 28, 1956.

We are also advised that a great deal of exploration work has been done on the property since our field examination, including some work which we had recommended. We therefore, of necessity, must alter our original recommendations for DMEA exploration on this property.

If the Applicant submits to your office all of the exhibits which you have required, we recommend another field examination before the contract is written.

DMEA Field Team, Region XII

E. M. Harshman

E. M. Harshman
Acting Executive Officer

HMC:ytl

cc:
Sec. Op. Comm. (2)
Harshman (2)
Wilson
Docket 3598
Chron.

700

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

OCT 11 1956

DEPARTMENT OF THE INTERIOR
OCT 15 1956
REGION III
DENVER, COLORADO

Mr. Clark Chadburn, President
Apexlen Uranium Corporation
Box 119
St. George, Utah

Re: Docket No. DMEA-3598 (Uranium)
Kalob Mine, Mineral Leases
8025 and 8026
Washington County, Utah

Dear Mr. Chadburn:

This is to acknowledge your letter of October 4, in response to ours of June 28, 1956, relating to the above-referenced application.

In a letter, dated July 16, 1956, this office advised the Salbach Insurance Agency in regard to our procedure concerning the subject application. A copy of this letter was forwarded, on the same date, to Mr. Dee W. Fahrenwaldt, of your corporation. A copy of "Salbach's" letter and a second copy of our response, which answers most of your questions, is herewith enclosed.

In regard to your final question, it is a requirement of this Agency that the Operator must submit a Performance Bond on DMEA exploration projects to be performed on State or Indian lands.

When we receive the exhibits requested in our letter of June 28, then we shall continue processing your application in the manner outlined in our letter of July 16, to the Salbach Insurance Agency.

Sincerely yours,

SIGNED
Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

Enclosures
FNMurphy/ism 10-10-56
cc to: Docket
Mr. Murphy
Admr.'s Reading File
DMEA Field Team, Reg. III (2)
Messrs. JECrawford, Rm. 3643
THKillsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA

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

OCT 11 1956

Mr. Clark Chadburn, President
Apollon Uranium Corporation
Box 119
St. George, Utah

Re: Docket No. DMEA-3598 (Uranium)
Kalab Mine, Mineral Leases
8025 and 8026
Washington County, Utah

Dear Mr. Chadburn:

This is to acknowledge your letter of October 4, in response to ours of June 28, 1956, relating to the above-referenced application.

In a letter, dated July 16, 1956, this office advised the Selbach Insurance Agency in regard to our procedure concerning the subject application. A copy of this letter was forwarded, on the same date, to Mr. Don W. Schuneveldt, of your corporation. A copy of "Selbach's" letter and a second copy of our response, which answers most of your questions, is herewith enclosed.

In regard to your final question, it is a requirement of this Agency that the Operator must submit a Performance Bond on DMEA exploration projects to be performed on State or Indian lands.

When we receive the exhibits requested in our letter of June 28, then we shall continue processing your application in the manner outlined in our letter of July 16, to the Selbach Insurance Agency.

Sincerely yours,

SIGNED

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

Enclosures
FMMurphy/lsm 10-10-56
cc to: Docket
Mr. Murphy
Admr.'s Reading File
DMEA Field Team, Reg. III (2)
Messrs. JECrawford, Rm. 3643
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3230, GSA

P.N. file

700

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

DMEA
Date Rec'd.
JUL 2 1956
BUREAU OF MINES
Denver, Colorado

JUN 28 1956

Mr. Lee W. Schvaneveldt
General Manager
Epsalon Uranium Corporation
Box 119
St. George, Utah

Re: Docket No. DMEA-3598 (Uranium)
Kalab Mine, Mineral Leases
8025 and 8026
Washington County, Utah

Dear Mr. Schvaneveldt:

This is to acknowledge your letter of June 22, 1956.

Processing of your application is pending receipt of the following exhibits:

1. Evidence of the State of Utah's consent to assignment of the above-mentioned leases to your corporation.

2. A performance bond for the sum of $7,000.00 in lieu of the Consent to Lien by the State of Utah.

3. Six executed copies of the Consent to Lien signed by the sub-lessors Arthur F. Crosby and Frank Earl Cox.

In regard to item 3, copies of the Consent to Lien forms were forwarded to you. If they have not been executed, in lieu of the Consent to Lien, we will accept six copies of a Subordination Agreement signed by the sub-lessors. Six copies of the Subordination Agreement forms are herewith enclosed for possible use.

Sincerely yours,

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

FMMurphy:ai
6-28-56
cc to: Docket
Code 700
Enclosures Mr. Murphy
Admr.'s Reading File
DMEA Field Team, Region III (2)
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JCHosted, Rm. 3210, GSA

Copy to Wilson

Have file no distribution

700

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

JUL 16 1956

DMEA
Date Rec'd.
JUL 18 1956
BUREAU OF MINES
Denver, Colorado

Mr. Jos. F. Ringholz
Selbach Insurance Agency
10 West Broadway
Salt Lake City 1, Utah

Re: Docket No. DMEA-3598 (Premium)
Apexlen Uranium Corporation
Kaleb Mine, Mineral Leases
8025 and 8026
Washington County, Utah

Dear Mr. Ringholz:

This is to acknowledge your letter of July 11, 1956, relating to the issue of a performance bond for the captioned corporation. no copy

The Standard Form 25 will be acceptable. The sample copy of the bond form attached to your letter and the photostatic copy of my letter of June 28, 1956, to Mr. Schwenzveldt are herewith returned.

In regard to the performance bond, this will not be required until the Applicant complies with items 1 and 3 mentioned in my letter of June 28. When these documents are received we will forward the proposed contract to Mr. W. M. Trevor, Executive Officer, DMEA Field Team, Region III, 2[illegible] New Customhouse Building, Denver 2, Colorado, who will review the contract and if found acceptable will forward it to Apexlen Uranium Corporation for execution; subject to attachment of the performance bond. At this time the corporation can show you the proposed contract and the effective date can be noted.

For your information, when all of the data are received, as stated above, a new docket number will be assigned in lieu of DMEA-3598.

Sincerely yours,

Copy to Wilson

Ernest Wm. Allis, Chief
Bure and Miscellaneous
Metals Division

Enclosures

JCHosted, Rm. 1[illegible], Gpl
Mr. Rae W. Schwenzveldt, General Manager
Apexlen Uranium Corp., Box 119
St. George, Utah

Admr.'s Reading File
DMEA Field Team, Reg. III (2)
Messrs. JHCrawford, Rm. 3[illegible]3
TWKillingsward, Rm. 52[illegible]

FMurphy/lam 7-16-56
cc to Docket
Code 700
Mr. Murphy

Time
Copy

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

JUN - 4 1956

DMEA
Date Rec'd,
JUN 6 1956
BUREAU OF MINES
Denver, Colorado

Mr. Dee W. Schvanevaldt
General Manager
Epsolon Uranium Corporation
Box 119
St. George, Utah

Re: Docket No. DMA-3588 (Uranium)
Kalob Mine, Mineral Leases
8025 and 8026
Washington County, Utah

Dear Mr. Schvanevaldt:

This is to acknowledge your letter of May 28, 1956, requesting that the above-docketed application be reopened.

In our letter, dated May 20, 1955, addressed to Mr. Chadburn, we requested certain additional data. If these data are submitted, we will reopen the above-numbered docket either under the same number or assign a new docket number to your application.

Regarding the subject application, will the proposed exploration work consist of the same items as our field examiners and Mr. Chadburn agreed upon during the examination made on March 3, 1955? The work proposed at that time consisted of bulldozing the overburden covering high radioactivity anomaly areas and subsequently exploring one or two of the more highly mineralized showings by means of test pits, adits, or shallow shafts, followed by drifting and crosscutting.

If your corporation has done additional work on the subject property since the above-mentioned field examination, then a more specific program might be advisable. In this case, a new field examination by the Government will be required.

Sincerely yours,

Copy to Wilson

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

FMMurphy/ism 6-1-56
cc to: Docket
Code 700
Mr. Murphy
Admr.'s Reading File
DMEA Field Team, Reg. III (2)
Messrs. JECrawford, Rm. 3643
TdKillagaard, Rm. 5224
JOHosted, Rm. 3210, GSA

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

OCT 11 1955

DMEA Dole Section
OCT 13 1955
BUREAU OF MINES Denver, Colorado

Mr. Clark Chadburn, President
Epsolon Uranium Corporation
P. O. Box 483
St. George, Utah

Re: Docket No. DMEA-3598 (Uranium)
Kolob Mine, Mineral Leases
8025 and 8026
Washington County, Utah

Dear Mr. Chadburn:

Reference is made to our letter dated September 7, 1955, in which we stated that the subject docket would be considered closed unless certain information required to process the captioned application had reached this office on or before October 7. No answer to our letter having been received, we therefore inform you that the subject docket is considered closed effective as of that date.

This is without prejudice to the merits of your proposed project. We regret the necessity of this action and express appreciation for your interest in the exploration program during the period your application has been under consideration.

Sincerely yours,

Frank E. Johnson

Acting Administrator

FMMurphy/gla
10-10-55
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)

Entered on card.
Copies sent to Harshman
Wilson & Hasler Oct. 14, 1955.
Berk.

700

T Wm
C Hmc
B Berk
W MD
J

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

DMEA
Date Rec'd.
SEP 9 1955
BUREAU OF MINES
Denver, Colorado

SEP - 7 1955

Mr. Clark Chadburn, President
Epsilon Uranium Corporation
P. O. Box 183
St. George, Utah

Re: Lodgat No. (F 1-3598 (Uranium)
Kolob Mine, Mineral Lessee
6685 and 6686
Washington County, Utah

Dear Mr. Chadburn:

Reference is made to our letters dated May 20 and June 21, 1955, requesting certain information necessary to process your above-docketed application.

Inasmuch as we have received no reply to our communications, we assume that you no longer desire to proceed with the application. We wish to cooperate with you in the matter of allowing ample time, but if the needed data has not been received within 30 days from the date of this letter, we will then consider the docket closed.

Sincerely yours,

SIGNED
Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

FMurphy/cln
9-6-55
cc to: Admr. Reading File
Docket
Messrs. JCrawford, Rm. 3641
THillingsward, Rm. 5236
JHortad, Rm. 3210, GSA
Code 700
Mr. Murphy
DMEA Field Team, Region III (2)

Copy to Hershman - 9-9-55

700

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

DMEA
Date Rec'd
JUN 23 1955
BUREAU OF MINES
Denver, Colorado

Berk.

JUN 21 1955

Mr. Clark Chadburn, President
Epsolon Uranium Corporation
P. O. Box 483
St. George, Utah

Re: Docket No. DMEA-3598 (Uranium)
Kolob Mine, Mineral Leases
8025 and 8026
Washington County, Utah

Dear Mr. Chadburn:

Reference is made to our letter, dated May 20, 1955, relating to the captioned docket.

Action on your application is pending receipt of certain legal papers requested in the said letter. Will you kindly advise us in regard to the approximate date we may expect to receive these documents.

Sincerely yours,

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

Berk

FMMurphy/gla
6-20-55
cc to: Admr.'s Reading File
Docket
Messrs. J. E. Crawford, Rm. 3641
T. H. Kiilsgaard, Rm. 5224
J. O. Hosted, Rm. 3210, GSA
Code 700
Mr. Murphy
DMEA Field Team, Region III (2)

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

DMEA
Date Rec'd.
MAY 23 1955
BUREAU OF MINES
Denver, Colorado

MAY 20 1955

Mr. Clark Chadburn, President
Apollo Uranium Corporation
P. O. Box 163
St. George, Utah

Re: Docket No. DMA-3596 (Uranium)
Kolob Mine, Mineral Leases
[illegible]25 and [illegible]76
Washington County, Utah

Dear Mr. Chadburn:

Final consideration is being given to the subject application. However, we lack the following data, required by the Government to protect its interest in the event a contract is finalized:

1. Evidence of the State of Utah's consent to assignment of the captioned leases.

2. A performance bond for the sum of $7,000.00 in lieu of the Consent to Lien of the Landowner, i.e., State of Utah.

3. Six executed copies of the Consent to Lien of the sublessor, Arthur F. Crosby and Frank Earl Cox.

We are enclosing a set (six copies) of form DF-203, Consent to Lien for execution. When we receive the above additional data we will promptly continue the processing of your application.

Sincerely yours,

Ernest Wm. [illegible] Jr., Chief
Rare and Miscellaneous
Metals Division

Enclosures

F.Murphy:ram
5-20-55
cc to: Admr. Reading File
Docket
Players. J. [illegible] Crawford, Rm. 3641
T. H. Killingsord, Rm. 5224
J. C. Hunted, Rm. 3210, GSA
Code 700
Mr. Murphy
DMEA Field Team, Region III(2)

224 New Customhouse
Denver 2, Colorado

April 20, 1955

Mr. Clark Chadburn, President
Epsolon Uranium Corporation
48 East Tabernacle
St. George, Utah

Re: Docket DMEA 3598 (Uranium)
Kolob Mine, Mineral Leases
8025 and 8026, Washington
County, Utah

Dear Mr. Chadburn:

The Report of Examination on the subject property has been forwarded to our Washington office for final processing, but before they may take further action the following are required:

1. Lessor's written consent of assignment
2. A performance bond in the amount of $6,650.00 in lieu of the owner's consent to lien
3. A map showing the exact location of Lots 1-2-3-4-5-6-7 and 8 in Section 32, T-38-S, R-12-W covered by mineral leases 8025 and 8026

Your letter of November 27, 1954 stated that the lessor's written consent to assignment would be forwarded to this office promptly, but as yet we have not received the consent to assignment.

Upon receipt from you of the above data we will forward it to our Washington office so that they can continue to process your application.

Very truly yours,

W. M. Traver

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

HMC:sr

cc Chairman, Op. Comm. (2)
Subject
Chron
Wilson
Harshman

C[illegible] [illegible]ADBURN, PRESIDENT
[illegible]EWBY, VICE-PRESIDENT
FR[illegible] MEEDS, SECRETARY-TREASURER

P. O. BOX
TELEPHONE 220

EPSOLON URANIUM CORPORATION

48 EAST TABERNACLE
ST. GEORGE, UTAH

Mining Division
Date Rec'd.
NOV 29 1954
BUREAU OF MINES
Denver, Colorado

November 27, 1954

Mr. John F. Shaw
United States Department Of The Interior
Defense Minerals Exploration Administration
224 New Customhouse
Denver 2, Colorado

DMEA-3598

Re: Application for DMEA assistance (Uranium). U. S. Department of the Interior, Defense Minerals Exploration Administration. Denver 2, Colo. November 9, 1954.

Dear Mr. Shaw:

We are enclosing a more detailed proposal for the drilling project to accompany our original DMEA Application in consideration of the recent diamond drilling work. We also enclose a proposed amendment and revised cost estimate sheet for your consideration; plus maps you requested.

In reference to paragraph three of your letter of November ninth; Lessors written consent to assignment, this requirement (four signed copies by officials of the State of Utah) will be forwarded promptly upon completion of same.

Epsolon Uranium Corporation is willing to obtain a Performance Bond in lieu of an Owner's Consent to Lien. If Statement separate from this letter is required, please advise.

Yours very truly,

Clark Chadburn

CLARK CHADBURN,
President.

Encls:

Proposal for Exploration Project (4)
Proposed Amendment to Exploration Project (4)
Epsolon Property Map (4)
Proposed Drilling Map (4)

CC:mk

224 New Customhouse
Denver 2, Colorado

December 1, 1954

Mr. Clark Chadburn
Epsolon Uranium Corporation
48 East Tabernacle
St. George, Utah

Re: Application for DMEA aid (Uranium)
Kolob mine, Washington County, Utah

Dear Mr. Chadburn:

This will acknowledge receipt of your letter dated November 27, 1954, and the four copies of your amended application.

Your application will now be placed in line for further processing.

Yours very truly,

W H King

W. H. King
Executive Officer, DMEA
Field Team, Region IV

HMC:mn

cc: Docket
A.H.Koschmann
S.R.Wilson
A.L.Brokaw
A.J.Martin
Chron.

224 New Customhouse
Denver 2, Colorado

November 9, 1954

Mr. Clark Chadburn, President
Epsolon Uranium Corporation
P. O. Box 483
48 E. Tabernacle Street
St. George, Utah

Re: Application for DMEA assistance (Uranium)
Epsolon Uranium Corporation, Lots 1 to 8 incl.
Sec. 32, T-38-S, R-12-W, (Kolob mine)
Washington County, Utah

Dear Mr. Chadburn:

We hereby acknowledge receipt of your application for Government assistance to explore School Land leased from the State of Utah for uranium.

It is customary for the Defense Minerals Exploration Administration to protect the Government's interest in repayment of money spent under the DMEA program by means of an Owner's Consent to Lien form executed by the landowner. As officials of the State of Utah do not have the right to sign these forms, the Government's interest must be protected by another means. Please advise if the Epsolon Uranium Corporation would be willing to obtain a Performance Bond in lieu of an Owner's Consent to Lien. A suitable performance bond, Standard Form 25, is enclosed. Bond must be for the full amount of Government participation, but it is not necessary to obtain it at the present time--before a field examination is made. A statement that you are willing to obtain a bond is all that we require at the present time.

Further reference is made to your application, specifically to Mineral Leases No. 8025 and 8026, Article 111, ninth paragraph, which states that Lessor's written consent to an assignment is required before such an assignment is valid. In conjunction with this requirement, please send us four signed copies, or photostats of a signed copy, of this consent by officials of the State of Utah.

It is our understanding from data submitted in your application that Epsolon Uranium Corporation is conducting operations on the subject property at the present time, possibly under the Option and Assignment of Lease submitted with your application. The Option dated August 4, 1954, between Arthur F. Crosby and Frank Earl Cox, parties of the first part, and Clark Chadburn and H. L. Newby, parties of the second part, must be assigned to the Epsolon Uranium Corporation, and we must be furnished signed

copies, or photostats of a signed copy, of these instruments and the State of Utah's consent to this assignment. In other words, if your application is in name of Epsolon Uranium Corporation, the application must contain all documents by which Epsolon Uranium Corporation acquired mining rights on the property.

We will also require four copies of a map showing the land controlled by Epsolon Uranium Corporation, and also the locations of proposed diamond drill holes in relation to your property boundaries.

Your application will be held in our inactive file pending receipt of the above requested material and a statement from you concerning the Performance Bond.

Yours very truly,

John F. Shaw

John F. Shaw
For W. H. King
Executive Officer, DMEA
Field Team, Region IV

Enclosure

RDB:mn

cc: Docket (Epsolon Uranium Corporation)
R.D.Berkenkotter
Chron.

6-303
(March 1947)

work file only

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
Salt Lake City, Utah

No. 10

Report to Mr. M. H. Gilkey

Chemical Laboratory Report

Date received March 9, 1955 W/O-55-7 Date reported March 10, 1955

Serial No.	DESCRIPTION	Lot No.	%	U_3O_8
	Epsolon Uranium Corp. Washington County, Utah DMEA-3598			
42895	Incline, S. side at 20' from collar, chip 6'	1		0.020
42896	Incline, N.E. corner of pillar, chip 6'	2		0.199
42897	Incline, stope, W. side at 15' from incline, chip 5.5'	3		0.009
	cc: S. R. Wilson W. H. King			

Date Rec'd
MAR 14 1955
BUREAU OF MINES
Denver, Colorado

U. S. GOVERNMENT PRINTING OFFICE 16—33553-3

Signed Heber E. Peterson

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Colorado Plateau District
P. O. Box 360
Grand Junction, Colorado

Mining Division
Date Rec'd.
DEC 27 1954
BUREAU OF MINES
Denver, Colorado

December 23, 1954

Memorandum

To: E. N. Harshman, DMEA Field Team, Region IV

From: A. L. Brokaw, District Supervisor

Subject: DMEA Docket 3598, Epsolon Uranium Corporation (Uranium)
Kolob mine, Washington County, Utah

I am forwarding DMEA Docket 3598 to R. W. Osterstock in accordance with your memorandum dated December 20, 1954.

For Arnold L. Brokaw

TEM/mlr

EC: R. W. Osterstock
W. H. King

Received

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Defense Minerals Exploration Administration
Denver Federal Center
Denver 2, Colorado

December 20, 1954

Mining Division
Date Rec'd.
DEC 21 1954
BUREAU OF MINES
Denver, Colorado

Memorandum

To: A. L. Brokaw

From: E. N. Harshman

Subject: DMEA Docket 3598, Epsolon Uranium Corporation (uranium), Kolob Mine, Washington County, Utah

In reference to your letter of December 15, 1954, on the above subject, we were in error in sending the application to you for processing. Accordingly will you please forward it to Mr. Osterstock who will make the field examination and report.

No further action will be required on your part.

for D P Macharen
E. N. Harshman
Project Chief

cc: R. W. Osterstock
W. H. King (2)

224 New Customhouse
Denver 2, Colorado

December 3, 1954

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: Code 200

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docketing for Exploration Assistance

Enclosed herewith in duplicate is DMEA Form 3a and MF-103 and supporting data pertaining to the following applications for Government assistance in exploration work:

Epsilon Uranium Corporation (Uranium)
Washington County, Utah

W. H. King

Enclosures

HMC:dm
cc: Code 200
Docket: Epsilon Uranium Corp.
AHKoschmann
Chron

DMEA Form 3a
(Revised)

DEFENSE MINERALS EXPLORATION ADMINISTRATION

CONTROLLED DOCUMENT
Abstract

I. 3

II. Fill in each item:

1. _____ 2. _____

3. Epodon Uranium Corporation
P.O. Box 483 St. George, Utah

_____ (Code) _____

4. Kolob Mine

5. State Utah County Washington

_____ (Code) _____ (Code)

6. Uranium

7. $ 24,770

8. $ _____ 8a. % _____

III. Check one:

1 ☐ 2 ☐ 3 ☐ 4 ☒

Remarks:

Initials of person preparing sheet HMC

Date sheet prepared 12-1-54

17367

224 New Customhouse
Denver 2, Colorado

December 13, 1954

Memorandum

To: S. R. Wilson
W. M. Traver

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 3598, Epsilon Uranium Corporation, Kolob Mine, Washington County, Utah

The application forwarded to you on December 1, 1954, has been docketed DMEA 3598.

W. H. King

WHK:ld

sub
chron

Copy to: A. H. Koschmann

224 New Customhouse
Denver 2, Colorado

December 1, 1954

Memorandum

To: S. R. Wilson (w/o)
A. L. Brokaw (w/o)

From: DMEA Field Team, Region IV

Subject: Application of Epsolon Uranium Corporation (Uranium)
Kolob mine, E½ of Section 32, T-38-S, R-12-W
Washington County, Utah

Enclosed is the subject application in the amount of $22,246.00.

The brochure consists of:

(1) Form MF-103.

(2) Covering letter transmitting the amended application from the applicant.

(3) Option and Assignment of Lease.

(4) Agreement and Assignment of Leases.

(5) Utah State Lease Application, No. 4699.

(6) Contour map of the area.

(7) Proposed amendment to exploration project.

(8) Sketch map showing vertical section--A prime.

(9) Map of the E½ of Section 32, T-38-S, R-12-W.

You will be advised of the docket number at a later date.

A field examination and report is required.

W. H. King
W. H. King

per E. N. Hankman
A. H. Koschmann
DMEA Field Team, Region IV

Enclosure
HMC:mn
cc: Docket ✓
A.H.Koschmann
A.J.Martin
Chron.

CLARK CHADBURN, PRESIDENT
M. L. NEWBY, VICE-PRESIDENT
FRANK MEEDS, SECRETARY-TREASURER

P. O. BOX 483
TELEPHONE 220

EPSOLON URANIUM CORPORATION

49 EAST TABERNACLE
ST. GEORGE, UTAH

Mining Division
Date Rec'd.
NOV 29 1954
BUREAU OF MINES
Denver, Colorado

November 27, 1954

Mr. John F. Shaw
United States Department Of The Interior
Defense Minerals Exploration Administration
224 New Customhouse
Denver 2, Colorado

Re: Application for DMEA assistance (Uranium). U. S. Department of the Interior, Defense Minerals Exploration Administration. Denver 2, Colo. November 9, 1954.

Dear Mr. Shaw:

We are enclosing a more detailed proposal for the drilling project to accompany our original DMEA Application in consideration of the recent diamond drilling work. We also enclose a proposed amendment and revised cost estimate sheet for your consideration; plus maps you requested.

In reference to paragraph three of your letter of November ninth; Lessors written consent to assignment, this requirement (four signed copies by officials of the State of Utah) will be forwarded promptly upon completion of same.

Epsolon Uranium Corporation is willing to obtain a Performance Bond in lieu of an Owner's Consent to Lien. If Statement separate from this letter is required, please advise.

Yours very truly,

Clark Chadburn

CLARK CHADBURN,
President.

Encls:
Proposal for Exploration Project (4)
Proposed Amendment to Exploration Project (4)
Epsolon Property Map (4)
Proposed Drilling Map (4)

CC:mk

Reg IV

12-1-54
Wilson & Brother

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

Mining Division
Date Rec'd. DEC - 6 1954

DEC 10 1954
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. 3598
Metal or Mineral Uranium
Date Received
Estimated Cost $24,770
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: Epsolon Uranium Corporation
P. O. Box 483
St. George, Utah

(*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. Corporation, The State of Utah.

(*c*) If a corporation, add to above statement, titles, names and addresses of officers. (See attached 1. (c).)

(*d*) If a partnership, add to the above statement the names and addresses of all partners. Not applicable.

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. Mineral Lease Nos. 8025 and 8026 from The State of Utah covering Lots 1, 2, 3, 4, 5, 6, 7, and 8 in Section 32, Township 38 South, Range 12 West, Salt Lake Meridian, containing 328.25 acres, more or less.

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

(*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. Not applicable.

(*e*) If you own the land, describe any liens or encumbrances on it Not applicable.

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. Not applicable.

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.

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades.

(*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.

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

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

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

(*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.

(*c*) The work will start within ..... days and be completed within ..... 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.

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.

(*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.

(*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.

(*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 [x] 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 October 30, 1954

EPSILON URANIUM CORPORATION (Applicant)

By Clark Chadburn

Clark Chadburn, President

48 East Tabernacle Street

St. George, Utah

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

Epsolon Uranium Corporation
P. O. Box 483
48 E. Tabernacle Street
St. George, Utah

1. (c) CLARK CHADBURN, President
P. O. Box 483, St. George, Utah.

H. L. NEWBY, Vice-President
P. O. Box 483, St. George, Utah.

FRANK L. MEEDS, Secretary-Treasurer
4324 West Charleston Boulevard; Las Vegas, Nevada.

NORMAN W. BLAD, Member of the Board
P. O. Box 406, Mesquite, Nevada

WILLIAM B. BERK, Member of the Board
405 Stanley, North Las Vegas, Nevada.

JOHN D. CARTER, Member of the Board
1960 East 6400 South, Salt Lake City, Utah

JACK KEOUGH, Member of the Board
3630 Hillside, Salt Lake City, Utah.

3. (d)

C O P Y

OPTION AND ASSIGNMENT OF LEASE

OPTION

THIS AGREEMENT, made and entered into in duplicate this 4 day of August, 1954, by and between ARTHUR F. CROSBY and FRANK EARL COX, of St. George, Utah, parties of the first part, hereinafter called the lessors, and CLARK CHADBURN and H. L. NEWBY, of St. George, Utah, parties of the second part, hereinafter called the lessees, Witnesseth:

WHEREAS, the lessors herein have entered into two leases, between the State of Utah as lessor and the lessors herein as lessees, which leases are numbered 8025 and 8026, respectively, and which said leases cover the uranium and vanadium and such other minerals as are mentioned in said leases in and on the following described ground in Washington County, Utah, to wit:

> The east half of Section 32, Township 38 South, Range 12 West, S. L. M. containing 320 acres, more or less;

which said leases are hereby specifically referred to and by reference made a part hereof as fully and effectually as if set out verbatim herein, and

WHEREAS, the lessors herein have applied to the United States Government for a lease of the minerals in and on 160 acres of ground adjoining the above-described property, but which 160 acres is within the confines of Zion National Monument, and which application is now being considered but has not been definitely acted upon, and

WHEREAS, the parties hereto have reason to believe that said ground and premises disclose mineral deposits of great value as well as potential development of great ore bodies, and

WHEREAS, the proper development of such ore bodies, both present and in expectancy, and the proper reduction and treatment thereof will necessitate the outlay of large sums of money, and

WHEREAS, the parties hereto are willing that the lessees herein undertake such development work but only under and in accordance with the terms and subject to the conditions hereinafter set forth;

Now, THEREFORE, in consideration of the premises and for

valuable consideration paid by the lessees to the lessors, the receipt and sufficiency of which is hereby acknowledge, and for and in consideration of the mutual covenants of the parties by each to the other made and herein contained, the parties agree as follows:

1- The lessors hereby grant to the lessees an option which is to be exercised within ten days after March 1, 1955, upon the terms and conditions herein set forth, to receive an assignment of mining leases in the form hereto annexed and hereby referred to and made a part hereof, covering said above mentioned mineral properties.

