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FILE COPY
Surname:

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

Mr. C. G. Willis
750 Subway Terminal Building
417 South Hill Street
Los Angeles 13, California

OCT 1 5 1956

Re: Docket No. DMEA-4380 (Uranium)
Ram Claims
Riverside County, California

Dear Mr. Willis:

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

Projects approved by the Defense Minerals Exploration Administration must, in its judgment, show definite promise of yielding materials of acceptable grade in quantities that will significantly improve the mineral supply position for the National Defense Program.

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

Such denial, however, is made without prejudice to the property. In the event further work on your part discloses new and more favorable evidence of ore deposition on the property, we shall be pleased to consider a new application.

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

Sincerely yours,

C. O. Mittendorf

Administrator

FMMurphy/izm 10-12-56
cc to: Docket
Code 700
Mr. Murphy
Admr.'s Reading File
Operating Committee
DMEA Field Team, Reg. II (2)

Messrs. JECrawford, Rm. 3643
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA

Summary of Proposed Project

Object: Denial of application for exploration aid.

Docket No.: DMEA-4380

Commodity: Uranium

Applicant: C. G. Willis
750 Subway Terminal Building
417 South Hill Street
Los Angeles 13, California

Property: Lease on 13 lode mining claims situated in secs. 9, 15, and 16, T. 2 S., R. 11 E., SBBM, Riverside County, Calif.

Date of Application: July 5, 1956

Amount of Application: $48,132.00

Referred to Region II: July 30, 1956

Field Examination made: August 16, 1956

Field Team Report received: September 27, 1956

Work Proposed:

To explore three highly radioactive surface fracture zones by means of underground drifts, about 400 feet long, in each of the zones, or a total of 1,200 feet of drift work.

Estimated Costs:

Contracted road work	$ 3,000.00	
1,200 ft. of drifting @ $30.61/ft.	36,732.00	
Timbering, $7.00/ft. for every foot actual timbered (Maximum)	8,400.00	
TOTAL		$48,132.00

Excerpts from Field Team Report:

The claims are underlain by fine-to coarse-grained quartzite and occasional thin interbeds of hornfels, that have been intruded by aplite dikes and by somewhat latter diabase dikes.

Pitchblende occurs in small sporadically distributed pods enveloped by secondary uranium and copper minerals and also in tiny intersecting veinlets emanating from the pods, along a highly fractured zone in the quartzite.

The property is developed with a 100-foot tunnel and 12 open cut trenches. The applicant reports that about 200 pounds

of pitchblende, occurring in pods from 1 inch to as much as 18 inches long, was recovered from about 300 tons of rock mined in the underground workings and in the trenches. A selected sample from one ton of hand sorted ore assayed 0.42% U_3O_8.

The field examiners noted anomalously high radioactivity in three small areas in the fracture zone along a strike length of 1,200 feet. However, all the uranium and copper occurrences noted were erratically distributed and discontinuous.

The examiners estimate that possibly a few thousand pounds of pitchblende occurs in small pods along the fracture zone in an area about 50 feet along the strike, 30 feet wide, and a few hundred feet deep.

The examiners also note that diamond drilling would not be practical because of the erratic distribution of the pods and veinlets within the broad fracture zone. However, they state that more trenching might be warranted, although the present surface showings are probably indicative of what can be expected at any reasonable depth.

The Field Team recommends denial of the application.

Commodity Members' Comments: (excerpts):

USBM, J. E. Crawford, October 10, 1956:

Mr. Crawford concurs in the Field Team's recommendation.

USGS, N. E. Nelson, October 10, 1956:

Mr. Nelson notes that selected specimens of material from the locality assayed up to 60.85% U_3O_8, and summarizes the Field Team report. He concludes that the underground work outlined by the Applicant is not yet justified, but some work (sinking?) at the one hot spot may be warranted, also, that the two copper showings may deserve further work.

Mr. Nelson recommends that the application be denied without prejudice.

Rare & Miscellaneous Metals Div., F. M. Murphy, October 12, 1956:

Although the uranium mineralization appears to occur in small-widely scattered pods in the wide fracture zone, it is possible that larger concentrations of pitchblende may occur at depth, depending on whether the uranium-bearing solutions that enriched the fracture zone were acending or surface waters.

Conclusion and Recommendation:

This Division concurs in the Field Team's recommendation that the subject application be denied. However, it agrees with Geological Survey commodity member that the application should be denied without prejudice.

