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[redacted]	RUN STOP		RUN STOP
~~Mr. Kadlitch~~	RUN STOP		RUN STOP
~~Mr. Spitz~~	RUN STOP		RUN STOP
DMEA Oper. Cntr., Room 4539 Interior	RUN STOP		RUN STOP
	RUN STOP		RUN STOP
~~Mr. L. G. Houk~~ ~~Rm. 4453~~ ~~Interior Bldg.~~	RUN STOP		RUN STOP
DMEA 3646	RUN STOP		RUN STOP
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	RUN STOP		RUN STOP

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16—38949a-2

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U. S. GOVERNMENT PRINTING OFFICE : 1951 16—38049a-2

DMA Form 1

DEFENSE MINERALS ADMINISTRATION
Control Slip

CONTROLLED DOCUMENT

DMA Docket No. 3646

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Action on this document is recorded and controlled in Reports and Records Branch. Any movement of this document between divisions or offices of DMA or movement outside DMA must be reported to the Reports and Records Branch. Actions taken that affect status of the case must also be reported.

Cys to USBM and USGS.

This document has been recorded as

Exploration

Any action taken to change the type of request for assistance must be promptly reported to the Reports and Records Branch. Use DMA Form 2 for submitting these reports.

Routing Slip

To:	700	Date	1/24/55
To:	Mittendorf	Date	11-25-55
To:	Mr. Johnson	Date	11-28-55
To:	Mr. Mitt	Date	11-29-55
To:	Mr. Adams	Date	1-11-56
To:		Date	
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COPY
Sol. - AL

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SOLICITOR
Washington 25, D. C.

In reply refer to:
404-59

June 30, 1960

George Cochran Doub, Esq.
Assistant Attorney General
Civil Division
Department of Justice
Washington 25, D. C.

Dear Mr. Doub:

In response to a request made by Miss Mary K. Fagan of the Court of Claims Section in connection with the case entitled Jack D. Gay, Trustee for Shareholders of Northwest Uranium Mines, Inc. v. United States, No. 404-59 in the Court of Claims, we are making available copies of various documents from the following dockets of the former Defense Minerals Exploration Administration:

Northwest Uranium Mines, Inc.	-	DMEA 4125
Silver Buckle Mining Co.	-	DMEA 3071
Pathfinder Uranium Corporation	-	DMEA 3646
New Park Mining Co.	-	DMEA 4981

Of course this Department wishes to assist the Department of Justice as fully as possible in the defense of this suit. However, we feel constrained to point out that it was the policy of the Defense Minerals Exploration Administration--a policy continued by the Office of Minerals Exploration--that certain information submitted by an applicant, such as financial data, geological and property maps, details and results of work performed including data on ore potential, have not been made available to the public.

Further, the report of the "on site" examination and other examinations by field teams are in the same category. In addition, it seems to us that there is at least a question whether the disclosure of such information as has been mentioned would contravene the provisions of 18 U.S.C., sec. 1905.

Sincerely yours,

(Signed) GEORGE W. ABBOTT
The Solicitor

By: Edmund T. Fritz
Edmund T. Fritz
Deputy Solicitor

BWright:gla
Enclosures

Copy to: Mr. Selfridge, OMF, Rm. 4460

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

DOCKET COPY
Murphy
Ellis

January 11, 1956

Memorandum

To: Robert E. Adams, Chief
Operations Control & Statistics Division

From: Ernest Wm. Ellis, Chief
Rare and Miscellaneous Metals Division

Subject: Docket No. DMEA-3646 (Uranium)
Pathfinder Uranium Corp.
Joan, Ilena, and La Preal groups
San Juan County, Utah

In accordance with our letter to the Applicant under date of November 30, 1955, we are closing the subject docket upon receipt of a new application from the Treasure Uranium and Resources, Inc. on the same property, which has been docketed under DMEA-4117.

A copy of the transmittal letter covering the application submitted by the Treasure Uranium and Resources, Inc. has been placed in the subject file, inasmuch as it explains the reason for the substitution.

Ernest Wm. Ellis

Ernest Wm. Ellis

T R E A S U R E Uranium and Resources, Inc.

531 South State Street

Salt Lake City 11, Utah

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

Defense Minerals Exploration Administration

U.S.Department of the Interior

Washington, 25,D.C.

(NOTE: New application docketed as DMEA-4117)

Dear Sir:

Re: Docket No. DMEA-3646 (Uranium)
Joan,Ilena,Lapreal Groups, San Juan County, Utah

Attached application for DMEA funds is intended to substitute for previous application made for the same property by Pathfinder Uranium Co. Your previous advices have indicated that the previous application is being held in suspense pending receipt of the attached application from present owners.

Delay has been encountered in submitting this pending some decision on the part of Urado Uramium Corporation as to a joint application embodying both the area of a leasehold adjacent to the property covered by the attached application. It now appears that Urado Uranium Corporation is not interested in a joint application and we have therefore undertaken to process the enclosed covering only ground owned and held by this corporation. May we then have this application considered by substitution. I am not informed as to the decision of Urado Uranium Corporation applying forloan on their leasehold but if they so intend it would be entirely independent of that attached and would not cover the same properties.

Very truly yours,

/s/ R. H. Robinson

Managing Director

c
o
p
y

Surname copy

700

Murphy
Ellis
FEJohnson
Mottendorf

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

NOV 30 1955

Mr. Clark L. Wilson, Vice President
Pathfinder Uranium Corporation
901-904 Walker Bank Building
Salt Lake City 1, Utah

Re: Docket No. DMEA-3646 (Uranium)
Jean, Ilona, and La Preal groups
San Juan County, Utah

Dear Mr. Wilson:

Your letter, dated November 18, 1955, addressed to Mr. Frank E. Johnson, has been referred to this Division for reply.

We note that the western half of the above groups of claims has been transferred to Treasure Uranium and Resources, Inc., and that your Corporation has entered into a "Working Agreement" with Urado Uranium Corporation covering the eastern half of the property.

In a telephone conversation, Mr. Culp of the Urado Uranium Corporation advised Mr. Johnson that the Treasure and Urado companies are now entering into a joint venture to explore the captioned groups and possibly additional adjacent claims.

Mr. Culp further advised that the two corporations would submit a new application for aid in exploring the combined claims, and requested that the above-docketed application be kept open pending receipt of the new one. In accordance with this request, we will retain the present application in our inactive file. Upon receipt of the new application the current application will be considered withdrawn.

The above-docketed application lacks considerable essential data, as you will note in my letter of February 3, 1955. The additional information requested in this letter has not been received to date. To expedite the processing of the new application it should contain the type of information requested.

We prefer not to hold a docket open for an indefinite period; therefore, will you kindly advise this office the approximate date on which we may expect to receive the new application.

Sincerely yours,

SIGNED

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

cc: Mr. Harold A. Culp
Urado Uranium Corporation
304 Main Street
Grand Junction, Colorado

FEMurphy/FEJohnson/EWEllis/izm/gla
(11-25-55)
11-28-55

cc to: Admr.'s Reading File
Docket
DMEA Field Team, Region III (2)
Messrs. JECrawford, Rm. 3641
THHillsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
Code 700
Mr. Murphy

P.S.

11-23-55 zm

PATHFINDER URANIUM CORPORATION
901-904 WALKER BANK BUILDING
SALT LAKE CITY 1, UTAH

RECEIVED
NOV 22 1955

November 18, 1955

Mr. Frank E. Johnson
Acting Administrator
Defense Minerals Exploration Administration
Washington 25, D. C.

Re: Docket No. DMEA-3646 'Uranium)
Joan-Ilena & LaPreal Groups of
Claims, San Juan County, Utah

Dear Mr. Johnson:

Since submitting the original Application on the above referenced Docket, the Pathfinder Uranium Corporation has transferred the western half of the claim group referred to above to the Treasure Uranium and Resources, Inc. We have also entered into a Working Agreement with the Urado Uranium Corporation covering the eastern half of the claim group.

As indicated in previous correspondence on this Docket, the Urado Company wished to assume the DMEA Application and process it to cover drilling on part of the property on which they have an interest. It now appears that the Treasure Company also wishes to enter into the drilling program of this Docket and has reached some preliminary agreement on this matter with the Urado Company.

It will naturally be necessary to make certain arrangements to complete a Working Agreement on the combined project, and it is my understanding that Mr. Culp of the Urado Company has discussed this with you by telephone and you have indicated that the Docket can be kept open until these matters are settled.

We accordingly make the request that the Docket be kept open after and beyond the 30 days indicated in your letter of October 25. Your acceptance of this request will be appreciated, and I would appreciate your sending notice to Pathfinder at their Salt Lake office and also indicating your approval to Urado and Treasure.

Thanking you, I am,

Very truly yours,

Clark L. Wilson
Vice-President

CLW:CS
cc: Mr. Harold A. Culp
Urado Uranium Corporation
304 Main St., Grand Junction, Colo.

Mr. B. H. Robinson
Treasure Uranium & Resources, Inc.
531 So. State, Salt Lake City

11-18-55

PATHFINDER URANIUM CORPORATION
901-904 WALKER BANK BUILDING
SALT LAKE CITY 1, UTAH

November 15, 1955

Mr. Frank E. Johnson
Acting Administrator
United States Department of the Interior
Defense Minerals Exploration Administration
Washington 25, D. C.

Re: Docket No. DMEA-3646 (Uranium)
Joan, Ilena, and LaPreal Groups,
San Juan County, Utah

Dear Mr. Johnson:

I wish to acknowledge your letter of October 25, regarding the above referenced docket.

As you probably know Mr. Gaggini is associated with the Urado Uranium Corporation, and it was my understanding that he would have visited you in Washington prior to this time. However, he has been in New York on company business and apparently has been unable to contact you. I have talked with Mr. Culp at the Urado office in Grand Junction, and he assures me that they are preparing the necessary information for this contract and will have it available to you by the deadline time as indicated in your letter.

We are sorry there has been so much delay, but field work has been slow. However, I am sure the information is now available.

Very truly yours,

CLARK L. WILSON
Vice-President

CLW:jw

RECEIVED
NOV 18 1955

Friend —

Harold Culp of Uvado U. called me from ground for Uvado in the Tuscany, which has applying claims and for completely owner applicating on some holdings including [illegible]

F-500

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

REFERENCE SLIP

DATE 11-18

REFERRED TO:

1. ~~Joe~~
2. Murphy
3.
4.

FOR:

..... Action	..... Recommendation
..... Approval	..... Record of .....
..... Comment	..... Referring to .....
..... Conference	..... Reply for signature of .....
..... Consideration	..... Rewriting
..... Filing	..... Signature
..... Instructions	..... Suggestions
..... Investigation	..... Your information
..... Initials	
..... Mailing	
..... Previous correspondence	

REMARKS: Mr. Belt. He will hold docket open. Harold Culp of Uvado, will write 1000 for 7605 merger. JMM

Check (X) before the items needing attention.

Initials of sender.

GPO 16—63815-1

urname-copy

700

Murphy

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

OCT 2 5 1955

Mr. Clark L. Wilson
Vice-President
Pathfinder Uranium Corp.
901-906 Walker Bank Bldg.
Salt Lake City 1, Utah

Re: Docket No. DMEA-3646 (Uranium)
Joan, Ilona, and LaPreal Groups
San Juan County, Utah

Dear Mr. Wilson:

Reference is made to our letter of September 15, your response of September 20, and our reply dated September 26, 1955, at which time we advised you we would discuss the question of assigning the above-docketed application to Brado Uranium Corporation with Mr. Louis P. Guggini when he visited our office, together with other information which is pertinent to the processing of the subject application.

Since Mr. Guggini did not meet us in Washington as planned, and the requested information has not been received meanwhile, this is to advise you that if the needed data has not been received within thirty days from the date of this letter, we will then consider the docket closed.

Sincerely yours,

Frank E. Johnson

Acting Administrator

FMMurphy/gla
10-24-55
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)

R.C.L.

Surname 700

Murphy
Ellis
Mittendorf

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

SEP 26 1955

Mr. Clark L. Wilson
Vice-President
Pathfinder Uranium Corp.
901-904 Walker Bank Bldg.
Salt Lake City 1, Utah

Re: Docket No. DMEA-3646 (Uranium)
Joan, Ilena, and LaPreal Groups
San Juan County, Utah

Dear Mr. Wilson:

This is to acknowledge your letter of September 20, in response to ours of September 15, 1955.

In accordance with your request, we will discuss the question of assigning the above-docketed application to Urado Uranium Corporation with Mr. Louis P. Gaggini when he visits this office. Also, Mr. Gaggini may be able to supply us with more information in regard to the possibilities of your property as a result of his Company's drilling on the subject claims.

We will inform you concerning our conversation with Mr. Gaggini.

Sincerely yours,

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

FMMurphy:am
9-26-55
cc to: Admr. Reading File
Docket
Code 700
Mr. Murphy
DMEA Field Team, Region III(2)

R.G.S.

9/23/55 gla

PATHFINDER URANIUM CORPORATION

901-904 WALKER BANK BUILDING

SALT LAKE CITY 1, UTAH

September 20, 1955

RECEIVED

SEP 23 1955

Ernest Wm. Ellis, Chief
Rare & Miscellaneous Metals Division
Defense Minerals Exploration Administration
Washington 25, D. C.

Re: Docket No. DMEA-3646 (uranium)
Joan, Ilena and LaPreal Groups,
San Juan County, Utah.

Dear Mr. Ellis:

I wish to acknowledge your letter of September 15th inquiring about additional drill hole information concerning the above docket application.