2- The lessees herein have heretofore caused to be deposited with Hafen and Nelson, attorneys at law, St. George, Utah, in trust, the sum of $10,000.00, and upon execution of this agreement, the lessors herein agree to lease and sublet the premises and properties described in their said leases No. 8025 and 8026 with the State of Utah to the lessees herein, and secure the consent of the State of Utah thereto. At such time as said lease and sub-lease is made and approved, the said Hafen and Nelson are hereby instructed to deliver to the lessors herein the said sum of $10,000.00 and thereupon the lessees shall have the right to go into exclusive possession of said leased properties and may as consideration for said option, prospect and explore, test, develop and work at their own discretion and at their own proper charge and expense said leased property or any part thereof, provided all work done and all improvements made by the lessees upon said property, or any part thereof, under the terms hereof during the period of said option shall be done in a minerlike and proper manner to enable said premises and all thereof to be carefully operated, and so that the minerals therein contained may be extracted in an economical and minerlike manner, and provided, further, that all such work and all acts done hereunder by the lessees shall be in accordance with the terms of said lease with the State of Utah, the lessees herein specifically agreeing to commence work under each of said leases within the time required in said leases, and in the manner required by said leases.

3- In addition to the payment described in the preceding paragraph the lessees agree to pay as a part of the consideration for said option the further sum of $10,000.00 on or before September 1,

1954, and a further sum of $10,000.00 on or before October 1, 1954, making a total payment of $30,000.00.

4- All equipment, tools, machinery, structures, improvements and personal property of every nature and description brought or placed upon said premises prior to the exercise of said option by the lessees herein for use in said work shall not become a fixture but shall remain the property of the lessees and subject to removal by the said lessees, and in the event the said lessees shall not exercise said option they shall be entitled to remove all of said equipment, tools, machinery, structures, improvements and personal property from said premises within thirty days from the expiration of said option provided, however, and it is so understood by the parties hereto, that this paragraph defines the rights to said property placed or used by the lessees as between the lessors herein and the lessees herein, and is made a part of this agreement on condition that any provisions in the lease of the State of Utah as to improvements placed on the property shall be binding on the parties hereto, and anything in this lease conflicting in any way with said lease with the State of Utah shall be resolved in favor of the lease with the State of Utah, it being the intent of the parties hereto that said lease shall be binding upon the parties hereto and shall be observed fully, any provisions in this agreement to the contrary notwithstanding.

5- All ores extracted by the lessees herein during the aforesaid time prior to the exercise of said option shall be the property of the lessees herein, but shall be subject to payment of royalty required by the State of Utah in the said leases 8025 and 8026, which royalty shall be paid by the lessees herein and in addition thereto, the lessees shall pay to the lessors herein a royalty of 4% on all ores so extracted. The said royalty of 4% shall be computed on the net worth of the ore, the term "net worth" as used herein meaning the base price paid for the ore and excluding such items as hauling allowance, development allowance, and all similar allowances. The lessees herein shall be entitled to all depletion allowances for income tax and similar purposes, and said lessees shall have full

authority to deal with the Atomic Energy Commission and all government agencies having to do with the production of the minerals covered by this agreement.

6- If at the expiration of said time of March 1, 1955, the lessees herein shall elect to exercise said above mentioned option and receive an assignment of the State leases covering said land and premises as hereinabove provided, they shall notify the lessors herein within ten days after March 1, 1955 and they shall upon such notice be entitled to receive in accordance with and subject to the terms of this contract an assignment of said State leases in the form of the assignment attached hereto and by reference made a part hereof, and the lessors hereby agree upon such notice to make, execute and deliver such assignment of leases to the lessees. In the event the lessees herein shall elect not to exercise said option, they shall peaceably surrender and turn over said properties to the lessors in as good condition as they now are, reasonable wear and tear excepted, and any work done in accordance with the terms of this option also excepted, and free and clear of any and all liens and encumbrances incurred by the lessees in their operation on and about the same. In the event that the lessees shall not elect to exercise said above mentioned option, the lessees agree to deliver to the lessors free and clear of expense, copies of all data, plans, analysis, photographs, assays and other determinations and reports that the lessees shall have made or caused to be made or otherwise obtained in and about said premises during their possession of the same under said option. If the lessees have not notified the lessors of their election to exercise said option by March 10, 1955, the same shall be considered terminated and not subject to being exercised thereafter.

7- The lessees during their possession of said property and all thereof, agree to protect said property and all thereof against all claims of labor and materialmen and against all liens and liabilities arising out of the acts of the lessees upon said property and to permit the lessors to place and maintain such notices thereon as shall be lawfully necessary to protect the lessors against such claims; and the

lessees further agree to hold harmless the said lessors against any and all claims for damages for injury incurred by workmen in their employ at said properties, or any other person or persons.

8- The lessees during their possession of said property and all thereof, agree to observe the boundaries of Zion National Monument and take every precaution not to jeopardize the application which the lessors have with the United States government for a lease on the property in the National Monument adjoining the property herein leased.

9- It is understood and agreed that during the possession of said property by the lessees herein under said option, the lessees shall permit the lessors or their duly authorized representative to be and remain upon the property hereby demised, to observe the performance of the lessees of each and all the terms of this agreement.

10- It is mutually understood and agreed that time is of the essence of this agreement, and if the said payments are not made strictly within the times herein set out, or if there is any breach or default by the lessees, then immediately upon the happening of any such breach or default, the lessors shall have the right to resume immediate possession of said premises and property and to cancel and rescind this option and to terminate the same and to nullify the rights of the lessees herein and hereunder and in and to said premises and property and to hold and retain all payments theretofore made by the lessees as rental and liquidated damages for the breach hereof, and to remove and expel the lessees and all persons holding under the lessees, either with or without legal process, provided that the lessors shall first give the lessees at least ten days notice in writing of their intention so to do, setting forth specifically wherein the said lessees are in default and provided, further, that if the said lessees, during said ten day period shall perform all of the covenants wherein they are in default, they shall thereby restore this agreement to good standing in the same manner as if no default had occurred, or the lessors may, at their option, recover damages for such breach or for payments then in arrears in any action at law.

11- It is specifically understood and agreed that in the event the said option is not exercised, the lessees shall forfeit any

and all payments made under the terms of this agreement.

12- It is further understood and agreed that the party or parties hereto found to be in default of any of the material provisions hereof shall pay and discharge all costs, attorney fees and expenses that shall arise from or be incurred in enforcing or defending the provisions hereof or in suing for a breach of this agreement.

13- It is also understood and agreed that this agreement shall be binding upon and shall enure to the benefit of the heirs, representatives, successors and assigns of the respective parties hereto, and that there are no representations, covenants or agreements between the parties hereto except as herein specifically set forth.

14- It is understood and agreed that no assignment, transfer or sub-letting of this agreement shall be valid and binding upon the lessors unless they shall consent thereto in writing except that the lessees are herebyauthorized to assign and transfer this option to EPSOLON URANIUM CORPORATION, a corporation to be formed by the lessees and others, without consent of the lessors.

IN WITNESS WHEREOF, the parties have executed this agreement the day and year first above written.

s/ Arthur F. Crosby

s/ Frank Earl Cox
LESSORS

s/ Clark Chadburn

s/ H. L. Newby
LESSEES

AGREEMENT AND ASSIGNMENT OF LEASES

THIS AGREEMENT AND ASSIGNMENT OF LEASES, made and entered into in triplicate this ___March, 1955, by and between ARTHUR F. CROSBY and FRANK EARL COX, of St. George, Utah, parties of the first part, hereinafter called the assignors and EPSOLON URANIUM CORPORATION, a corporation, party of the second part, hereinafter called the assignee, WITNESSETH:

1. That the assignors, for and in consideration of the rents, covenants, agreements, payments and royalties hereinafter reserved and by the assignee agreed to be paid, kept and performed, has assigned and by these presents does assign unto the assignee all right, title, and interest of the assignors in and to those certain mineral leases between the State of Utah as lessor and the assignors herein as lessees, known and designated as leases No. 8025 and 8026, and which said leases cover the uranium and vanadium and such other minerals as are mentioned in said leases in and on the following described ground in Washington County, Utah, to-wit:

The east half of Section 32, Township 38 South, Range 12 West, S. L. M. containing 320 acres, more or less,

which said leases are hereby specifically referred to and by reference made a part hereof as fully and effectually as if set out verbatim herein.

2. (In the event the assignors obtain a lease on 160 acres of land in Zion National Monument, or any part thereof, on which application is now pending, a paragraph similar to No. 1 above, assigning said lease shall be inserted in this agreement and assignment, and in the event said lease shall not have been obtained at the time this agreement and assignment is executed, then if and when such lease is obtained, provided it is during the life of this agreement and assignment, then said lease and the minerals covered thereby shall be incorporated in this agreement in such manner as to make them a part hereof, provided, however, that paragraph 5, below, is complied with.)

3. A part of the consideration for this agreement and assignment is the payment of the sum of $70,000.00 by the assignee to the

assignor, and receipt of the same is hereby acknowledged.

4. A part of the consideration of this agreement and assignment is the issuance by the assignee to the assignors of four million shares of stock in the assignee corporation of the par value of one cent per share, receipt of which is acknowledged by the assignors.

5. (In the event the assignors have obtained the lease described in paragraph 2 above from the Federal Government on land in Zion National Monument at the time of the execution of this agreement and assignment a paragraph shall be inserted here as No. 5 as follows: "A part of the consideration of this agreement and assignment is the issuance by the assignee to the assignors of two million shares of stock in the assignee corporation of the par value of one cent per share, receipt of which is acknowledged by the assignors."
In the event said lease shall not have been obtained at the time this agreement and assignment is executed, then if and when such lease is obtained, provided it is during the life of this agreement and assignment, then said lease and the minerals covered thereby shall be assigned to the assignee in such a way as to make them a part hereof, and upon issuance to the assignors by the assignee of two million shares of stock in the assignee corporation, said stock to be of the par value of one cent per share.).

6. A part of the consideration of this agreement and assignment is that the assignee shall pay the assignors a royalty of 4% on all ores extracted, and in addition shall pay to the State of Utah all royalties called for in said leases with the State of Utah. The royalties paid the State of Utah shall be on the basis set out in said lease with the State of Utah. The 4% royalty paid to the assignors herein shall be computed on the net worth of the ore, the term "net worth" as used herein meaning the base price paid for the ore and excluding such items as hauling allowance, development allowance, and all similar allowances. The lessees herein shall be entitled to all depletion allowances for income tax and similar purposes, and said lessees shall have full authority to deal with the Atomic Energy Commission and all government agencies having to do with the production of the minerals covered by this agreement.

7. Assignee shall pay and satisfy all claims for materials, supplies and labor in connection with its mining operations upon the leased premises and shall keep said premises free of all liens and encumbrances except such as may result from the acts of others than the assignee, its agents, employees, contractors, or subcontractors.

8. OPERATION OF MINE

a. Mining Methods - Assignee shall work and operate the leased premises in a reasonably skillful and workmanlike manner and shall remove the ore therefrom in accordance with recognized mining methods and practices, but without any other restrictions upon the methods employed.

b. Stockpiles - If assignee stockpiles upon the leased premises ore mined therefrom, assignee shall not be required to pay royalties upon such ore until the same shall have actually been shipped or removed from the leased premises.

c. Assignee may make excavations or borrow pits on the leased premises in order to obtain fill or other material necessary to its operations under this agreement.

9. Assignee, in the use, operation and development of the leased premises, shall comply with all applicable federal and state laws, including all laws pertaining to Employer's Liability, Workmen's Compensation and Workmen's Old Age and Unemployment Insurance.

10. Assignee shall indemnify and hold harmless assignors from and against any and all claims, costs, damages, or expenses arising out of violation of any law, damage to property of, injuries to, or death of persons, other than assignors, their agents or employees, where such violation, damage, injury or death is caused by the use, operation or development of the leased premises by assignee.

11. Assignors or their duly authorized agents shall at all reasonable times have free access to the leased premises, and to all workings thereon, for the purpose of checking the tonnages of ore mined and extracted by assignee and for the purpose of determining whether assignee is complying with the terms of this agreement. Assignee shall not be liable for any damage or injury suffered by assignors or their agents

while upon the leased premises.

12. Assignors represent and covenant that the said leased premises are free from liens and adverse claims of any kind or character by any person claiming by, through or under assignors; and assignors warrant and agree that they will defend said leased premises against all persons claiming by, through or under them. In the event of failure of assignors to defend said leased premises against persons claiming a right, title or interest thereto, or in the event of failure of assignors to defend any action or actions brought by anyone claiming right, title, or interest in or to said leased premises assignee shall have the right, in the name of the assignors, to conduct such defense, and the expenses of such proceeding or proceedings shall be deductible from the rentals or royalties payable to assignors hereunder.

Assignors further warrant their right to enter into this agreement and agree to save assignee harmless in the event of any suits or liens brought against assignee by reason of assignee proceeding with the development and mining of leased premises under the terms of this agreement.

13. Assignee may at any time during the term hereof or any extension thereof terminate this agreement and surrender to assignors the leased premises upon giving thirty (30) days notice in writing and paying all sums due and payable to assignors hereunder to the effective date of such termination, without further liability on the part of assignee, provided, however, that within 60 days after such termination assignee shall furnish a copy of the drill logs and assay reports on the leased premises to assignors.

14. It is mutually understood and agreed that time is of the essence of this agreement, and if the said payments are not made strictly within the times herein set out, or if there is any breach or default by the assignee, then immediately upon the happening of any such breach or default, the assignors shall have the right to resume immediate possession of said premises and property and to cancel and rescind this agreement and assignment and to terminate the same and to nullify the rights

of the assignee herein and hereunder and in and to said premises and property and to hold and retain all payments theretofore made by the assignee as rental and liquidated damages for the breach hereof, and to remove and expel the assignee and all persons holding under the assignee either with or without legal process, provided that the assignors shall first give the assignee at least ten days notice in writing of their intention so to do, setting forth specifically wherein the said assignee is in default and provided, further, that if the said assignee, during said ten day period shall perform all of the covenants wherein it is in default, it shall thereby restore this agreement to good standing in the same manner as if no default had occurred, or the assignors may, at their option, recover damages for such breach or for payments then in arrears in an action at law.

15. In the event of any forfeiture or other termination of this agreement, assignee shall have the right to enter and remove from the leased premises all its property of any kind whatsoever situated thereon, including but not limited to all machinery, equipment, materials, buildings, structures, tracks, and improvements, said right to continue for a period of six (6) months, or for such extension thereof as assignors may grant, provided, however, and it is so understood by the parties hereto, that this paragraph defines the rights to said property placed or used by the assignee as between the assignors herein and the assignee herein, and is made a part of this agreement on condition that any provisions in the lease of the State of Utah as to improvements placed on the property shall be binding on the parties hereto and anything in this lease conflicting in any way with said lease with the State of Utah shall be resolved in favor of the lease with the State of Utah, it being the intent of the parties hereto that said lease shall be binding on the parties hereto and shall be observed fully, any provisions in this agreement to the contrary notwithstanding.

16. Any notice contemplated herein to be served upon either party hereto shall be in writing and shall be sufficiently given if mailed in the United States Post Office, postage prepaid and registered; if to the assignee, addressed to the assignee at St. George, Utah, or

such other address as the assignee may from time to time in writing designate; and if to the assignors addressed to St. George, Utah.

17. This agreement and each and every covenant thereof shall inure to the benefit of and be binding upon the successors and lawful assigns of the parties hereto respectively. Assignee shall have the right to assign this agreement or to contract with other to work any mine or mines which may be developed upon said premises or to subcontract or sublet the same at its option, with the same rights and privileges as are herein granted to it, it being expressly understood that any such assignment shall not operate as a release or discharge of assignee from performance of the conditions of this agreement until assignors shall in writing consent to such assignment.

18. It is further understood and agreed that the party or parties hereto found to be in default of any of the material provisions hereof shall pay and discharge all costs, attorney fees and expenses that shall arise from or be incurred in enforcing or defending the provisions hereof or in suing for a breach of this agreement.

19. It is also understood and agreed that this agreement shall be binding upon and shall inure to the benefit of the heirs, representatives, successors and assigns of the respective parties hereto, and that there are no representations, covenants or agreements between the parties hereto except as herein specifically set forth.

IN WITNESS WHEREOF, the parties have executed this agreement the day and year first above written.

_____

_____

ASSIGNORS

_____

_____

ASSIGNEES

Proof Read

C. F.

Mineral Lease No. ----8025---------

UTAH STATE LEASE
FOR

Application No. 4778 Grant: - - - - School - - - - -

URANIUM AND VANADIUM

THIS INDENTURE OF LEASE AND AGREEMENT entered into in duplicate this 24 day of June 1954, by and between the State Land Board, acting in behalf of the State of Utah, hereinafter called the Lessor, and

- - - - - - - - - - - - - - ARTHUR F.CROSBY - F. EARL COX - - - - - - - - - - - -

party of the second part, hereinafter called the Lessee, under and pursuant to Title 65, Utah Code Annotated, 1953.

WITNESSETH: That the Lessor, in consideration of the rents and royalties to be paid and the covenants to be observed by the Lessee, as hereinafter set forth, does hereby grant and lease to the Lessee the exclusive right and privilege to mine, remove, and dispose of all of the said minerals in, upon, or under the following described tract of land situated in Washington - - county, State of Utah, to-wit: -

Lots Three (3), Four (4), Section Thirty-two (32); Lots Five (5), Six (6), Seven (7), Eight (8), Section Thirty-two (32), Township Thirty-eight (38) South, Range Twelve (12) West, Salt Lake Meridian. - - - - - - - - - - - - - - - - - - -

gross value of the leased substances, including the State's royalty share of any bonus received by the Lessee from the sale of the leased substances. The basis for computing the amount due to the Lessor shall be as follows:

(a) If the leased substance extracted are sold under a bonafide contract of sale the amount of money or its equivalent actually received by the owner, Lessee, or other person operating the leased premises from the sale of the leased substances less a reasonable cost, if any, of transporting the leased substances from the place where extracted to the place where under the contract of sale, the leased substances are to be delivered.

(b) If the leased substances extracted are treated at a mill, smelter, processing plant, or reduction works which receives the leased substances from independent sources and which is owned or controlled by the same interests owning or controlling the mine, such disposal shall be treated as a sale within the meaning of this section for the purpose of determining gross proceeds or otherwise, and in such determination a rate or charge for sampling, assaying, milling, smelting, or refining the leased substances therefrom shall be deducted which shall not exceed an amount to be determined by applying the same rates as are applied by such mill, smelter, or reduction works or competing works, and ores of substantially like character and in like quantities received from independent sources. In the event of controversy the Lessor shall have the power to determine such rates and charges. Transportation charges may also be deducted as provided in sub-division (a) hereof.

(c) If a mill or other reduction works is operated exclusively in connection with a mine such mill or reduction works shall be treated as a part of the mine and the cost of operating such mill or reduction works shall, for the purpose of fixing the royalty imposed by this lease, be regarded as part of the cost of mining, and the cost of assaying, sampling, smelting, refining, and transportation only shall be deducted as herein provided.

THIRD: Said royalties to be paid quarterly on or before the 15th day of the month next succeeding the quarter in which the material is produced.

FOURTH: To prepare and forward to the State Land Office, on or before the 15th day of the month next succeeding the quarter in which the material is produced, a certified statement as to the production, market, and price received on all of the leased substances disposed of from said lands, and such other additional information as the State Land Board may from time to time require.

FIFTH: That at the option of the Lessor it may require the payment of royalties in kind, F. O. B., at the lease-site; the amount being 12½% of the leased substances extracted.

SIXTH: To commence actual operations upon the land included herein on or before December 31, 1954 and there after to diligently operate the property in accordance with the provisions contained in this lease. Failure to so continue the operation of the land included herein for a period of more than six (6) months without prior written approval of the State Land Board shall be cause for forfeiture, and that upon the violation of this provision or any of the other terms of this lease the Lessor may at its option after thirty (30) days notice by registered mail cancel this lease. After the expiration of the said thirty (30) days and the cancellation of the lease no notice of such cancellation need be given the Lessee.

SEVENTH: To keep at the mine office clear, accurate and detailed maps on tracing cloth, on a scale not more than 50 feet to the inch, of the workings in each section of the leased lands and on the lands adjacent, and to be so arranged with reference to a public land corner that the maps can be readily and correctly superimposed, and to furnish to the Lessor annually, or upon demand, certified copies of such maps and such written statements of operations

as may be called for. All surveys shall be made by a licensed engineer and all maps certified to by him.

EIGHTH: To not at any time fence any watering place upon the lands leased where the same is the only accessible and feasible source of water incident to the lands leased. Nor shall the Lessee or assigns at any time permit or contribute to the pollution of any surface or subsurface water available, naturally or otherwise, for domestic or irrigation use.

NINTH: To not sell, assign, mortgage, pledge, hypothicate, or otherwise transfer or incumber this lease or any interest therein, nor sublet any portion of the leased premises, or any of the rights and privileges herein granted, without the written consent of the Lessor being first had and obtained.

ARTICLE IV

The Lessor hereby excepts and reserves from the operation of this lease:

FIRST: The right to permit for joint or several use such easements or rights-of-way upon, through, or in the land hereby leased as may be necessary or appropriate to the working of these or other lands belonging to or administrated by the Lessor containing mineral deposits or for other use.

SECOND: The right to use, lease, sell, or otherwise dispose of the surface of said lands or any part thereof, under existing State Laws or Laws hereafter enacted, insofar as said surface is not necessary for the use of the Lessee in the mining, removal, or disposal of the leased substances therein, and to lease other mineral deposits, excepting those enumerated herein which may be contained in said lands.

ARTICLE V

Upon cancellation of this lease for any cause herein the Lessee shall be entitled to remove from the lease holdings only personal property prior to complete fulfillment of the provisions of this lease, and that improvements attached to the land such as buildings, timbering, or other construction or construction material in place, shall remain undisturbed upon the ground and the property surrendered in good usable condition.

ARTICLE VI

It is mutually understood and agreed that it shall be the responsibility of the Lessee to slope the sides of all operations of a surface nature to an angle of not less than 45° or to erect a barrier around such operation as the State Land Board may require. Such sloping or fencing shall become a normal part of the operation of the lease so as to keep pace with such operation to the extent that such operation shall not constitute a hazard.

ARTICLE VII

It is mutually understood and agreed by the parties hereto that all of the terms, covenants, conditions, and obligations in this lease contained, shall be binding upon the heirs, executors, administrators, and assigns of the Lessee.

ARTICLE VIII

It is mutually understood and agreed that the Lessee may terminate this lease at any time upon giving three (3) months notice in writing to the Lessor and upon payment of all rents and royalties and other sums due and payable to the Lessor, and upon complying with the terms of this lease with respect to the preservation of the workings in such order and condition as to permit of the continued operation of the leased premises.

ARTICLE IX

It is mutually understood and agreed by and between the parties hereto that the Lessor, its officers and agents, shall have the right at all times to go in and upon the leased lands and premises, during the term of said lease to inspect the work done and the progress thereof on said lands and the products obtained therefrom, and to post any notices on the said lands that it may deem fit and proper; and also shall permit any authorized representatives of the Lessor to examine all books and records pertaining to operations under this lease, and to make copies of and extracts from the same, if desired.

ARTICLE X

It is mutually understood and agreed that this lease is issued only under such title as the State of Utah may now hold, the Lessor shall not be liable for any damages sustained by the Lessee, Nor shall the Lessee be entitled to or claim any refund of rentals or royalties or other monies theretofore paid to the Lessor.

ARTICLE XI

LESSEE agrees to observe faithfully the provisions of Title 65, Chapter 1, Section 18, Utah Code Annotated 1953.

IN WITNESS WHEREOF, the parties have hereunto subscribed their names the day and year first above written.

APPROVED AS TO FORM:
E. R. CALLISTER
Attorney General

By s/ Robert H. Ruggeri

STATE OF UTAH, STATE LAND BOARD

By s/ A. N. Smith
Ex. Sec'y. Lessor

s/ Arthur F. Crosby

s/ F. Earl Cox
Lessee

STATE OF UTAH)
)ss.
COUNTY OF Salt Lake)

On the 30th day of July 1954, personally appeared before me A. N. Smith who being by me duly sworn did say that he is the Executive Secretary of the State Land Board of the State of Utah and that said instrument was signed in behalf of said Board by resolution of the Board, and said A. N. Smith acknowledged to me that said Board executed the same in behalf of the State of Utah.

Given under my hand and seal this 30th day of July 1954

My commission Expires: April 12, 1958

s/ Clem B. Feight
Notary Public, residing at: SLC

STATE OF UTAH)
)ss.
COUNTY OF Washington)

On the 27 day of July 1954, personally appeared before me

Arthur F. Crosby & F. Earl Cox the signers of the above instrument, who duly acknowledged to me that they executed the same.

Given under my hand and seal this 27 day of July 1954.

My commission Expires:
March 10, 1958.

s/ Orval Hafen
Notary Public, residing at:
St. George, Utah.

STATE OF UTAH)
) ss.
COUNTY OF)

On the day of 19 , personally appeared before me

who being by me duly sworn did say that he is an officer of and that said instrument was signed in behalf of said corporation by resolution of its Board of Directors, and said acknowledged to me that said corporation executed the same.

Given under my hand and seal this day of 19

My commission Expires:

Notary Public, residing at:

Proof Read
C. F.

Mineral Lease No. - - - -8026- - - - -

UTAH STATE LEASE
FOR

Application No. 4699 Grant: - - - - - School- - - - -

URANIUM AND VANADIUM

THIS INDENTURE OF LEASE AND AGREEMENT entered into in duplicate this 24 day of June 1954, by and between the State Land Board, acting in behalf of the State of Utah, hereinafter called the Lessor, and

- - - - - - - - - - - - ARTHUR F. CROSBY - F. EARL COX - - - - - - - - - - - -

party of the second part, hereinafter called the Lessee, under and pursuant to Title 65, Utah Code Annotated, 1953.

WITNESSETH: That the Lessor, in consideration of the rents and royalties to be paid and the covenants to be observed by the Lessee, as hereinafter set forth, does hereby grant and lease to the Lessee the exclusive right and privilege to mine, remove, and dispose of all of the said minerals in, upon, or under the following described tract of land situated in Washington county, State of Utah, to-wit: -

Lots One (1) and Two (2) Section Thirty-two (32), Township Thirty-eight (38) South, Range Twelve (12) West, Salt Lake Meridian. - - - - - - - - - -

containing a total of 80.00 acres, more or less, together with the right to use and occupy so much of the surface of said land as may be required for all purposes reasonably incident to the mining, removal, and disposal of said minerals, according to the provisions of this lease, for a period of ten years, beginning January 2nd, first succeeding the date of issuance hereof, and as long thereafter as said minerals may be produced in commercial quantities from said lands, upon condition that at the end of each twenty (20) year period succeeding the first day of the year in which this lease is issued, such readjustment of terms and conditions may be made as the Lessor may determine to be necessary in the interest of the State.

ARTICLE I

It is expressly understood and agreed that this lease is granted subject in all respects to and under the conditions of the laws of the State of Utah and existing Rules and Regulations or Rules and Regulations as may be hereafter approved and adopted by the State Land Board.

ARTICLE II

It is further expressly understood and agreed that this lease covers only the mining, removal, and disposal of the minerals specified in this lease, but the Lessee shall promptly notify the Lessor of the discovery of any minerals excepting those enumerated herein.