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

OCT 11 1956

RECEIVED
OCT 11 1956

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

Date 10/10/56

DMEA Docket No. 4380
DMEA Contract No.
Commodity Uranium
Name of applicant C. G. Willis
Name of property Ram Claims
Location of property Riverside County, California
Estimated cost of project $48,132

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

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

Subject: Review of Field Team Report
(Application, Field Team Report, etc.)

1. Date of subject document: 9/25/56. 2. Date received by reviewer: 10/2/56.

3. Prior reports on this property known to reviewer: Yes [ ], No [x].

4. Prior reports on nearby properties known to reviewer: Yes [ ], No [x].

5. Information available on past production: Yes [ ], No [x].

6. Other pertinent factors known to reviewer: Yes [ ], No [x].

7. Explain items marked yes above:

8. Factors needing special consideration:
   a. Location [ ]
   b. Ownership [ ]
   c. Evidence of mineralization [ ]
   d. Geology [ ]
   e. Proposed exploration method [ ]
   f. Alternate exploration method [ ]
   g. Costs [ ]
   h. _____ [ ]

9. Action advised:
   a. Obtain information from applicant [ ]
   b. Refer to Field Team [ ]
   c. Denial [x]
   d. Agree with Field Team [x]
   e. Disagree with Field Team [ ]
   f. Suggest alternate plan [ ]
   g. Request another examination [ ]
   h. Approval [ ]
   i. Consult with Mr. _____ at _____ AEC office.

10. Remarks: (Use back of page if necessary)
Mr. J. O. Hosted, Washington representative of the Atomic Energy Commission, assisted in the review.

OCT 11 1956

IN REPLY REFER TO:

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

October 10, 1956

Re: DMEA 4380
C. G. Willis
Ram Claims
Riverside Co., Calif.
$48,132 - Uranium-Copper

Memorandum

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

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

Subject: Review of Field Team report.

The applicant requested assistance in driving 1,200 feet of crosscuts and drifts in search of concentrations of uranium-copper minerals large enough to mine. The known small pods of material occur in a wide fracture zone in quartzite at places characterized by small poorly determined structures related to joints and, probably, aplite dikes.

The report of the consultant mining engineer says "the aplite invariably gives a slightly higher count than the normal background." At the three places, selected by the applicant for exploration, aplite dikes are present.

The examiners found no exposure from which a sample assaying more than 0.16% eU_3O_8 could be taken and the width sampled was only 0.2 feet. A sample of about 1 ton of material broken, probably, at the north portal of a 54-foot tunnel assayed 0.42% eU_3O_8. Specimens of material from this locality assayed up to 60.85% U_3O_8.

The consulting engineer speaks of an area about 10 feet in diameter within which he saw "3 very definite pockets, with evidence of others." On a map, in the report of the examiners, is indicated a place near that portal, where the high grade pitchblende pods were mined. No reason is advanced for such localization by the consultant or the examiners. From the information at hand no peculiar condition can be noted other than the presence of an aplite dike and, by inference, above average fracturing and jointing.

The examiners note that copper minerals are common associates of the uranium minerals but the reverse is not always the case. Except to note that "all of the uranium and copper occurrences found so far are erratically distributed and discontinuous", the examiners say little of 3 copper showings, from which samples assaying as below, were taken.

Sample No	Width feet	% eU_3O_8	% Cu	Oz/Ton Au	Oz/Ton Ag	Remarks
S-517 Selected chip	1.0	0.06	22.30	0.09	2.90	Cuprite
S-518 Channel	6.0	0.02	2.02	0.01	0.20	Quartzite open cut
S-521 Selected chip	0.2	0.16	1.05	0.01	0.30	Copper stained

The underground work program outlined by the applicant is not yet justified, but some work (sinking?) at the one hot spot may be warranted, and 2 copper showings may deserve further work.

I recommend that the application be denied without prejudice.

N. E. Nelson

N. E. Nelson

10/3/56 gla

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

RECEIVED
SEP 27 1956

1605 Evans Ave.
Reno, Nevada

Sept. 25, 1956

Memorandum

To: Operating Committee, DMEA, Interior Building, Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region II

Subject : Docket No. DMEA-4380 (Uranium)
C. G. Willis
Ram Claims
Riverside County, California
(Your letter, July 30, 1956)

Attached are four copies of a report by D. B. Tatlock, Geological Survey and B. H. Sheahan, Bureau of Mines, on subject property in which a denial of the application for DMEA exploration assistance is recommended.