Since writing you on June 17th we completed an operating and working agreement with the Urado Uranium Corporation of Grand Junction, Colorado, covering a section of the claim group referred to above. To date Urado has drilled five holes through the Mossback Formation, which was encountered at approximately 1,100 feet to 1,185 feet. At the present time our geologist is preparing strip logs with the necessary information.

Mr. Louis P. Gaggini, who is representing Urado, has indicated to me that they would like to continue this drilling for at least another five holes, and has suggested that the DMEA Application of Pathfinder be assigned to Urado in some way for their use on this project. It is my understanding that Mr. Gaggini is now in the East and will probably contact you regarding this proposal. I would be interested in your reactions to this suggestion, and we will be happy to cooperate in any way necessary to help process this work.

Thanking you, I am

Very truly yours,

CLARK L. WILSON
Vice-President

CLW:jw

CC: Mr. Louis P. Gaggini
304 No. Main
Grand Junction, Colorado

Surname 700
Murphy
Ellis
Mutterdoy

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

SEP 15 1955

Mr. Clark L. Wilson
Vice-President
Pathfinder Uranium Corp.
901-904 Walker Bank Bldg.
Salt Lake City 1, Utah

Re: Docket No. DMEA-3646 (Uranium)
Joan, Ilena, and LaPreal Groups
San Juan County, Utah

Dear Mr. Wilson:

We refer to your letter, dated June 17, and ours in response, dated June 22, 1955, concerning the above-docketed application.

You stated that you had completed arrangements to begin drilling operations on a part of the LaPreal-Ilena Group and were attempting to obtain additional information on properties adjoining your own. We agreed to hold the docket open pending receipt of such information.

Will you kindly advise us the approximate date we may expect to receive these data.

Sincerely yours,

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

FMMurphy:am
9-15-55
cc to: Admr. Reading File
Docket
Code 700
Mr. Murphy
DMEA Field Team, Region III(2)

Surname 700

Murphy
Ellis
Mittendorf

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

JUN 22 1955

Mr. Clark L. Wilson
Vice-President
Pathfinder Uranium Corp.
901-904 Walker Bank Bldg.
Salt Lake City 1, Utah

Re: Docket No. DMEA-3646 (Uranium)
Joan, Ilona, and LaPreal Groups
San Juan County, Utah

Dear Mr. Wilson:

This will acknowledge your letter of June 17, with reference to the captioned application.

In accordance with your request, we will hold the subject docket open for a reasonable period of time in order to permit you to compile and submit the additional information.

Sincerely yours,

SIGNED

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

FMurphy:am
6-21-55
cc to: Admr. Reading File
Docket
Code 700
Mr. Murphy
DMEA Field Team, Region III(2)

R.C.L.

6/20/55 gla

PATHFINDER URANIUM CORPORATION
901-904 WALKER BANK BUILDING
SALT LAKE CITY 1, UTAH

June 17, 1955

RECEIVED
JUN 20 1955

Ernest W. Ellis, Chief
Rare & Miscellaneous Metals Division
Defense Minerals Exploration Administration
Washington 25, D. C.

Re: Docket No. DMEA-3646
(uranium)

Dear Mr. Ellis:

I wish to acknowledge your letter of June 3, and your request that additional information on the above referred docket be submitted by July 1st.

As indicated in my previous letter to you we have been negotiating for a drilling commitment by another company on a part of the claim group included in our original DMEA request. These negotiations have been completed and it is my understanding that the drill rig was moved on to the property yesterday to commence drilling operations.

It also appears at this time that we are meeting with some success in obtaining additional drill hole information upon properties adjoining our own.

I appreciate that you do not like to hold these requests open for such a long period of time, but as we are in a good position now to obtain the needed information we would like to request that the docket be held open until at least two holes are completed on the LaPreal-Ilena Group.

Very truly yours,

CLARK L. WILSON
Vice President

CLW:jw

Surname: 700

Murphy
Ellis
Mathendorf

6-6-55
Jm.

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

JUN - 3 1955

Mr. Clark L. Wilson
Vice-President
Pathfinder Uranium Corporation
901-904 Walker Bank Building
Salt Lake City 1, Utah

Re: Docket No. DMEA-3646 (Uranium)
Joan, Ilena, and LaPreal Groups
San Juan County, Utah

Dear Mr. Wilson:

Reference is made to your letter of May 23, 1955, and previous correspondence mentioned therein.

It is noted that you are attempting to obtain previously requested information. Also, that you desire us to withhold action on your application pending the outcome of some drilling either on or adjacent to your property. It will be appreciated if you will furnish the required information on or prior to July 1st as we do not like to keep an application on the active list for an indefinite period of time.

Sincerely yours,

Signed

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

EWEllis:am
6-1-55
cc to: Admr. Reading File
Docket
Messrs. J. E. Crawford, Rm. 3641
T. H. Kiilsgaard, Rm. 5224
J. O. Hosted, Rm. 3210, GSA
Code 700
DMEA Field Team, Region III(2)

5/26/55 gla

PATHFINDER URANIUM CORPORATION
901-904 WALKER BANK BUILDING
SALT LAKE CITY 1, UTAH

May 23, 1955

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 26 1955

Ernest Wm. Ellis, Chief
Rare & Miscellaneous Metals Division
Defense Minerals Exploration Administration
Washington 25, D. C.

Re: Docket No. DMEA-3646 (Uranium)
Joan, Ilena & LaPreal Groups
San Juan County, Utah.

Dear Mr. Ellis:

I wish to acknowledge your letter of May 5th relating to the captioned Docket.

In previous correspondence you had requested additional information to substantiate our application.

Several holes were being drilled in the area of these claims but to date we have not been able to obtain the information from them. It is my understanding from our field engineer that some of the holes were not completed due to drilling difficulties, and we are still attempting to obtain any information that might be available.

One other item has entered the picture, namely, we are considering a drilling commitment on some of the claims mentioned in the application, and if this should materialize in the next 30 days it would naturally change the programing of our application, as well as provide information that might determine whether or not the DMEA application program would be feasible.

If possible, we would like to keep our application open for this additional information.

Very truly yours,

CLARK L. WILSON
Vice-President

CLW:jw

Surname 700

Murphy
Ellis
Johnson

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

MAY - 5 1955

Mr. Clark L. Wilson
Vice President
Pathfinder Uranium Corporation
901-904 Walker Bank Building
Salt Lake City 1, Utah

Re: Docket No. DMEA-3646 (Uranium)
Joan, Ilena, and LaPreal Groups
San Juan County, Utah

Dear Mr. Wilson:

Reference is made to our letter of February 3, 1955, and your letters dated February 9 and 26, relating to the captioned docket.

Action on your application is pending receipt of the data requested in our letter. If you are no longer interested in the processing of this application, please advise us. However, if you are preparing to submit the information, which you indicated in your letter of February 26, is being assembled, kindly advise us when we may expect to receive said information.

Sincerely yours,

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

FMMurphy:am
5-5-55
cc to: Admr. Reading File
Docket
Code 700
Mr. Murphy

Messrs. J.E.Crawford,Rm.3641
T.H.Kiilsgaard,Rm.5224
J.O.Hosted,Rm.3210,GSA
DMEA Field Team, Region III(2)

R.C.J.

3/2/55 gla

PATHFINDER URANIUM CORPORATION

901-904 WALKER BANK BUILDING

SALT LAKE CITY 1, UTAH

February 26, 1955

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
~~FEB 28 1955~~
MAR 1 - 1955

Mr. Ernest William Ellis, Chief
Rare & Miscellaneous Metals Division
Defense Minerals Exploration Administration
Washington 25, D. C.

Re: Docket No. DMEA-3646 (Uranium)
Joan, Ilena and LaPreal Groups
San Juan County, Utah

Dear Mr. Ellis:

I have indicated to you as of February 9th that we are going forward in the preparation of additional information as requested by you on the above docket number uranium application.

Our geologists are preparing the necessary information, but we may hold this up for a matter of a week or two as other interested parties are at the present time drilling holes in the immediate area, and we hope to obtain drill hole logs that will get further information regarding application.

Very truly yours,

CLARK L. WILSON
Vice President

CLW:jw

2/16/55 gla

PATHFINDER URANIUM CORPORATION
901-904 WALKER BANK BUILDING
SALT LAKE CITY 1, UTAH

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 14 1955

February 9, 1955

Mr. Ernest W. Ellis, Chief
Rare and Miscellaneous Metals Division
Defense Minerals Exploration Administration
Washington 25, D. C.

Re: Docket No. DMEA-3646 (Uranium)
Joan, Ilena and LaPreal Group
San Juan County, Utah

Dear Mr. Ellis:

I wish to acknowledge your letter of February 5, with reference to the above docketed application for assistance in an exploration project on the claim groups listed.

You have indicated that additional information is needed to further process our application. This will acknowledge your request, and I wish to inform you that a copy of your letter has been forwarded to our geologist for further consideration. As soon as the necessary information has been obtained we will forward to you.

Very truly yours,

CLARK L. WILSON
Vice President

CLW:jw

Surname 700

Murphy
Ellis
Mattendorf

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

Pathfinder Uranium Corporation FEB 3 1955
904 Walker Bank Building
Salt Lake City, Utah

Re: Docket No. DMEA-3646 (Uranium)
Joan, Ilena, and La Preal Groups
San Juan County, Utah

Gentlemen:

Your above-docketed application for Federal assistance in an exploration project has been reviewed and in general the land described appears to be in an area where there are favorable possibilities of locating uranium mineralized zones.

In your application mention is made of the geologic strata pertinent to the Big Indian Wash in the vicinity of the Big Buck and Utex mines about five miles northeast of your property; however, no mention is made of the stratigraphy in the immediate locality of your claims.

Ordinarily, physical evidence of mineralization is required before the Defense Minerals Exploration Administration will recommend exploration of a property. However, in the exploration for uranium on the Plateau, structural indications of favorable uranium-bearing zones in known formations are sometimes accepted if the formations cutcrop on, or have been located by preliminary drilling or shafting performed reasonably near the land in question.

In order to further process your application we require the following:

1) Maps of the claims showing:

   a) Locations of indicated uranium mineralization or/and favorable structure.

   b) Approximate contour lines of the contacts of the principal exposed strata.

   c) Profile sections, with the approximate horizons of the principal ore-bearing formations indicated. For example, a profile run along the east side lines of the claims La Preal 4, and Joan 9, 20, 27, 37, 42, 45, and 47.

   d) Approximate locations of the proposed drill holes.

2) Supporting data giving the estimated depth of the individual drill holes and the reason for using the proposed drill pattern.

R.G.B.

With the above-requested data available, we shall be in a better position to judge the possibilities of an exploration project within the area of the captioned three groups of claims.

Sincerely yours,

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

FMurphy:am
2-2-55
cc to: Admr. Reading File
Docket
Messrs. J. E. Crawford, Rm. 3641
T. H. Kiilsgaard, Rm. 5224
J. O. Hosted, Rm. 3210, OSA
DMEA Field Team, Region III(2)

1/28/55 gla

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration

JAN 28 1955

January 27, 1955

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee, Room 4445

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

Subject: DMEA Docket 3646, Pathfinder Uranium Corporation, 904 Walker Bank Building, Salt Lake City, Utah

I have reviewed the application included in the subject docket and have discussed it with Joseph O. Hosted, representative of the Atomic Energy Commission.

We recommend that the attached application be returned forthright to the Pathfinder Uranium Corp. for more definite evidence of interesting uranium mineralization on the subject property. If such evidence is not made available, the application should be denied.

John E. Crawford

John E. Crawford

Attachment

Copy to: Branch of Rare and Precious Metals
Division of Minerals
J. O. Hosted (2)
J. E. Crawford
F i l e s

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

DEPARTMENT OF THE INTERIOR
Minerals Administration
JAN 28 1955

January 27, 1955

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J. E. Crawford
F i l e s

1/27/55 gla

IN REPLY REFER TO:

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 27 1955

January 26, 1955

Re: DMEA-3646
Pathfinder Uranium Corp.
(Pathfinder Claims)
San Juan Co., Utah
$57,495 - Uranium

Memorandum

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

From: E. L. Newcomb, U. S. Geological Survey

Subject: Review of application

The applicant has proposed to explore the Mossback member of the Chinle formation by drilling 15 holes to an average depth of 1200 feet on centers about 2500 feet apart.

The Pathfinder claims are located in the favorable Big Indian Wash area, but there is no data in the application which indicates uranium mineralization is present on the claims proposed for exploration assistance. The proposed deep drilling is planned for the express purpose of determining whether extensive exploratory drilling is warranted.

This application was prepared by Mr. R. A. Teichman, Jr., a consulting geologist at Moab, Utah. It is similar in format to an earlier application, DMEA-3602 (Vivian Uranium Mining Company), which was also prepared by Mr. Teichman. Both of the applications involve properties in the Lisbon Valley-Big Indian Wash area, but they are several miles apart. Mr. Teichman has referred to A.E.C. reports which are not available to us in Washington. All of these reports probably are available in the A.E.C. Grand Junction office and can be consulted by members of the Field Team.

I recommend this application be referred to the Field Team for their review and recommendations. The primary purpose of the field referral is to evaluate the proposed exploration at Grand Junction where pertinent data should be available in the files of the U.S.G.S. and the A.E.C.

E. L. Newcomb

E. L. Newcomb

IN REPLY REFER TO:

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WASHINGTON 25, D. C.