ARTICLE III

The Lessee in consideration of the granting of the rights and privileges aforesaid, hereby covenants and agrees as follows: FIRST: To pay to the Lessor as rental for the land covered by this lease the sum of Fifty (50) Cents per acre per annum. All such annual payments of rental to be made in advance on the 2nd day of January of each year, except the rental for the year in which this lease is issued, which is payable on the execution of this lease, such rental to be credited against the royalties as they accrue for the year.

SECOND: To pay a royalty of 12½% of the gross amount received for or the

gross value of the leased substances, including the State's royalty share of any bonus received by the Lessee from the sale of the leased substances. The basis for computing the amount due to the Lessor shall be as follows:

(a) If the leased substance extracted are sold under a bonafide contract of sale the amount of money or its equivalent actually received by the owner, Lessee, or other person operating the leased premises from the sale of the leased substances less a reasonable cost, if any, of transporting the leased substances from the place where extracted to the place where under the contract of sale, the leased substances are to be delivered.

(b) If the leased substances extracted are treated at a mill, smelter, processing plant, or reduction works which receives the leased substances from independent sources and which is owned or controlled by the same interests owning or controlling the mine, such disposal shall be treated as a sale within the meaning of this section for the purpose of determining gross proceeds or otherwise, and in such determination a rate or charge for sampling, assaying, milling, smelting, or refining the leased substances therefrom shall be deducted which shall not exceed an amount to be determined by applying the same rates as are applied by such mill, smelter, or reduction works or competing works, and ores of substantially like character and in like quantities received from independent sources. In the event of controversy the Lessor shall have the power to determine such rates and charges. Transportation charges may also be deducted as provided in sub-division (a) hereof.

(c) If a mill or other reduction works is operated exclusively in connection with a mine such mill or reduction works shall be treated as a part of the mine and the cost of operating such mill or reduction works shall, for the purpose of fixing the royalty imposed by this lease, be regarded as part of the cost of mining, and the cost of assaying, sampling, smelting, refining, and transportation only shall be deducted as herein provided.

THIRD: Said royalties to be paid quarterly on or before the 15th day of the month next succeeding the quarter in which the material is produced.

FOURTH: To prepare and forward to the State Land Office, on or before the 15th day of the month next succeeding the quarter in which the material is produced, a certified statement as to the production, market, and price received on all of the leased substances disposed of from said lands, and such other additional information as the State Land Board may from time to time require.

FIFTH: That at the option of the Lessor it may require the payment of royalties in kind, F. O. B., at the lease-site; the amount being 12½% of the leased substances extracted.

SIXTH: To commence actual operations upon the land included herein on or before December 31, 1954 and there after to diligently operate the property in accordance with the provisions contained in this lease. Failure to so continue the operation of the land included herein for a period of more than six (6) months without prior written approval of the State Land Board shall be cause for forfeiture, and that upon the violation of this provision or any of the other terms of this lease the Lessor may at its option after thirty (30) days notice by registered mail cancel this lease. After the expiration of the said thirty (30) days and the cancellation of the lease no notice of such cancellation need be given the Lessee.

SEVENTH: To keep at the mine office clear, accurate and detailed maps on tracing cloth, on a scale not more than 50 feet to the inch, of the workings in each section of the leased lands and on the lands adjacent, and to be so arranged with reference to a public land corner that the maps can be readily and correctly superimposed, and to furnish to the Lessor annually, or upon demand, certified copies of such maps and such written statements of operations

as may be called for. All surveys shall be made by a licensed engineer and all maps certified to by him.

EIGHTH: To not at any time fence any watering place upon the lands leased where the same is the only accessible and feasible source of water incident to the lands leased. Nor shall the Lessee or assigns at any time permit or contribute to the pollution of any surface or subsurface water available, naturally or otherwise, for domestic or irrigation use.

NINTH: To not sell, assign, mortgage, pledge, hypothicate, or otherwise transfer or incumber this lease or any interest therein, nor sublet any portion of the leased premises, or any of the rights and privileges herein granted, without the written consent of the Lessor being first had and obtained.

ARTICLE IV

The Lessor hereby excepts and reserves from the operation of this lease:

FIRST: The right to permit for joint or several use such easements or rights-of-way upon, through, or in the land hereby leased as may be necessary or appropriate to the working of these or other lands belonging to or administrated by the Lessor containing mineral deposits or for other use.

SECOND: The right to use, lease, sell, or otherwise dispose of the surface of said lands or any part thereof, under existing State Laws or Laws hereafter enacted, insofar as said surface is not necessary for the use of the Lessee in the mining, removal, or disposal of the leased substances therein, and to lease other mineral deposits, excepting those enumerated herein which may be contained in said lands.

ARTICLE V

Upon cancellation of this lease for any cause herein the Lessee shall be entitled to remove from the lease holdings only personal property prior to complete fulfillment of the provisions of this lease, and that improvements attached to the land such as buildings, timbering, or other construction or construction material in place, shall remain undisturbed upon the ground and the property surrendered in good usable condition.

ARTICLE VI

It is mutually understood and agreed that it shall be the responsibility of the Lessee to slope the sides of all operations of a surface nature to an angle of not less than 45° or to erect a barrier around such operation as the State Land Board may require. Such sloping or fencing shall become a normal part of the operation of the lease so as to keep pace with such operation to the extent that such operation shall not constitute a hazard.

ARTICLE VII

It is mutually understood and agreed by the parties hereto that all of the terms, covenants, conditions, and obligations in this lease contained, shall be binding upon the heirs, executors, administrators, and assigns of the Lessee.

ARTICLE VIII

It is mutually understood and agreed that the Lessee may terminate this lease at any time upon giving three (3) months notice in writing to the Lessor and upon payment of all rents and royalties and other sums due and payable to the Lessor, and upon complying with the terms of this lease with respect to the preservation of the workings in such order and condition as to permit of the continued operation of the leased premises.

ARTICLE IX

It is mutually understood and agreed by and between the parties hereto that the Lessor, its officers and agents, shall have the right at all times to go in and upon the leased lands and premises, during the term of said lease to inspect the work done and the progress thereof on said lands and the products obtained therefrom, and to post any notices on the said lands that it may deem fit and proper; and also shall permit any authorized representatives of the Lessor to examine all books and records pertaining to operations under this lease, and to make copies of and extracts from the same, if desired.

ARTICLE X

It is mutually understood and agreed that this lease is issued only under such title as the State of Utah may now hold, the Lessor shall not be liable for any damages sustained by the Lessee, Nor shall the Lessee be entitled to or claim any refund of rentals or royalties or other monies theretofore paid to the Lessor.

ARTICLE XI

LESSEE agrees to observe faithfully the provisions of Title 65, Chapter 1, Section 18, Utah Code Annotated 1953.

IN WITNESS WHEREOF, the parties have hereunto subscribed their names the day and year first above written.

APPROVED AS TO FORM:
E. R. CALLISTER
Attorney General

By s/ Robert H. Ruggeri

STATE OF UTAH, STATE LAND BOARD

By s/ A. N. Smith
Lessor

s/ Arthur F. Crosby

s/ F. Earl Cox
Lessee

STATE OF UTAH)
)ss.
COUNTY OF Salt Lake)

On the 30th day of July 1954, personally appeared before me A. N. Smith who being by me duly sworn did say that he is the Executive Secretary of the State Land Board of the State of Utah and that said instrument was signed in behalf of said Board by resolution of the Board, and said A. N. Smith acknowledged to me that said Board executed the same in behalf of the State of Utah.

Given under my hand and seal this 30th day of July 1954

My commission Expires: April 12, 1958

s/ Clem B. Feight
Notary Public, residing at: SLC

STATE OF UTAH)
)ss.
COUNTY OF Washington)

On the 27 day of July 1954, personally appeared before me

Arthur F. Crosby & F. Earl Cox the signers of the above instrument, who duly acknowledged to me that they executed the same.

Given under my hand and seal this 27 day of July 1954.

My commission Expires:
March 10, 1958.

s/ Orval Hafen
Notary Public, residing at:
St. George, Utah.

STATE OF UTAH)
) ss.
COUNTY OF)

On the day of 19 , personally appeared before me

who being by me duly sworn did say that he is an officer of and that said instrument was signed in behalf of said corporation by resolution of its Board of Directors, and said acknowledged to me that said corporation executed the same.

Given under my hand and seal this day of 19

My commission Expires:

Notary Public, residing at:

DMEA-Order
MF- 103 (cont'd.)

Epsolon Uranium Corporation
P. O. Box 483
48 East Tabernacle Street
St. George, Utah

4. (a) The Kolob Mine area is currently being explored by diamond drilling, tunneling, and bulldozing.

Approximately 220 feet of tunnel have been driven in an easterly direction into the mineralized portion of the formation. This exploratory crosscut is a standard 5' by 7'. Equipment in use includes a portable compressor, a mucking machine and a 1½ ton car.

Diamond drilling is in progress at present, some 650' (feet) having been completed. A contract for 2,000 feet was let to Boyle's Brothers Drilling Co. The drilling is being done to determine, if possible, the extent of the sandy formation and the mineralization which occurs in it.

Bulldozing, along with jackhammer, and power work is being used where practical, to uncover areas of high radioactivity. A considerable tonnage of highly mineralized material has been uncovered near the surface with this method of exploration.

Epsolon Uranium Corporation has conducted all the foregoing operations with its' own funds and under its' own direction.

The mining area and all the operations are very easily accessible from U.S. Highway 91. Good roads have been built from the highway to all the explorational centers. The area is less than one mile from the Highway 91.

(b) Production to the present time has been 2 truck loads of uranium ore totaling 17 tons. Ore reserves are estimated from surface exposures only, giving a probable reserve of 2,000 tons at .10% U_3O_8.

(c) The Kolob Mine area is located along the Hurricane fault line. The mineralization has been found on the east or upthrown side of the fault in a sandstone bed which may be a member of the Kaibab formation or more probably, the equivalent of the Coconino formation. The sandstone is fine grained, not very well cemented and sometimes shaly. It has been brecciated by the faulting action and in places, fragments of sandstone, chert, and limestone occur together in a finely broken mass, recemented with silica. The uranium mineralization occurs in these brecciated zones most frequently.

DMEA-ORDER
MF-103 (4-(a,b, & c cont'd.)

Epsolon Uranium Corporation
P. O. Box 483
48 East Tabernacle Street
St. George, Utah

The exploration project being planned is intended to explore the sandstone and the breccias at depth both horizontally and vertically. The sandstone has been sketched onto the attached map and outlined in yellow. The formation dips 5° to 7° east. Thickness is estimated at 100 feet. Limestones form the foot and hanging walls.

(d) The Kolob mine area is adjacent to U.S. Highway 91 about 20 miles south of Cedar City, Utah. Cedar City has both railway and truck transportation facilities. Adequate housing is available.

Roads from the highway to the mineralized areas have been built by Epsolon Uranium Corporation.

DMEA-Order
MF-103 (cont'd.)

Epsolon Uranium Corporation
P. O. Box 483
48 E. Tabernacle Street
St. George, Utah

5. (a) The exploration project is being planned for uranium and other radioactive minerals.

(b) The exploration project will consist of 5,500 feet of diamond drilling in the sandstone formation and the adjacent fault breccias containing the uranium mineralization. The purpose of the drilling is to explore these features down-dip in the sandstone formation and at depth in the breccias along the fault planes to determine the extent and grade of mineralization if present. Drilling will be centered at the five known areas of U_3O_8 mineralization as shown on the attached map.

(c) The work will start within 10 days and be completed within 4 months from the date of an exploration project contract.

(d) Epsolon Uranium Corporation has available equipment and experienced personnel to perform any operation which might arise in connection with the proposed exploration project.

The diamond drilling will be performed by an experienced drilling company under contract to Epsolon Uranium Corporation.

Supervision for the corporation will be by a competent graduate geologist.

DMEA-Order
MF-103 (cont'd.)

Epsolon Uranium Corporation
P. O. Box 483
48 East Tabernacle Street
St. George, Utah

6.	(a)	Independent contracts: 5,500 feet diamond drilling @ $3.25/foot	$17,875.00
	(b)	Labor, supervision, etc: 3 months supervision @ $400.00/month (includes consultation fees)	1,200.00
		3 months misc. labor @ $280.00/month	840.00
	(c)	Operating materials and supplies: 200 core boxes @ $3.00/box	600.00
	(d)	Operating equipment: None.	
	(e)	Rehabilitation & repair: None.	
	(f)	Building & improvements: Drill site preparation, 150 hrs. @ $12.00/hour	1,800.00
	(g)	Miscellaneous: 10% of Item 6 (b).	
	(h)	Contingencies: 10% of Items 6 (a) to (g), inclusive	2,251.00
		TOTAL	$24,770.00

Epsolon Uranium Corporation
P. O. Box 483
48 East Tabernacle Street
St. George, Utah

DMEA-Order
MF-103

Item 6: Revised Cost Sheet.

PROPOSED AMENDMENT TO EXPLORATION PROJECT

In consideration of the results of the recent diamond drilling conducted by Epsolon Uranium Corporation as compared to the results obtained by bulldozer and jackhammer exploration, I would like to propose an amendment to the exploration project as previously outlined.

Because of the nature of the ground being drilled, core recovery is not too effective and holes once drilled are not easily probed. The material, a breccia-like mass of sandstone, limestone, shale and chert, will not hold a core. Holes must be cased and when the casing is removed, parts of the hole cave in making probing impossible. The most valuable information that has been obtained from drilling has been the contact of the breccia and the limestone in place.

Bulldozer and jackhammer work together have opened up all the mineralized zones found thus far and this work has been responsible for the ore grade material shipped from the mine.

In view of the much greater economic effectiveness of this latter method of exploration, I suggest the following changes in the project.

1. Cut the diamond drilling from 5,500 feet to 2,000 feet, drilling two 500 foot holes at each of two sites. One vertical and one horizontal hole at each site.

   Est. cost; 2,000 feet @ $3.25 foot $6,500.00

2. Contract for 250 hours of bulldozer work and 14,000 cubic feet of rock removal by mining. This latter item would be equivalent to 400 feet of 5' X 7' tunnel and should be used in short adits, drifts, raises, winzes and prospect pits.

   Est. cost; 250 hours bulldozer @ $12.00 hr. $3,000.00
   400 feet 5' X 7' @ $20.00 linear ft.
   (14,000 cubic feet) $8,000.00

This work should be limited to the area between the sites #1 and #4 as shown on the map. Bulldozer work should be used to gain access to uncover areas between #1 and #4 which show signs of mineralization. The rock removal work can then be used to penetrate these areas for further exploration.

Respectfully submitted,

Edwin J. Poehlmann,
Geological Engineer.

EJP:mk

Item 6: cont'd.

DMEA#Order
MF-103

Epsolon Uranium Corporation
P. O. Box 483
48 East Tabernacle Street
St. George, Utah

(To accompany proposed amendment to exploration project.)

6. (a) Independent contracts:

2,000 feet diamond drilling @ $3.25/foot	$6,500.00
400 feet, 5'x 7' tunnel @ $20.00/linear foot (14,000 cubic feet)	8,000.00
250 hours bulldozer work @ $12.00/hour	3,000.00

(b) Labor, supervision, etc:

3 months supervision @ $400.00/month (includes consultation fees)	1,200.00
3 months misc. labor @ $280.00/month	840.00

(c) Operating materials and supplies:

80 core boxes @ $3.00/box	240.00

(d) Operating equipment:

None.

(e) Rehabilitation and repair:

None.

(f) Building and improvements:

Drill site preparation, 20 hours @ $12.00/hour	240.00

(g) Miscellaneous:

10% of Item 6-(b)	204.00

(h) Contingencies:

10% of Items 6-(a) to (g) inclusive.	2,022.00
TOTAL	$22,246.00

EJP:mk

DMEA-Order
MF-103

Epsolon Uranium Corporation
48 East Tabernacle Street
P. O. Box 483
St. Geo, Ut.

PROPOSAL FOR EXPLORATION PROJECT

This project will take place on the Epsolon Uranium Corporations property, the East ½ of Section 32, T 38 S, R 12 W, SLBM. All drill holes will terminate within the boundary lines of the half section.

The apparent structure of the mineralized breccia-like material is that of a mass parallel to the fault escarpment, perhaps 300 to 600 feet wide and unknown in depth. The material can be traced along the strike of the fault for approximately 1 mile. It may be noted from the maps that the mineralized areas outcrop between 5300 and 5600 feet elevations. To the west, the slope is covered with talus and alluvium and no information can be gained as to depth of the breccia-like material. To the east, the cliffs are made of limestone which is, except for small fault displacements, essentially in place.

To explore this mineralized structure, it is proposed that three drill holes be placed at each of four sites (#1, #2, #4, and #5 on the accompanying map) in the manner shown on the section through site #1. One hole, vertical, one at 45° dip and one horizontal. Each hole would be in the order of 500 feet in depth, more or less. This drilling should delineate the boundary of the mineralized zone and should give indications as to extent and grade of mineralization.

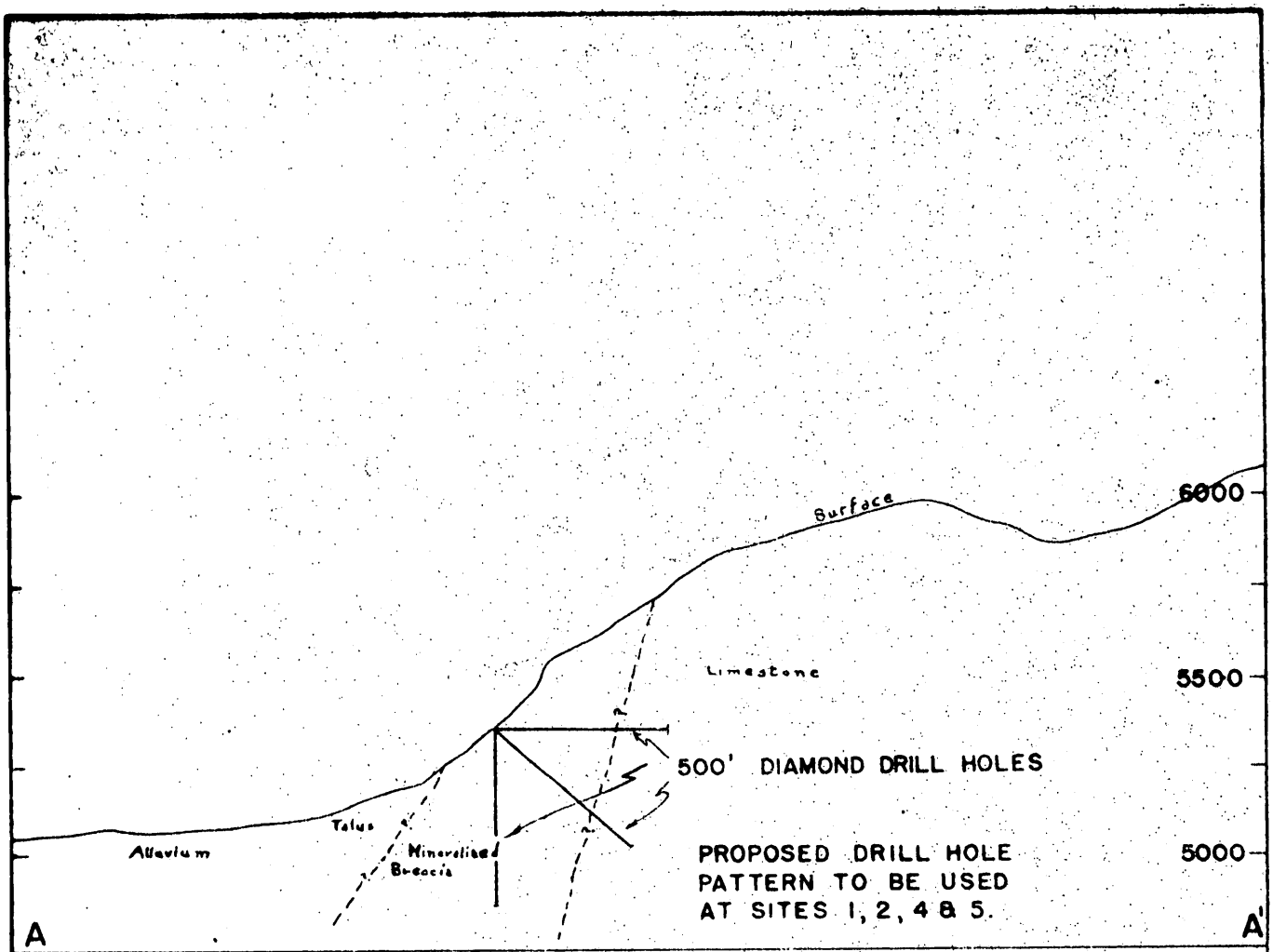
Respectfully submitted,

Edwin J. Poehlmann

Edwin J. Poehlmann,
Geological Engineer.

EPSOLON URANIUM CORPORATION
48 East Tabernacle Street
St. George, Utah

EJP:mk



WEST SECTION LOOKING NORTH EAST

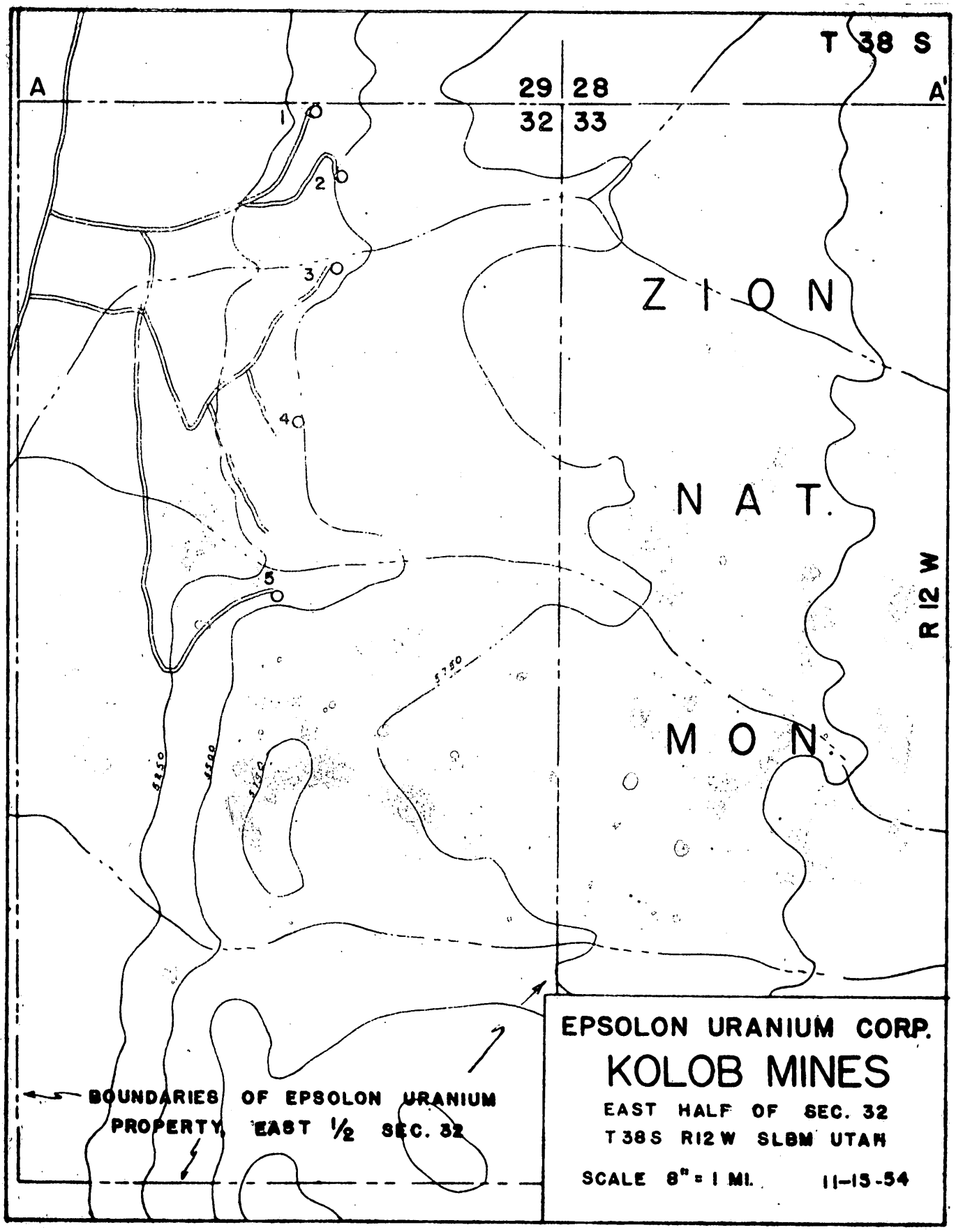
HOR. SCALE 1" = 660'
VERT. SCALE 1" = 500'

VERTICAL SECTION A-A'

KOLOB MINES

EPSOLON URANIUM CORP.

PROPOSED DMEA EXPLORATION


T 38 S
A
A'
29
28
32
33
1
2
3
4
5
ZION
NAT.
MON.
R 12 W
5750
5850
5800
5900
BOUNDARIES OF EPSOLON URANIUM PROPERTY, EAST 1/2 SEC. 32
EPSOLON URANIUM CORP.
KOLOB MINES
EAST HALF OF SEC. 32
T 38 S R 12 W SLBM UTAH
SCALE 8" = 1 MI.
11-15-54

224 New Customhouse
Denver 2, Colorado

April 21, 1955

Memorandum

To: Secretary to the Operating Committee, DMEA

From: DMEA Field Team, Region III

Subject: Report of Examination, DMEA Docket 3598 (Uranium), Epsilon Uranium Corp., Kolob Mine, Washington County, Utah

Enclosed are the original and three copies of the report pertaining to the above application.

We concur in the recommendations of the field examiners that exploration assistance is justified.

The applicant has been advised to submit the following:

1. Lessor's written consent of assignment

2. A performance bond in lieu of Owner's Consent to Lien in the amount of $6,650.00

3. A map showing the exact location of lots covered by Mineral Leases 8025 and 8026

This data will be forwarded you when received from the applicant.

HMC:sr
HMC
cc Docket
King
Wilson
Osterstock
AEC
Williams
Chron

W. M. Traver
W. M. Traver

for DRMacharen
E. N. Harshman

Enclosures

APR 21 1955
TRANSMITTED

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
1600 EAST FIRST SOUTH STREET
SALT LAKE CITY 1, UTAH

DMEA
Date Rec'd
APR 15 1955
BUREAU OF MINES
Denver, Colorado

April 13, 1955

Summary Reports + Review of Exam. Reports to Merrill 4-21-55

Memorandum

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

From: Stephen R. Wilson

Subject: Docket No. DMEA-3598 (Uranium), Epsolon Uranium Corp., Kolob mine, Washington County, Utah

Enclosed are the original and 10 copies of an engineering report covering examination of the subject property for DMEA loan appraisal. The report was prepared by M. M. Gilkey. Also attached are the necessary copies of a separate section, Summary, Conclusions and Recommendations, and a copy of the brochure.

The examining engineer and geologist believe the property has merit for possible discovery of uranium ore bodies. Approximately 325 tons of ore assaying 0.16 percent U_3O_8 has been produced from the property to date. Recommendation is made by the examining team that a loan of $8,850 be granted to the applicant for exploration as outlined in the engineering and geologic reports. I concur in this recommendation.

The Kolob property was discussed with AEC personnel at Richfield, Utah. Data obtained from this agency were used in appraisal of the loan request.

Stephen R. Wilson

Stephen R. Wilson

Enclosures

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

By M. M. Gilkey and R. W. Osterstock

Epsolon Uranium Corp., St. George, Utah, has applied for DMEA assistance on the Kolob uranium property, adjacent to the west boundary of Zion National Monument, Washington County, Utah. The property is held under lease from the State of Utah. DMEA field personnel examined the area March 3, 1955, to appraise the applicant's exploratory proposals.

Uranium mineralization in the Kolob area occurs in brecciated sediments in the extensive Hurricane fault zone, and chiefly in the more intensely brecciated areas at intersections with east-west fractures. It is believed that the brecciated rock is part of the Permian Kaibab limestone formation, although the breccia does not closely resemble this limestone exposed in cliffs a short distance east of the mine area. The breccia also contains fragments of igneous rocks similar to exposures of diorite porphyry and andesite porphyry in the Pine Mountains a short distance to the west.