Roscoe Smith and I concur in the recommendation.

S. Ricker
Executive Officer
DMEA Field Team, Region II

Attachs.

Reviewed by
DMEA OPERATING COMMITTEE
10-1-56
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
FRED A. SEATON, SECRETARY

RECEIVED
SEP 27 1956

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION II

APPLICATION REPORT

DMEA-4380 (Uranium)
C. G. Willis
Ram claims
Riverside County, California

by

B. H. Sheahan
U. S. Bureau of Mines

D. B. Tatlock
U. S. Geological Survey

September 20, 1956

Reviewed by
DMEA OPERATING COMMITTEE
10-1-56
(date)

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ILLUSTRATIONS

Figure 1	Location map
2	Geologic map

RECEIVED
SEP 27 1956

INTRODUCTION

Mr. C. G. Willis, No. 750 Subway Terminal Building, 417 S. Hill Street, Los Angeles 13, California applied for Government assistance in a $48,132.00 program with Defense Minerals Exploration Administration to explore for uranium at the Ram claims, Dale mining district, Riverside County, California.

The applicant proposed to explore the property by a total of 1200 feet of underground work beneath three highly radioactive surface exposures. The property was examined August 16, 1956 by B. H. Sheahan, U. S. Bureau of Mines, and D. B. Tatlock, U. S. Geological Survey. Mr. D. C. Barrett, geologist, Division of Raw Materials, U. S. Atomic Energy Commission, Mr. T. H. Willis, the applicant's representative, and Mr. R. H. Morath, one of the owners, accompanied the examiners.

Information concerning the deposit was received August 14, 1956 from Mr. A. E. Granger, Area Manager, Salt Lake Area Office, U. S. Atomic Energy Commission.

CONCLUSIONS AND RECOMMENDATIONS

Pitchblende is sporadically distributed in small pods and tiny veinlets enveloped by secondary uranium and copper minerals along a strongly fractured zone in quartzite. Reserves of a few thousand pounds of pitchblende are inferred to a depth of a few hundred feet.

It is recommended that the application for Government assistance be denied because of the improbability of a significant discovery of ore at depth. As the entire mine area is well exposed and the relief is high, the erratically distributed pods and the low grade mineralized fractures at and near the surface are indicative that similar grade and distribution can be expected at depth.

LOCATION, ACCESSIBILITY, AND LOCAL FACILITIES

The Ram claims are 13.5 miles airline southeast of Twentynine Palms, California in secs. 9, 15, and 16, T. 2 S., R. 11 E., S.B.B.&M., Riverside County, California.

To reach the property from Twentynine Palms, which is the nearest source of labor, supplies, power, water, and communication facilities, travel 10.2 miles easterly on paved Base Line highway, turn right onto narrow winding desert road leading southeasterly toward the east flank of the Pinto Mountains and travel 9.7 miles to a campsite on the property. The main workings are at an altitude of 2,600 feet a few hundred feet southeast of the campsite.

The road is rough but the claims can be reached with a passenger car.

HISTORY AND PRODUCTION

A shallow prospect pit less than five feet deep on an occurrence of oxidized copper in quartzite was the only old working on the property. Messrs. Roland H. Morath, Edward D. Adamson, and Robert J. Roush discovered the radioactivity in 1955.

There has been no production from the property. One ton of hand-sorted ore is stockpiled in the ore bin and about 200 pounds of uranium-bearing specimens, mostly pitchblende, have been mined.

PROPERTY AND OWNERSHIP

The property consists of 13 unpatented mining claims located and owned by Messrs. Roland H. Morath, Edward D. Adamson, and Robert J. Roush. Mr. C. G. Willis leased the claims on January 31, 1956 and a copy of the agreement was included with the application. Messrs. T. H. Willis, Robin Willis, and C. C. Winslow hold minority interests in the lease.

The claims are recorded at the County Recorder's Office, Riverside, California.

DEVELOPMENT

The property is developed with a 100-foot tunnel and 12 open cut trenches. Very little timber is required for ground support.

Equipment available at the property is in good operating condition.