DEPARTMENT OF THE INTERIOR
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RECEIVED
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ELNewcomb:hlm
G-1/26/55
CC: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
J. E. Crawford, 3641 Interior

E. L. Newcomb

IN REPLY REFER TO:

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 27 1955

January 26, 1955

Re: DMEA-3646
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(Pathfinder Claims)
San Juan Co., Utah
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ELNewcomb:hlm
G-1/26/55
CC: Director's reading, 4212
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Docket file
J. E. Crawford, 3641 Interior

E. L. Newcomb

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

224 New Customhouse
Denver 2, Colorado

January 20, 1955

Memorandum

To: Secretary to the Operating Committee
Defense Minerals Exploration Administration

From: Executive Officer, DMEA Field Team, Region III

Subject: Application of Pathfinder Uranium Corporation, Joan, Ilena and LaPreal groups of claims, San Juan County, Utah

Enclosed are three copies of the aubject application in the amount of $57,495.00.

One copy of the application is being retained in this office.

W. M. Traver

W. M. Traver

Enclosures

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

224 New Customhouse
Denver 2, Colorado

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W. M. Traver

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Enclosures

HMC:ld

Copy to: sub
chron

Pathfinder Uranium Corporation
904 Walker Bank Building
Salt Lake City, Utah

January 24, 1955
Subject: DMEA 3646
Re: Exploration Assistance
Joan, Ilena, and LaPreal
Groups

Gentlemen:

The receipt of your application dated December 20, 1954 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA 3646 and referred to the Rare and Miscellaneous Metals Division.

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

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division

January 24, 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number

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

DMEA - 3646 Pathfinder Uranium Corporation

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

P.S. Will you please see that all copies of applications are stamped with the date received, before mailing to the Washington office.

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

224 New Customhouse
Denver 2, Colorado

January 20, 1955

Mr. Clark L. Wilson
Vice President & General Manager
Pathfinder Uranium Corporation
904 Walker Bank Building
Salt Lake City, Utah

Re: DMEA Application on the Joan, Ilena, and LaPreal groups of claims, San Juan County, Utah

Dear Mr. Wilson:

This will acknowledge receipt of four copies of the subject application for DMEA assistance which were forwarded to this office from Mr. W. P. Williams.

Your application is being placed in line for processing.

Yours very truly,

W. M. TRAVER,

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

HMC:ld

Copy to: W. P. Williams
Administrator, DMEA
sub
chron

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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. 3646
Metal or Mineral Uranium
Date Received 1-24-55
Estimated Cost $57,495
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: Pathfinder Uranium Corporation
904 Walker Bank Building
Salt Lake City, 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. See attached sheet.

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract See attached sheet and Exhibit 1, of Consent to Lien.

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

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise See attached sheet.

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

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

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice.

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.

16—66551-1

For information on category No. 4, see attached sheet.

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

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

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

See attached sheet.

(*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)?

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

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

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated 12/20/54, 195...

PATHFINDER URANIUM CORPORATION
(Applicant)

By Clark L. Wilson
Clark L. Wilson
Vice President & General Manager

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

Pathfinder Uranium Corporation
904 Walker Bank Building
Salt Lake City, Utah

Form
MF-103

UNITED STATES DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

1. Name of Applicant:

(a.) Pathfinder Uranium Corporation

904 Walker Bank Building

Salt Lake City, Utah

(b.) A Utah Corporation incorporated under the laws of the State of Utah on the 15th day of June, 1954.

(c.) W. H.H. Cranmer, President and Director

3607 Canyon Way

Salt Lake City, Utah

Clark L. Wilson, Vice-President and General Manager

1781 Yuma Street

Salt Lake City, Utah

Frank Earl Scott, Vice-President and Director

32 Cottage Grove

Wallace, Idaho

Robert L. Cranmer, Secretary-Treasurer

2193 Laird Way

Salt Lake City, Utah

Pathfinder Uranium Corporation
904 Walker Bank Building
Salt Lake City, Utah

Form
MF-103

1. (d.)

3. Applicants Property Rights:

(a.) The property consists of 68 unpatented mining claims located in the central part of Big Indian Wash, San Juan County, Utah.

(b.) None

(c.) The properties were purchased from Dr. John A. Soelberg of Grand Junction, Colorado.

(e.) Dr. Soelberg holds a 12½% royalty interest in the properties.

(f.) See attached legal documents pertaining to the property transfer.

4. Physical Description

(a.) Surveying and geologic mapping are being conducted on the properties by geologists associated with the Pathfinder Corporation.

(b.) None

(c.) Please aee attached geologic report.

(d.) Access roads to the area are in excellent condition and are passable throughout the year. The Town of Moab, Utah, is the principal shipping and supply point.

(e.) Materials and supplies are available from well-stocked warehouses in the Moab district. Water for drilling can be obtained from several sources in the North Big Indian Wash area.

Power must be supplied by a diesel generator.

5. The Exploration Project

(a.) Uranium Ores

(b.) The projected program will consist of an exploration drilling program on widespaced centers.

At the present time 15 holes are planned for the drilling program. The holes are spaced on rather wide centers as can be seen from the attached map, and it is the intent of the Pathfinder Corporation to seek the assistance and advice of the U.S.G.S. and U.S.A.E.C. in planning the final locations of and the number of holes needed to explore the claims in question.

Total footage requested under this application should amount to approximately 17,000 feet of core and non-core type diamond drilling. (See attached map for proposed drill hole locations).

(c.) Work will commence immediately upon approval of the program by government officials.

(d.) Mr. Paul DeVergie, formerly with the Exploration division of the United States Atomic Energy Commission is now employed by the Pathfinder Corporation, and will in all probability be in charge of the program.

Pathfinder Uranium Corporation
904 Walker Bank Building
Salt Lake City, Utah

Form
MF-103

6. Estimate of Costs

(a.) Several bids were solicited for the proposed drilling program, and the lowest bid was obtained from the Swank drilling Co., of Moab, Utah, with a bid of $3.25 per foot for both core and non-core to 1,200 feet.

17,000 ft. @ $3.25/ft.	$55,250.00

Probing of Holes

15 locations @ $40.00 15 logs @ $15.00 17,000 feet of probing @ $.04/ft.	1,595.00

(b.) Charges for geology and engineering. 500.00

(c-d-e-f) None.

(g.) Sampling and Assaying.

30 determinations for uranium and lime @ $5.00	150.00

(h.) None

GRAND TOTAL	$57,495.00

7. (a.) Pathfinder Uranium is prepared to furnish its share of the costs in accordance with existing DMEA regulations.

(b.) Pathfinder is prepared to furnish its share of the costs in cash.

PATHFINDER URANIUM CORPORATION

By Clark L. Wilson
Clark L. Wilson, Vice-President & General Manager

Dated 12/20/54

PREPARED AT THE REQUEST OF THE PATHFINDER URANIUM COMPANY

Property of the Uranium
Business Information Center
Denver
FILE COPY
OCT 6 1955

GEOLOGIC REPORT ON THE JOAN, ILENA AND LA PREAL GROUPS OF CLAIMS, BIG INDIAN WASH DISTRICT, SAN JUAN COUNTY UTAH.

T. 30 S., R 24 E

S L P M

By

RICHARD A. TEICHMAN JR
Consulting Geologist
Moab, Utah

October, 1954

ooC CONTENTS Coo

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4. Geomorphology and Climate	6
5. Geology	8
6. STRUCTURE Structures	10
7. Economic Geology	11
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9. Ore Deposits	14
10. Conclusions and Recommendations	15
11. Plat	

Illustrations

1. Location Map, Colorado Plateau Area, Figure 1
2. Claims & Photogeologic Map, Big Indian District, San Juan County, Utah
3. Stratigraphic Section Figure 2
4. Geologic Cross Section, Vicinity Utex Mine Figure 3
5. Drill Stage Map

October, 1954

Mr. Clark L. Wilson
904 Walker Bank Bldg.
Salt Lake City, Utah

Dear Mr. Wilson:

The following is a report on the geology and the uranium possibilities of the Joan, La Preal and Ilena groups of claims located in the southern part of Big Indian Wash, San Juan County, Utah.

Pursuant to your instructions I have also included recommendations for further development of the properties.

Sincerely,

RICHARD A. TEICHMAN JR
Geologist

RT/rg

INTRODUCTION:

This report has been prepared at the request of Mr. Clark L. Wilson of Salt Lake City, Utah and is designed to assess the uranium possibilities of the Joan, La Preal and Ilona groups of claims located in the southern part of Big Indian Wash, San Juan County, Utah.

Approximately 10 square miles were covered during the course of the investigation during the early part of October, 1954.

Mr. Teichman holds a Masters degree in Geology from Boston University, Boston, Mass., From June 1, 1952 - May 1, 1954 he was employed by the United States Atomic Energy Commission as a geologist. From July 1, 1953 until May 1, 1954 he was assigned to the Big Indian Wash area as Supervising Geologist for the United States Atomic Energy Commision, and was in charge of reconnaissance, and drilling programs.

The claims under discussion are located in the southern part of Big Indian Wash about 6 miles east of US Highway 160.

Big Indian Wash begins 9 miles south of the town of La Sal, Utah, and extends south from that point for 5 miles. An escarpment parallels the work for approximately 4½ miles to the point where the wash turns west to drain into the Hatch Wash and thence into the Colorado River. This escarpment contains several mineralized outcrops in the Cutler

and Chinle formations.

The Big Indian Wash area is within T. 28 S. 29, 29½ and 30 S. and R. 24 and 25 E., Salt Lake Meridian. From Moab, Utah, it is reached by following U. S. Highway 160 South to La Sal Junction, thence over state road 46 for 7 miles, and then south for 7 miles on a gravel road to the first outcrop of Wingate sandstone. The gravel road continues through the wash for approximately 10 miles and joins U. S. Highway 160, 20 miles north of Monticello, Utah. The Gravelled road is passable throughout the year.

Ore from the area is being shipped either 38 miles to the AEC mill at Monticello, or 60 miles to the buying station at Thompson, Utah.

MINING HISTORY

Approximately 20 square miles of land has been claimed in the Big Indian district, and all school sections have been leased.

The majority of the above noted claims have been filed after January 1, 1953 and are consequently in conflict with existing oil and gas leases.

The following individuals and organizations have filed claims in the Big Indian Wash district.

1. Utex Exploriation Company
2. The Homestake Mining Company
3. The Cal Uranium Company
4. The Continential Uranium Company

5. Roberts Construction Co.

6. National Lead Co.

7. Federal Uranium Co.

8. Standard Uranium Co.

9. Lisbon Uranium Co.

10. Apache Uranium Co.

11. Jolly Jack Uranium Co.

12. Robert E. Daniel, Grand Junction, Colo.

13. Frazier & Proponsha, Monticello, Utah
14. Nielsen and Larson, Grand Junction, Colo.

15. Robert Barrett, Moab, Utah

PAST AND PRESENT MINING ACTIVITY

Three large mines are active in the Big Indian Wash area at the present time (Fig. 2). These are:

1. The Cal Uranium Company's San Juan shaft
   (½ mile SE of the Hudson-Homestake property)
2. The Utex Exploration Company's MiVida Mine
   (C. Steen)
   (In the central part of the wash)
3. The Continental Uranium Co's School Section 36 mine.
   (8 miles SW of the Steen Mine)

In addition to the above properties three other large properties are being actively developed in the area. These are:

1. The Homestake-Little Beaver property
   (driving a 330 foot adit)

2. The Homestake property (sinking a 500 foot shaft) (immediately south of the Steen mine)

3. The Standart Uranium Co. property (driving a 600 foot adit east of the Steen mine.

Production of uranium and vanadium ores from the district has been confined to the Permian Cutler formation and the Triassic Chinle formation. The lower portion of the Chinle formation (Mossback) is by far the largest producer. The Permian Cutler formation has produced sporadically since 1948, but the ore grade is low and the mines have been inoperative for many months.

During the first World War, the Ohio Copper Company mined a large amount of copper carbonate ore of unknown grade from a deposit located on a fracture zone in the northern part of the wash.

The Utex Exploration Company began producing from the Mi Vida Mine in November of 1952 and is using a modified room and pillar method of mining. Very little timber is used in the workings, but a large number of roof bolts have been used to advantage. Production in the mine is from the Mossback member of the Triassic Chinle formation.

The Cal Uranium Company of Moab, Utah, has sunk a two-compartment 'cribbed' shaft into an ore body ½ mile south east of the Columbia No. 1 claim. Development work has been completed and ore is being shipped on a regular schedule.

The La Sal Mining and Development Co. recently sold its holdings to the Homestake Mining Co., and operations preceding the sinking of a large shaft are underway. The property is located immediately west of the San Juan shaft. It is anticipated that the Homestake shaft will be sunk to the 600 foot level.

The Continental Uranium Company of Grand Junction, Colo. has located a large ore body in the southern part of Big Indian Wash. Development work has been completed and ore is being shipped.

GEOMORPHOLOGY AND CLIMATE

The Big Indian Wash district has an elevation ranging from 6,400 feet to 7, 100 feet. Two prominent east-facing cuestas are the major land forms. (Fig.) The westernmost cuesta is capped by the Jurassic Wingate sandstone which has been eroded parallel to the stratification of the dipping beds, and is the most important land form. One mile to the northeast, across an alluvium-filled valley, is the second prominent cuesta formed by the Pennsylvanian Hermosa limestone. Facing the Hermosa cuesta across the Lisbon Valley is the Burro canyon member of the Dakota. The Lisbon Valley is formed by the Lisbon Valley fault, and shows the amount of displacement along the fault, by having Dakota and Hermosa facing each other.