The applicant originally requested a loan of $24,770 to conduct project work consisting of bulldozer stripping and diamond drilling. Discussions between the field examiners and representatives of the applicant resulted in an agreed revision of the original proposals to include 250 hours of bulldozer stripping and 3,500 cubic feet of miscellaneous surface excavations in a first stage of project work.

A second stage, dependent upon the results of the first stage, consists of 150 feet of drifting and crosscutting. The estimated cost of the modified project is $8,850.

Production from the property to date totals 325 tons with an approximate grade of 0.16 percent U_3O_8. Present ore reserves are estimated at 300 tons of the same grade.

The examining engineer and geologist believe the property has merit for possible discovery of significant uranium ore reserves. The district has been discovered recently and some production has been made. The alternate project proposals, consisting of 250 hours of bulldozer stripping and 3,500 feet of miscellaneous surface excavations in a first stage, and 150 feet of drifting and crosscutting in a second stage, appear adequate for preliminary exploration. It is recommended that a loan of $8,850 be granted to the applicant for exploration as outlined in the engineering and geologic reports.

APOLON URANIUM CORP.
KOLOB MINE
WASHINGTON COUNTY, UTAH
DMRA-3598
Uranium

Engineering Report

By M. M. Silkey
Mining engineer
Bureau of Mines

EPSILON URANIUM CORP.
KOLOB MINE
WASHINGTON COUNTY, UTAH

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Description of the deposits	6
Ore reserves	7
Mine workings and present status	8
Proposed exploration and costs	9
Conclusions and recommendations	11

ILLUSTRATIONS

Fig. 1 Location map, Epsilon Uranium Corp., Kolob mine, Washington County, Utah

Fig. 2 Plan of existing workings and proposed project area, Kolob mine

SUMMARY

The Epsolon Uranium Corp. has applied for Government assistance in an exploratory project on uranium property in a new area adjacent to the west boundary of Zion National Monument, Washington County, Utah. The property was examined by DMEA representatives March 3, 1955.

Uranium mineralization occurs in brecciated material in the extensive Hurricane fault zone. Rock types include sandstone, shale, and silicified limestone; and uranium minerals present, as reported by the applicant, include both the primary and secondary types. Available information indicates that ore on the property tends to occur in irregular, podlike deposits.

A modification of the applicant's project proposals, satisfactory to the applicant and estimated to cost a total of $8,850, is recommended for DMEA approval. The revised program consists of 250 hours of bulldozer stripping and 3,500 cubic feet of miscellaneous surface excavation (test pits, shaft sinking, drifting), in a first stage of the project. A second stage consists of 150 feet of drifting and/or crosscutting. Time to complete the work is estimated at 5 months.

Property involved in the proposed project is held by the applicant under an assigned lease from the State of Utah. State approval of the assignment is pending. Production from the property, to date,

totals 323 tons containing an estimated 0.16 percent U_3O_8, which is based on the computed average grade of 221.3 tons of the ore. All ore has been taken from a 65-foot inclined shaft, situated near the northern boundary of the property. The operator reports that a second ore body has been found in crosscutting 50 feet northeasterly from the bottom of the inclined shaft, and that the present operation is limited to development and mining of this deposit.

Exploratory work done on the property to date also includes a 246-foot adit, a 50-foot adit, 3 or 4 shallow prospect pits, and 1,138 feet of diamond drilling. No commercial ore was found as a result of this work. Ground conditions are good for drifting and shaft sinking. Extremely poor results obtained in diamond drilling, however, eliminate this method as a means of exploration.

Ore reserves in the inclined shaft workings are estimated at 300 tons averaging 0.16 percent U_3O_8. There are no other known reserves on the property.

INTRODUCTION

Epsolon Uranium Corp., P. O. Box 483, St. George, Utah, submitted an application dated October 30, 1954, for Government aid in an exploratory project on uranium property in Washington County, Utah. Deep snow in the area delayed the examination until March 3, 1955.

The property was examined on that date by R. W. Osteratock of the Geological Survey and M. M. Gilkey of the Bureau of Mines, with Clark Chadburn and Edwin J. Poehlmann representing the applicant.

Discussion with the applicant resulted in further modification of the already-amended project proposals. The program now proposed is estimated to cost $9,850. Time to complete the work is estimated at 5 months.

LOCATION, TOPOGRAPHY AND CLIMATE

The Kolob property is situated in Washington County, in the southwestern corner of Utah, in Sec. 32, T. 38 S., R. 12 W., S.L.B. and M. (fig. 1). From Cedar City, Utah, the nearest important town, the property is reached by driving south on U. S. Highway 91 a distance of 19 miles, thence 1 mile southeasterly over an unimproved mine access road to the workings. The distance from Salt Lake City to the property is 280 miles.

The mine workings lie on a steep, westerly slope below the escarpment marking the east side of the Hurricane fault zone. Altitude at the workings ranges from approximately 5,300 to 5,500 feet. Along the eastern boundary of the property, which is also the western boundary of Zion National Monument, the altitude varies from 5,700 to 5,800 feet.

Vegetation in the area consists principally of cedar trees. Water is available at Kanarraville, Utah, 7 miles to the north. Climatic conditions are generally favorable for project operation.

OWNERSHIP AND EXTENT

The property involved in the proposed project comprises 325.25 acres, or the east one-half of Section 32, which is owned by the State of Utah and leased to Arthur F. Crosby and F. Earl Cox. The original lessees have assigned the lease to the applicant, the Epsolon Uranium Corp., but State approval of the assignment has not yet been obtained. Specifically, the land included in the lease covers lots 1 through 8 in Sec. 32, T. 38 S., R. 12 W., S.L.B. and M.

The applicant is willing to obtain a performance bond in lieu of an Owner's Consent to Lien.

The lease is for a period of 10 years, beginning January 2, 1955, "... and as long thereafter as said minerals may be produced in commercial quantities..."

HISTORY AND PRODUCTION

The applicant states that the property was discovered by Arthur F. Crosby and F. Earl Cox, in the fall of 1953.

Through a working agreement with Crosby and Cox, pending State approval of assignment of the leases, the applicant has conducted exploratory work involving drifting, shaft sinking, test pitting, and diamond drilling (fig. 2).

Production to date, reported by the applicant, totals "325 tons of ore-grade material." All production came from an inclined shaft, sunk to a depth of 65 feet, near the northern boundary of the proposed

project area. A weighted average grade of 221.3 tons of the ore is 0.16 percent U_3O_8. The individual shipments ranged from 0.10 to 0.27 percent U_3O_8. A substantial portion of the ore was taken from a stope on the north side of the inclined shaft. The rock taken from 35 feet of crosscutting to the northeast from the bottom of the shaft beyond the stope was not of shipping grade.

DESCRIPTION OF THE DEPOSITS

Uranium mineralization occurs on the Epsolon property in brecciated material in the Hurricane fault zone.

B. S. Butler, in discussing the Hurricane fault in U. S. Geological Survey Professional Paper 111, "Ore Deposits of Utah," 1920, states: "...the great Hurricane fault marked by the Hurricane cliff, where faulting on a grand scale has taken place. This fault can be traced with a general strike east of north for scores of miles...and its displacement is measured by hundreds of feet. Movement along this line began much later than the folding of the region..."

Slope of the surface where uranium mineralization is exposed on the Epsolon property is 35 to 40 degrees to the west. A large portion of the surface is covered by talus. Width of the fault zone, degree of brecciation, and character of the material are variable locally. The breccia is thought to be of Kaibab origin. Width of the zone apparently ranges from a few feet to possibly 300 feet. The brecciated material includes limey sandstone and sandy limestone, from which the lime has been removed, and lesser amounts of shale.

The mineralized rock in the 65-foot inclined shaft and the stope, which have produced all ore mined to date, is light brown in color, fairly soft, and of a sandy nature. According to the applicant, minerals identified in this irregular, podlike deposit include autunite, carnotite, pitchblende, tyuyamunite, and uranophane. Autunite is the most common. The vanadium content is low and little $CaCO_3$ is present. A crosscut driven 35 feet northeasterly from the bottom of the inclined shaft encountered only waste rock.

Three DMRA check samples, Nos. 1, 2 and 3, were taken in the inclined shaft and stope, at the locations shown on figure 2. Only one was of ore grade. This 6-foot chip sample of a 25- or 30-ton pillar assayed 0.199 percent U_3O_8.

Adjacent to the fault zone on the west, the rocks in place are largely covered by overburden. There is, however, an outcrop of porphyritic andesite in this area.

On the east side, the fault zone is in contact with Permian Kaibab limestone.

ORE RESERVES

The applicant reports that the above-mentioned crosscut from the bottom of the inclined shaft has recently been extended to the northeast, to explore a mineralized area previously penetrated by a long, jackhammer drill hole. It is reported that the crosscut encountered commercial-grade material approximately 50 feet from the inclined

shaft. It appears from the applicant's description that this second ore body is similar to the one mined in the shaft, and that the point of intersection of the crosscut with the ore body is at the bottom of the ore-grade rock. It is assumed, therefore, that the reserves here also may be of the order of 300 tons of ore averaging 0.16 percent U_3O_8. Other mineralized areas found on the property to date are too low in grade or too limited in extent to be considered in an estimation of ore reserves.

MINE WORKINGS AND PRESENT STATUS

Exploratory work already accomplished on the property includes a 246-foot adit, a 59-foot adit, three or four shallow prospect pits, and 1,138 feet of diamond drilling.

The 246-foot adit was driven for the purpose of crosscutting a mineralized zone outcropping some 25 feet north of the offset in the west boundary line of Zion National Monument. No ore was exposed by this work, although some uranium mineralization was intersected at a distance of about 200 feet from the portal. A 12-hole round here breaks a 5' x 7' face, and no timber is required for ground support.

Diamond drilling results were extremely poor because of the nature of the ground.

The present operation is limited to development and mining of ore through the 65-foot inclined shaft situated about 300 feet south of the 246-foot adit. As in the adit, the ground is dry and no timber is needed for support.

The applicant has the equipment necessary to accomplish the proposed project work other than the surface stripping. This will be done by a subcontractor.

PROPOSED EXPLORATION AND COSTS

Original project proposals, and two revisions of the original proposals, have been submitted by the applicant. First, the applicant requested Government aid in a project consisting of 5,500 feet of diamond drilling. As poor results were obtained from diamond drilling in progress at the time, the requested drilling footage was reduced and finally eliminated. The major item of work in the second revision of the proposals is a "crosscut" to be driven 350 feet southeasterly, from the 200-foot mark in the existing 248-foot adit, and which would intersect at depth the northeasterly striking structures found in the vicinity of the inclined shaft.

After the property was examined, the field team representatives discussed with the applicant the matter of exploratory methods and costs. It was agreed that presently available information concerning grade, extent and distribution of uranium mineralization on the property indicates an exploratory program of a preliminary nature.

The following project proposals and costs are approved by the applicant:

Stage I

Item	Cost
Bulldozer stripping, 250 hours at $10 an hour	$2,500
Miscellaneous surface excavation (pits, adits, shafts) in the more promising mineralized areas, maximum of 2,500 cubic feet at $.70 a cubic foot	2,400

Stage II

Drifting and/or crosscutting (5' x 7' minimum cross section) to explore underground one, or possibly two, of the more highly mineralized surface showings, maximum of 150 feet at $25 a foot	3,750
Assays, 40 at $3.75 each	150
Total estimated cost of project	$8,250

Tentative arrangements have been made by the applicant to hire the owner-operator of a D-6 caterpillar to do the bulldozer stripping at $10 an hour. This is two or three dollars less than the usual charge for a D-6 with operator. The cost of $.70 per cubic foot for miscellaneous surface excavation is the approximate equivalent of the cost of drifting at $25 a linear foot. The latter figure is considered to be a reasonable estimation of the cost of 5' x 7' drifting under the existing conditions, and should be sufficient to cover the cost of any necessary timbering. The cost of uranium assays, at $3.75 each, is the amount charged at the assay laboratory operated in the nearby town of Leeds, Utah, by the Western Gold and Uranium Mines, Inc.

It is expected that most, if not all, of the proposed work will be done in the area indicated on figure 2. The area extends nearly

500 feet in a north-south direction, with the inclined shaft at about the midpoint.

A staged program is suggested as a means of increasing efficiency in carrying out the project work. The first stage consists of bulldozer stripping and miscellaneous excavation. At the completion of the first stage, the project will be inspected and geologically appraised by Government representatives. The locations of sites chosen for the second stage drifting and/or crosscutting must be approved by the Government prior to the beginning of this work.

Time to complete the entire project is estimated at 5 months.

CONCLUSIONS AND RECOMMENDATIONS

A total of 325 tons of ore averaging 0.16 percent U_3O_8 has been shipped from this mine in a new district. The presence of uranium mineralization at locations other than the inclined shaft is indicated by radiometric readings taken in an area extending roughly 500 feet north and south and 100 feet east and west. Removal of overburden by bulldozer stripping will expose the rock in place and facilitate further exploration of a limited nature by test pitting, shaft sinking, and drifting. One, or possibly two, of the most promising mineralized structures found in Stage I will be explored on a more extensive scale in a second stage of the project which will consist of 150 feet of drifting and/or crosscutting.

It is recommended that a short-form contract be drawn up to authorize the program outlined under "Proposed Exploration and Costs."

IN REPLY REFER TO:

DMEA

Date Rec'd.

APR 14 1955

BUREAU OF MINES
Denver, Colorado

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Defense Minerals Exploration Administration
Denver Federal Center
Denver, Colorado

April 13, 1955

TRANSMITTED
APR 21 1955

Memorandum

To: Field Team, Region III

From: E. N. Harshman

Subject: DMEA Docket 3598 (Uranium), Epsolon Uranium Mining Corp., Kolob mine, Washington County, Utah

Enclosed are the original and 9 copies of an initial examination report by R. W. Osterstock, U. S. Geological Survey, covering the above subject property.

Uranium is associated with intensely fractured and altered Kaibab limestone along the Hurricane fault, and about 325 tons of ore containing an average of 0.16 percent U_3O_8 have been mined from an inclined shaft.

Osterstock concludes that exploration on the property may lead to the discovery of significant quantities of uranium ore, and he recommends a 2-stage program of surface stripping and underground exploration.

I concur with his conclusions and recommendations.

E. N. Harshman

E. N. Harshman
Member, Field Team

Enclosures (10)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

MINERAL REFERSTO
IN REPLY
DMEA
RECEIVED
APR 13 1955
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

Room 208 - 222 So. West Temple
Salt Lake City 1, Utah
April 12, 1955

Mr. E. N. Harshman
Field Team, Region III
Mineral Deposits Branch
U. S. Geological Survey
Denver Federal Center
Denver, Colorado

Dear Mr. Harshman:

Transmitted herewith is the original and ten copies of the initial geologic report on DMEA Docket 3598, Epsolon Uranium Corporation, Kolob Mine, Washington County, Utah, by R. W. Osterstock.

Sincerely yours,

R. W. Osterstock

By Ruth Solstad
Ruth Solstad

cc: S. R. Wilson

EMBOLON URANIUM CORPORATION, KOLOB MINE

WASHINGTON COUNTY, UTAH

DMEA Docket 3598

Initial Geologic Report

by

R. W. Osterstock
U. S. Geological Survey

Contents

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Illustrations

Fig. 1 — Index map of Utah

2 — Plan of existing workings and proposed project area, Kolob mine.

3 — Geologic map of the Hurricane Cliffs area, Iron and Washington Counties, Utah.

4 — Plan map of Kolob Mine area, showing property boundaries.

Summary

The Epsalon Uranium Corporation, of St. George, Utah, has applied for Government assistance in exploration for uranium ores in and near the Kolob Mine, Washington County, Utah.

Uranium mineralization in this area appears to be confined to breccia developed in the Hurricane fault zone. The highest-grade deposits of uranium thus far located have been further restricted to the zones of most intense brecciation, and all the known uraniferous deposits in the Hurricane fault zone are adjacent to exposures of intrusive rock, though the significance of this fact is uncertain. Although the brecciated host rock in the Kolob mine bears little resemblance to the upper Permian Kaibab limestone exposed in the cliffs just east of the mine area, we nevertheless believe it belongs to that formation. It contains some intrusive rock. The applicants place emphasis on the existence of northeast-trending nearly vertical fractures in the incline shaft and the ledges to the east of the mine area, and believe these fractures may contain ore deposits. Evidence gathered in the field refutes this belief, as the fractures are extremely tight and do not appear to be persistent in either strike or dip.

Production from the Kolob mine area (all from the incline shaft) is reported by the applicants to be 325 tons containing an average of 0.16 percent U_3O_8. Since March 3, 1955, the date of the field examination, the applicants say they have encountered a second ore body, at the bottom of the incline shaft, and they estimate that this body will contain a tonnage and grade similar to that already mined.

We believe that the Epsalon Uranium Corporation property may contain significant quantities of uranium mineralization. The examining field team recommends a modified exploration program divided into two stages as described in detail in the body of this report.

Introduction

In response to a request from the DMEA Field Team, a joint field examination of the Kalob Mine area was conducted March 3, 1955, by R. W. Osterstock (USGS) and M. M. Gilbey (USBM), who were accompanied in the field by Mr. Clark Chadburn, president of the Epsalon Uranium Corporation, and Mr. Edwin Pechlmann, the consulting geologist employed by the applicant.

On October 30, 1954, the Epsalon Uranium Corporation of St. George, Utah, filed an application for a DMEA loan to aid in exploration for uraniferous ores on their Kalob property. The applicants submitted a revised exploration program on November 27, 1954, and submitted a further revision on February 3, 1955. This report deals with the plan submitted on the latter date.

Location and accessibility

The Kalob Mine area is located in Section 32, T. 38 S., R. 12 W., SLB&M. It lies at the foot of the north-trending Hurricane Cliffs, in Washington County, Utah, near the western boundary of Zion National Park. From the center of Hanksville, on paved U. S. Highway 91, the mine may be reached by travelling south 5.9 miles. One must take the left fork of an old paved road, which gives way about 50 yards from the forks to a primitive dirt road, about 1.1 miles long, which leads into the mine camp. (See figs. 1 & 3.)

History and production

Uraniferous deposits in the Kolob mine area were first recognized during the fall of 1953 by A. F. Crosby and F. E. Cox, who obtained leases (No. 6025 & 6026) from the State of Utah covering about 320 acres in the east half of Section 32, T. 38 S., R. 12 W., SLB&M. These leases are in the process of being assigned, subject to the approval of the State of Utah, to the Epsolon Uranium Corporation, the present operators of the property. The corporation has also applied to the United States Government for a minerals lease on another 160 acres of ground, adjoining the above-described property but within the confines of Zion National Park.

Since it occupied the Kolob property the Epsolon Uranium Corporation has driven a 246-foot adit, a 50-foot adit, and a 65-foot incline shaft, and a 35 foot crosscut from the bottom of the shaft. They have also put down three or four shallow prospect pits and have started a diamond-drilling program. During the course of the initial operations the applicants report production of 325 tons of ore-grade material, principally from the incline shaft workings. At the time of the field examination 221.3 tons of ore had been shipped, ranging from 0.10 to 0.27 percent U_3O_8 and averaging 0.16 percent.

Geology

The Kolob mine area lies at the foot of the north-trending Hurricane fault scarp, which has been traced for more than 170 miles. The Hurricane fault zone has a downthrow on the west throughout its entire length. The stratigraphic displacement is much greater at the north than at the south; L. S. Gardner [1] (p. 17) has estimated that in the Kanarraville area it is greater than 10,000 feet. The western or dropped block is now almost entirely obscured by talus and alluvial valley fill.

Many theories have been advanced as to the origin of the Hurricane fault. It is now generally recognized that the displacement is not confined to a single fissure but is distributed among several closely spaced parallel and sub-parallel normal faults, having dips ranging from 70 degrees westward to vertical. Gardner [1] (p. 18) points out that four separate periods of disturbance are recorded in the fault zone. The first of these produced a long fold trending north and south; the second formed the fault pattern but did not accomplish great displacement; the third accounted for most of the displacement; the final or fourth period involved some additional displacement in two stages. Topographic changes due to erosion since the last disturbance have been very slight.

The cliffs and ledges forming the eastern or upthrown block are made up of the upper Permian Kaibab formation. The Kaibab is generally underlain, where its base is exposed, by the Toroweap formation, also of Permian age, but this formation is not exposed in the mine area. In the cliffs just above the Epsalon workings the Kaibab is composed of very light colored, dense, thick- to thin-bedded, somewhat sandy limestone. This section agrees in essence with the uppermost beds of the Kaibab as described by McKee [1] (p. 54) and Gregory [2] (p. 113). Unconformably overlying the Kaibab formation is the lower Triassic Moenkopi formation, of which only the lowermost or Timpoweap member, is exposed in this area. The Timpoweap member includes a basal conglomerate or conglomeratic limestone, grey-blue limestone, and some light-colored sandy shale. Further east from the fault scarp higher elements of the Moenkopi formation are exposed, which consist of the more typical red sandy shales and mudstones. Blocks of Moenkopi have broken off or slumped over the Kaibab ledge, and partially obscure the Kaibab cliff in some localities.

Regionally, the sediments in the east or upthrown block exhibit a fairly persistent northward strike and a gentle easterly dip. The dip seldom exceeds 3°, but in the area immediately to the east of the Epsilon property it becomes considerably steeper because of tilting and local folding. Between the strands of the fault zone there is much breccia, consisting dominantly of Kaibab rocks. The limestone unit is altered and bleached, and most of the calcite has been leached out of the originally calcareous sandstone.

Igneous rocks exposed in the Hurricane fault zone are described by J. F. Powers (1955, oral communication) as similar in composition to the diorite porphyry or andesitic porphyry of the Pine Valley Mountains, a few miles westward from the Epsilon property. (See figs. 3 and 4.) These rocks form small isolated outcrops at the base of the Hurricane fault scarp. They are generally lavender colored and considerably altered. Their exact origin is in doubt; Gardner[1] (p. 20) terms them Oligocene volcanics, though Cook[1] (p. 92) terms the similar igneous rocks in the Pine Valley Mountains intrusive diorite porphyry. A magnetic profile run across one of these small igneous outcrops about 4 miles northeast of the Epsilon property reveals no root system, a fact that implies extrusive origin; it is quite possible, however, that the outcrops are faulted blocks of intrusive rock displaced from their roots by the Hurricane fault.

In the mine area within the borders of the Hurricane fault zone there are some small faults or fractures that trend east-west, and where these cross the Hurricane fault zone the brecciation that is so common in that zone is especially intense.

Ore Deposits

Uranium mineralization on the Epsilon property appears to be confined to the breccia zones developed in the Hurricane fault zone, and perhaps mainly if not wholly to the more intensely brecciated rock occurring at its intersection with the east-west fractures. We believe that most of the brecciated material in the mine area belongs to the Kaibab limestone, although it now bears little resemblance to rocks of that formation exposed in the cliffs and ledges forming the east block of the Hurricane fault. All the uraniferous deposits located thus far in the Hurricane fault zone have been near igneous rock similar to the andesite porphyry exposed on the Epsilon property; whether this fact has any genetic significance is uncertain. Autunite and uranophane, both secondary uranium minerals, have been positively identified in ores from the Kolob mine, and the applicants believe they have identified carnotite, tyuyamunite, and pitchblende. As the host rock has been much bleached and silicified and deprived of much of its original calcite, it seems likely that the ore mineralization in the Kolob mine area is of hydrothermal origin.

The ore thus far produced has all come from the incline shaft. The host rock in these workings is the above-mentioned breccia, here consisting mainly of brownish very friable sandy material enclosing a few larger fragments of shaly material. Assay results of three chip samples cut in the incline workings during the DMEA field examination as follows: (See fig. 2.)

#1. NE corner of pillar, 6' chip — 0.199 percent U_3O_8.
#2. 20 feet down from collar, south wall, 6' chip — 0.020 percent U_3O_8.
#3. West side of slope, 15 feet north of center line of incline, 5' chip — 0.009 percent U_3O_8.

The stoped area at the foot of the incline is walled on the east and west by steeply dipping northeastward-trending fractures. These fractures do not sharply delimit the ore mineralization, but they serve as convenient array walls, far beyond them the mineralization falls off markedly and none of the rock is ore.

Emmet Rigney, general superintendent of the Epsilon operation, reports that a new ore body has been exposed in the workings at the foot of the incline shaft, and believes that this body contains as much ore as the company has mined hitherto, and of similar grade.

Uranium mineralization encountered about 200 feet from the portal of the adit at the north end of the Epsilon property is below ore grade but appears to have much the same characteristics as the ore encountered in the incline. As in the incline, the host rock is brown sandy material enclosing some larger fragments of sandy shale. This long adit was driven with the hope of intersecting downward extensions of ore-grade material exposed on the surface about 50 feet to the north but inside the boundary of Zion National Park. The applicants report encountering ore-grade material in their 50-foot adit near the south boundary of the property (see fig. 2), but not in sufficient quantity to support a mining operation.

Radiometric surveys reveal the presence of low-intensity anomalies over most of the breccia in the Hurricane fault zone in the Kolob mine area. Around the incline shaft there is a slightly higher anomaly, about 500 feet long in a north and south direction and 100 feet wide in an east and west direction.

Ore Reserves

The applicants report that they have found a second ore body in the workings at the foot of the incline shaft, and they estimate that this new ore body will contain reserves of similar size and grade to the ore body already mined from these workings. If this is true, as we think is probable, the incline shaft area contains an inferred ore reserve of 300 tons containing an average of 0.16 percent U_3O_8. No reserve estimates can be made for other portions of the property.

Proposed Exploration

The operators in their original application proposed an exploration program composed entirely of diamond drilling, but upon completion of some diamond drilling conducted at their expense, they proposed reducing the diamond-drill-hole footage and substituting some bulldozer work. After they had done 1,138 feet of diamond drilling, they submitted a further revision of their exploration program, in which bulldozer, surface rock work, and underground work were proposed, but no diamond drilling.

Although at the outset the applicants thought a diamond-drilling program would be logical method of exploration on this property, they found that the results were very unsatisfactory. Core recovery in the brecciated material was very poor (reported to be 2 to 3 percent), loss of water prevented any recovery of sludge, and almost immediate caving of the holes hindered radiometric probing.

A discussion of each of the three sub-projects as proposed in the most recent revision of the exploration program follows:

1. A 390-foot crosscut to the south is proposed from the 200-foot mark in the 246-foot adit to the zone underlying the present incline shaft. The purpose of this work as

explained by the applicants is to intersect at depth the vertical structures noted in the incline shaft. The applicants also report the existence of other vertical structures in the cliffs and ledges to the east, projections of which would also be intersected by the proposed crosscut. Field examination of the structures in the incline and the ledges reveals that they are very tight fractures, which cannot be expected to persist far either horizontally or vertically. The ore zone encountered in the incline appears to be localized by extreme brecciation due to recurrent movement along the various breaks and strands that make up the Hurricane fault zone. There does not seem to be any good reason to suppose that the ore zone encountered in the incline shaft will extend vertically downward. It is therefore recommended that this phase of the applicants' proposed work program be denied. Deletion of this phase has been discussed with and approved by the applicants.

2. Surface exploration by bulldozer stripping, and opening of small prospect shafts or adits; these operations would involve 250 hours of bulldozing and the equivalent of 100 feet of tunneling for rock removal. The applicants propose that most of this work be done south of the incline shaft. Thus far they have had considerable success with this method of exploration in surface-stripping anomalous* zones. It is recommended that this portion of the applicants' proposal be approved for 250 hours of stripping by bulldozer, and

*Note: Anomalous zone, as used in this report, refers to an area that registers a relatively higher degree of radioactivity, i.e. substantially above normal background readings.

100 feet (equivalent) of rock work for more detailed inspection of anomalous zones exposed by the stripping operation. Only very general areal restrictions need be placed on the locale of the stripping operations, since the applicants are aware of the most promising areas and will in their own interest examine only the best areas. The location of the rock work following the stripping operation must depend on the judgment of the applicants.

3. The applicants propose a 150-foot crosscut under an anomalous area about 1,500 feet southeasterly from the incline shaft. The purpose of this proposal is the intersection at depth of a zone of uraniferous material noted on the surface. Field examination failed to reveal any similarity as suggested by the applicants between this uraniferous zone and that on which the incline was begun.