Item	Remark
1 Air compressor, 105 c.f.m., 2-stage, portable.	Rented.
1 Jack hammer and Jack leg with drill steel.	Owned.
1 Blacksmith shop with msc. tools.	Owned.
1 Wheelbarrow, picks, shovels, and bars.	Owned.
1 Scintillation counter and probe.	Owned.

GENERAL GEOLOGY

The Ram claims are underlain by fine- to coarse-grained quartzite and occasional thin interbeds of hornfels, presumably of Precambrian age, that have been intruded by aplite dikes and by somewhat later diabase dikes of unknown age. The aplite dikes are probably related to a large body of quartz monzonite which crops out about a half mile south of the claims.

The quartzite strikes about N 30° W and dips 70° east. It is moderately to intensely fractured along a zone 200 to 400 feet wide

which strikes about N 30° W and dips 50° west across the quartzite bedding. Individual fractures in general strike parallel to the zone and dip from 20° to 70° west. The aplite dikes parallel individual fractures and range in thickness from a fraction of an inch to as much as 20 feet and are exposed along the strike from a few feet to as much as 70 feet. A few of the aplite dikes cross cut the fracture zone for short distances along nearly vertical northeast-trending joints in passing from one northwest-trending fracture to another.

The diabase dikes parallel the fracture zone and are exposed along the strike from 20 to 70 feet; they are 15 to 20 feet thick. The two best exposed dikes are on the margins of the fracture zone.

Bedding plane fractures are well developed locally.

ORE DEPOSITS

Pitchblende occurs in small sporadically distributed pods enveloped by secondary uranium and copper minerals at the intersections of fractures and also in tiny intersecting veinlets emanating from the pods, along the strongly fractured zone in quartzite.

The secondary uranium minerals are gummite, uranophane, phosphuranylite, and the copper-uranium admixtures, katangite and cuprosklodowskite. The secondary copper minerals are chrysocola, cuprite, azurite, and malachite. The gangue consists

of the quartzite country rock and aplite.

Anomalously high radioactivity is confined principally to three small areas in the fracture zone along a strike length of about 1200 feet (fig. 2). Pitchblende has been found only in the southernmost area in small widely scattered pods along a strike length of about 40 feet. At the time of the DMEA examination only one lenticular pod about 1 inch in diameter and 1/4 inch thick was seen. The applicant reports that about 200 pounds of pitchblende occurring in pods from 1 inch to as much as 18 inches long was recovered from about 300 tons of rock mined in the underground workings and in nearby trenches. The most highly radioactive material now showing in the underground workings assayed only a trace eU_3O_8 and 0.22 percent copper.

In the central and northernmost areas, only secondary uranium, copper-uranium, and copper minerals occur. The most highly radioactive material in these two areas assayed 0.02 percent eU_3O_8 and 2.02 percent copper.

All of the uranium and copper occurrences found so far are erratically distributed and discontinuous.

SAMPLING

All areas on the property where radioactive mineralization was reported were checked with a Geiger counter. The following samples were taken at locations indicated on Geologic Map (fig. 2).

Sample No.	Width, feet	% eU_3O_8	% Cu	Oz./Ton Au.	Oz./Ton Ag.	Remarks
S-517 (selected chip)	1.0	0.06	22.30	0.09	2.90	Cuprite from copper stained outcrop.
S-518 (channel)	6.0	0.02	2.02	0.01	0.20	Quartzite, open cut.
S-519 (channel)	6.0	Trace	0.20	Trace	Trace	Quartzite.
S-520 (channel)	7.0	Trace	0.13	Trace	Trace	Quartzite.
S-521 (selected chip)	0.2	0.16	1.05	0.01	0.30	Copper stained quartzite.
S-522 (channel)	10.0	Trace	0.15	Trace	Trace	Quartzite and aplite dike.
S-523 (channel)	3.0	Trace	0.22	Trace	Trace	Quartzite.
S-524 (grab)	---	0.42	0.77	0.01	0.40	From one ton hand-sorted ore in bin.

ORE RESERVES

There are no measured or indicated reserves. It is inferred that a few thousand pounds of pitchblende in sporadically distributed pods as much as 18 inches in diameter occurs along the fracture zone in an area about 50 feet along the strike and 30 feet wide to a depth of a few hundred feet beneath the underground workings.