In the Big Indian Wash--Lisbon Valley area, streams are subsequent, intermittent and in a stage of early maturity. Several obsequent canyons have developed in areas where cross-jointing is prominently developed.

After leaving the valleys, the streams are consequent and of late maturity. A trellis pattern is formed by the cuestas. Drainage for the area as a whole displays dendritic pattern. The northern third of Lisbon Valley drains westward through Big Indian Wash to Hatch Wash, thence to the Colorado River, whereas the southern part of Lisbon Valley drains westward to the Dolores River. The streams in the area are at present in a stage of downcutting due to rejuvenation.

The climate is semi-arid, with sparse amounts of rain and snow. Precipitation amounts to less than 20 inches per year.

Vegetation consists of sage, cactus, and small piñon and Juniper trees.

Working conditions are goodthroughout the year, although seasonal rains and snows make some roads impassable.

[illegible]

1. [illegible]

2. [illegible]

3. [illegible]

4. [illegible]

The rock formations exposed in theBig Indian Wash district range in age from Pennsylvanian Hermosa limestone to the Jurrasic Navajo sandstone. The principal Uranium bearing horizon is a sandstone member in the lower part of the Triassic Chinle formation which has been tentatively identified as the Mossback member of the Chinle formation. The formations overlying the ore horizon within the claim boundaries are the Wingate, Chinle, and Mossback member of Chinle. The formation underlying the ore horizon is the Cutler-Rico and the contact is an angular unconformity with the Moenkopi being eroded out. A brief discription of these formations is:

Navajo Sandstone - 150' - orange to red to buff sandstone; fine grained; crossbedded.

Kayenta Formation - 125'- red to brown shales and silts; some crossbedding; contains some carbon.

Wingate 315' Light reddish brown, fine-grained, hard, friable, tight to slightly porous sandstone; and some white fine-grained calcareous sandstone and limestone nodules; cross-bedded in some horizons.

Chinle 415' Purple, maroon, red, brown, and green mottled sandy shale; reddish-brown to pink grey and grey-green, fine-grained, tight, calcareous arkosic sandstone; grey

and gray-green mottled to pebble conglomerates of quartzite, siltstone and limestone tight lime cemented conglomerate; some coarse sandstone, (Morgan).

Cutler 200' [illegible] to pink to reddish-brown, fine to medium [illegible], tight to porous, micaceous, calcareous and carbonaceous sandstone; some conglomerate and some chert, limestone, and gypsum.

<u>[illegible]</u>

The [illegible] is located [illegible] on the [illegible] Mountains; the [illegible] and the [illegible] Mountains, and approximately one mile east of the Lisbon Valley-Moscow anticline. The Lisbon Valley-Moscow anticline trends east west over a total of miles east of [illegible] in the Inter [illegible] area southwest of [illegible], Utah.

Determination of the attitude of and displacement along the Lisbon Valley [illegible] is difficult due to the presence of salt [illegible] in the [illegible] core. Therefore, [illegible]

[illegible]

the [illegible]. In the [illegible], as seen [illegible] to [illegible] in the vicinity [illegible] of [illegible] joint and [illegible] influenced the [illegible] ment.

[illegible]

In the [illegible] Indian [illegible], [illegible] mineralization [illegible] in the lower part of the [illegible] formation ([illegible]) and in the upper part of the [illegible] Butler formation. The mineralized zone [illegible] in the [illegible] part of the [illegible]. [illegible] in the Butler formation [illegible] lenses. Four of these lenses [illegible] of the [illegible] of the contact.

[illegible]

[illegible] of the [illegible] consist of [illegible], [illegible], and [illegible] to [illegible] Indian [illegible] area, [illegible] mineralization [illegible] in the [illegible], central and southern parts of the area. [illegible] of development. ([illegible])

Study of the cores in the northern part of the area indicated that the ore is principally disseminated uraninite, and is confined to closely spaced horizons within the lower Chinle formation (Moosbach.)

The host rock consists of a gray, medium-grained, poorly cemented, micaceous sandstone, to a gray-green siltstone. The ore horizons are separated by one to two feet of barren sandstone and siltstone. These barren mudstones are composed of the illite and montmorillonite-type clays. The sandstone contains pyrite and marcasite. Muscovite is found along the bedding planes. Calcite is the most common cementing material, and is accompanied by iron oxides and vanadium minerals.

Thin sections have been cut and autoradiographs made by the United States Atomic Energy Commission of selected ore-bearing samples from the lower part of the Chinle (Moosbach) formation. Autoradiographs of the thin sections show a few alpha tracks and clusters originated from black, opaque specks in altered feldspar grains or on their borders. The following ore and gangue minerals have been identified from the lower Chinle deposits in Big Indian Wash:

carnotite	pyrite	rutile
tyuyamunite	muscovite	zircon
montroseite	orthoclase	epidote
doloroseite	chert	garnet
corvusite	quartz	magnetite
uraninite	calcite	pyrolusite
		greenockite
		sphalerite
		galena

Paragenesis shows this depositional order: detrital, authigenic quartz, cement and lastly ore

minerals. The cement is made up of several materials: calcite, clay, barite and chlorite. Their times of deposition are possibly simultaneous. One thin section from the Continental Uranium Co. mary deposit is of interest. It shows a pyrite band deposited before the ore minerals on the contact of the fine and coarse textured material, and it has incompletely replaced all detritals and matrix except zircon. Detrital quartz is abundant in all thin sections except those of the limestone conglomerates. These conglomerates are granule to pebble in size and the presence of quartz-feldspar lenses shows the interbedding of different source material within the lower Chinle (Mossback.) The quartz grains show corrosion by earlier solutions than the cement. Calcite is the most abundant cementing material and it replaces feldspars; it in turn is replaced by later ore minerals. On the basis of paragenesis and ore minerals it can be said that the Mossback deposits in this area are similar. There are some small differences, however, there are more silica cement, lack of barite and the lack of tyuyamunite in the Continental Uranium Company deposit in the southern part of the mesa. These differences may be small on the basis of further core study.

ORE DEPOSITS

In the discussion of the deposits in the Big Indian Wash area only those deposits in or bearing the production stages will be considered. At present five large deposits have been located by diamond drilling and are being actively exploited. They are : (see map)

1. The Steen discovery in the central part of the Wash. Approximately 3,500 feet long and 1,500 feet wide.
2. The Gal Uranium - Vanie deposit in the northern part of the wash. Approximately 2,500 feet long and 1,500 feet wide.
3. The Hudson discovery in the northern part of the wash. Approximately 300 feet long, 150 feet wide and not yet completely developed.
4. The Homestake (Little Beaver) property immediately southwest of the Steen deposit and probably contiguous.
5. The Continental Uranium Company deposit in the extreme southern part of the wash. Approximately 800 feet long and 300 feet wide.

The Steen deposit is elongated in a northwesterly direction and is the only deposit that shows any degree of linearity.

It is to be noted that the strike of the other deposits within the wash vary radically from one to the other, and it appears that at this time a combination of

In using the apparent size of ore bodies to determine drill hole spacings for exploration purposes the following criteria have been used:

$$\text{PROBABILITY} = \frac{\text{Target size x size of ore bodies}}{\text{area of elementary figure (spacing)}}$$

In computing the spacings necessary to find ore or strongly mineralized ground it has been found that initial drill hole spacings of 1,000 feet are more than adequate to explore ground within the Big Indian Wash area. This, of course is based on the assumption that the basic controls of deposition are factors to which no value can be assigned in outlining a drilling program. Further refinement of a drilling grid based on statistical probability can be had by using to advantage increasing gamma ray values taken from subsurface gamma logs through the ore-bearing horizon. The appearance of a favorable lithologic type, an arkosic sandstone , is another factor to be considered in projecting drilling patterns or trends, but this factor has not been fully evaluated.

CONCLUSIONS AND RECOMMENDATIONS

The following conclusions have been reached during the course of the reconnaissance investigation of the Joan, La Preal and ~~Ilena~~ Ilena claims:

1. The Joan, La Preal and Ilena groups of claims appear to favorably located with respect to known deposits in the Big Indian Wash area. No

mines are operative near the property, but mineralization has been observed on outcrops east of the claims. (See attached maps).

2. No criteria have yet been developed for the Big Indian Wash area which would allow of prediction of ore trends into the area covered by the claims. However, considering the possibility of extension of the mineralization noted on the outcrops east of the properties the following is recommended:

1. It is recommended that a limited exploratory drilling program be conducted upon the property. (Limited considering the drilling depths required to penetrate the ore horizon).
   a. The drilling program should be completed in stages; the first stage to consist of about 15 holes on 2,000 foot centers to an average depth of 1,200 feet.
   b. Should favorable results be encountered during the first drilling stage it is recommended that stage 2 be undertaken. Stage 2 should consist of a program devised to decrease the hole spacing to 500 and 1,000 foot centers in those areas considered favorable. Fifteen to twenty holes will be needed in this stage; drilling depths will average 1,200 feet.

No detailed drilling has been done in the area surrounding the La Treal, Ilona and Joan groups, but some

wildcat drilling has been done by the National Uranium Company on its lease properties a few miles north of the properties. The National Lead Company has done some drilling, but the results are not available at the present time.

The Roberts construction Company has for some time contemplated a drilling program on its property east of the claims under discussion, but up to the present time no drilling has taken place.

Due to the depth of hole in the area under discussion no outline has been prepared for drilling beyond stage 2 since it is felt that this would be quite premature. Evaluation of the results of the first two drilling stages will provide the information necessary for further planning.

A G R E E M E N T

THIS AGREEMENT, Made and entered into this 26th day of April, 1954, between JOHN A. SOELBERG and JOAN M. SOELBERG, his wife, both of Mesa County, Colorado, "First Parties", and JACK D. GAY, of Shoshone County, Idaho, "Second Party";

W I T N E S S E T H:

That first parties, for and in consideration of the sum of TEN ($10.00) DOLLARS, to them this day in hand paid by the second party, receipt of which is hereby expressly acknowledged, and in further consideration of the promises and covenants of second party herein contained and agreed, do hereby agree to sell, transfer and convey unto second party, or his assigns, the following described mining claims located in an unorganized mining district in Townships 29 South and 30 South, Range 2. East, Salt Lake Meridian, San Juan County, State of Utah, all as more fully described in the Location Certificates which were recorded in the office of the Clerk and Recorder of San Juan County, Utah, as follows:

Name of Claim	Description Sec.	Twp.	Rg.	Date of Location	County Clerk and Recorder's Book and Page Book	Page
Lucky Dog # 1	SW¼	33	29S	25E	1/7/54	55	202
" " # 2	"	"	"	"	"	"	203
" " # 3	"	"	"	"	"	"	203
" " # 4	"	"	"	"	"	"	204
" " # 5	S½	"	"	"	"	"	204
" " # 6	SE¼	"	"	"	"	"	205
" " # 7	"	"	"	"	"	"	205
" " # 8	"	"	"	"	"	"	206
" " # 9	SE¼,33,SW¼	34	"	"	"	"	206
" " #10	W½	33	"	"	"	"	207
" " #11	"	"	"	"	"	"	207
" " #12	"	"	"	"	"	"	208
" " #13	E½ W½	"	"	"	"	"	208
" " #14	Center of	"	"	"	"	"	209
" " #15	W½ E½	"	"	"	"	"	209
" " #16	E½	"	"	"	"	"	210
" " #17	"	"	"	"	"	"	210
" " #18	E½, 33, W½	34	"	"	"	"	211
" " #19	NW¼	33	"	"	"	"	211
" " #20	"	"	"	"	"	"	212
" " #21	"	"	"	"	"	"	212

(Incorrectly described as being in Range 24 E)

Name of Claim		Description Sec.	Twp.	Rg.	Date of Location	County Clerk and Recorder's Book and Page Book	Page
Lucky Dog #22	NW¼	33	29S	25E	1/7/54	55	213
" " #23	N½	"	"	"	"	"	213
" " #24	NE¼	"	"	"	"	"	214
" " #25	"	"	"	"	"	"	214
" " #26	"	"	"	"	"	"	215
" " #27	"	"	"	"	"	"	215
Red Dog # 1	NE¼	3	30S	"	11/1/53	39	351
" " # 2	"	"	"	"	"	"	352
" " # 3	"	"	"	"	"	"	352
" " # 4	"	"	"	"	"	"	353
" " # 5	N½	"	"	"	"	"	353
" " # 6	"	"	"	"	"	"	354
" " # 7	"	"	"	"	"	"	354
" " # 8	NW¼	"	"	"	"	"	355
" " # 9	NW¼ 3, NE¼	4	"	"	"	"	355
" " #10	NE¼	"	"	"	"	"	356
" " #11	"	"	"	"	"	"	356
" " #12	"	"	"	"	"	"	357
" " #13	N½	"	"	"	"	"	357
" " #14	"	"	"	"	"	"	358
" " #15	NW¼	"	"	"	"	"	358
" " #16	"	"	"	"	"	"	359
" " #17	"	"	"	"	"	"	359
" " #18	NW¼ 4, NE¼	5	"	"	"	"	360
" " #19	" " "	"	"	"	"	"	360
" " #20	NW¼	4	"	"	"	"	361
" " #21	"	"	"	"	"	"	361
" " #22	"	"	"	"	"	"	362
" " #23	N½	"	"	"	"	"	362
" " #24	NE¼	"	"	"	"	"	363
" " #25	"	"	"	"	"	"	363
" " #26	"	"	"	"	"	"	364
" " #27	"	"	"	"	"	"	364
" " #28	NW¼ 4, NE¼	5	"	"	"	"	365
" " #29	NW¼	3	"	"	"	"	365
" " #30	"	"	"	"	"	"	366
" " #31	"	"	"	"	"	"	366
" " #32	N½	"	"	"	"	"	367
" " #33	NE¼	"	"	"	"	"	367
	(Incorrectly described as being in Range 25 West)						
" " #34	NE¼	3	30S	25E	11/1/53	39	368
" " #35	"	"	"	"	"	"	368
" " #36	"	"	"	"	"	"	369
" " #37	E½ ~~W½~~	"	"	"	"	"	369
" " #38	E½	"	"	"	"	"	370
" " #39	"	"	"	"	"	"	370
" " #40	"	"	"	"	"	"	371
" " #41	Center of	"	"	"	"	"	371
" " #42	W of Center of	"	"	"	"	"	372
" " #43	W½	"	"	"	"	"	372
" " #44	"	"	"	"	"	"	373
" " #45	W½ 3, E½	4	"	"	"	"	373
" " #46	E½	"	"	"	"	"	374
" " #47	"	"	"	"	"	"	374
" " #48	"	"	"	"	"	"	375
" " #49	Center of	"	"	"	"	"	375
" " #50	"	"	"	"	"	"	376
" " #51	W of "	"	"	"	"	"	376
	(Incorrectly described as being in Range 25 West)						