Although this zone does show some promise it is recommended that authorization for work on the requested 150-foot adit be withheld pending the results of the bulldozer stripping operation. When that is completed, a comparison of any uraniferous zones that may have been discovered will perhaps indicate that one or two of the newly discovered zones hold more promise than the zone for which the 150-foot adit is now requested.

Following is a summary of the modified exploration program recommended by the field examiners. This program has been agreed to by the applicants.

1. 250 hours of bulldozer stripping in an areashout 300 feet long in a N-S direction and 100 feet wide in an E-W direction (approximately as depicted on fig. 2).

2. 3,500 cubic feet of rock removal (equivalent of 100 feet of drifting) for more detailed examination of anomalous zones exposed by the stripping operation.

3. 150 feet of drifting and/or crosscutting to be used for underground examination of one or two of the most promising areas exposed by the preceding operations.

4. $150.00 for assaying expenses during the course of the project work.

Since the exploration work falls into two categories, surface and underground, and the location of the underground work must depend on the results obtained from the surface work, we recommend that the program be carried out in two stages, as follows:

Stage I — bulldozer stripping and rock removal.

Stage II - drifting and crosscutting, which must have prior written government approval.

The total estimated cost of the two-stage exploration program is estimated to be $8,850.00.

Conclusions and recommendations

Uraniferous mineralization in the Kaleb Mine area appears to be confined to zones of extreme brecciation developed by recurrent movement along the Hurricane fault. The brecciated material which acts as host rock to the mineral deposits is ascribed to the upper Permian Kaibab formation. Such bleaching and alteration, together with some silicification and almost complete removal of the original lime content, indicate that the uranium minerals are of hydrothermal origin. They may be genetically related to igneous rock which occurs in close proximity to all the uraniferous deposits thus far located along the Hurricane fault.

The applicants have produced 325 tons of ore containing an average of 0.16 percent U_3O_8 from workings at the bottom of an incline shaft; a second ore body now being developed in the incline shaft is estimated to contain a similar tonnage of ore of similar grade.

A modified exploration program as proposed by the field examiners and agreed to by the applicants involves two stages: I, 250 hours of bulldozer stripping and 3,500 cubic feet of rock removal for more detailed inspection of anomalous zones exposed by the bulldozer stripping; and II, with prior written government approval contingent on promising results from I, driving 150 feet of drifts and/or crosscuts to explore underground one or two of the most promising zones exposed under Stage I. These recommendations have been reviewed and approved by Mr. Dudley Davis, geologist, Salt Lake Exploration Branch of the Atomic Energy Commission.

As we believe that the property here described, which is in a new district, may contain significant quantities of uraniferous material, we recommend that the government enter into a contract with the applicants to aid in the modified exploration program outlined in this report. The total estimated cost of the proposed program is $8,850, of which the Government's share will be 75 percent or $6,637.50.

References cited:

1. Gardner, L. S., McKee, E. D., Cook, E. F., et. al: Guidebook to the Geology of Utah, No. 7, 1952.

2. Gregory, H. E., Geology and Geography of the Zion Park Region, Utah and Arizona: U. S. Geol. Survey Prof. Paper 220, 1950.

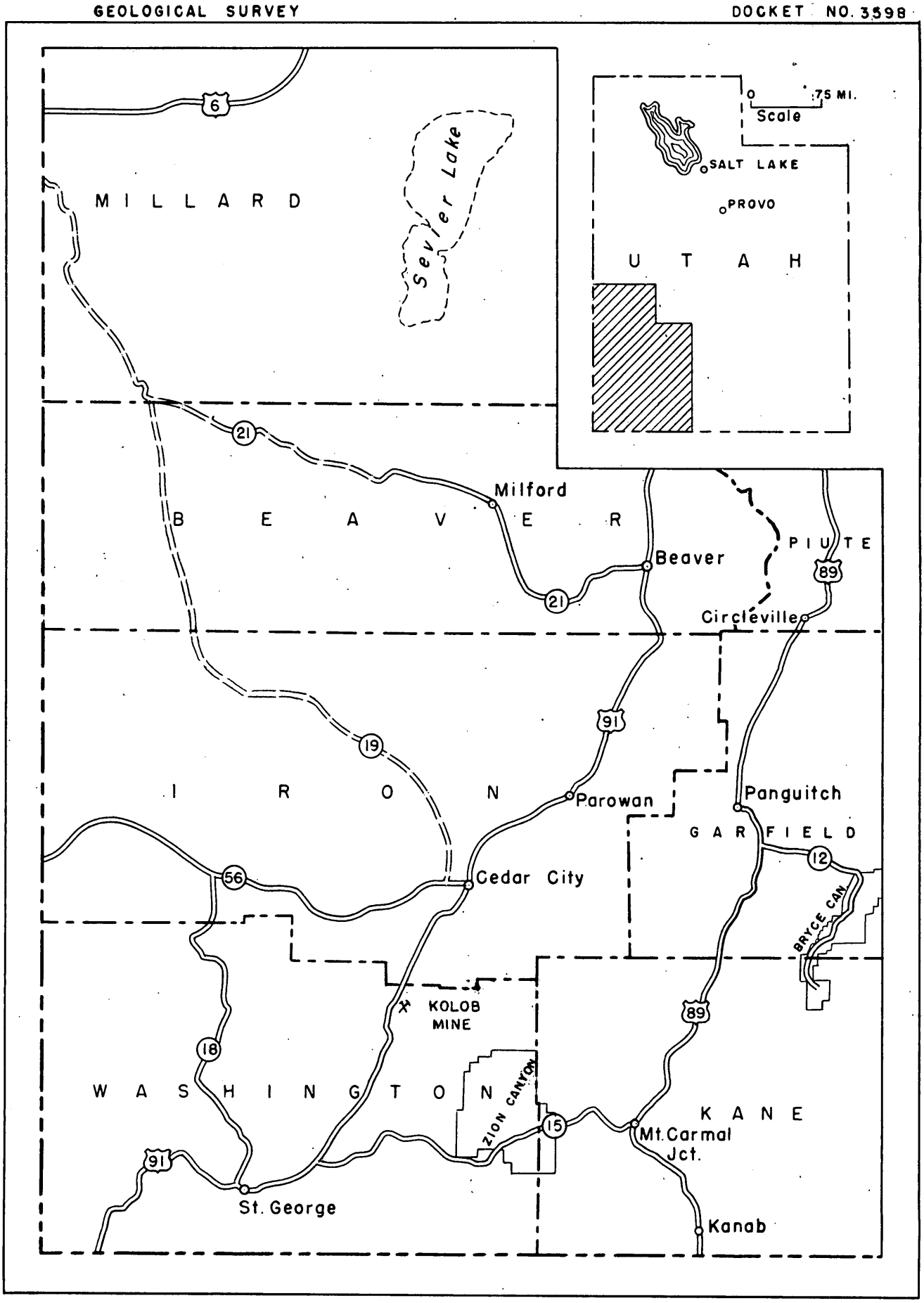

FIG. 1 INDEX MAP OF UTAH

0 5 10 15 20 MILES
Scale

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEFENSE MINERALS EXPLORATION ADMINISTRATION
DOCKET NO. 3598

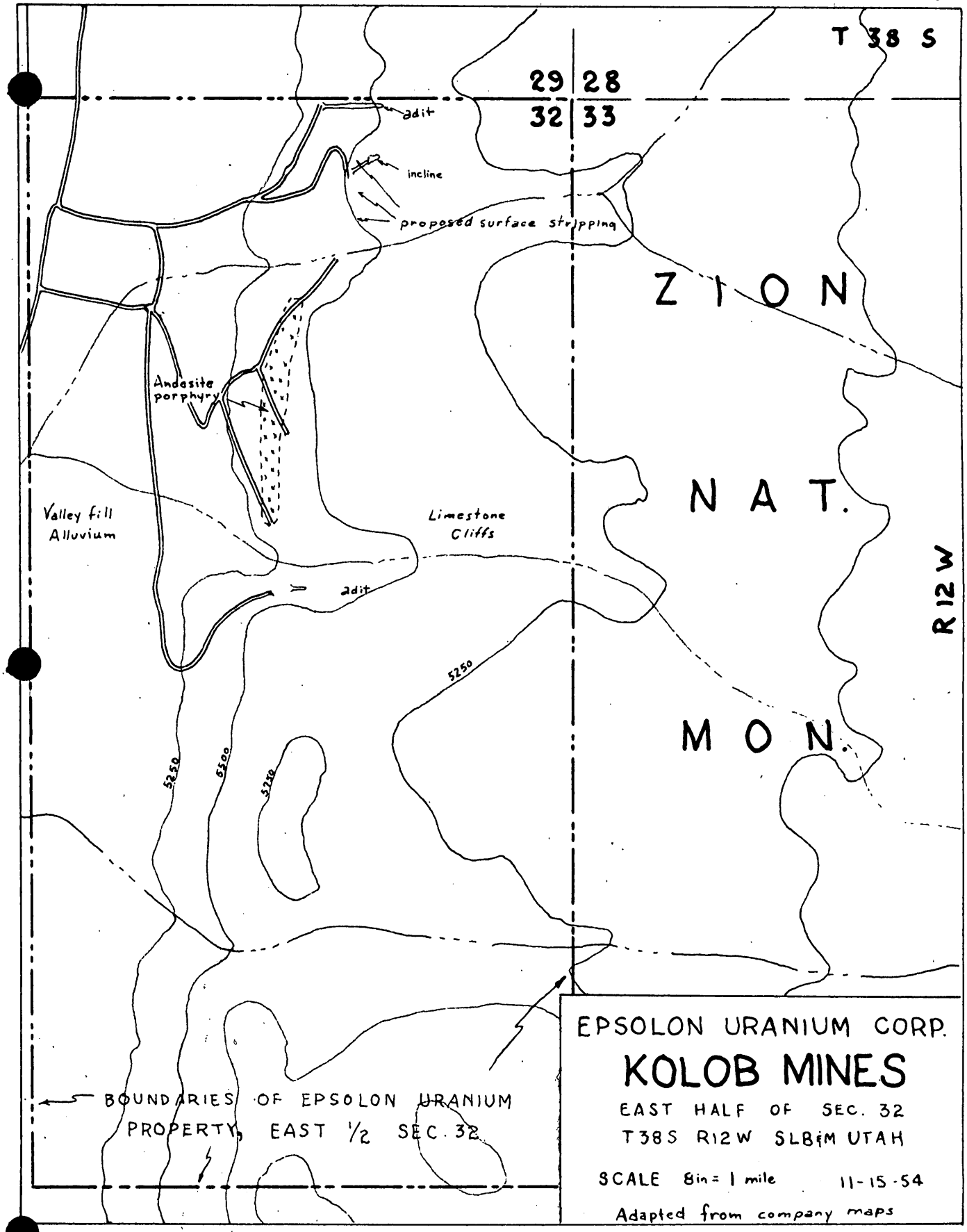

FIG. 4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
1600 EAST FIRST SOUTH STREET
SALT LAKE CITY 12, UTAH

Extra Copy

November 21, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III
Through: S. R. Wilson
E. N. Marshman

From: M. M. Gilkey
F. B. Moore

Subject: Docket No. DMEA-3598 (Uranium), Epsolon Uranium Corp. (Kolob mine), Washington County, Utah. Report of supplemental examination

The Epsolon Uranium Corp. submitted an application dated October 30, 1954, for Government aid in an exploratory project estimated to cost $24,770, on State-owned uranium property in Washington County, Utah. Deep snow in the area delayed the first DMEA examination until March 3, 1955. The field examiners were R. W. Osterstock of the Geological Survey and M. M. Gilkey of the Bureau of Mines. A report of examination, submitted April 13, 1955, recommended a modified program agreeable to the applicant, costing an estimated $8,850.

Exploration recommended in the revised project consists of 250 hours of bulldozer stripping and miscellaneous surface excavation in a first stage, and 150 feet of drifting and/or crosscutting in a second stage. The work was expected to be confined to an area in the Hurricane fault zone exhibiting the highest radiometric readings. An inclined shaft was sunk in this area and approximately 325 tons of ore containing an estimated 0.16 percent U_3O_8, the total production of the mine, had been obtained. The area is indicated on figure 2 of the examination report and on figure 2A accompanying this supplemental report.

Processing of the application was delayed pending receipt from the applicant of three exhibits described in the letter of May 20, 1955, to the applicant, from Ernest William Ellis, Chief, Rare and Miscellaneous Metals Division, DMEA. In a memorandum dated October 22, 1956, we were informed by the Executive Officer, Region III, that the requested exhibits had been received, and that a supplemental examination of the property would be necessary because of the fact that additional exploration had been performed by the applicant subsequent to the original examination.

The property was inspected September 13, 1956, by F. B. Moore of the Geological Survey and M. M. Gilkey of the Bureau of Mines, and

was again visited by the latter October 30, 1956. Location and extent of the recent work accomplished by the applicant were noted on these occasions. Mr. Clark Chadburn, president of the company, accompanied the engineer at the time of the October visit. The property has been inactive since early in September 1956. Figure 2A shows all work accomplished to date in and near the project area. The recent work consists of driving two new adits, each approximately 80 feet in length, about 550 feet of bulldozer trenching, as well as open-cut excavating and vertical shaft (winze) sinking in the vicinity of the inclined shaft.

The highest grade material encountered in the recent workings is reported by the applicant to have been taken from the 25-foot vertical shaft. Reported grade of a grab sample of several tons from the shaft is 0.12 percent U_3O_8. A 3.5-foot sample taken by DMEA personnel from the north side of the shaft, from the area in the shaft exhibiting highest radioactivity, assayed 0.079 percent U_3O_8. The south side appears to be barren. The bottom is covered by several feet of broken rock. Mr. Chadburn stated that uranium mineralization is wider in the shaft bottom (extends 5 to 6 feet horizontally) and is similar in grade to that in the area of the DMEA sample that assayed 0.079 percent U_3O_8. Next in importance as to grade of mineralization encountered in recent work, according to Mr. Chadburn, is the south side of No. 2 adit, within an interval extending from 60 to 70 feet from the portal. The reported grade in this area is 0.80 percent U_3O_8. A 10-foot DMEA check sample cut at this location, however, assayed only 0.002 percent U_3O_8. No other samples were taken, inasmuch as radiometric readings indicate that additional chemical assaying is not warranted. No significant readings were obtained in No. 3 adit or in the bulldozer trenches. Little rock-in-place is exposed in the trenching accomplished east of the project area proper, but it is well exposed in most of the trench excavated diagonally across the outlined area.

The uranium mineralization, reported to be principally autunite, occurs in a grey to brownish, friable sandy rock enclosing occasional fragments of shaly material. This type of rock appears to constitute the major portion of the material in the Hurricane fault zone in the area of the applicant's property, as the adits crosscutting the fault zone do not penetrate rock of a different type. The one ore body mined to date was extremely irregular in shape, and had no distinct structural or lithologic boundaries. The low-grade ore followed downward in the vertical shaft appears to be a continuation of the ore body mined in the inclined shaft and in the small adjacent stope. Lack of information concerning ore control precludes planning additional exploration in the shaft area, other than to follow the strongest mineralization. This does not seem warranted, in view of the grade, irregularity, and probable limited extent of the mineralization. There are no other known areas on the property in which the U_3O_8 content approaches 0.10 percent.

It should be noted that the ore reserve estimate of 300 tons in the original examination report, and which was based largely on information supplied by the applicant, has been refuted by the results of a small amount of additional crosscutting and drifting accomplished east of the bottom of the inclined shaft.

The open-cut operation was intended to supply feed for a small uranium mill recently constructed at Washington, near St. George, Utah. It is reported that the Epsolon Uranium Corp. is part owner of the milling company. Capacity of the mill is 50 tons in 24 hours. Mr. Chadburn states that the mill can operate at a profit on ore assaying as low as 0.08 percent U_3O_8. A small portion of the material excavated in the open cut is reported to have contained from 0.05 percent to 0.10 percent U_3O_8, and to have been used for testing purposes in the mill.

The work performed subsequent to the original DMEA examination has essentially accomplished the purpose of the exploration recommended in the report of examination. Presently available geologic information indicates that the uranium mineralization occurring on the Epsolon property is weak, limited in extent, and erratically distributed. It is, therefore, recommended that the applicant's request for Government aid in additional exploration be denied.

M. M. Gilkey

M. M. Gilkey, Bureau of Mines

F. B. Moore

F. B. Moore, Geological Survey

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
1600 EAST FIRST SOUTH STREET
SALT LAKE CITY 12, UTAH

Extra Copy

November 21, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III
Through: S. R. Wilson SRW
E. N. Harshman ENH

From: M. M. Gilkey
F. B. Moore

Subject: Docket No. DMEA-3598 (Uranium), Epsolon Uranium Corp. (Kolob mine), Washington County, Utah. Report of supplemental examination

The Epsolon Uranium Corp. submitted an application dated October 30, 1954, for Government aid in an exploratory project estimated to cost $24,770, on State-owned uranium property in Washington County, Utah. Deep snow in the area delayed the first DMEA examination until March 3, 1955. The field examiners were R. W. Osterstock of the Geological Survey and M. M. Gilkey of the Bureau of Mines. A report of examination, submitted April 13, 1955, recommended a modified program agreeable to the applicant, costing an estimated $8,250.

Exploration recommended in the revised project consists of 250 hours of bulldozer stripping and miscellaneous surface excavation in a first stage, and 150 feet of drifting and/or crosscutting in a second stage. The work was expected to be confined to an area in the Hurricane fault zone exhibiting the highest radiometric readings. An inclined shaft was sunk in this area and approximately 325 tons of ore containing an estimated 0.16 percent U_3O_8, the total production of the mine, had been obtained. The area is indicated on figure 2 of the examination report and on figure 2A accompanying this supplemental report.

Processing of the application was delayed pending receipt from the applicant of three exhibits described in the letter of May 20, 1955, to the applicant, from Ernest William Ellis, Chief, Rare and Miscellaneous Metals Division, DMEA. In a memorandum dated October 22, 1956, we were informed by the Executive Officer, Region III, that the requested exhibits had been received, and that a supplemental examination of the property would be necessary because of the fact that additional exploration had been performed by the applicant subsequent to the original examination.

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was again visited by the latter October 30, 1956. Location and extent of the recent work accomplished by the applicant were noted on these occasions. Mr. Clark Chadburn, president of the company, accompanied the engineer at the time of the October visit. The property has been inactive since early in September 1956. Figure 2A shows all work accomplished to date in and near the project area. The recent work consists of driving two new adits, each approximately 80 feet in length, about 550 feet of bulldozer trenching, as well as open-cut excavating and vertical shaft (winze) sinking in the vicinity of the inclined shaft.

The highest grade material encountered in the recent workings is reported by the applicant to have been taken from the 25-foot vertical shaft. Reported grade of a grab sample of several tons from the shaft is 0.12 percent U_3O_8. A 3.5-foot sample taken by DMEA personnel from the north side of the shaft, from the area in the shaft exhibiting highest radioactivity, assayed 0.079 percent U_3O_8. The south side appears to be barren. The bottom is covered by several feet of broken rock. Mr. Chadburn stated that uranium mineralization is wider in the shaft bottom (extends 5 to 6 feet horizontally) and is similar in grade to that in the area of the DMEA sample that assayed 0.079 percent U_3O_8. Next in importance as to grade of mineralization encountered in recent work, according to Mr. Chadburn, is the south side of No. 2 adit, within an interval extending from 60 to 70 feet from the portal. The reported grade in this area is 0.80 percent U_3O_8. A 10-foot DMEA check sample cut at this location, however, assayed only 0.002 percent U_3O_8. No other samples were taken, inasmuch as radiometric readings indicate that additional chemical assaying is not warranted. No significant readings were obtained in No. 3 adit or in the bulldozer trenches. Little rock-in-place is exposed in the trenching accomplished east of the project area proper, but it is well exposed in most of the trench excavated diagonally across the outlined area.

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M. M. Gilkey

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F. B. Moore

F. B. Moore, Geological Survey

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
1600 EAST FIRST SOUTH STREET
SALT LAKE CITY 12, UTAH

DMEA
DEPARTMENT OF THE INTERIOR
NOV 28 1956
REGION III
DENVER, COLORADO

November 26, 1956

Memorandum

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

From: Stephen R. Wilson

Subject: Docket No. DMEA-3598 (Uranium), Epsilon Uranium Corp. (Kolob mine), Washington County, Utah

Enclosed is a brochure pertaining to reexamination of the subject property. A joint memorandum report was transmitted to Denver November 21, 1956. Denial of the applicant's request is recommended.

Stephen R. Wilson

Stephen R. Wilson

Enclosure

cc: J. B. Clemmer

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
1600 EAST FIRST SOUTH STREET
SALT LAKE CITY 12, UTAH

DMEA
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Stephen R. Wilson

Enclosure

cc: J. B. Clemmer

CLARK CHADBURN, PRESIDENT
H. L. NEWBY, VICE-PRESIDENT
FRANK MEEDS, SECRETARY-TREASURER

P. O. BOX 483
TELEPHONE 220

EPSOLON URANIUM CORPORATION

49 EAST TABERNACLE
ST. GEORGE, UTAH

Date Rec'd
NOV 29 1954
BUREAU OF MINES
Denver, Colo.

November 27, 1954

Mr. John F. Shaw
United States Department Of The Interior
Defense Minerals Exploration Administration
224, New Customhouse
Denver 2, Colorado

Re: Application for DMEA assistance (Uranium). U. S. Department of the Interior, Defense Minerals Exploration Administration. Denver 2, Colo. November 9, 1954.

Dear Mr. Shaw:

We are enclosing a more detailed proposal for the drilling project to accompany our original DMEA Application in consideration of the recent diamond drilling work. We also enclose a proposed amendment and revised cost estimate sheet for your consideration; plus maps you requested.

In reference to paragraph three of your letter of November ninth; Lessors written consent to assignment, this requirement (four signed copies by officials of the State of Utah) will be forwarded promptly upon completion of same.

Epsolon Uranium Corporation is willing to obtain a Performance Bond in lieu of an Owner's Consent to Lien. If Statement separate from this letter is required, please advise.

Yours very truly,

Clark Chadburn

CLARK CHADBURN,
President.

Encls:
Proposal for Exploration Project (4)
Proposed Amendment to Exploration Project (4)
Epsolon Property Map (4)
Proposed Drilling Map (4)

CC:mk

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

Mining Division
Date Rec'd.
NOV 1 - 1954
BUREAU OF MINES
Denver, Colorado

Wilson

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. 3598
Metal or Mineral
Date Received
Estimated Cost
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: Epsolon Uranium Corporation
P. O. Box 483
St. George, Utah

(*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. Corporation, The State of Utah.

(*c*) If a corporation, add to above statement, titles, names and addresses of officers. (See attached 1. (c).)

(*d*) If a partnership, add to the above statement the names and addresses of all partners. Not applicable.

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 Mineral Lease Nos. 8025 and 8026 from The State of Utah covering Lots 1, 2, 3, 4, 5, 6, 7, and 8 in Section 32, Township 38 South, Range 12 West, Salt Lake Meridian, containing 328.25 acres, more or less.

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

(*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. Not applicable.

(*e*) If you own the land, describe any liens or encumbrances on it Not applicable.

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. Not applicable.

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.

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades.

(*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.

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

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

5. *The exp[illegible]tion project.*—(*a*) State the mineral or minerals for which you wish to explore Uranium and vanadium.

(*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.

(*c*) The work will start within ..... days and be completed within ..... 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.

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.

(*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.

(*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.

(*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 [X] 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 October 30, 1954

EPSOLON URANIUM CORPORATION
(Applicant)

By Clark Chadburn

Clark Chadburn, President
48 East Tabernacle Street
St. George, Utah

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

DMEA-Order
MF-103 (cont'd.)

Epsolon Uranium Corporation
P. O. Box 483
48 E. Tabernacle Street
St. George, Utah

1. (c) CLARK CHADBURN, President
P. O. Box 483, St. George, Utah.

H. L. NEWBY, Vice-President
P. O. Box 483, St. George, Utah.

FRANK L. MEEDS, Secretary-Treasurer
4324 West Charleston Boulevard; Las Vegas, Nevada.

NORMAN W. BLAD, Member of the Board
P. O. Box 406, Mesquite, Nevada

WILLIAM B. BERK, Member of the Board
405 Stanley, North Las Vegas, Nevada.

JOHN D. CARTER, Member of the Board
1960 East 6400 South, Salt Lake City, Utah

JACK KEOUGH, Member of the Board
3630 Hillside, Salt Lake City, Utah.

C O P Y

3 (d)

OPTION AND ASSIGNMENT OF LEASE

OPTION

THIS AGREEMENT, made and entered into in duplicate this 4 day of August, 1954, by and between ARTHUR F. CROSBY and FRANK EARL COX, of St. George, Utah, parties of the first part, hereinafter called the lessors, and CLARK CHADBURN and H. L. NEWBY, of St. George, Utah, parties of the second part, hereinafter called the lessees, Witnesseth:

WHEREAS, the lessors herein have entered into two leases, between the State of Utah as lessor and the lessors herein as lessees, which leases are numbered 8025 and 8026, respectively, and which said leases cover the uranium and vanadium and such other minerals as are mentioned in said leases in and on the following described ground in Washington County, Utah, to wit:

> The east half of Section 32, Township 38 South, Range 12 West, S. L. M. containing 320 acres, more or less;

which said leases are hereby specifically referred to and by reference made a part hereof as fully and effectually as if set out verbatim herein, and

WHEREAS, the lessors herein have applied to the United States Government for a lease of the minerals in and on 160 acres of ground adjoining the above-described property, but which 160 acres is within the confines of Zion National Monument, and which application is now being considered but has not been definitely acted upon, and

WHEREAS, the parties hereto have reason to believe that said ground and premises disclose mineral deposits of great value as well as potential development of great ore bodies, and

WHEREAS, the proper development of such ore bodies, both present and in expectancy, and the proper reduction and treatment thereof will necessitate the outlay of large sums of money, and

WHEREAS, the parties hereto are willing that the lessees herein undertake such development work but only under and in accordance with the terms and subject to the conditions hereinafter set forth;

Now, THEREFORE, in consideration of the premises and for

valuable consideration paid by the lessees to the lessors, the receipt and sufficiency of which is hereby acknowledge, and for and in consideration of the mutual covenants of the parties by each to the other made and herein contained, the parties agree as follows:

1- The lessors hereby grant to the lessees an option which is to be exercised within ten days after March 1, 1955, upon the terms and conditions herein set forth, to receive an assignment of mining leases in the form hereto annexed and hereby referred to and made a part hereof, covering said above mentioned mineral properties.

2- The lessees herein have heretofore caused to be deposited with Hafen and Nelson, attorneys at law, St. George, Utah, in trust, the sum of $10,000.00, and upon execution of this agreement, the lessors herein agree to lease and sublet the premises and properties described in their said leases No. 8025 and 8026 with the State of Utah to the lessees herein, and secure the consent of the State of Utah thereto. At such time as said lease and sub-lease is made and approved, the said Hafen and Nelson are hereby instructed to deliver to the lessors herein the said sum of $10,000.00 and thereupon the lessees shall have the right to go into exclusive possession of said leased properties and may as consideration for said option, prospect and explore, test, develop and work at their own discretion and at their own proper charge and expense said leased property or any part thereof, provided all work done and all improvements made by the lessees upon said property, or any part thereof, under the terms hereof during the period of said option shall be done in a minerlike and proper manner to enable said premises and all thereof to be carefully operated, and so that the minerals therein contained may be extracted in an economical and minerlike manner, and provided, further, that all such work and all acts done hereunder by the lessees shall be in accordance with the terms of said lease with the State of Utah, the lessees herein specifically agreeing to commence work under each of said leases within the time required in said leases, and in the manner required by said leases.

3- In addition to the payment described in the preceding paragraph the lessees agree to pay as a part of the consideration for said option the further sum of $10,000.00 on or before September 1,

1954, and a further sum of $10,000.00 on or before October 1, 1954, making a total payment of $30,000.00.