APPLICANT'S PROPOSAL

The applicant proposes to explore for uranium ore along the mineralized fracture zone by a total of 1200 feet of underground work beneath the three areas in which highly radioactive surface exposures occur at a total cost of $48,132 including necessary timbering and road work. Diamond drilling would not be practical because of the erratic distribution and discontinuous character of the mineralized fractures and pods within the broad fracture zone. More trenching might be warranted; however, the well exposed surface showings are probably indicative of what can be expected at any reasonable depth.

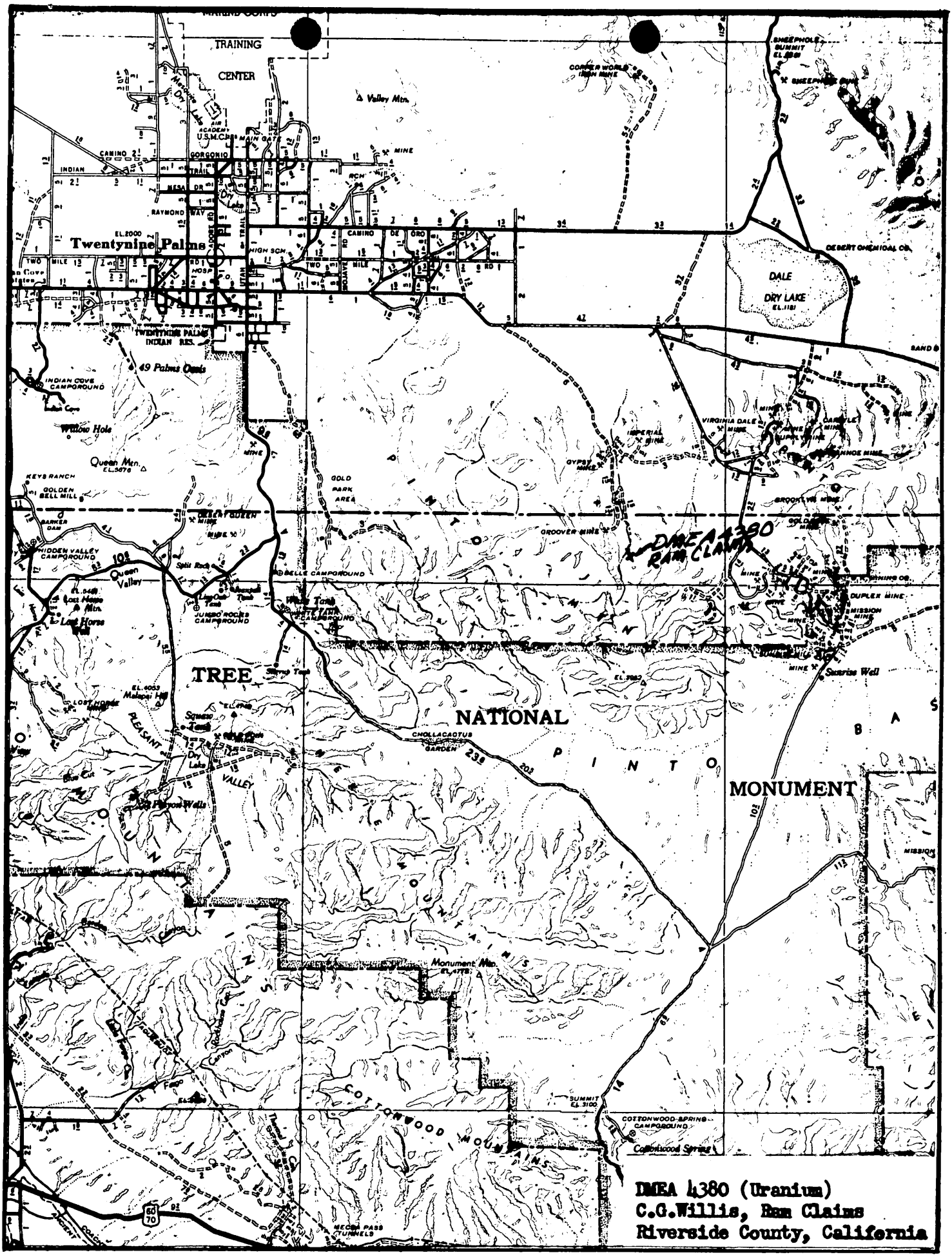

FIG. I LOCATION MAP CALIFORNIA

	Au	Ag
515A	.01	Tr
516A	.02	Tr

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SEP 27 1956

8/13/56 gla

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AUG 13 1956

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

1605 Evans Avenue
Reno, Nevada

AUG 9 1956

Mr. C. G. Willis
750 Subway Terminal Building
417 South Hill Street
Los Angeles 13, California