Name of Claim		Description Sec.	Twp.	Rge.	Date of Location	County Clerk and Recorder's Book and Page Book	Page
Red Dog # 52	W½	4	30S	25E	11/1/53	39	377
" " # 53	"	"	"	"	"	"	377
" " # 54	W½ W½	4)					
	E½ E½	5)	"	"	"	"	378
" " # 55	W½ W½	4)					
	E½ E½	5)	"	"	"	"	378
" " # 56	W½	4	"	"	"	"	379
" " # 57	"	"	"	"	"	"	379
" " # 58	E½ W½	"	"	"	"	"	380
" " # 59	Center of	"	"	"	"	"	380
" " # 60	E½	"	"	"	"	"	381
" " # 61	"	"	"	"	"	"	381
" " # 62	"	"	"	"	"	"	382
" " # 63	"	"	"	"	"	"	382
" " # 64	W½ 3, E½	"	"	"	"	"	383
" " # 65	SW¼	3	"	"	"	"	383
" " # 66	"	"	"	"	"	"	384
" " # 67	S of Center of	"	"	"	"	"	384
" " # 68	S½	"	"	"	"	"	385
" " # 69	SE¼	"	"	"	"	"	385
" " # 70	"	"	"	"	"	"	386
" " # 71	"	"	"	"	"	"	386
" " # 72	"	"	"	"	"	"	387
Cleo # 1	NE¼	31	29S	"	10/31/53	"	388
" # 2	"	"	"	"	"	"	389
" # 3	"	"	"	"	"	"	390
" # 4	"	"	"	"	"	"	391
" # 5	N½	"	"	"	"	"	392
" # 5A	"	"	"	"	2/7/54	65	206
" # 6	NW¼	"	"	"	10/31/53	39	393
" # 6A	N½	"	"	"	2/7/54	65	206
" # 7	NW¼	"	"	"	10/31/53	39	394
" # 8	W½	"	"	"	"	"	395
" # 9	"	"	"	"	"	"	396
" #10	"	"	"	"	"	"	397
" #11	"	"	"	"	"	"	398
" #12	Center of	"	"	"	"	"	399
" #13	E½	"	"	"	"	"	400
" #14	"	"	"	"	"	"	401
" #15	"	"	"	"	"	"	402
" #16	"	"	"	"	"	"	403
" #17	SE¼	"	"	"	"	"	404
" #18	"	"	"	"	"	"	405
" #19	"	"	"	"	"	"	406
" #20	"	"	"	"	"	"	407
" #21	S½	"	"	"	"	"	408
" #22	SW¼	"	"	"	"	"	409
" #23	"	"	"	"	"	"	410
" #24	"	"	"	"	"	"	411
" #25	"	"	"	"	"	"	412
" #26	SW¼	31	29S	25E)			
	N½	6	30S	25E)	"	"	413
" #27	SW¼	31	29S	25E)			
	N½	6	30S	25E)	"	"	414
" #28	SW¼	31	29S	25E)			
	NE¼	6	30S	25E)	"	"	415
" #29	S½	31	29S	25E)			
	NW¼	5	30S	25E)	"	"	416

Name of Claim	Description	Sec.	Twp.	Rg.	Date of Location	County Clerk and Recorder's Book and Page: Book	Page
Cleo #30	S½	31	29S	25E)			
	N½	5	30S	25E)	10/31/53	39	417
Cleo #31	S½	31	29S	25E)			
	N½	5	30S	25E)	"	"	418
" #32	SE¼	31	29S	25E)			
	NW¼	5	30S	25E)	"	"	419
" #33	SE¼	31	29S	25E)			
	N½ N½	5	30S	25E)	"	"	420
" #34	SE¼ SE¼	31	29S	25E)			
	N½ N½	5	30S	25E)	"	"	421
" #35	NE¼	5	"	"	1/7/54	55	199
" #36	NE¼ NE¼	"	"	"	"	"	200
" #37	" "	"	"	"	"	"	200
" #38	NE¼	"	"	"	"	"	201
" #39	"	"	"	"	"	"	201
" #40	"	"	"	"	"	"	202
Pink Dog # 1	N½	"	"	"	1/8/54	"	197
" " # 2	"	"	"	"	"	"	197
" " # 3	"	"	"	"	"	"	198
" " # 4	"	"	"	"	"	"	198
" " # 5	Near Center of	"	"	"	"	"	199
" " # 6		"	"	"	1/20/54	59	216
" " # 7		"	"	"	"	"	216
" " # 8		"	"	"	"	"	217
" " # 9		"	"	"	"	"	217
" " #10			"	"	"	"	218
" " #11		5	"	"	"	"	218
" " #12		"	"	"	"	"	219
" " #13		"	"	"	"	"	219
" " #14		"	"	"	"	"	220
Ilena # 1	SW¼	27	"	24E	10/14/53	37	124
" # 2	"	"	"	"	"	"	125
" # 3	"	"	"	"	"	"	126
" # 4	"	"	"	"	"	"	127
" # 5	N½	"	"	"	"	"	128
" # 6	SE¼	"	"	"	"	"	129
" # 7	"	"	"	"	"	"	130
" # 8	"	"	"	"	"	"	131
" # 9	SE¼ 27, SW¼	26	"	"	"	"	132
" #10	SW¼	"	"	"	"	"	133
" #11	"	"	"	"	"	"	134
" #12	W½	27	"	"	10/18/53	"	193
" #13	"	"	"	"	"	"	194
" #14	"	"	"	"	"	"	194
" #15	NW¼	"	"	"	"	"	195
Joan # 6		28	"	"	10/14/53	"	104
" # 7		"	"	"	"	"	105
" # 8		"	"	"	"	"	106
" # 9		"	"	"	"	"	107
" #10		"	"	"	"	"	108
" #11		"	"	"	"	"	109
" #12		"	"	"	"	"	110
" #13		"	"	"	"	"	111
" #14	27 &	28	"	"	"	"	112
" #15	E½ 28, W½	27	"	"	10/18/53	"	190
" #16	E½	28	"	"	"	"	190
" #17	"	"	"	"	"	"	191
" #18		"	"	"	10/14/53	"	113
" #19		"	"	"	"	"	114
" #20		"	"	"	"	"	115

Name of Claim		Description Sec.	Twp.	Rg.	Date of Location	County Clerk and Recorder's Book and Page Book	Page
Joan #21	W½	28	30S	24E	10/14/53	37	116
" #22	"	"	"	"	"	"	117
" #23	"	"	"	"	"	"	118
" #24		"	"	"	"	"	119
" #25		"	"	"	"	"	120
" #26		"	"	"	"	"	121
" #27		"	"	"	"	"	122
" #28		"	"	"	"	"	123
" #29	NE¼	"	"	"	10/19/53	"	191
" #30	"	"	"	"	"	"	192
" #31	"	"	"	"	"	"	192
" #32	NE¼ 28, NW¼	27	"	"	"	"	193
" #37	21 &	28	"	"	"	"	294
" #42	S½	21	"	"	"	"	294
" #45	Near Center of	"	"	"	" "	"	295
" #47	N½	"	"	"	"	"	295
LaPreal # 1			"	"	10/14/53	"	136
" " # 2	NW¼	33	"	"	"	"	137
" " # 3	"	"	"	"	"	"	138
" " # 4	N½	"	"	"	"	"	139
" "	"	"	"	"	"	"	135
" " # 6	"	"	"	"	"	"	140
" " # 7	NE¼	"	"	"	"	"	141
" " # 8	"	"	"	"	"	"	142
" " # 9	NW¼ 34, NE¼	"	"	"	"	"	143
" " #10	NW¼	34	"	"	"	"	144
" " #11	"	"	"	"	"	"	145
" " #12	"	"	"	"	"	"	146
" " #13	"	"	"	"	"	"	147
" " #14	N½	"	"	"	"	"	148
" " #15	NE¼	"	"	"	"	"	149
" " #16	"	"	"	"	"	"	150
" " #17	"	"	"	"	"	"	151
" " #18	NW¼ 35, NE¼	"	"	"	"	"	152
" " #19	NW¼	35	"	"	"	"	153
" " #20	"	"	"	"	"	"	154

Said mining claims shall be conveyed by good and sufficient Special Warranty Deed, free from encumbrances, which said deed shall be executed and delivered to second party upon the execution and acknowledgment of this agreement. From and after the execution of this agreement second party shall have full right to apply to AEC under Circular 7 for a lease or leases of said claims in his own name or in the names of first parties, or in the name of second party's assignees, and first parties shall fully cooperate with second party in making such application.

In consideration of the giving of this agreement and in further consideration of the mutual covenants and promises herein contained, it is hereby agreed:

1. FIRST PARTIES AGREE:

A. That they will forthwith proceed to relocate, restake, recorner and refile where necessary, all of said claims at their own expense. (At the completion of said corrective work on said claims first parties will furnish second party with an itemized statement of all expenses incurred by first parties in said respects.)

B. To act as second party's agent in making application to ADC for lease of said claims in second party's name (or in the names of first parties or in the name of second party's assignee at second party's option).

2. SECOND PARTY AGREES:

A. Within sixty days from date of this agreement to organize a corporation with an authorized capitalization of at least $200,000.00 for the purpose of financing the exploration of said mining claims, and to assign and convey said mining claims to said company and assign second party's rights and obligations under this contract to said company.

B. Within eighteen months from date said new company shall obtain at least $60,000.00 for the exclusive purpose of financing the operations, salaries and expenses of two geologists in prospecting and locating further mining claims for the period of at least two years. Said geologists, in addition to their salaries, shall receive 5% of net profits realized by said company on ores coming from properties located by them, and first parties shall receive 2% of net mill returns from ores coming from said properties. "Net mill returns" shall be construed as per the definit[illegible] included hereinafter in subparagraph 2F hereof. "Net profit[illegible] to be paid to said geologists shall be defined as including all actual profits arising from the sale of said ores, less all actual costs of operation, including depreciation, salaries and other normal costs of operation, but not including

income taxes or depletion allowances. Upon failure of second party or his assignee to thus provide and expend the minimum sum of $60,000.00 in such exploration, the title to the claims conveyed by first parties to second party shall revert to first parties and second party, or his assignee, shall, upon demand by first parties, make prompt reconveyance thereof by good and sufficient Special Warranty Deed.

C. To pay Court House filing and true copy fees and $10.00 per claim application fees with AEC incident to filing application for lease with AEC on the claims herein optioned by first parties to second party.

D. Pay all costs of survey by second party's independent surveyor if second party elects to have an independent survey of claims made, PROVIDED THAT in the event such an independent survey is conducted by second party, first parties shall render all possible assistance in regard thereto without charge.

E. In the event that exploration of the claims herein conveyed by first parties to second party or any of said claims, is deemed advisable by geologists and consultants of the company so to be organized by second party, then said company shall file and process an application to DMEA for a 75%-25% participation loan on said claims, and thereafter if said application is granted the company shall expend such amounts as may be available and may be practicable in development of said claims. (In respect to said application for loan first parties shall lend every necessary and possible assistance to the company, and shall, if necessary, agree that repayment royalties to DMEA shall take precedence over the royalties hereinafter provided to be paid first parties and/or that the royalties hereinafter provided for first parties be reduced so as to satisfy requirements set forth by DMEA or AEC.) In the event a DMEA loan is granted and if first parties elect to secure the services of an

independent geologist to review the work done in such development of claims by said company, then the company shall reimburse first parties for not more than $500.00 per year of actual salaries paid by first parties to such geologist.

F. To pay first parties as a royalty for production from claims herein conveyed by first parties to second party, 12½% of the net mill returns of all ores mined from said claims by second party, such payment to be made by delivery of such ore with all convenient speed in lots as mined to some mill or regular ore buyer, and leaving with such mill or ore buyer, the percentage of mill returns aforesaid for delivery to first parties. For the purposes of this contract "net mill returns" shall mean such sums as shall be paid for the values in the ore after deducting all charges for carriage in any form, assays and mill charges. Should the uranium oxide content of ore mined and the volume thereof be sufficient to qualify for a bonus from the Government, first parties shall be entitled to receive 12½% as their share of such bonus. Development allowances and transportation allowances as set forth by the Government for the development and transportation of uranium are to be retained by second party or his assignee as their sole property. When transportation allowances, as set forth by the Government, are awarded on uranium ore, such sums shall be deducted from the total carriage charges to arrive at an adjusted carriage charge to be used in calculating the net mill returns of uranium ore.