4- All equipment, tools, machinery, structures, improvements and personal property of every nature and description brought or placed upon said premises prior to the exercise of said option by the lessees herein for use in said work shall not become a fixture but shall remain the property of the lessees and subject to removal by the said lessees, and in the event the said lessees shall not exercise said option they shall be entitled to remove all of said equipment, tools, machinery, structures, improvements and personal property from said premises within thirty days from the expiration of said option provided, however, and it is so understood by the parties hereto, that this paragraph defines the rights to said property placed or used by the lessees as between the lessors herein and the lessees herein, and is made a part of this agreement on condition that any provisions in the lease of the State of Utah as to improvements placed on the property shall be binding on the parties hereto, and anything in this lease conflicting in any way with said lease with the State of Utah shall be resolved in favor of the lease with the State of Utah, it being the intent of the parties hereto that said lease shall be binding upon the parties hereto and shall be observed fully, any provisions in this agreement to the contrary notwithstanding.

5- All ores extracted by the lessees herein during the aforesaid time prior to the exercise of said option shall be the property of the lessees herein, but shall be subject to payment of royalty required by the State of Utah in the said leases 8025 and 8026, which royalty shall be paid by the lessees herein and in addition thereto, the lessees shall pay to the lessors herein a royalty of 4% on all ores so extracted. The said royalty of 4% shall be computed on the net worth of the ore, the term "net worth" as used herein meaning the base price paid for the ore and excluding such items as hauling allowance, development allowance, and all similar allowances. The lessees herein shall be entitled to all depletion allowances for income tax and similar purposes, and said lessees shall have full

authority to deal with the Atomic Energy Commission and all government agencies having to do with the production of the minerals covered by this agreement.

6- If at the expiration of said time of March 1, 1955, the lessees herein shall elect to exercise said above mentioned option and receive an assignment of the State leases covering said land and premises as hereinabove provided, they shall notify the lessors herein within ten days after March 1, 1955 and they shall upon such notice be entitled to receive in accordance with and subject to the terms of this contract an assignment of said State leases in the form of the assignment attached hereto and by reference made a part hereof, and the lessors hereby agree upon such notice to make, execute and deliver such assignment of leases to the lessees. In the event the lessees herein shall elect not to exercise said option, they shall peaceably surrender and turn over said properties to the lessors in as good condition as they now are, reasonable wear and tear excepted, and any work done in accordance with the terms of this option also excepted, and free and clear of any and all liens and encumbrances incurred by the lessees in their operation on and about the same. In the event that the lessees shall not elect to exercise said above mentioned option, the lessees agree to deliver to the lessors free and clear of expense, copies of all data, plans, analysis, photographs, assays and other determinations and reports that the lessees shall have made or caused to be made or otherwise obtained in and about said premises during their possession of the same under said option. If the lessees have not notified the lessors of their election to exercise said option by March 10, 1955, the same shall be considered terminated and not subject to being exercised thereafter.

7- The lessees during their possession of said property and all thereof, agree to protect said property and all thereof against all claims of labor and materialmen and against all liens and liabilities arising out of the acts of the lessees upon said property and to permit the lessors to place and maintain such notices thereon as shall be lawfully necessary to protect the lessors against such claims; and the

lessees further agree to hold harmless the said lessors against any and all claims for damages for injury incurred by workmen in their employ at said properties, or any other person or persons.

8- The lessees during their possession of said property and all thereof, agree to observe the boundaries of Zion National Monument and take every precaution not to jeopardize the application which the lessors have with the United States government for a lease on the property in the National Monument adjoining the property herein leased.

9- It is understood and agreed that during the possession of said property by the lessees herein under said option, the lessees shall permit the lessors or their duly authorized representative to be and remain upon the property hereby demised, to observe the performance of the lessees of each and all the terms of this agreement.

10- It is mutually understood and agreed that time is of the essence of this agreement, and if the said payments are not made strictly within the times herein set out, or if there is any breach or default by the lessees, then immediately upon the happening of any such breach or default, the lessors shall have the right to resume immediate possession of said premises and property and to cancel and rescind this option and to terminate the same and to nullify the rights of the lessees herein and hereunder and in and to said premises and property and to hold and retain all payments theretofore made by the lessees as rental and liquidated damages for the breach hereof, and to remove and expel the lessees and all persons holding under the lessees, either with or without legal process, provided that the lessors shall first give the lessees at least ten days notice in writing of their intention so to do, setting forth specifically wherein the said lessees are in default and provided, further, that if the said lessees, during said ten day period shall perform all of the covenants wherein they are in default, they shall thereby restore this agreement to good standing in the same manner as if no default had occurred, or the lessors may, at their option, recover damages for such breach or for payments then in arrears in any action at law.

11- It is specifically understood and agreed that in the event the said option is not exercised, the lessees shall forfeit any

and all payments made under the terms of this agreement.

12- It is further understood and agreed that the party or parties hereto found to be in default of any of the material provisions hereof shall pay and discharge all costs, attorney fees and expenses that shall arise from or be incurred in enforcing or defending the provisions hereof or in suing for a breach of this agreement.

13- It is also understood and agreed that this agreement shall be binding upon and shall enure to the benefit of the heirs, representatives, successors and assigns of the respective parties hereto, and that there are no representations, covenants or agreements between the parties hereto except as herein specifically set forth.

14- It is understood and agreed that no assignment, transfer or sub-letting of this agreement shall be valid and binding upon the lessors unless they shall consent thereto in writing except that the lessees are herebyauthorized to assign and transfer this option to EPSOLON URANIUM CORPORATION, a corporation to be formed by the lessees and others, without consent of the lessors.

IN WITNESS WHEREOF, the parties have executed this agreement the day and year first above written.

s/ Arthur F. Crosby

s/ Frank Earl Cox
LESSORS

s/ Clark Chadburn

s/ H. L. Newby
LESSEES

AGREEMENT AND ASSIGNMENT OF LEASES

THIS AGREEMENT AND ASSIGNMENT OF LEASES, made and entered into in triplicate this ___March, 1955, by and between ARTHUR F. CROSBY and FRANK EARL COX, of St. George, Utah, parties of the first part, hereinafter called the assignors and EPSOLON URANIUM CORPORATION, a corporation, party of the second part, hereinafter called the assignee, WITNESSETH:

1. That the assignors, for and in consideration of the rents, covenants, agreements, payments and royalties hereinafter reserved and by the assignee agreed to be paid, kept and performed, has assigned and by these presents does assign unto the assignee all right, title, and interest of the assignors in and to those certain mineral leases between the State of Utah as lessor and the assignors herein as lessees, known and designated as leases No. 8025 and 8026, and which said leases cover the uranium and vanadium and such other minerals as are mentioned in said leases in and on the following described ground in Washington County, Utah, to-wit:

> The east half of Section 32, Township 38 South, Range 12 West, S. L. M. containing 320 acres, more or less,

which said leases are hereby specifically referred to and by reference made a part hereof as fully and effectually as if set out verbatim herein.

2. (In the event the assignors obtain a lease on 160 acres of land in Zion National Monument, or any part thereof, on which application is now pending, a paragraph similar to No. 1 above, assigning said lease shall be inserted in this agreement and assignment, and in the event said lease shall not have been obtained at the time this agreement and assignment is executed, then if and when such lease is obtained, provided it is during the life of this agreement and assignment, then said lease and the minerals covered thereby shall be incorporated in this agreement in such manner as to make them a part hereof, provided, however, that paragraph 5, below, is complied with.)

3. A part of the consideration for this agreement and assignment is the payment of the sum of $70,000.00 by the assignee to the

assignor, and receipt of the same is hereby acknowledged.

4. A part of the consideration of this agreement and assignment is the issuance by the assignee to the assignors of four million shares of stock in the assignee corporation of the par value of one cent per share, receipt of which is acknowledged by the assignors.

5. (In the event the assignors have obtained the lease described in paragraph 2 above from the Federal Government on land in Zion National Monument at the time of the execution of this agreement and assignment a paragraph shall be inserted here as No. 5 as follows: "A part of the consideration of this agreement and assignment is the issuance by the assignee to the assignors of two million shares of stock in the assignee corporation of the par value of one cent per share, receipt of which is acknowledged by the assignors."
In the event said lease shall not have been obtained at the time this agreement and assignment is executed, then if and when such lease is obtained, provided it is during the life of this agreement and assignment, then said lease and the minerals covered thereby shall be assigned to the assignee in such a way as to make them a part hereof, and upon issuance to the assignors by the assignee of two million shares of stock in the assignee corporation, said stock to be of the par value of one cent per share.).

6. A part of the consideration of this agreement and assignment is that the assignee shall pay the assignors a royalty of 4% on all ores extracted, and in addition shall pay to the State of Utah all royalties called for in said leases with the State of Utah. The royalties paid the State of Utah shall be on the basis set out in said lease with the State of Utah. The 4% royalty paid to the assignors herein shall be computed on the net worth of the ore, the term "net worth" as used herein meaning the base price paid for the ore and excluding such items as hauling allowance, development allowance, and all similar allowances. The lessees herein shall be entitled to all depletion allowances for income tax and similar purposes, and said lessees shall have full authority to deal with the Atomic Energy Commission and all government agencies having to do with the production of the minerals covered by this agreement.

7. Assignee shall pay and satisfy all claims for materials, supplies and labor in connection with its mining operations upon the leased premises and shall keep said premises free of all liens and encumbrances except such as may result from the acts of others than the assignee, its agents, employees, contractors, or subcontractors.

8. OPERATION OF MINE

a. Mining Methods - Assignee shall work and operate the leased premises in a reasonably skillful and workmanlike manner and shall remove the ore therefrom in accordance with recognized mining methods and practices, but without any other restrictions upon the methods employed.

b. Stockpiles - If assignee stockpiles upon the leased premises ore mined therefrom, assignee shall not be required to pay royalties upon such ore until the same shall have actually been shipped or removed from the leased premises.

c. Assignee may make excavations or borrow pits on the leased premises in order to obtain fill or other material necessary to its operations under this agreement.

9. Assignee, in the use, operation and development of the leased premises, shall comply with all applicable federal and state laws, including all laws pertaining to Employer's Liability, Workmen's Compensation and Workmen's Old Age and Unemployment Insurance.

10. Assignee shall indemnify and hold harmless assignors from and against any and all claims, costs, damages, or expenses arising out of violation of any law, damage to property of, injuries to, or death of persons, other than assignors, their agents or employees, where such violation, damage, injury or death is caused by the use, operation or development of the leased premises by assignee.

11. Assignors or their duly authorized agents shall at all reasonable times have free access to the leased premises, and to all workings thereon, for the purpose of checking the tonnages of ore mined and extracted by assignee and for the purpose of determining whether assignee is complying with the terms of this agreement. Assignee shall not be liable for any damage or injury suffered by assignors or their agents

while upon the leased premises.

12. Assignors represent and covenant that the said leased premises are free from liens and adverse claims of any kind or character by any person claiming by, through or under assignors; and assignors warrant and agree that they will defend said leased premises against all persons claiming by, through or under them. In the event of failure of assignors to defend said leased premises against persons claiming a right, title or interest thereto, or in the event of failure of assignors to defend any action or actions brought by anyone claiming right, title, or interest in or to said leased premises assignee shall have the right, in the name of the assignors, to conduct such defense, and the expenses of such proceeding or proceedings shall be deductible from the rentals or royalties payable to assignors hereunder.

Assignors further warrant their right to enter into this agreement and agree to save assignee harmless in the event of any suits or liens brought against assignee by reason of assignee proceeding with the development and mining of leased premises under the terms of this agreement.

13. Assignee may at any time during the term hereof or any extension thereof terminate this agreement and surrender to assignors the leased premises upon giving thirty (30) days notice in writing and paying all sums due and payable to assignors hereunder to the effective date of such termination, without further liability on the part of assignee, provided, however, that within 60 days after such termination assignee shall furnish a copy of the drill logs and assay reports on the leased premises to assignors.

14. It is mutually understood and agreed that time is of the essence of this agreement, and if the said payments are not made strictly within the times herein set out, or if there is any breach or default by the assignee, then immediately upon the happening of any such breach or default, the assignors shall have the right to resume immediate possession of said premises and property and to cancel and rescind this agreement and assignment and to terminate the same and to nullify the rights

of the assignee herein and hereunder and in and to said premises and property and to hold and retain all payments theretofore made by the assignee as rental and liquidated damages for the breach hereof, and to remove and expel the assignee and all persons holding under the assignee either with or without legal process, provided that the assignors shall first give the assignee at least ten days notice in writing of their intention so to do, setting forth specifically wherein the said assignee is in default and provided, further, that if the said assignee, during said ten day period shall perform all of the covenants wherein it is in default, it shall thereby restore this agreement to good standing in the same manner as if no default had occurred, or the assignors may, at their option, recover damages for such breach or for payments then in arrears in an action at law.

15. In the event of any forfeiture or other termination of this agreement, assignee shall have the right to enter and remove from the leased premises all its property of any kind whatsoever situated thereon, including but not limited to all machinery, equipment, materials, buildings, structures, tracks, and improvements, said right to continue for a period of six (6) months, or for such extension thereof as assignors may grant, provided, however, and it is so understood by the parties hereto, that this paragraph defines the rights to said property placed or used by the assignee as between the assignors herein and the assignee herein, and is made a part of this agreement on condition that any provisions in the lease of the State of Utah as to improvements placed on the property shall be binding on the parties hereto and anything in this lease conflicting in any way with said lease with the State of Utah shall be resolved in favor of the lease with the State of Utah, it being the intent of the parties hereto that said lease shall be binding on the parties hereto and shall be observed fully, any provisions in this agreement to the contrary notwithstanding.

16. Any notice contemplated herein to be served upon either party hereto shall be in writing and shall be sufficiently given if mailed in the United States Post Office, postage prepaid and registered; if to the assignee, addressed to the assignee at St. George, Utah, or

such other address as the assignee may from time to time in writing designate; and if to the assignors addressed to St. George, Utah.

17. This agreement and each and every covenant thereof shall inure to the benefit of and be binding upon the successors and lawful assigns of the parties hereto respectively. Assignee shall have the right to assign this agreement or to contract with other to work any mine or mines which may be developed upon said premises or to subcontract or sublet the same at its option, with the same rights and privileges as are herein granted to it, it being expressly understood that any such assignment shall not operate as a release or discharge of assignee from performance of the conditions of this agreement until assignors shall in writing consent to such assignment.

18. It is further understood and agreed that the party or parties hereto found to be in default of any of the material provisions hereof shall pay and discharge all costs, attorney fees and expenses that shall arise from or be incurred in enforcing or defending the provisions hereof or in suing for a breach of this agreement.

19. It is also understood and agreed that this agreement shall be binding upon and shall inure to the benefit of the heirs, representatives, successors and assigns of the respective parties hereto, and that there are no representations, covenants or agreements between the parties hereto except as herein specifically set forth.

IN WITNESS WHEREOF, the parties have executed this agreement the day and year first above written.

_____

_____
ASSIGNORS

_____

_____
ASSIGNEES

Proof Read

. C. F.

Mineral Lease No. -----8025---------

UTAH STATE LEASE
FOR

Application No. 4778

Grant: - - - - School - - - - -

URANIUM AND VANADIUM

THIS INDENTURE OF LEASE AND AGREEMENT entered into in duplicate this 24 day of June 1954, by and between the State Land Board, acting in behalf of the State of Utah, hereinafter called the Lessor, and

- - - - - - - - - - - - - - ARTHUR F.CROSBY - F. EARL COX - - - - - - - - - - - -

party of the second part, hereinafter called the Lessee, under and pursuant to Title 65, Utah Code Annotated, 1953.

WITNESSETH: That the Lessor, in consideration of the rents and royalties to be paid and the covenants to be observed by the Lessee, as hereinafter set forth, does hereby grant and lease to the Lessee the exclusive right and privilege to mine, remove, and dispose of all of the said minerals in, upon, or under the following described tract of land situated in Washington - - county, State of Utah, to-wit: -

Lots Three (3), Four (4), Section Thirty-two (32); Lots Five (5), Six (6), Seven (7), Eight (8), Section Thirty-two (32), Township Thirty-eight (38) South, Range Twelve (12) West, Salt Lake Meridian. - - - - - - - - - - - - - - - - - - -

gross value of the leased substances, including the State's royalty share of any bonus received by the Lessee from the sale of the leased substances. The basis for computing the amount due to the Lessor shall be as follows:

(a) If the leased substance extracted are sold under a bonafide contract of sale the amount of money or its equivalent actually received by the owner, Lessee, or other person operating the leased premises from the sale of the leased substances less a reasonable cost, if any, of transporting the leased substances from the place where extracted to the place where under the contract of sale, the leased substances are to be delivered.

(b) If the leased substances extracted are treated at a mill, smelter, processing plant, or reduction works which receives the leased substances from independent sources and which is owned or controlled by the same interests owning or controlling the mine, such disposal shall be treated as a sale within the meaning of this section for the purpose of determining gross proceeds or otherwise, and in such determination a rate or charge for sampling, assaying, milling, smelting, or refining the leased substances therefrom shall be deducted which shall not exceed an amount to be determined by applying the same rates as are applied by such mill, smelter, or reduction works or competing works, and ores of substantially like character and in like quantities received from independent sources. In the event of controversy the Lessor shall have the power to determine such rates and charges. Transportation charges may also be deducted as provided in sub-division (a) hereof.

(c) If a mill or other reduction works is operated exclusively in connection with a mine such mill or reduction works shall be treated as a part of the mine and the cost of operating such mill or reduction works shall, for the purpose of fixing the royalty imposed by this lease, be regarded as part of the cost of mining, and the cost of assaying, sampling, smelting, refining, and transportation only shall be deducted as herein provided.

THIRD: Said royalties to be paid quarterly on or before the 15th day of the month next succeeding the quarter in which the material is produced.

FOURTH: To prepare and forward to the State Land Office, on or before the 15th day of the month next succeeding the quarter in which the material is produced, a certified statement as to the production, market, and price received on all of the leased substances disposed of from said lands, and such other additional information as the State Land Board may from time to time require.

FIFTH: That at the option of the Lessor it may require the payment of royalties in kind, F. O. B., at the lease-site; the amount being 12½% of the leased substances extracted.

SIXTH: To commence actual operations upon the land included herein on or before December 31, 1954 and there after to diligently operate the property in accordance with the provisions contained in this lease. Failure to so continue the operation of the land included herein for a period of more than six (6) months without prior written approval of the State Land Board shall be cause for forfeiture, and that upon the violation of this provision or any of the other terms of this lease the Lessor may at its option after thirty (30) days notice by registered mail cancel this lease. After the expiration of the said thirty (30) days and the cancellation of the lease no notice of such cancellation need be given the Lessee.

SEVENTH: To keep at the mine office clear, accurate and detailed maps on tracing cloth, on a scale not more than 50 feet to the inch, of the workings in each section of the leased lands and on the lands adjacent, and to be so arranged with reference to a public land corner that the maps can be readily and correctly superimposed, and to furnish to the Lessor annually, or upon demand, certified copies of such maps and such written statements of operations

as may be called for. All surveys shall be made by a licensed engineer and all maps certified to by him.

EIGHTH: To not at any time fence any watering place upon the lands leased where the same is the only accessible and feasible source of water incident to the lands leased. Nor shall the Lessee or assigns at any time permit or contribute to the pollution of any surface or subsurface water available, naturally or otherwise, for domestic or irrigation use.

NINTH: To not sell, assign, mortgage, pledge, hypothicate, or otherwise transfer or incumber this lease or any interest therein, nor sublet any portion of the leased premises, or any of the rights and privileges herein granted, without the written consent of the Lessor being first had and obtained.

ARTICLE IV

The Lessor hereby excepts and reserves from the operation of this lease:

FIRST: The right to permit for joint or several use such easements or rights-of-way upon, through, or in the land hereby leased as may be necessary or appropriate to the working of these or other lands belonging to or administrated by the Lessor containing mineral deposits or for other use.

SECOND: The right to use, lease, sell, or otherwise dispose of the surface of said lands or any part thereof, under existing State Laws or Laws hereafter enacted, insofar as said surface is not necessary for the use of the Lessee in the mining, removal, or disposal of the leased substances therein, and to lease other mineral deposits, excepting those enumerated herein which may be contained in said lands.

ARTICLE V

Upon cancellation of this lease for any cause herein the Lessee shall be entitled to remove from the lease holdings only personal property prior to complete fulfillment of the provisions of this lease, and that improvements attached to the land such as buildings, timbering, or other construction or construction material in place, shall remain undisturbed upon the ground and the property surrendered in good usable condition.

ARTICLE VI

It is mutually understood and agreed that it shall be the responsibility of the Lessee to slope the sides of all operations of a surface nature to an angle of not less than 45° or to erect a barrier around such operation as the State Land Board may require. Such sloping or fencing shall become a normal part of the operation of the lease so as to keep pace with such operation to the extent that such operation shall not constitute a hazard.

ARTICLE VII

It is mutually understood and agreed by the parties hereto that all of the terms, covenants, conditions, and obligations in this lease contained, shall be binding upon the heirs, executors, administrators, and assigns of the Lessee.

ARTICLE VIII

It is mutually understood and agreed that the Lessee may terminate this lease at any time upon giving three (3) months notice in writing to the Lessor and upon payment of all rents and royalties and other sums due and payable to the Lessor, and upon complying with the terms of this lease with respect to the preservation of the workings in such order and condition as to permit of the continued operation of the leased premises.

ARTICLE IX

It is mutually understood and agreed by and between the parties hereto that the Lessor, its officers and agents, shall have the right at all times to go in and upon the leased lands and premises, during the term of said lease to inspect the work done and the progress thereof on said lands and the products obtained therefrom, and to post any notices on the said lands that it may deem fit and proper; and also shall permit any authorized representatives of the Lessor to examine all books and records pertaining to operations under this lease, and to make copies of and extracts from the same, if desired.

ARTICLE X

It is mutually understood and agreed that this lease is issued only under such title as the State of Utah may now hold, the Lessor shall not be liable for any damages sustained by the Lessee, Nor shall the Lessee be entitled to or claim any refund of rentals or royalties or other monies theretofore paid to the Lessor.

ARTICLE XI

LESSEE agrees to observe faithfully the provisions of Title 65, Chapter 1, Section 18, Utah Code Annotated 1953.

IN WITNESS WHEREOF, the parties have hereunto subscribed their names the day and year first above written.

APPROVED AS TO FORM:
E. R. CALLISTER
Attorney General

By s/ Robert H. Ruggeri

STATE OF UTAH, STATE LAND BOARD

By s/ A. N. Smith
Ex. Sec'y. Lessor

s/ Arthur F. Crosby

s/ F. Earl Cox
Lessee

STATE OF UTAH)
)ss.
COUNTY OF Salt Lake)

On the 30th day of July 1954, personally appeared before me A. N. Smith who being by me duly sworn did say that he is the Executive Secretary of the State Land Board of the State of Utah and that said instrument was signed in behalf of said Board by resolution of the Board, and said A. N. Smith acknowledged to me that said Board executed the same in behalf of the State of Utah.

Given under my hand and seal this 30th day of July 1954

My commission Expires: April 12, 1958

s/ Clem B. Feight
Notary Public, residing at: SLC

STATE OF UTAH)
)ss.
COUNTY OF Washington)

On the 27 day of July 1954, personally appeared before me

Arthur F. Crosby & F. Earl Cox the signers of the above instrument, who duly acknowledged to me that they executed the same.

Given under my hand and seal this 27 day of July 1954.

My commission Expires:
March 10, 1958.

s/ Orval Hafen
Notary Public, residing at:
St. George, Utah.

STATE OF UTAH)
)ss.
COUNTY OF)

On the day of 19 , personally appeared before me

who being by me duly sworn did say that he is an officer of and that said instrument was signed in behalf of said corporation by resolution of its Board of Directors, and said acknowledged to me that said corporation executed the same.

Given under my hand and seal this day of 19

My commission Expires:

Notary Public, residing at:

Proof Read

C. F.

Mineral Lease No. - - - -8026- - - - - -

UTAH STATE LEASE
FOR

Application No. 4699 Grant: - - - - - School- - - - -

URANIUM AND VANADIUM

THIS INDENTURE OF LEASE AND AGREEMENT entered into in duplicate this 24 day of June 1954, by and between the State Land Board, acting in behalf of the State of Utah, hereinafter called the Lessor, and

- - - - - - - - - - - - - ARTHUR F. CROSBY - F. EARL COX - - - - - - - - - - - -

party of the second part, hereinafter called the Lessee, under and pursuant to Title 65, Utah Code Annotated, 1953.

WITNESSETH: That the Lessor, in consideration of the rents and royalties to be paid and the covenants to be observed by the Lessee, as hereinafter set forth, does hereby grant and lease to the Lessee the exclusive right and privilege to mine, remove, and dispose of all of the said minerals in, upon, or under the following described tract of land situated in Washington county, State of Utah, to-wit: -

Lots One (1) and Two (2) Section Thirty-two (32), Township Thirty-eight (38) South, Range Twelve (12) West, Salt Lake Meridian. - - - - - - - - - - -

containing a total of 80.00 acres, more or less, together with the right to use and occupy so much of the surface of said land as may be required for all purposes reasonably incident to the mining, removal, and disposal of said minerals, according to the provisions of this lease, for a period of ten years, beginning January 2nd, first succeeding the date of issuance hereof, and as long thereafter as said minerals may be produced in commercial quantities from said lands, upon condition that at the end of each twenty (20) year period succeeding the first day of the year in which this lease is issued, such readjustment of terms and conditions may be made as the Lessor may determine to be necessary in the interest of the State.

ARTICLE I

It is expressly understood and agreed that this lease is granted subject in all respects to and under the conditions of the laws of the State of Utah and existing Rules and Regulations or Rules and Regulations as may be hereafter approved and adopted by the State Land Board.

ARTICLE II

It is further expressly understood and agreed that this lease covers only the mining, removal, and disposal of the minerals specified in this lease, but the Lessee shall promptly notify the Lessor of the discovery of any minerals excepting those enumerated herein.

ARTICLE III

The Lessee in consideration of the granting of the rights and privileges aforesaid, hereby covenants and agrees as follows: FIRST: To pay to the Lessor as rental for the land covered by this lease the sum of Fifty (50) Cents per acre per annum. All such annual payments of rental to be made in advance on the 2nd day of January of each year, except the rental for the year in which this lease is issued, which is payable on the execution of this lease, such rental to be credited against the royalties as they accrue for the year.

SECOND: To pay a royalty of 12½% of the gross amount received for or the

gross value of the leased substances, including the State's royalty share of any bonus received by the Lessee from the sale of the leased substances. The basis for computing the amount due to the Lessor shall be as follows:

(a) If the leased substance extracted are sold under a bonafide contract of sale the amount of money or its equivalent actually received by the owner, Lessee, or other person operating the leased premises from the sale of the leased substances less a reasonable cost, if any, of transporting the leased substances from the place where extracted to the place where under the contract of sale, the leased substances are to be delivered.

(b) If the leased substances extracted are treated at a mill, smelter, processing plant, or reduction works which receives the leased substances from independent sources and which is owned or controlled by the same interests owning or controlling the mine, such disposal shall be treated as a sale within the meaning of this section for the purpose of determining gross proceeds or otherwise, and in such determination a rate or charge for sampling, assaying, milling, smelting, or refining the leased substances therefrom shall be deducted which shall not exceed an amount to be determined by applying the same rates as are applied by such mill, smelter, or reduction works or competing works, and ores of substantially like character and in like quantities received from independent sources. In the event of controversy the Lessor shall have the power to determine such rates and charges. Transportation charges may also be deducted as provided in sub-division (a) hereof.

(c) If a mill or other reduction works is operated exclusively in connection with a mine such mill or reduction works shall be treated as a part of the mine and the cost of operating such mill or reduction works shall, for the purpose of fixing the royalty imposed by this lease, be regarded as part of the cost of mining, and the cost of assaying, sampling, smelting, refining, and transportation only shall be deducted as herein provided.

THIRD: Said royalties to be paid quarterly on or before the 15th day of the month next succeeding the quarter in which the material is produced.

FOURTH: To prepare and forward to the State Land Office, on or before the 15th day of the month next succeeding the quarter in which the material is produced, a certified statement as to the production, market, and price received on all of the leased substances disposed of from said lands, and such other additional information as the State Land Board may from time to time require.

FIFTH: That at the option of the Lessor it may require the payment of royalties in kind, F. O. B., at the lease-site; the amount being 12½% of the leased substances extracted.

SIXTH: To commence actual operations upon the land included herein on or before December 31, 1954 and there after to diligently operate the property in accordance with the provisions contained in this lease. Failure to so continue the operation of the land included herein for a period of more than six (6) months without prior written approval of the State Land Board shall be cause for forfeiture, and that upon the violation of this provision or any of the other terms of this lease the Lessor may at its option after thirty (30) days notice by registered mail cancel this lease. After the expiration of the said thirty (30) days and the cancellation of the lease no notice of such cancellation need be given the Lessee.