Re: Docket DMEA-4380 (Uranium)
C. G. Willis
Ram Claims
Riverside County, California

Dear Mr. Willis:

An examination of your property in connection with your DMEA application is being scheduled for Thursday, August 16, 1956. Will you, or your representative, please meet Mr. B. H. Sheahan, mining engineer, U. S. Bureau of Mines, and Mr. D. B. Tatlock, geologist, U.S. Geological Survey, at the U. S. Post Office, Twenty-nine Palms, California, at 8:00 AM on that date and accompany them to your Ram Claims.

It will be appreciated and will expedite the examination if you will provide a jeep for transportation from Twentynine Palms to the property if one is required.

Very truly yours,

S. Ricker
Executive Officer
DMEA Field Team, Region II

SRicker:ft
cc: Opr. Com., DMEA, Wash. D.C.
Finance Off.
R. M. Smith
D. B. Tatlock
B. H. Sheahan
File

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

RECEIVED
AUG 13 1956

1605 Evans Avenue
Reno, Nevada

AUG 9 1956

Mr. C. G. Willis
750 Subway Terminal Building
417 South Hill Street
Los Angeles 13, California

Re: Docket DMEA-4380 (Uranium)
C. G. Willis
Ram Claims
Riverside County, California

Dear Mr. Willis:

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It will be appreciated and will expedite the examination if you will provide a jeep for transportation from Twentynine Palms to the property if one is required.

Very truly yours,

S. Ricker
Executive Officer
DMEA Field Team, Region II

SRicker:ft
cc: Opr. Com., DMEA, Wash. D.C.
Finance Off.
R. M. Smith
D. B. Tatlock
B. H. Sheahan
File

Surname copy

700

Murphy
Willis
Martin
Johnson

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

Mr. Langley Ricker
Executive Officer
DMEA Field Team, Region II
1605 Evans Avenue
Reno, Nevada

JUL 30 1956

Re: Docket No. M-4380 (Uranium)
C. G. Willis
Ram Claims
Riverside County, California

Dear Mr. Ricker:

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

Enclosed are copies of memoranda, dated July 18 and 20, 1956, by W. F. Williams, USGS, and James Paone, USBM, respectively, relating to the application.

As noted by Mr. Williams, only three of the 13 claims (Ram Nos. 1 through 9 and Ram Nos. 11 through 14) are included in the application. In the event the Field Team recommends a project on the subject claims, it should advise the Applicant that any other of the claims which might benefit from the proposed work must be included; also, that we will require six copies of the Owners' Consent to Lien signed by Roland H. Morath, Edward D. Jamison, and Robert J. Roush.

Sincerely yours,

W. S. Martin By ejf
ACTING Chairman, Operating Committee

Enclosures

APPROVED:

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

N. E. Nelson By ejf
Member, Geological Survey

FMMurphy/ai
7-30-56
cc to: Docket
Admr. Reading File
Operating Committee
Code 700
Mr. Murphy
Messrs. JECrawford, Rm. 3643
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA

P.C.L.

Surname copy
700

Murphy
Ellis
Huber
Nelson
Martin
K Johnson

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

JUL 30 1956

Mr. C. G. Willis
#750 Subway Terminal Building
417 S. Hill Street
Los Angeles 13, California

Re: Docket No. DMEA-4380 (Uranium)
Ram Claims
Riverside County, California

Dear Mr. Willis:

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

Mr. Spangler Ricker
Executive Officer
DMEA Field Team, Region II
1605 Evans Avenue
Reno, Nevada.

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

Sincerely yours,

C. O. Mittendorf

Administrator

FMMurphy/ai 7-29-56
cc to: Admr.'s Reading File
Docket
Code 700
Mr. Murphy
DMEA Field Team, Region II (2)

A.C.L.