G. To do and perform all necessary work on said claims in order to preserve an AEC lease thereon or assessment work necessary under State and Federal mining laws, and to pay all taxes levied or assessed on said claims and in connection with the development thereof and removal of ore therefrom, whether such taxes be property, occupation or other taxes; PROVIDED THAT this shall not apply to any income taxes payable by first parties on royalties or income received by them from said mineral claims, or from ores mined and removed therefrom.

H. To allow first parties and their agents from time to time to enter upon and into all parts of mining operations upon said claims for purposes of inspection, and to allow first parties to examine all drill logs, analysis and other pertinent data with regard to the development and operation of said claims, and to provide first parties with copies of any such data specifically requested by first parties.

I. There shall be reserved unto the second party and his assignee, however, the right to quit and abandon the claims herein conveyed or the claims so to be located by said geologists at any time if, in the opinion of second party's assignee, said claims are not susceptible of profitable operation, PROVIDED THAT in the event of such abandonment conveyance of said claims thus abandoned shall be offered to first parties or their assignees by good and sufficient Special Warranty Deed.

THE PARTIES DO HEREBY MUTUALLY AGREE That as to any additional mining claims or fractional mining claims located or acquired by lease from AEC by first parties or by second party, or his assignee, within Townships 29S and 30S, Range 25E, Salt Lake Meridian, San Juan County, State of Utah, within the effective term of this agreement (but not including mining claims purchased or otherwise acquired by second party from third parties) the same shall be included with the mining claims hereby conveyed by first parties to second party as part of the subject matter of this contract and subject to all the terms hereof, including the payment of a 12½% royalty to first parties as per the terms of paragraph 2F hereof.

IN WITNESS WHEREOF, The parties have hereunto set their hands and seals the day and year first above written.

_____

_____
First Parties

_____
Second Party

STATE OF COLORADO)
: SS.
COUNTY OF MESA)

Acknowledged before me this _____day of April, 1954, by JOHN A. SOELBERG and JOAN M. SOELBERG, his wife, both of Mesa County, Colorado, and by JACK D. GAY of Shoshone County, Idaho.

_____
Notary Public

My commission expires:

SPECIAL WARRANTY DEED:

THIS DEED, made this 13th day of July, 1954, between JACK D. GAY and VIOLA E. GAY, his wife, of the County of Shoshone, State of Idaho, parties of the first part and PATHFINDER URANIUM CORPORATION, a Utah corporation, with its principal office at 901 Walker Bank Building, Salt Lake City, Utah, party of the second part;

W I T N E S S E T H :

That the said parties of the first part, for and in consideration of the sum of Ten Dollars ($10.00) and other valuable consideration, to the parties of the first part in hand paid by the said party of the second part, receipt whereof is hereby confessed and acknowledged, have granted, bargained, sold and conveyed, and by these presents do grant, bargain, sell, convey and confirm unto the said party of the second part, its successors and assigns forever, all the following described mining claims situate, lying and being in the County of San Juan, State of Utah;

Name of Claim			Description Sec.	Twp.	Rg.	Date of Location	County Clerk and Recorder's Book and Page Book	Page
Lucky Dog	# 1	SW¼	33	29S	25E	1/7/54	55	202
" "	# 2	"	"	"	"	"	"	203
" "	# 3	"	"	"	"	"	"	203
" "	# 4	"	"	"	"	"	"	204
" "	# 5	S½	"	"	"	"	"	204
" "	# 6	SE¼	"	"	"	"	"	205
" "	# 7	"	"	"	"	"	"	205
" "	# 8	"	"	"	"	"	"	206
" "	# 9	SE¼ 33, SW¼	34	"	"	"	"	206
" "	#10	W½	33	"	"	"	"	207
" "	#11	"	"	"	"	"	"	207
" "	#12	"	"	"	"	"	"	208
" "	#13	E½ W½	"	"	"	"	"	208
" "	#14	Center of	"	"	"	"	"	209
" "	#15	W½ E½	"	"	"	"	"	209
" "	#16	E½	"	"	"	"	"	210
" "	#17	"	"	"	"	"	"	210
" "	#18	E½ 33, W½	34	"	"	"	"	211
" "	#19	NW¼	33	"	"	"	"	211
" "	#20	"	"	"	"	"	"	212
" "	#21	"	"	"	"	"	"	212
			(Incorrectly described as being in Range 24E)					
" "	#22	NW¼	33	29S	25E	1/7/54	"	213
" "	#23	N½	"	"	"	"	"	213
" "	#24	NE¼	"	"	"	"	"	214
" "	#25	"	"	"	"	"	"	214
" "	#26	"	"	"	"	"	"	215
" "	#27	"	"	"	"	"	"	215

Name of Claim		Description Sec.	Twp.	Rg.	Date of Location	County Clerk and Recorder's Book and Page Book	Page
Red Dog #1	NE¼	3	30S	25E	11/1/53	39	351
" " #2	"	"	"	"	" "	"	352
" " #3	"	"	"	"	"	"	352
" " #4	"	"	"	"	"	"	353
" " #5	N½	"	"	"	"	"	353
" " #6	"	"	"	"	"	"	354
" " #7	"	"	"	"	"	"	354
" " #8	NW¼	"	"	"	"	"	355
" " #9	NW¼ 3, NE¼	4	"	"	"	"	355
" " #10	NE¼	"	"	"	"	"	356
" " #11	"	"	"	"	"	"	356
" " #12	"	"	"	"	"	"	357
" " #13	N½	"	"	"	"	"	357
" " #14	"	"	"	"	"	"	358
" " #15	NW¼	"	"	"	"	"	358
" " #16	"	"	"	"	"	"	359
" " #17	"	"	"	"	"	"	359
" " #18	NW¼ 4, NE¼	5	"	"	"	"	360
" " #19	" " "	"	"	"	"	"	360
" " #20	NW¼	4	"	"	"	"	361
" " #21	"	"	"	"	"	"	361
" " #22	"	"	"	"	"	"	362
" " #23	N½	"	"	"	"	"	362
" " #24	NE¼	"	"	"	"	"	363
" " #25	"	"	"	"	"	"	363
" " #26	"	"	"	"	"	"	364
" " #27	"	"	"	"	"	"	364
" " #28	NW¼ 4, NE¼	5	"	"	"	"	365
" " #29	NW¼	3	"	"	"	"	365
" " #30	"	"	"	"	"	"	366
" " #31	"	"	"	"	"	"	366
" " #32	N½	"	"	"	"	"	367
" " #33	NE¼	"	"	"	"	"	367
(Incorrectly described as being in Range 25 West)							
" " #34	NW¼	3	30S	25E	11/1/53	39	368
" " #35	"	"	"	"	"	"	368
" " #36	"	"	"	"	"	"	369
" " #37	E½ E½	"	"	"	"	"	369
" " #38	E½	"	"	"	"	"	370
" " #39	"	"	"	"	"	"	370
" " #40	"	"	"	"	"	"	371
" " #41	Center of	"	"	"	"	"	371
" " #42	W of Center of	"	"	"	"	"	372
" " #43	W½	"	"	"	"	"	372
" " #44	"	"	"	"	"	"	373
" " #45	W½ 3, E½	4	"	"	"	"	373
" " #46	E½	"	"	"	"	"	374
" " #47	"	"	"	"	"	"	374
" " #48	"	"	"	"	"	"	375
" " #49	Center of	"	"	"	"	"	375
" " #50	" "	"	"	"	"	"	376
" " #51	W of Center of	"	"	"	"	"	376
(Incorrectly described as being in Range 25 West)							
" " #52	W½	4	30S	25E	11/1/53	39	377
" " #53	"	"	"	"	"	"	377
" " #54	W½W½ 4, E½E½	5	"	"	"	"	378
Ilona #1	SW¼	27	30S	24E	10/14/53	37	124
" #2	"	"	"	"	"	"	125
" #3	"	"	"	"	"	"	126
" #4	"	"	"	"	"	"	127
" #5	N½	"	"	"	"	"	128
" #6	SE¼	"	"	"	"	"	129
" #7	"	"	"	"	"	"	130
" #8	"	"	"	"	"	"	131

Name of Claim		Description Sec.	Twp.	Rg.	Date of Location	County Clerk and Recorder's Book and Page Book	Page
Ilena # 9	SE¼ 27, SW¼	26	30S	24E	10/14/53	37	132
" #10	SW¼	"	"	"	"	"	133
" #11	"	"	"	"	"	"	134
" #12	W½	27	"	"	10/18/53	"	193
" #13	"	"	"	"	"	"	194
" #14	"	"	"	"	"	"	194
" #15	NW¼	"	"	"	"	"	195
Joan # 6		28	"	"	10/14/53	"	104
" # 7		"	"	"	"	"	105
" # 8		"	"	"	"	"	106
" # 9		"	"	"	"	"	107
" #10		"	"	"	"	"	108
" #11		"	"	"	"	"	109
" #12		"	"	"	"	"	110
" #13		"	"	"	"	"	111
" #14	27 & 28	"	"	"	"	"	112
" #15	S½ 28, W½	27	"	"	10/18/53	"	190
" #16	E½	28	"	"	"	"	190
" #17	"	"	"	"	"	"	191
" #18		"	"	"	10/14/53	"	113
" #19		"	"	"	"	"	114
" #20		"	"	"	"	"	115
" #21	W½	"	"	"	"	"	116
" #22	"	"	"	"	"	"	117
" #23	"	"	"	"	"	"	118
" #24		"	"	"	"	"	119
" #25		"	"	"	"	"	120
" #26		"	"	"	"	"	121
" #27		"	"	"	"	"	122
" #28		"	"	"	"	"	123
" #29	NE¼	"	"	"	10/18/53	"	191
" #30	"	"	"	"	"	"	192
" #31	"	"	"	"	"	"	192
" #32	NE¼ 28, NW¼	27	"	"	"	"	193
" #37	21 & 28	"	"	"	5/8/54	98	204
" #42	S½	21	30S	24E	10/18/53	37	204
" #45	Near Center	"	"	"	"	"	205
" #47	N½	"	"	"	"	"	205
LaPreal # 1			"	"	10/14/53	"	136
" # 2	NW¼	33	"	"	"	"	137
" # 3	"	"	"	"	"	"	138
" # 4	N½	"	"	"	"	"	139
"	"	"	"	"	"	"	136
" # 6	"	"	"	"	"	"	140
" # 7	NE¼	"	"	"	"	"	141
" # 8	"	"	"	"	"	"	142
" # 9	NW¼ 34, NE¼	"	"	"	"	"	143
" #10	"	34	"	"	"	"	144
" #11	"	"	"	"	"	"	145
" #12	"	"	"	"	"	"	146
" #13	"	"	"	"	"	"	147
" #14	N½	"	"	"	"	"	148
" #15	NE¼	"	"	"	"	"	149
" #16	"	"	"	"	"	"	150
" #17	"	"	"	"	"	"	151
" #18	NW¼ et, NE¼	"	"	"	"	"	152
" #19	NW¼	35	"	"	"	"	153
" #20	"	"	"	"	"	"	154

Together with all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion

and reversions, remainder and remainders, rents, issues and profits thereof; and all the estate, right, title, interest, claim and demand whatsoever, of the said parties of the first part, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

TO HAVE AND TO HOLD the said premises above bargained and described, with the appurtenances, unto the said party of the second part, its successors and assigns forever.

And the said parties of the first part, for themselves, their heirs, executors and administrators, do covenant, grant, bargain and agree to and with the said party of the second part, its successors and assigns, the above bargained premises in the quiet and peaceable possession of the said party of the second part, its successors and assigns, against all and every person or persons lawfully claiming or to claim the whole or any part thereof, by, through or under the said parties of the first part to WARRANT AND FOREVER DEFEND.

IN WITNESS WHEREOF, the said parties of the first part have hereunto set their hands and seals the day and year first above written.

/s/ Jack D. Gay
Jack D. Gay

/s/ Viola E. Gay
Viola E. Gay

STATE OF WASHINGTON)
: SS.
COUNTY OF CLARK)

On this 13th day of July, 1954, before me, the undersigned, a Notary Public for the State of Washington personally appeared JACK D. GAY and VIOLA E. GAY, his wife, known to me to be the persons whose names are subscribed to the within instrument and acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal the day and year in this certificate first above written.

Notary Public in and for the
State of Washington, residing at
Vancouver, Washington

My Commission Expires: Aug. 4, 1955.

SEAL

SPECIAL WARRANTY DEED

THIS DEED, made this 12 day of July, 1954, between JOHN A. SOELBERG and JOAN M. SOELBERG, his wife, of the County of Mesa, State of Colorado, Parties of the First Part, and PATHFINDER URANIUM CORPORATION, a Utah corporation, with its principal offices at 901 Walker Bank Building, Salt Lake City, Utah, Party of the Second Part;

W I T N E S S E T H :

That the said Parties of the First Part, for and in consideration of the sum of Ten Dollars ($10.00) and other valuable consideration, to the Parties of the First Part in hand paid by the Party of the Second Part, receipt whereof is hereby confessed and acknowledged, have granted, bargained, sold and conveyed, and by these presents do grant, bargain, sell, convey and confirm unto the said Party of the Second Part, its successors and assigns forever, all the following described mining claims situate, lying and being in the County of San Juan, State of Utah:

Name of Claim	Description Sec.	Twp.	Rg.	Date of Location	County Clerk & Recorder's Book and Page Book	Page
Joan #36	21 & 28	30S	24E	5-8-54	93	109
Joan #38	21 & 28	"	"	"	"	109

Together with all and singular and hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof; and all the estate, right, title, interest, claim and demand whatsoever, of the said Parties of the First Part, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

TO HAVE AND TO HOLD the said premises above bargained and described, with the appurtenances, unto the said Party of the Second Part, its successors and assigns forever.