SEVENTH: To keep at the mine office clear, accurate and detailed maps on tracing cloth, on a scale not more than 50 feet to the inch, of the workings in each section of the leased lands and on the lands adjacent, and to be so arranged with reference to a public land corner that the maps can be readily and correctly superimposed, and to furnish to the Lessor annually, or upon demand, certified copies of such maps and such written statements of operations

as may be called for. All surveys shall be made by a licensed engineer and all maps certified to by him.

EIGHTH: To not at any time fence any watering place upon the lands leased where the same is the only accessible and feasible source of water incident to the lands leased. Nor shall the Lessee or assigns at any time permit or contribute to the pollution of any surface or subsurface water available, naturally or otherwise, for domestic or irrigation use.

NINTH: To not sell, assign, mortgage, pledge, hypothicate, or otherwise transfer or incumber this lease or any interest therein, nor sublet any portion of the leased premises, or any of the rights and privileges herein granted, without the written consent of the Lessor being first had and obtained.

ARTICLE IV

The Lessor hereby excepts and reserves from the operation of this lease:

FIRST: The right to permit for joint or several use such easements or rights-of-way upon, through, or in the land hereby leased as may be necessary or appropriate to the working of these or other lands belonging to or administrated by the Lessor containing mineral deposits or for other use.

SECOND: The right to use, lease, sell, or otherwise dispose of the surface of said lands or any part thereof, under existing State Laws or Laws hereafter enacted, insofar as said surface is not necessary for the use of the Lessee in the mining, removal, or disposal of the leased substances therein, and to lease other mineral deposits, excepting those enumerated herein which may be contained in said lands.

ARTICLE V

Upon cancellation of this lease for any cause herein the Lessee shall be entitled to remove from the lease holdings only personal property prior to complete fulfillment of the provisions of this lease, and that improvements attached to the land such as buildings, timbering, or other construction or construction material in place, shall remain undisturbed upon the ground and the property surrendered in good usable condition.

ARTICLE VI

It is mutually understood and agreed that it shall be the responsibility of the Lessee to slope the sides of all operations of a surface nature to an angle of not less than 45° or to erect a barrier around such operation as the State Land Board may require. Such sloping or fencing shall become a normal part of the operation of the lease so as to keep pace with such operation to the extent that such operation shall not constitute a hazard.

ARTICLE VII

It is mutually understood and agreed by the parties hereto that all of the terms, covenants, conditions, and obligations in this lease contained, shall be binding upon the heirs, executors, administrators, and assigns of the Lessee.

ARTICLE VIII

It is mutually understood and agreed that the Lessee may terminate this lease at any time upon giving three (3) months notice in writing to the Lessor and upon payment of all rents and royalties and other sums due and payable to the Lessor, and upon complying with the terms of this lease with respect to the preservation of the workings in such order and condition as to permit of the continued operation of the leased premises.

ARTICLE IX

It is mutually understood and agreed by and between the parties hereto that the Lessor, its officers and agents, shall have the right at all times to go in and upon the leased lands and premises, during the term of said lease to inspect the work done and the progress thereof on said lands and the products obtained therefrom, and to post any notices on the said lands that it may deem fit and proper; and also shall permit any authorized representatives of the Lessor to examine all books and records pertaining to operations under this lease, and to make copies of and extracts from the same, if desired.

ARTICLE X

It is mutually understood and agreed that this lease is issued only under such title as the State of Utah may now hold, the Lessor shall not be liable for any damages sustained by the Lessee, Nor shall the Lessee be entitled to or claim any refund of rentals or royalties or other monies theretofore paid to the Lessor.

ARTICLE XI

LESSEE agrees to observe faithfully the provisions of Title 65, Chapter 1, Section 18, Utah Code Annotated 1953.

IN WITNESS WHEREOF, the parties have hereunto subscribed their names the day and year first above written.

APPROVED AS TO FORM:
E. R. CALLISTER
Attorney General

By s/ Robert H. Ruggeri

STATE OF UTAH, STATE LAND BOARD

By s/ A. N. Smith
Lessor

s/ Arthur F. Crosby

s/ F. Earl Cox
Lessee

STATE OF UTAH)
)ss.
COUNTY OF Salt Lake)

On the 30th day of July 1954, personally appeared before me A. N. Smith who being by me duly sworn did say that he is the Executive Secretary of the State Land Board of the State of Utah and that said instrument was signed in behalf of said Board by resolution of the Board, and said A. N. Smith acknowledged to me that said Board executed the same in behalf of the State of Utah.

Given under my hand and seal this 30th day of July 1954

My commission Expires: April 12, 1958

s/ Clem B. Feight
Notary Public, residing at: SLC

STATE OF UTAH)
)ss.
COUNTY OF Washington)

On the 27 day of July 1954, personally appeared before me

Arthur F. Crosby & F. Earl Cox the signer[s] of the above instrument, who duly acknowledged to me that they executed the same.

Given under my hand and seal this 27 day of July 1954.

My commission Expires:
March 10, 1958.

s/ Orval Hafen
Notary Public, residing at:
St. George, Utah.

STATE OF UTAH)
)ss.
COUNTY OF)

On the day of 19 , personally appeared before me

who being by me duly sworn did say that he is an officer of and that said instrument was signed in behalf of said corporation by resolution of its Board of Directors, and said acknowledged to me that said corporation executed the same.

Given under my hand and seal this day of 19

My commission Expires:

Notary Public, residing at:

Epsolon Uranium Corporation
P. O. Box 483
48 East Tabernacle Street
St. George, Utah

4. (a) The Kolob Mine area is currently being explored by diamond drilling, tunneling, and bulldozing.

Approximately 220 feet of tunnel have been driven in an easterly direction into the mineralized portion of the formation. This exploratory crosscut is a standard 5' by 7'. Equipment in use includes a portable compressor, a mucking machine and a 1½ ton car.

Diamond drilling is in progress at present, some 650' (feet) having been completed. A contract for 2,000 feet was let to Boyle's Brothers Drilling Co. The drilling is being done to determine, if possible, the extent of the sandy formation and the mineralization which occurs in it.

Bulldozing, along with jackhammer, and power work is being used where practical, to uncover areas of high radioactivity. A considerable tonnage of highly mineralized material has been uncovered near the surface with this method of exploration.

Epsolon Uranium Corporation has conducted all the foregoing operations with its' own funds and under its' own direction.

The mining area and all the operations are very easily accessible from U.S. Highway 91. Good roads have been built from the highway to all the explorational centers. The area is less than one mile from the Highway 91.

(b) Production to the present time has been 2 truck loads of uranium ore totaling 17 tons. Ore reserves are estimated from surface exposures only, giving a probable reserve of 2,000 tons at .10% U_3O_8.

(c) The Kolob Mine area is located along the Hurricane fault line. The mineralization has been found on the east or upthrown side of the fault in a sandstone bed which may be a member of the Kaibab formation or more probably, the equivalent of the Coconino formation. The sandstone is fine grained, not very well cemented and sometimes shaly. It has been brecciated by the faulting action and in places, fragments of sandstone, chert, and limestone occur together in a finely broken mass, recemented with silica. The uranium mineralization occurs in these brecciated zones most frequently.

DMEA-ORDER
MF-103 (4-(a,b, & c cont'd.)

Epsolon Uranium Corporation
P. O. Box 483
48 East Tabernacle Street
St. George, Utah

The exploration project being planned is intended to explore the sandstone and the breccias at depth both horizontally and vertically. The sandstone has been sketched onto the attached map and outlined in yellow. The formation dips 5° to 7° east, Thickness is estimated at 100 feet. Limestones form the foot and hanging walls.

(d) The Kolob mine area is adjacent to U.S. Highway 91 about 20 miles south of Cedar City, Utah. Cedar City has both railway and truck transportation facilities. Adequate housing is available.

Roads from the highway to the mineralized areas have been built by Epsolon Uranium Corporation.

DMEA-Order
MF-103 (cont'd.)

Epsolon Uranium Corporation
P. O. Box 483
48 E. Tabernacle Street
St. George, Utah

5. (a) The exploration project is being planned for uranium and other radioactive minerals.

(b) The exploration project will consist of 5,500 feet of diamond drilling in the sandstone formation and the adjacent fault breccias containing the uranium mineralization. The purpose of the drilling is to explore these features down-dip in the sandstone formation and at depth in the breccias along the fault planes to determine the extent and grade of mineralization if present. Drilling will be centered at the five known areas of U_3O_8 mineralization as shown on the attached map.

(c) The work will start within 10 days and be completed within 4 months from the date of an exploration project contract.

(d) Epsolon Uranium Corporation has available equipment and experienced personnel to perform any operation which might arise in connection with the proposed exploration project.

The diamond drilling will be performed by an experienced drilling company under contract to Epsolon Uranium Corporation.

Supervision for the corporation will be by a competent graduate geologist.

DMEA-Order
MF-103 (cont'd.)

Epsolon Uranium Corporation
P. O. Box 483
48 East Tabernacle Street
St. George, Utah

6.	(a)	Independent contracts: 5,500 feet diamond drilling @ $3.25/foot	$17,875.00
	(b)	Labor, supervision, etc: 3 months supervision @ $400.00/month (includes consultation fees)	1,200.00
		3 months misc. labor @ $280.00/month	840.00
	(c)	Operating materials and supplies: 200 core boxes @ $3.00/box	600.00
	(d)	Operating equipment: None.	
	(e)	Rehabilitation & repair: None.	
	(f)	Building & improvements: Drill site preparation, 150 hrs. @ $12.00/hour	1,800.00
	(g)	Miscellaneous: 10% of Item 6 (b).	
	(h)	Contingencies: 10% of Items 6 (a) to (g), inclusive	2,251.00
		TOTAL	$24,770.00

Epsolon Uranium Corporation
P. O. Box 483
48 East Tabernacle Street
St. George, Utah

DMEA-Order
MF-103

Item 6: Revised Cost Sheet.

PROPOSED AMENDMENT TO EXPLORATION PROJECT

In consideration of the results of the recent diamond drilling conducted by Epsolon Uranium Corporation as compared to the results obtained by bulldozer and jackhammer exploration, I would like to propose an amendment to the exploration project as previously outlined.

Because of the nature of the ground being drilled, core recovery is not too effective and holes once drilled are not easily probed. The material, a breccia-like mass of sandstone, limestone, shale and chert, will not hold a core. Holes must be cased and when the casing is removed, parts of the hole cave in making probing impossible. The most valuable information that has been obtained from drilling has been the contact of the breccia and the limestone in place.

Bulldozer and jackhammer work together have opened up all the mineralized zones found thus far and this work has been responsible for the ore grade material shipped from the mine.

In view of the much greater economic effectiveness of this latter method of exploration, I suggest the following changes in the project.

1. Cut the diamond drilling from 5,500 feet to 2,000 feet, drilling two 500 foot holes at each of two sites. One vertical and one horizontal hole at each site.

   Est. cost; 2,000 feet @ $3.25 foot. $6,500.00

2. Contract for 250 hours of bulldozer work and 14,000 cubic feet of rock removal by mining. This latter item would be equivalent to 400 feet of 5' X 7' tunnel and should be used in short adits, drifts, raises, winzes and prospect pits.

   Est. cost; 250 hours bulldozer @ $12.00 hr. $3,000.00
   400 feet 5' X 7' @ $20.00 linear ft.
   (14,000 cubic feet) $8,000.00

This work should be limited to the area between the sites #1 and #4 as shown on the map. Bulldozer work should be used to gain access to uncover areas between #1 and #4 which show signs of mineralization. The rock removal work can then be used to penetrate these areas for further exploration.

Respectfully submitted,

Edwin J. Poehlmann
Geological Engineer.

EJP:mk

Item 6:-cont'd.

DMEA-Order
MF-103

Epsolon Uranium Corporation
P. O. Box 483
48 East Tabernacle Street
St. George, Utah

(To accompany proposed amendment to exploration project.)

6. (a) Independent contracts:

2,000 feet diamond drilling @ $3.25/foot	$6,500.00
400 feet, 5'x 7' tunnel @ $20.00/linear foot (14,000 cubic feet)	8,000.00
250 hours bulldozer work @ $12.00/hour	3,000.00

(b) Labor, supervision, etc:

3 months supervision @ $400.00/month (includes consultation fees)	1,200.00
3 months misc. labor @ $280.00/month	840.00

(c) Operating materials and supplies:

80 core boxes @ $3.00/box	240.00

(d) Operating equipment:

None.

(e) Rehabilitation and repair:

None.

(f) Building and improvements:

Drill site preparation, 20 hours @ $12.00/hour	240.00

(g) Miscellaneous:

10% of Item 6-(b)	204.00

(h) Contingencies:

10% of Items 6-(a) to (g) inclusive.	2,022.00

TOTAL $22,246.00

EJP:mk

DMEA-Order
MF-103

Epsolon Uranium Corporation
48 East Tabernacle Street
P. O. Box 483
St. Geo, Ut.

PROPOSAL FOR EXPLORATION PROJECT

This project will take place on the Epsolon Uranium Corporations property, the East ½ of Section 32, T 38 S, R 12 W, SLBM. All drill holes will terminate within the boundary lines of the half section.

The apparent structure of the mineralized breccia-like material is that of a mass parallel to the fault escarpment, perhaps 300 to 600 feet wide and unknown in depth. The material can be traced along the strike of the fault for approximately 1 mile. It may be noted from the maps that the mineralized areas outcrop between 5300 and 5600 feet elevations. To the west, the slope is covered with talus and alluvium and no information can be gained as to depth of the breccia-like material. To the east, the cliffs are made of limestone which is, except for small fault displacements, essentially in place.

To explore this mineralized structure, it is proposed that three drill holes be placed at each of four sites (#1, #2, #4, and #5 on the accompanying map) in the manner shown on the section through site #1. One hole, vertical, one at 45° dip and one horizontal. Each hole would be in the order of 500 feet in depth, more or less. This drilling should delineate the boundary of the mineralized zone and should give indications as to extent and grade of mineralization.

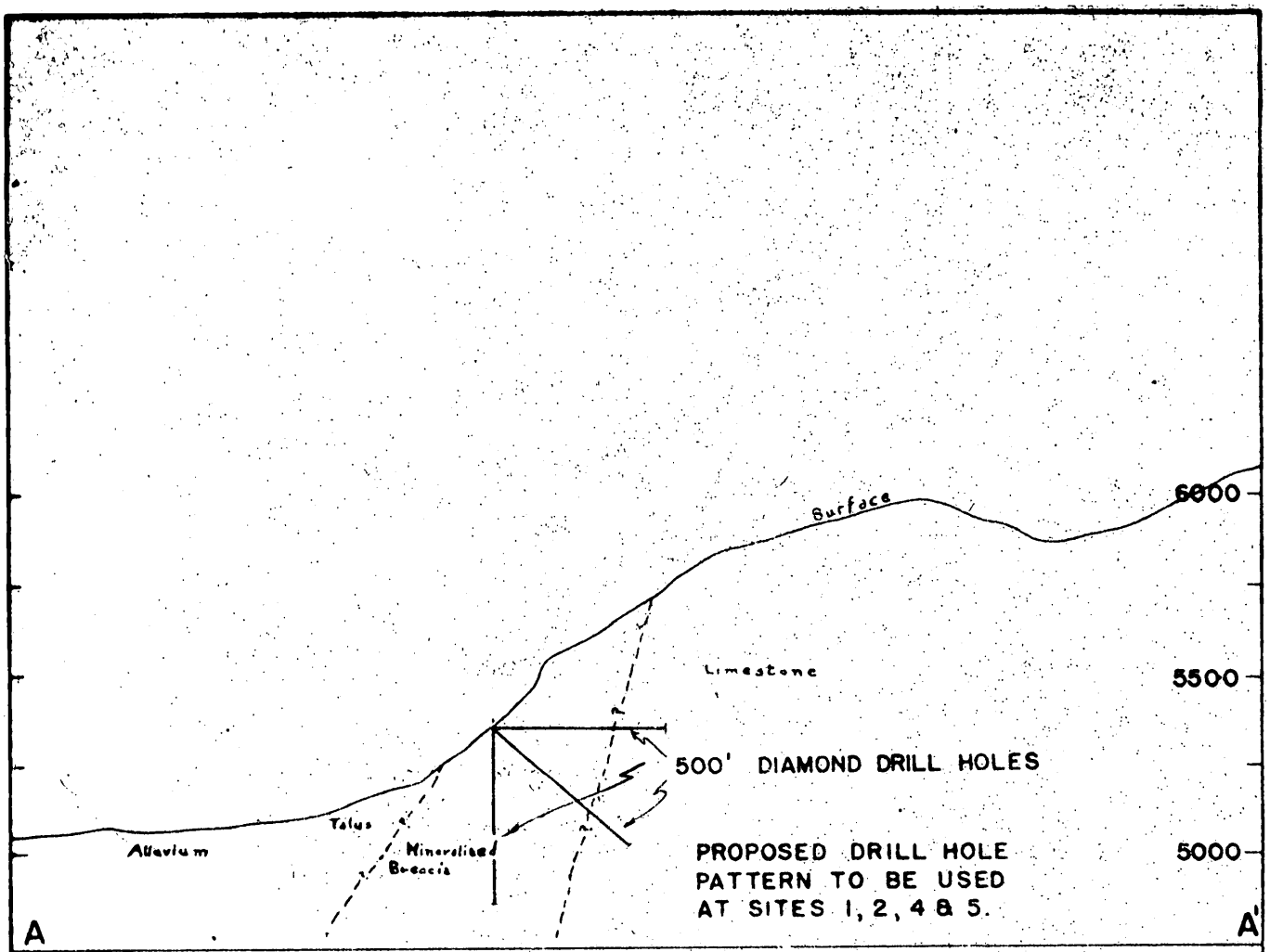
Respectfully submitted,

Edwin J. Poehlmann

Edwin J. Poehlmann,
Geological Engineer.

EPSOLON URANIUM CORPORATION
48 East Tabernacle Street
St. George, Utah

EJP:mk



WEST SECTION LOOKING NORTH EAST

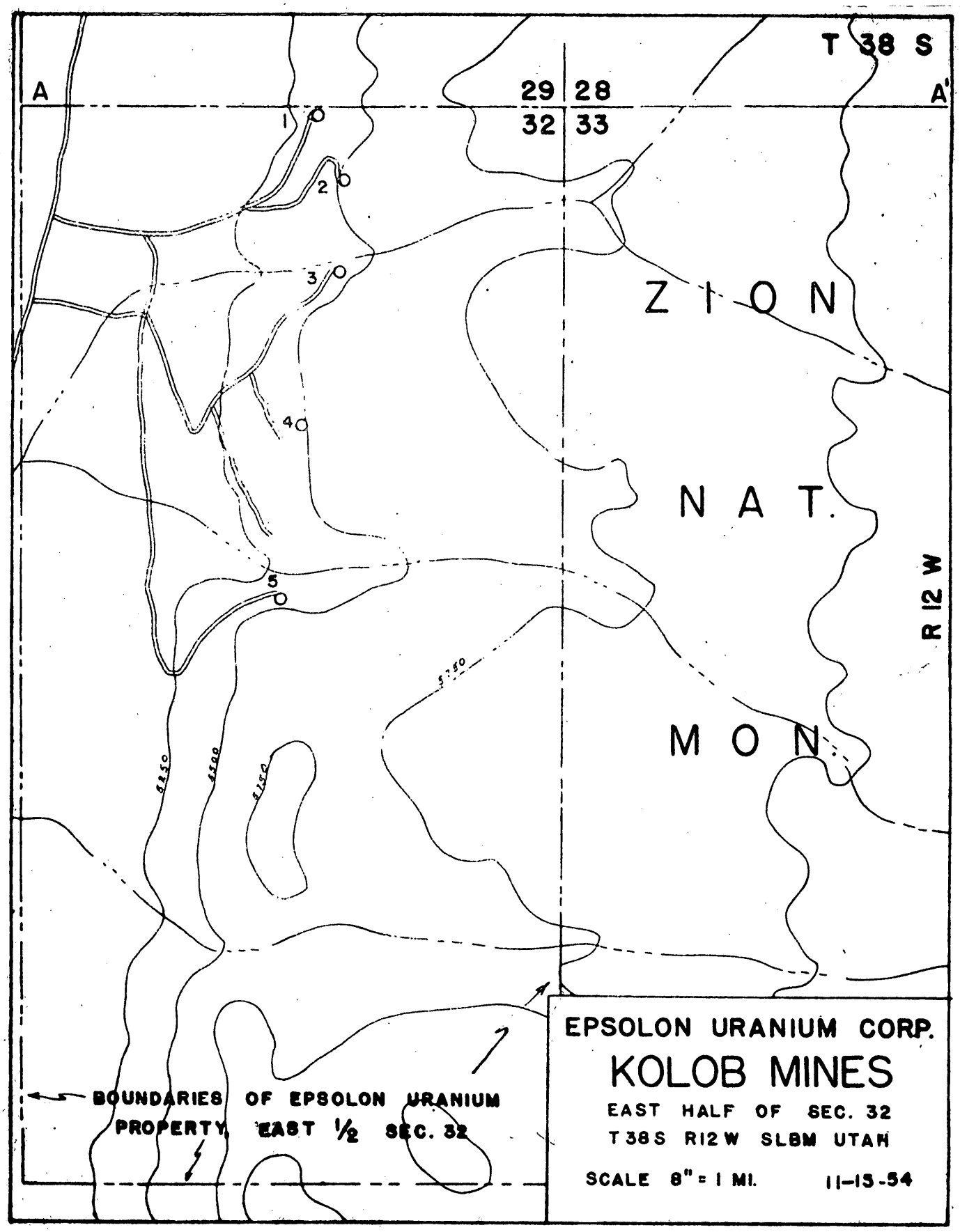
HOR. SCALE 1" = 660'
VERT. SCALE 1" = 500'

VERTICAL SECTION A-A'

KOLOB MINES

EPSOLON URANIUM CORP.

PROPOSED DMEA EXPLORATION


T 38 S
A
A'
29
28
32
33
1
2
3
4
5
ZION
NAT.
MON
R 12 W
5750
5250
5500
5150
BOUNDARIES OF EPSOLON URANIUM PROPERTY, EAST 1/2 SEC. 32
EPSOLON URANIUM CORP.
KOLOB MINES
EAST HALF OF SEC. 32
T 38 S R 12 W SLBM UTAH
SCALE 8" = 1 MI.
11-13-54

224 New Customhouse
Denver 2, Colorado

November 28, 1956

Memorandum

To: Secretary to the Operating Committee

From: Executive Officer, DMEA Field Team, Region III

Subject: Joint Report of Examination Docket DMEA 3598 (Uranium)
Epsalon Uranium Corp. (Kolob Mine) Washington County, Utah

Enclosed are the original and three copies of a joint Engineering and Geologic Report of Examination by M. M. Gilkey, Mining Engineer, USBM, and F. B. Moore, Geologist, USGS, with approval by their respective supervisors, S. R. Wilson, Supervising Mining Engineer, and E. A. Karshman, Member Region III Field Team. This report supplements a previous report on the same property furnished you April 21, 1955.

The examiners found that work performed subsequent to the original examination, served to accomplish the results intended in the first project recommended. Available geologic information indicates weak uranium mineralization, limited in extent, and erratically distributed on the Applicant's property. They recommend denial for the request of additional exploration of the Epsalon property, and the Region III Field Team concurs.

Original signed by
W. M. TRAVER

W. M. Traver

Enclosures

WMT:ytl
cc
Sec. Op. Comm. (4)
Karshman (2)
Wilson
Mining Division
Docket 3598
Granger
Jones (cc only)
Chron.

w/c of Joint report

FOR UNITED STATES GOVERNMENT USE ONLY

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
1600 EAST FIRST SOUTH STREET
SALT LAKE CITY 12, UTAH

DMEA
DEPARTMENT OF THE INTERIOR
NOV 26 1956
REGION III
DENVER, COLORADO

TRANSMITTED
NOV 28 1956

November 21, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III
Through: S. M. Wilson
E. N. Harmsen

From: M. M. Gilbey
F. B. Moore

Subject: Docket No. DMEA-3055 (Uranium), Apollon Uranium Corp. (Kelsh mine), Washington County, Utah. Report of supplemental examination

The Apollon Uranium Corp. submitted an application dated October 30, 1954, for Government aid in an exploratory project estimated to cost $34,770, on State-owned uranium property in Washington County, Utah. Heavy snow in the area delayed the first DMEA examination until March 3, 1955. The field examiners were R. W. Gutenstein of the Geological Survey and M. M. Gilbey of the Bureau of Mines. A report of examination, submitted April 13, 1955, recommended a modified program agreeable to the applicant, costing an estimated $8,550.

Exploration recommended in the revised project consists of 250 hours of bulldozer stripping and miscellaneous surface excavation in a first stage, and 150 feet of drifting and/or crosscutting in a second stage. The work was expected to be confined to an area in the Hurricane fault zone exhibiting the highest radiometric readings. An inclined shaft was sunk in this area and approximately 325 tons of ore containing an estimated 0.18 percent U_3O_8, the total production of the mine, had been obtained. The area is indicated on figure 2 of the examination report and on figure 2A accompanying this supplemental report.

Processing of the application was delayed pending receipt from the applicant of three exhibits described in the letter of May 20, 1955, to the applicant, from Ernest William Ellis, Chief, Rare and Miscellaneous Metals Division, DMEA. In a memorandum dated October 22, 1956, we were informed by the Executive Officer, Region III, that the requested exhibits had been received, and that a supplemental examination of the property would be necessary because of the fact that additional exploration had been performed by the applicant subsequent to the original examination.

The property was inspected September 13, 1956, by F. B. Moore of the Geological Survey and M. M. Gilbey of the Bureau of Mines, and

was again visited by the latter October 30, 1956. Location and extent of the recent work accomplished by the applicant were noted on these occasions. Mr. Clark Chadburn, president of the company, accompanied the engineer at the time of the October visit. The property has been inactive since early in September 1956. Figure 2A shows all work accomplished to date in and near the project area. The recent work consists of driving two new adits, each approximately 80 feet in length, about 350 feet of bulldozer trenching, as well as open-cut excavating and vertical shaft (winze) sinking in the vicinity of the inclined shaft.

The highest grade material encountered in the recent workings is reported by the applicant to have been taken from the 25-foot vertical shaft. Reported grade of a grab sample of several tons from the shaft is 0.12 percent U_3O_8. A 2.5-foot sample taken by DMEA personnel from the north side of the shaft, from the area in the shaft exhibiting highest radioactivity, assayed 0.079 percent U_3O_8. The south side appears to be barren. The bottom is covered by several feet of broken rock. Mr. Chadburn stated that uranium mineralization is wider in the shaft bottom (extends 5 to 6 feet horizontally) and is similar in grade to that in the area of the DMEA sample that assayed 0.079 percent U_3O_8. Next in importance as to grade of mineralization encountered in recent work, according to Mr. Chadburn, is the south side of No. 2 adit, within an interval extending from 60 to 70 feet from the portal. The reported grade in this area is 0.80 percent U_3O_8. A 10-foot DMEA check sample cut at this location, however, assayed only 0.002 percent U_3O_8. No other samples were taken, inasmuch as radiometric readings indicate that additional chemical assaying is not warranted. No significant readings were obtained in No. 2 adit or in the bulldozer trenches. Little rock-in-place is exposed in the trenching accomplished east of the project area proper, but it is well exposed in most of the trench excavated diagonally across the outlined area.

The uranium mineralization, reported to be principally autunite, occurs in a gray to brownish, friable sandy rock enclosing occasional fragments of shaly material. This type of rock appears to constitute the major portion of the material in the Hurricane fault zone in the area of the applicant's property, as the adits crosscutting the fault zone do not penetrate rock of a different type. The one ore body mined to date was extremely irregular in shape, and had no distinct structural or lithologic boundaries. The low-grade ore followed downward in the vertical shaft appears to be a continuation of the ore body mined in the inclined shaft and in the small adjacent stope. Lack of information concerning ore control precludes planning additional exploration in the shaft area, other than to follow the strongest mineralization. This does not seem warranted, in view of the grade, irregularity, and probable limited extent of the mineralization. There are no other known areas on the property in which the U_3O_8 content approaches 0.10 percent.