7/23/56

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

RECEIVED
JUL 23 1956

July 20, 1956

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

From: James Paone, Bureau of Mines Alternate Member
Uranium Commodity Committee

Subject: Application for Assistance, DMEA Docket 4380 (Uranium)
C. G. Willis, Operator, #750 Subway Terminal Building,
417 S. Hill St., Los Angeles 13, California

I have reviewed the attached application, DMEA Docket 4380, C. G. Willis, Operator, #750 Subway Terminal Building, 417 S. Hill St., Los Angeles 13, California, dated July 5 and received in this office July 13, 1956. I have also discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

The applicant has requested Federal assistance to explore for uranium on thirteen unpatented mining claims in the Dale mining district, Riverside County, California. The exploration project includes roadbuilding at a cost of $3,000, 1200 feet of tunnelling and timbering at $33.11 and $7.00 per foot, respectively. The total estimated cost of the project is $48,132.

We recommend that the application be sent to the Field Team and that they consult with A. E. Granger, Area Manager, Salt Lake City, Division of Raw Materials, AEC.

James Paone
James Paone

Attachment

7-19-56

IN REPLY REFER TO:

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

July 18, 1956

Memorandum

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

From: W. P. Williams, U. S. Geological Survey

Subject: Review of application, DMEA 4380, C. G. Willis, Ram claims, Dale mining district, Riverside County, California, (uranium).

The applicant proposes to explore for uranium ore on three mining claims (although the applicant's lease includes thirteen claims) located near the north boundary of Joshua Tree National Monument, California.

The proposed work consists of three adits to be driven under three 'discovery' pits on surface. A total of 1,200 feet of underground work is proposed at an estimated total project cost of $48,132.

Because uranium minerals are found as fracture fillings and coatings, and because the pods and small ore masses are sporadically scattered, the property does not seem to have a good chance of producing significant amounts of uranium ore.

Anomalous radioactivity has been noted, U.S.G.S. Trace Elements Memorandum no. 14, in the Joshua Tree National Monument in an area just southwest of the subject claims. In the Monument, however, radioactivity is attributed to thorium in monazite and xenotime in black sand accumulations. Although country rock types could be expected to be similar in the two areas, the applicant reports the presence of primary uraninite and secondary uranium minerals associated with copper minerals. The applicant also reports the presence of radioactive residual clay, but does not state how much clay is proportionately present.

Although radioactive 'specimens', probably of very high grade, are undoubtedly present on the property I doubt that a DMEA contract is warranted to cover the proposed work. It seems advisable, however, to have the Field Team examine the property in order to evaluate completely the uranium potentialities of the claims. If field examination shows that mineralization is widespread and strong enough, then, perhaps, a modest project of bulldozer stripping and trenching might be appropriate.

RECEIVED
JUL 1 0 1956

W. P. Williams

W. P. Williams

IN REPLY REFER TO:

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

July 18, 1956

Memorandum

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

From: W. P. Williams, U. S. Geological Survey

Subject: Review of application, DMEA 4380, C. G. Willis, Ram claims, Dale mining district, Riverside County, California, (uranium).

The applicant proposes to explore for uranium ore on three mining claims (although the applicant's lease includes thirteen claims) located near the north boundary of Joshua Tree National Monument, California.

The proposed work consists of three adits to be driven under three 'discovery' pits on surface. A total of 1,200 feet of underground work is proposed at an estimated total project cost of $48,132.

Because uranium minerals are found as fracture fillings and coatings, and because the pods and small ore masses are sporadically scattered, the property does not seem to have a good chance of producing significant amounts of uranium ore.

Anomalous radioactivity has been noted, U.S.G.S. Trace Elements Memorandum no. 14, in the Joshua Tree National Monument in an area just southwest of the subject claims. In the Monument, however, radioactivity is attributed to thorium in monazite and xenotime in black sand accumulations. Although country rock types could be expected to be similar in the two areas, the applicant reports the presence of primary uraninite and secondary uranium minerals associated with copper minerals. The applicant also reports the presence of radioactive residual clay, but does not state how much clay is proportionately present.

Although radioactive 'specimens', probably of very high grade, are undoubtedly present on the property I doubt that a DMEA contract is warranted to cover the proposed work. It seems advisable, however, to have the Field Team examine the property in order to evaluate completely the uranium potentialities of the claims. If field examination shows that mineralization is widespread and strong enough, then, perhaps, a modest project of bulldozer stripping and trenching might be appropriate.

WPWilliams:btr
G 7/18/56

W. P. Williams

cc: J. E. Crawford, 3641
J. O. Hosted, 3210
Director's reading file 4212
Branch reading file 4212
DMEA (3)
Chron. file
Docket file

JUL 1 9 1956

July 13, 1956

Mr. C. G. Willis
#750 Subway Terminal Bldg.
417 S. Hill St.
Los Angeles 13, California

Subject: DMEA-4380
Re: Exploration Assistance
Ram Mine

Dear Mr. Willis

The receipt of your application dated July 7, 1956 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-4380 and referred to the Rare & Misc. Metals Division.