And the said Parties of the First Part, for themselves, their heirs, executors and administrators, do covenant, grant, bargain and

agree to and with the said Party of the Second Part, its successors and assigns, the above bargained premises in the quiet and peaceable possession of the said Party of the Second Part, its successors and assigns, against all and every person or persons lawfully claiming or to claim the whole or any part thereof, by, through or under the said Parties of the First Part to WARRANT AND FOREVER DEFEND.

IN WITNESS WHEREOF, the said Parties of the First Part have hereunto set their hands and seals the day and year first above written.

/s/ John A. Soelberg
John A. Soelberg

/s/ Joan M. Soelberg
Joan M. Soelberg

STATE OF COLORADO)
) SS.
COUNTY OF MESA)

The foregoing instrument was acknowledged before me this 12th day of July, 1954, by JOHN A. SOELBERG and JOAN M. SOELBERG, his wife.

Witness my hand and official seal.

/s/ Scott W. Heckman
Notary Public

My commission expires:

April 21st 1956

DEPARTMENT OF THE INTERIOR
Bureau of Land Management
RECEIVED
APR 24 1975

MF-203
(Revised July 1, 1954)

OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain property in the State of Utah, County of Salt Lake, described as follows:1/

See Exhibit 1.

which is the subject of a proposed exploration project contract, hereinafter called the "contract", between the United States of America, hereinafter called the "Government", and

2/ the Pathfinder Uranium Corporation, a Utah corporation,

hereinafter called the "Operator"; and

WHEREAS, under the provisions of said contract the Government is entitled to a percentage royalty on production and to other rights and equities which do or may conflict with or be adverse to the rights of the undersigned:

NOW THEREFORE, the undersigned, in consideration of said contract and as an inducement to the Government to enter into same, undertakes and agrees as follows:

1. The Government's equity in and right to dismantle, sever, take possession of, and remove and dispose of facilities, buildings, fixtures, equipment, or other items as provided in the contract or any amendment thereof shall prevail over and be prior and superior to any conflicting or adverse rights of the undersigned, and the Government is authorized to enter upon the land for such purposes.

2. To secure the payment to the Government of the percentage royalty on production3/ provided for under the terms of said exploration project contract or any amendment thereof there is hereby granted to the Government a lien upon the land above referred to and upon any production of minerals therefrom until said royalty is fully paid or ten years have elapsed from the date of the contract, whichever occurs first.

1/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated _____, and recorded in book _____ page _____ official records of said county." If (b) is used, the book and page of recordation cannot be dispensed with. If the space provided is insufficient, use an Annex, and refer to the Annex in the space.

2/ Insert the name of the Operator as it will appear in the exploration project contract.

3/ Mining or production from the land is not required, and in the absence of production there is no obligation to repay the Government.

(OVER)

3. The undersigned shall commit no act nor assert any claim that may contravene or conflict with the lien, claim, or rights of the Government under the provisions of said contract. This agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the undersigned.

4. Changes and added provisions None

Dated this 20th day of DECEMBER, 1954.

John A. Soelberg [Seal]

Joan M. Soelberg [Seal]

[Seal]

Exhibit 1.

PROPERTY OF PATHFINDER URANIUM CORPORATION

(Located in San Juan County, Utah)

Name of Claim	Date of Location	County Clerk and Recorder's Book and Page: Book	Page
Ilena #1	10/14/53	37	124
" #2	"	"	125
" #3	"	"	126
" #4	"	"	127
" #5	"	"	128
" #6	"	"	129
" #7	"	"	130
" #8	"	"	131
" #9	"	"	132
" #10	"	"	133
" #11	"	"	134
" #12	10/18/53	"	193
" #13	"	"	194
" #14	"	"	194
" #15	"	"	195
Joan #6	10/14/53	"	104
" #7	"	"	105
" #8	"	"	106
" #9	"	"	107
" #10	"	"	108
" #11	"	"	109
" #12	"	"	110
" #13	"	"	111
" #14	"	"	112
" #15	10/18/53	"	190
" #16	"	"	190
" #17	"	"	191
" #18	10/14/53	"	113
" #19	"	"	114
" #20	"	"	115
" #21	"	"	116
" #22	"	"	117
" #23	"	"	118
" #24	"	"	119
" #25	"	"	120
" #26	"	"	121
" #27	"	"	122
" #28	"	"	123
" #29	10/18/53	"	191
" #30	"	"	192
" #31	"	"	192

Name of Claim	Date of Location	County Clerk and Recorder's Book and Page	
		Book	Page
Joan #32	10/18/53	37	193
" #36	5/8/54	93	109
" #37	10/18/53	37	294
" #38	5/8/54	93	109
" #42	10/18/53	37	294
" #45	"	"	295
" #47	"	"	295
La Preal #1	10/14/53	"	136
" " #2	"	"	137
" " #3	"	"	138
" " #4	"	"	139
" "	"	"	135
" " #6	"	"	140
" " #7	"	"	141
" " #8	"	"	142
" " #9	"	"	143
" " #10	"	"	144
" " #11	"	"	145
" " #12	"	"	146
" " #13	"	"	147
" " #14	"	"	148
" " #15	"	"	149
" " #16	"	"	150
" " #17	"	"	151
" " #18	"	"	152
" " #19	"	"	153
" " #20	"	"	154

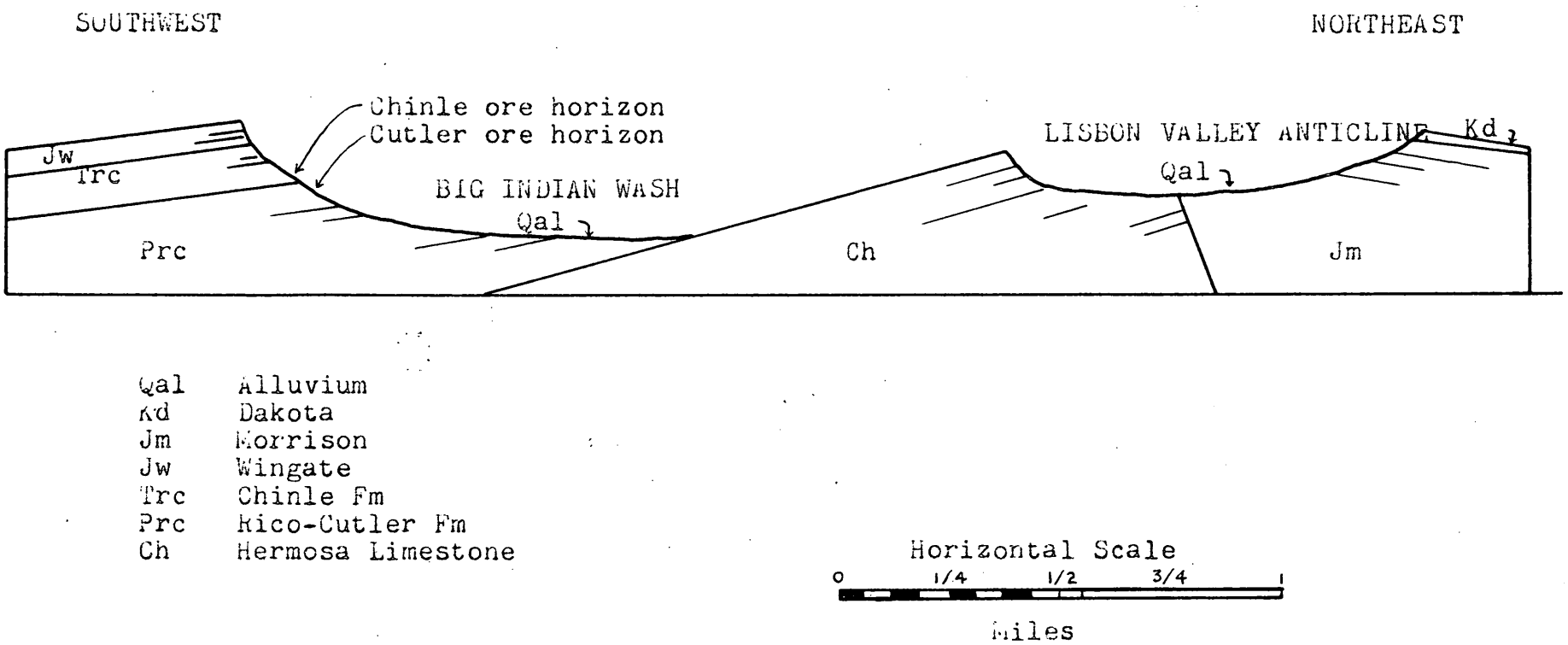

FIGURE - - GEOLOGIC CROSS SECTION: LISBON VALLEY ANTICLINE IN THE VICINITY OF UTEX AND BIG BUCK MINES, BIG INDIAN WASH, SAN JUAN COUNTY, UTAH.

DEPARTMENT OF THE INTERIOR
Bureau of Mines Administration
RECEIVED
JAN 24 1955

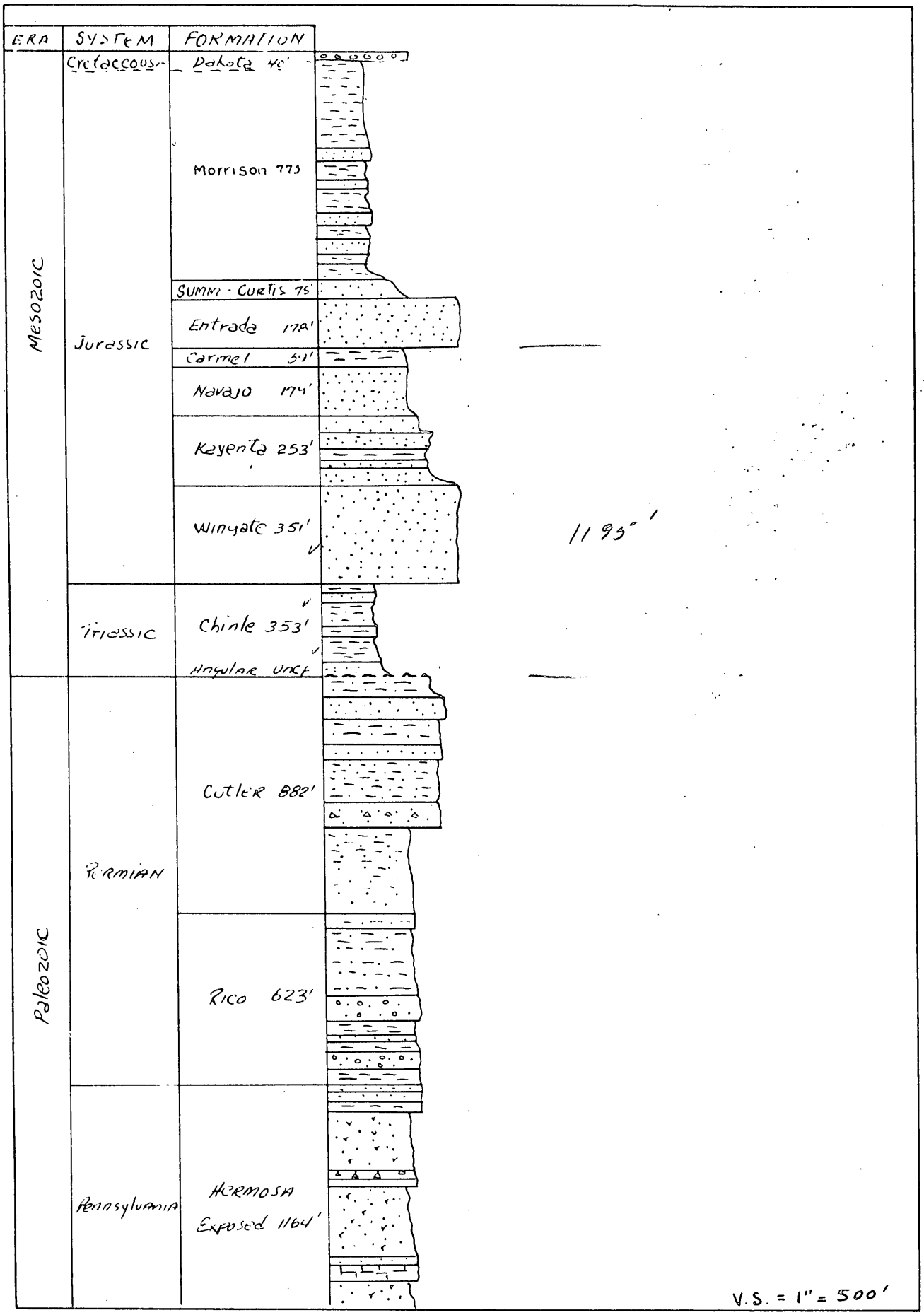

FIG.- STRATIGRAPHIC SECTION, SOUTH BIG INDIAN WASH and Lisbon Valley, San Juan County, UTAH.