It should be noted that the ore reserve estimate of 200 tons in the original examination report, and which was based largely on information supplied by the applicant, has been refuted by the results of a small amount of additional crosscutting and drifting accomplished east of the bottom of the inclined shaft.

The open-cut operation was intended to supply feed for a small uranium mill recently constructed at Washington, near St. George, Utah. It is reported that the Epsilon Uranium Corp. is part owner of the milling company. Capacity of the mill is 50 tons in 24 hours. Mr. Chadburn states that the mill can operate at a profit on ore assaying as low as 0.08 percent U_3O_8. A small portion of the material excavated in the open cut is reported to have contained from 0.06 percent to 0.19 percent U_3O_8, and to have been used for testing purposes in the mill.

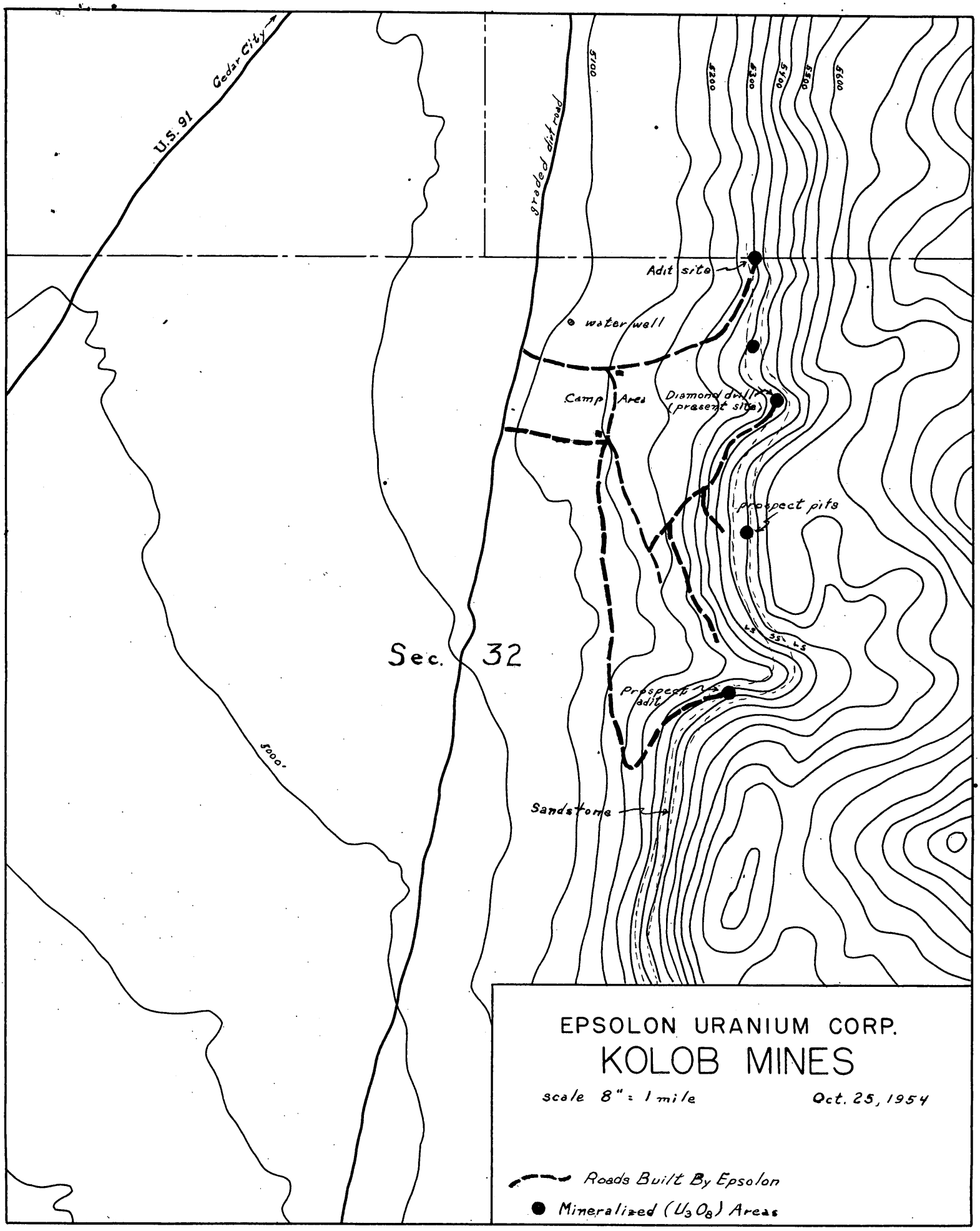
The work performed subsequent to the original DMEA examination has essentially accomplished the purpose of the exploration recommended in the report of examination. Presently available geologic information indicates that the uranium mineralization occurring on the Epsilon property is weak, limited in extent, and erratically distributed. It is, therefore, recommended that the applicant's request for Government aid in additional exploration be denied.

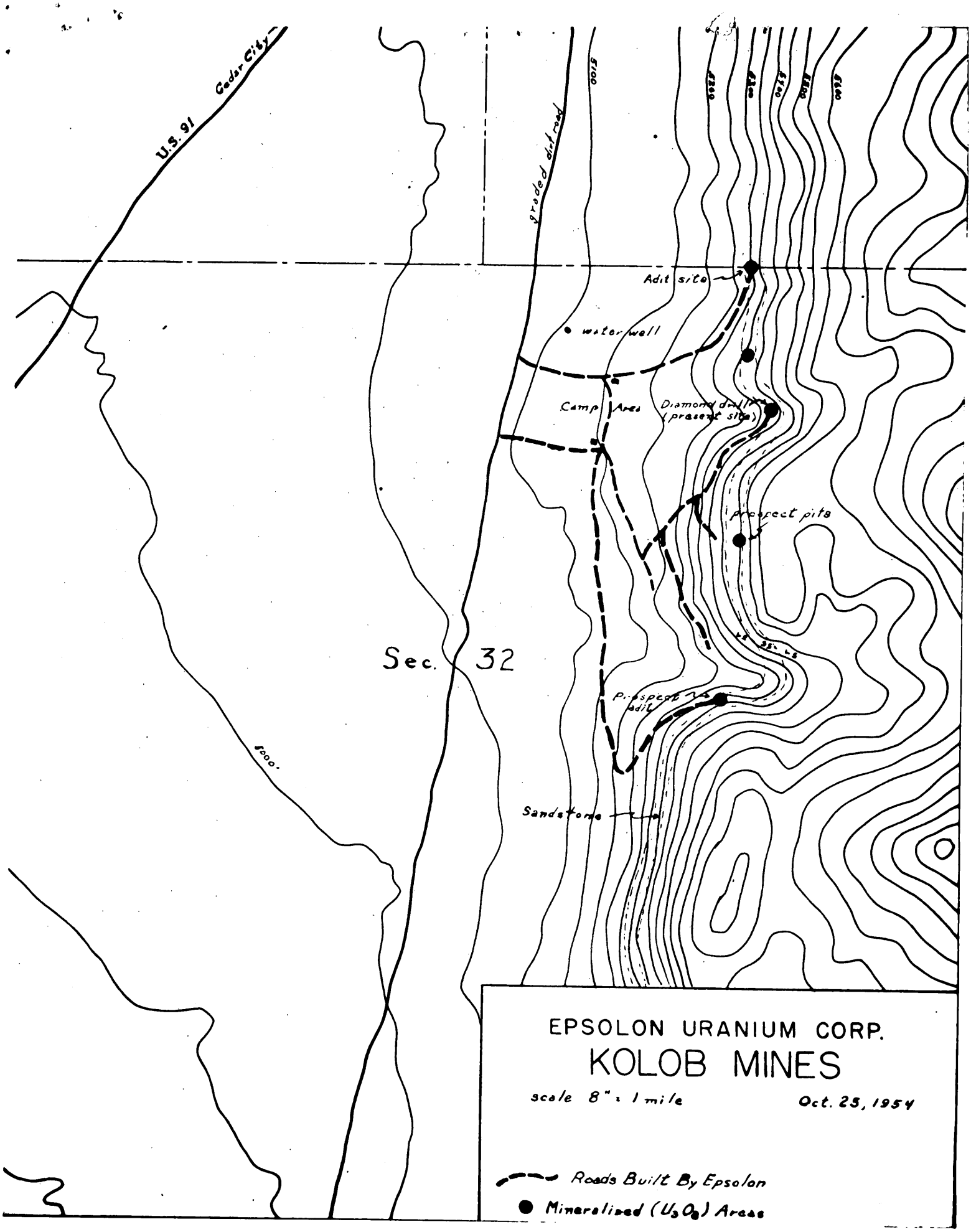
M. M. Gilkey

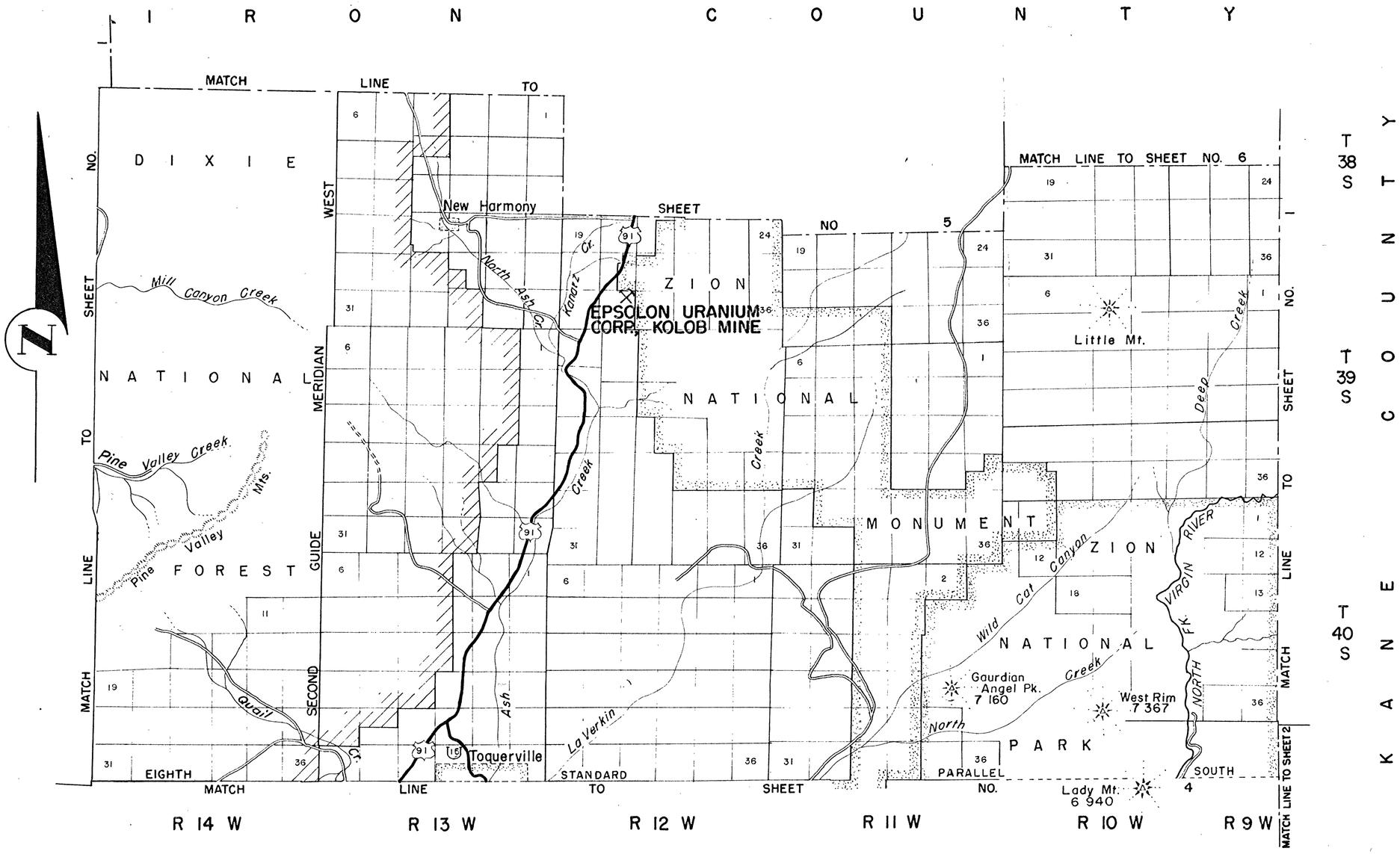
M. M. Gilkey, Bureau of Mines

F. B. Moore

F. B. Moore, Geological Survey


U.S. 91
Cedar City
graded dirt road
5100
5200
5300
5400
5500
5600
Adit site
water well
Camp Area
Diamond drill (present site)
prospect pits
Sec. 32
Prospect adit
5000'
Sandstone
EPSOLON URANIUM CORP.
KOLOB MINES
scale 8" = 1 mile
Oct. 25, 1954
Roads Built By Epsolon
Mineralized (U_3O_8) Areas


U.S. 91
Cedar City
graded dirt road
5700
5800
5900
6000
6100
6200
6300
6400
Adit site
water well
Camp Area
Diamond drill (present site)
prospect pits
Sec. 32
Prospect adit
Sandstone
5000'
EPSOLON URANIUM CORP.
KOLOB MINES
scale 8" = 1 mile
Oct. 25, 1954
Roads Built By Epsolon
Mineralized (U_3O_8) Areas



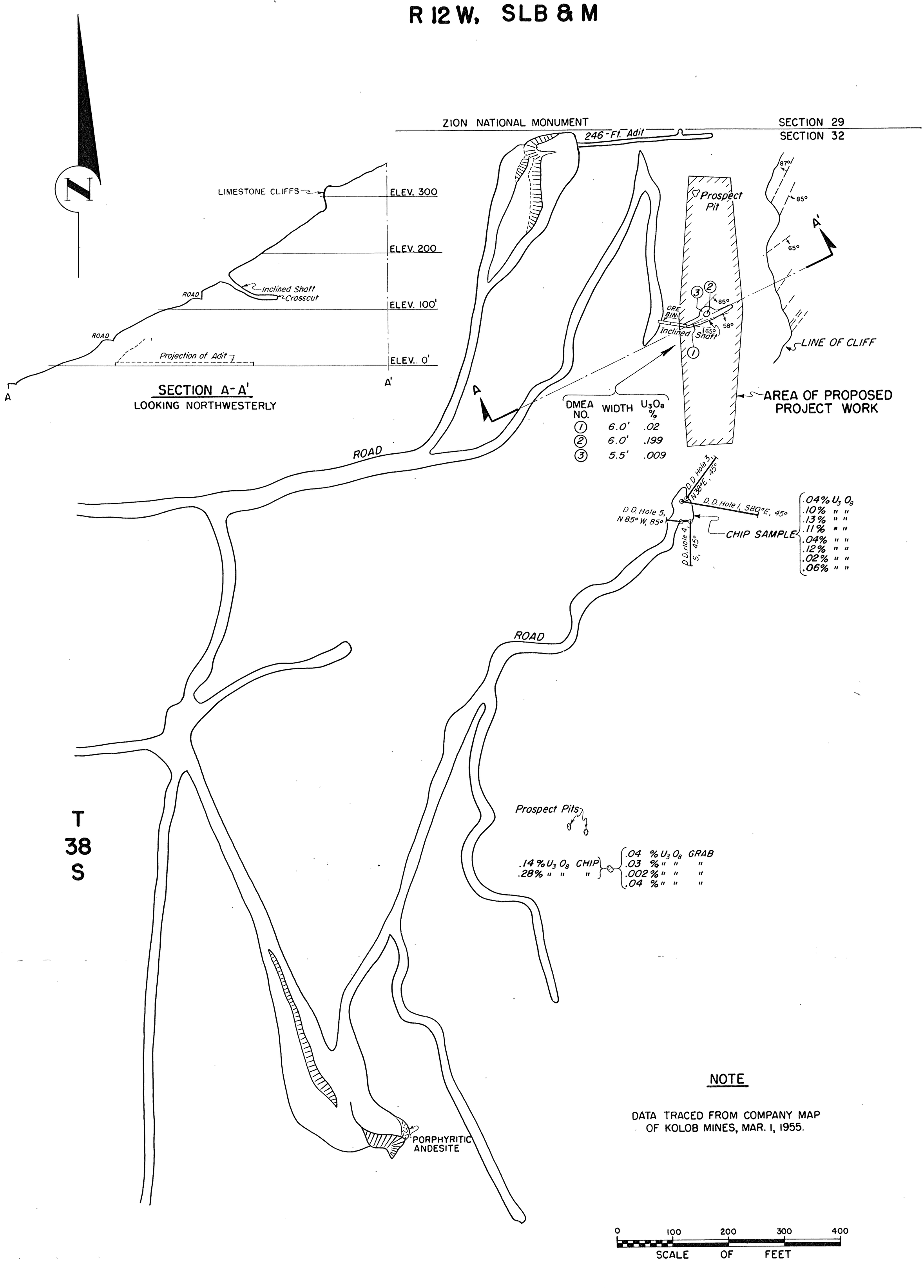
U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Fig. 1 DMEA Docket No. 3598

STATE : UTAH
COUNTY : WASHINGTON
Sheet 2 of 4
Location Map

ENGINEER : *Millard M. GILKEY*	DATE : APR. 1, 1955
TRACED: MAR: 1955; BY : A. P. T. S.	1900 - 322 - C
CHECKED :	

R 12 W, SLB & M



NOTE

DATA TRACED FROM COMPANY MAP OF KOLOB MINES, MAR. 1, 1955.

ASSAYS OF 8 LOTS FROM INCLINED SHAFT

23.8	Tons	.22 %	U_3O_8
30.7	"	.19 %	"
15.9	"	.11 %	"
33.4	"	.27 %	"
32.9	"	.13 %	"
33.9	"	.13 %	"
34.3	"	.10 %	"
16.4	"	.10 %	"

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Fig. 2 DMEA Docket No. 3598

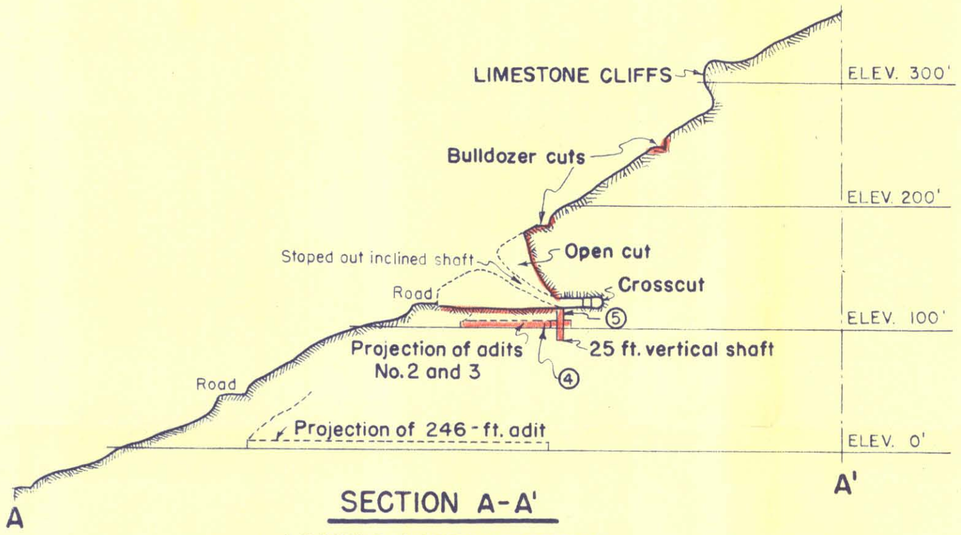
Plan of Existing Workings and Proposed Project Area

EPSOLON URANIUM CORP. (KOLOB MINE)

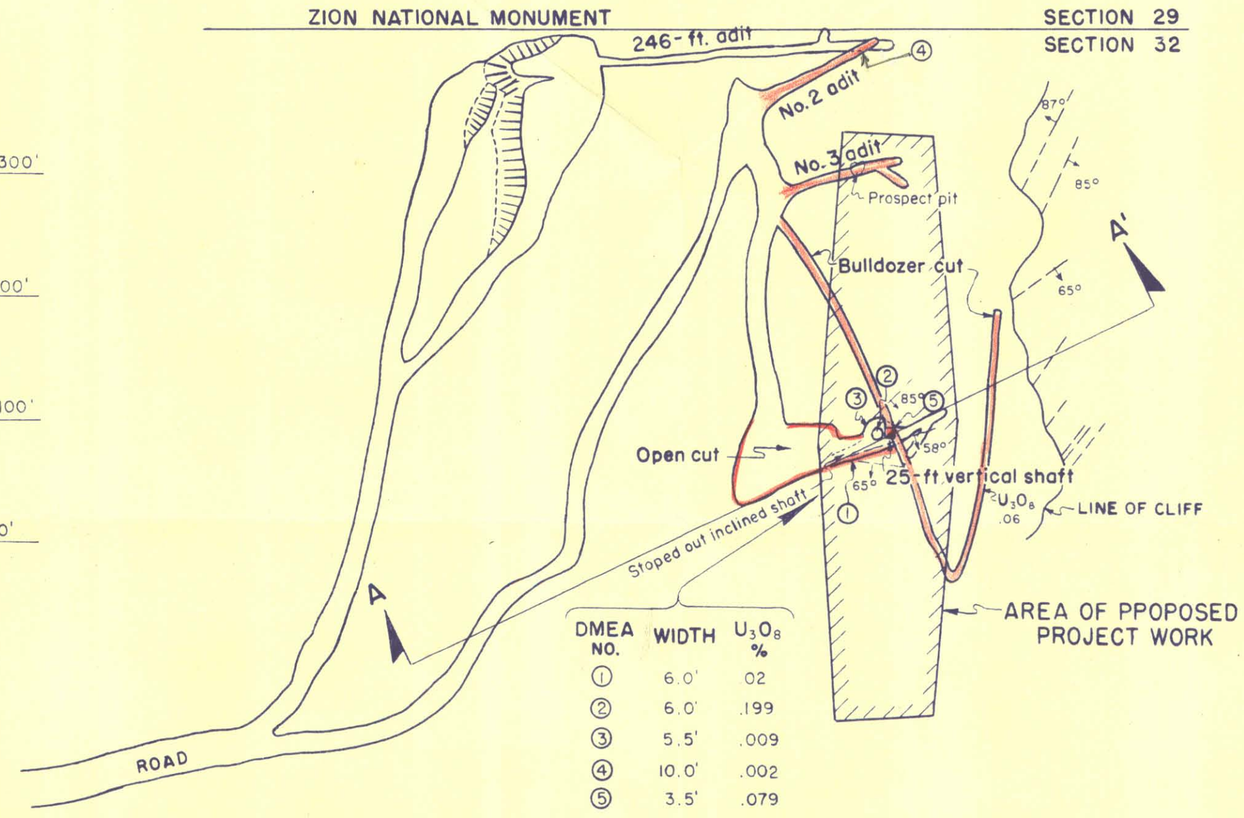
WASHINGTON COUNTY, UTAH

ENGINEER: *Millard M. Gilkey*	DATE: MARCH 29, 1955
TRACED: MARCH, 1955; BY: A.P.T.S.	1900 - 321 - C
CHECKED:	

R 12 W
SLB & M



SECTION A-A'
LOOKING NORTHWESTERLY



DMEA NO.	WIDTH	U_3O_8 %
1	6.0'	.02
2	6.0'	.199
3	5.5'	.009
4	10.0'	.002
5	3.5'	.079

PLAN

LEGEND

ORIGINAL DATA TRACED FROM COMPANY SKETCH.
③ NUMBER OF DMEA SAMPLE.
WORK ACCOMPLISHED AFTER DMEA EXAMINATION OF MAR. 3, 1955.

0 100 200 300 400
SCALE OF FEET

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Fig. 2A DMEA Docket No. 3598
Sketch Plan and Section of Kolob Mine Workings Including Recent Exploration

EPSOLON URANIUM CORP.
WASHINGTON COUNTY, UTAH

ENGINEER: *Millard M. GILKEY*	DATE: NOV. 20, 1956
TRACED: NOV., 1956; BY: A.P.T.S.	1900 - 423 - E
CHECKED:	

U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEFENSE MINERALS EXPLORATION ADMINISTRATION
DOCKET NO. 3 5 9

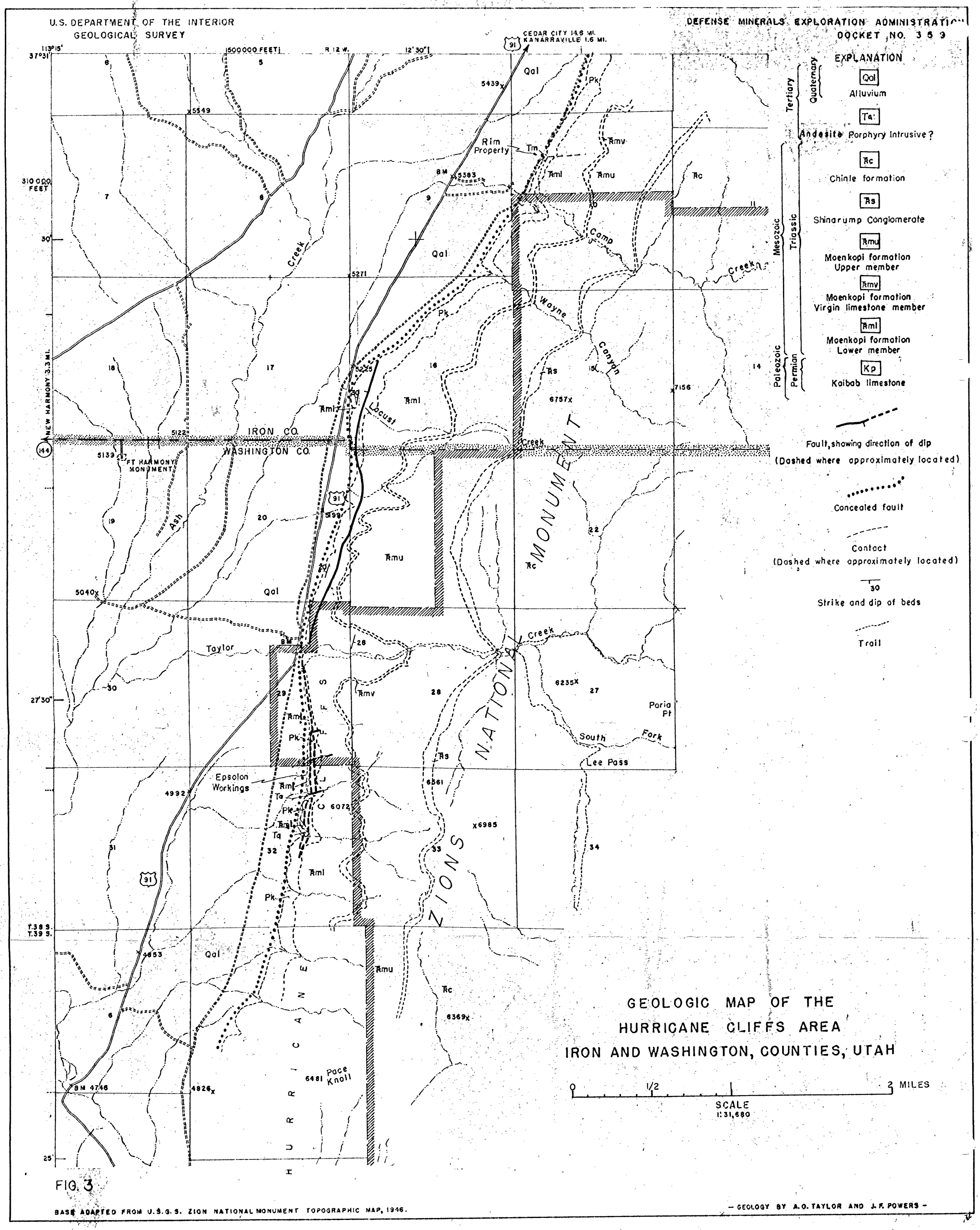


FIG. 3

BASE ADAPTED FROM U.S.G.S. ZION NATIONAL MONUMENT TOPOGRAPHIC MAP, 1946.

— GEOLOGY BY A.O. TAYLOR AND J.F. POWERS —