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Defense Minerals Administration
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JAN 24 1955

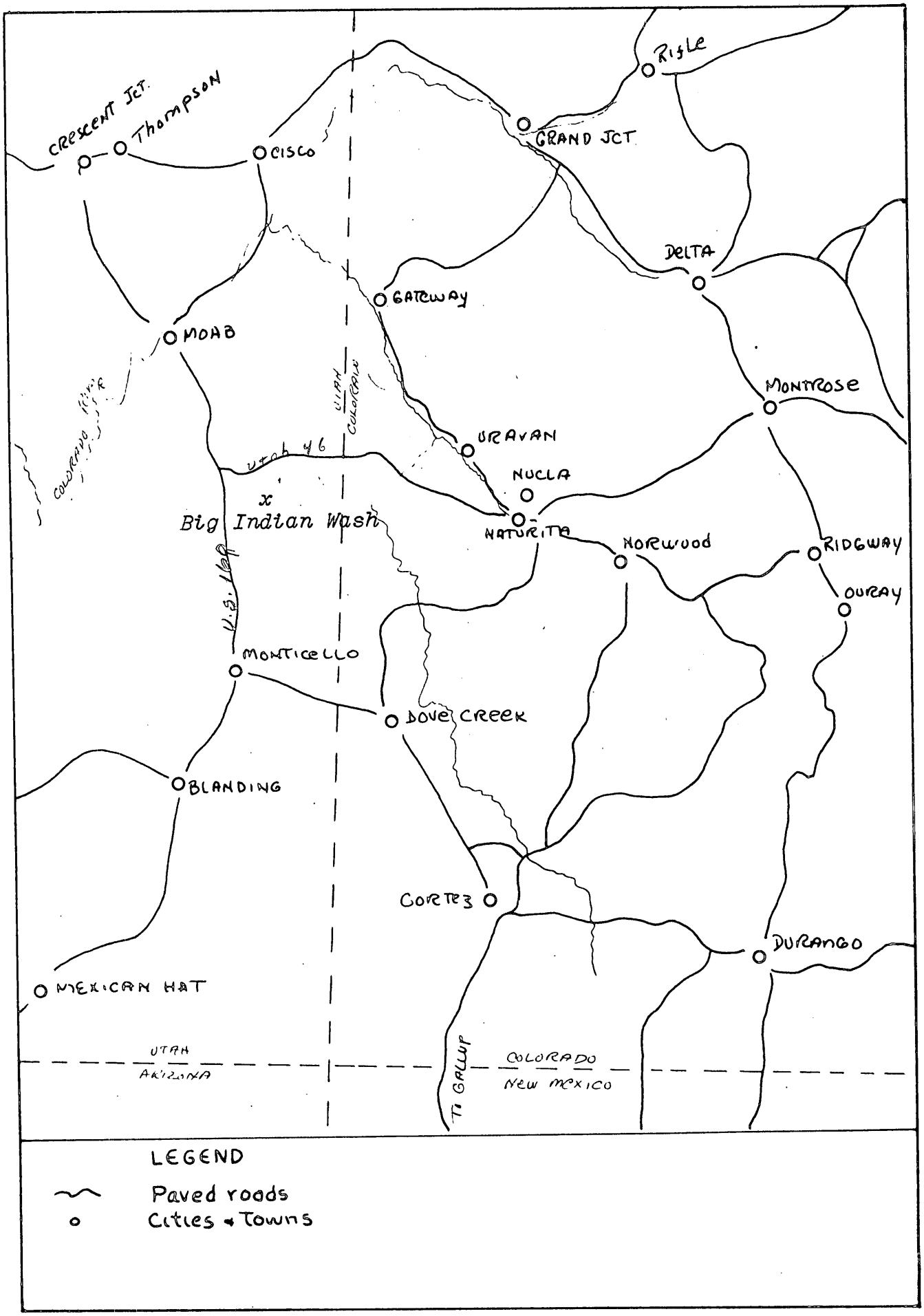


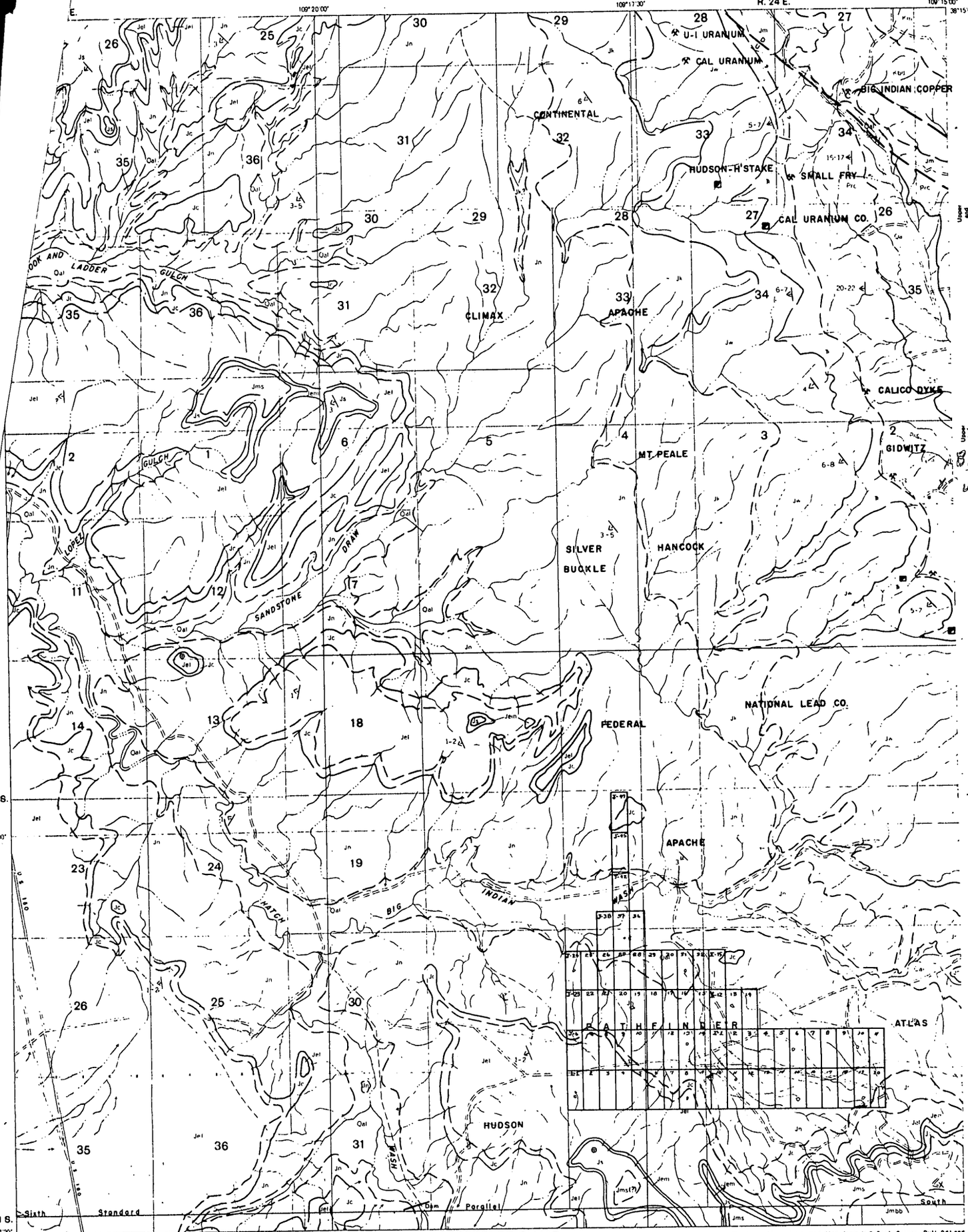
FIG.- INDEX MAP, COLORADO PLATEAU AREA

MENT OF THE INTERIOR
LOGICAL SURVEY

PREPARED IN COOPERATION WITH THE
ATOMIC ENERGY COMMISSION

COMPILATION OF PHOTOGEOLOGY AND SURFACE GEOLOGY
COLORADO PLATEAU AREA, UNITED STATES

TRACE ELEMENTS MEMORANDUM REPORT 380-A



EXPLANATION

Qal — Alluvium (Valley fill and terrace gravel) — QUATERNARY

Km — Mancos shale — CRETACEOUS, Upper

Kbd — Burro Canyon formation and Dakota sandstone, undifferentiated — Upper and Lower

Jmb — Morrison formation, Brushy Basin shale member, Jmb; Salt Wash sandstone member, Jms — Upper

Js — Summerville formation — JURASSIC, Upper

Jem — Entrada sandstone, Moab tongue, Jem, lower unit, Jel

Jc — Carmel formation

Jn — Navajo sandstone

Jk — Kayenta formation

Jw — Wingate sandstone — Upper and Middle

Ts — Triassic rocks undifferentiated — Upper (?)

Pcr — Rico - Cutler formations undifferentiated — JURASSIC (?)

Contact (Can be accurately located within 30 feet horizontally)

Contact (Can be approximately located within 30 to 200 feet horizontally)

Contact (Cannot be located accurately; probable error greater than 200 ft)

Probable or doubtful contact

Fault (Dashed where approximately located; U, upthrown side; D, downthrown side)

Strike and dip of beds (Based on photo-interpretation)

Horizontal beds

Mine or quarry

Prospect or open cut

Primary road

Secondary road

Trail

Fence

SHAFT
J = JOAN GROUP
L = LA PREAL GR
I = ILENA GROUP

BASE MAP COMPILED BY SOIL CONSERVATION SERVICE
U.S. DEPT. OF AGRICULTURE

PHOTOGEOLOGIC MAP
MT. PEALE - 11
SAN JUAN COUNTY, UTAH

Stratigraphic column modified from U.S. Geol. Survey Bull. 841 and U.S. Geol. Survey Strategic Minerals Inv., Geologic map of vanadium region of southeastern Colorado and southeastern Utah, by R. P. Fischer, 1944.

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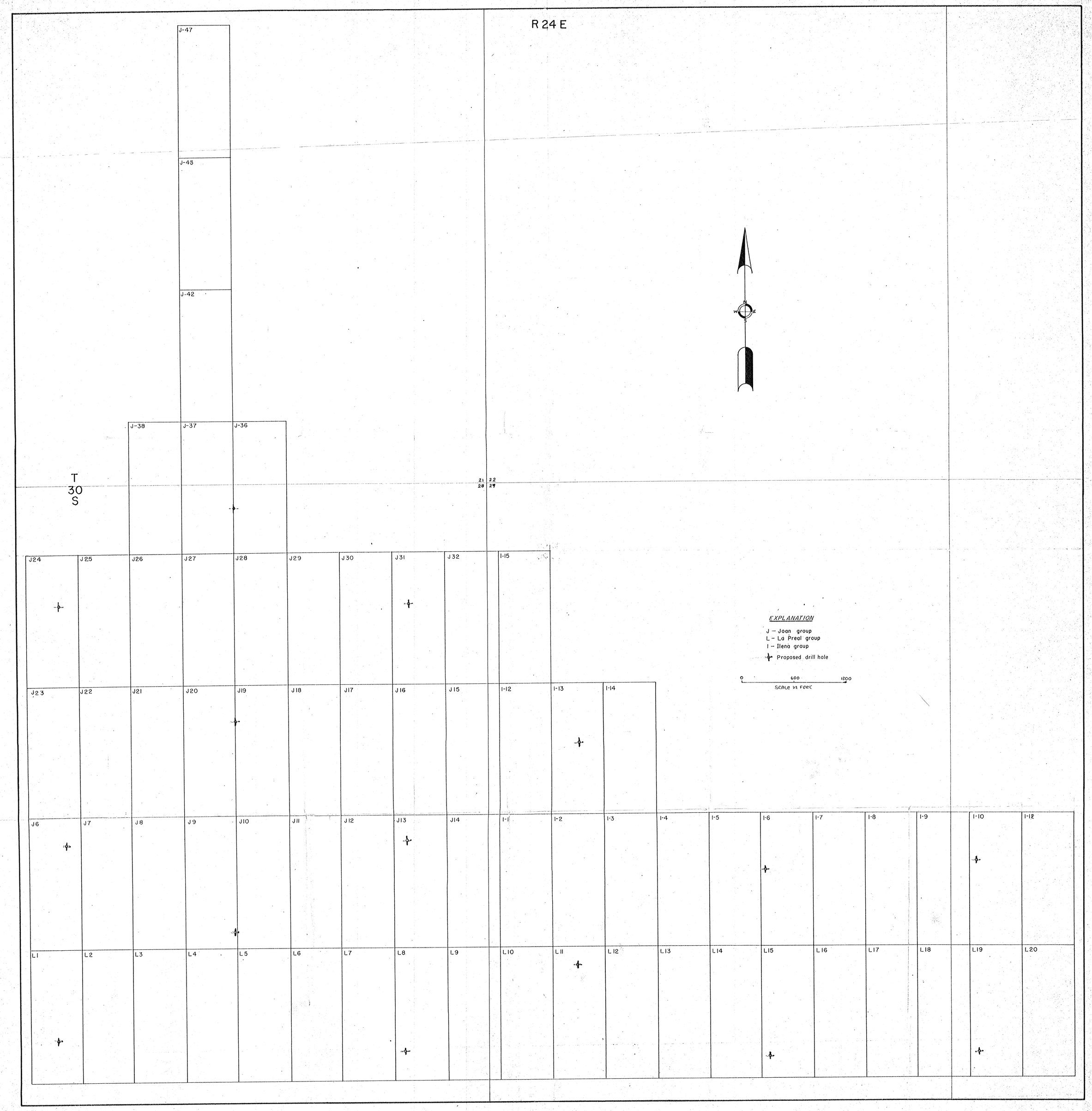

Drill Stage Map Pathfinder Property Big Indian Wash, San Juan County Utah