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

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division

00932

July 13, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region II

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 II.

DMEA
-4380 C. G. Willis
Ram Mine

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

DMEA

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

RECEIVED
JUL 13 1956

1605 Evans Avenue
Reno, Nevada

July 11, 1956

Memorandum

To: Operating Committee, DMEA, Interior Building, Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region II

Subject: Loan Application (Uranium)
C. G. Willis, et al
Ram Mine
Riverside County, California

Attached are three sets of MF-103, Application for Aid forms relative to above subject. The fourth set has been retained in our files.

S. Ricker

Attach.

JUL 13 7 49 AM '56

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

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S. Ricker

Attach.

SRicker:gh
cc: R. M. Smith
File

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED
JUL 13 1956

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. 4380
Metal or Mineral Uranium
Date Received 7/11/56
Estimated Cost $48,132
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: Applicant: C. G. Willis, Operator
Minority Interest Holders: T. H. Willis, Robin Willis, C. C. Winslow
Address for all: #750 Subway Terminal Building, 417 S. Hill St., Los Angeles 13, California

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(*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 90 days and be completed within 12 months from the date of an exploration project contract.

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

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

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

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

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

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

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project.

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

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

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

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

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

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

[x] Money [ ] Use of equipment owned by you [ ] 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 July 5, 1956

C. G. Willis

C. G. Willis (Applicant)

By

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

3. Applicant's property rights consisting of a lease (attached) on thirteen Lode Mining Claims in the Dale Mining District, Riverside County, California. Those directly benefiting from this exploration are as follows:

Claim	Notice of Location Recorded in Book	Page	Amendments Recorded in Book	Page
Ram #1	1751	200	1782	68
Ram #2	1751	199	1782 1917	64 93
Ram #4	1767	443	1805 1917	84 55

4. Physical Description

The Ram claims are located approximately 13-1/2 airline miles southeast of Twenty-Nine Palms just north of the Joshua Tree National Monument in a bare rugged area of metamorphic rocks. The attached air photo shows general features of topography, etc.

(a) Lessee has performed the following exploration operations:

An access road suitable for Jeep travel has been constructed to the workings. This will need improvement if operations of any size are to be conducted.

Twelve trenches or prospect pits have been cut at or near points of anomalous radioactivity. Of these, two were in barren ground, four were indeterminate, and six resulted in new discoveries or substantial improvement of surface indications.

Approximately 100 feet of underground work has been carried on near the point of original discovery (See Figure 3). This has revealed some interesting occurrences of uranium and copper mineralization, but has been inconclusive in determining the plan of mineralization.

A plane table topographic map and a preliminary radioactive anomaly map have been made (Figures 1 and 2).

Currently a more detailed radioactive grid survey is being made and a localized geologic map is projected.

(b) There are no permanent production facilities. Production to date has consisted of approximately 200# of specimen quality pitchblende (Assay Sample No. 2) and several tons of secondary carnotite ore (Assay Sample No. 1).

(c) This area is unsurveyed and has never been examined geologically. A preliminary reconnaissance of the region has revealed the following:

Approximately one-half mile southeast of the claims is a large domal intrusive of porphyritic quartz monzonite. Around its flanks lie a thick series of Pre Cambrian quartzites dipping away from the central core at from 30 to 60°. In the vicinity of the Ram Mine these quartzites strike north 40 to 70° west. They are cut by numerous apparently randomly oriented aplite dikes and a few obviously young diabase dikes.

Two faults in the region are topographically conspicuous. A short distance to the north two mines are producing gold and lead from a mineralized fault zone of some width. This fault is upthrown on the east and trends due north to N 20° W. It can be traced southward to the north edge of Ram #14 claim at which point its direction and throw become uncertain. The other fault lies approximately one-half mile west, strikes N 45° E, is upthrown on the west, and evidences considerable left lateral movement at the monzonite-quartzite contact. The intersection of these two faults just north of the Ram claim is probable but not verified.

The mineralized zone of the Ram Claim is badly broken by at least four sets of recent joints or fractures and numerous older healed fractures. It is not known whether mineralization is related to any specific set of fractures. The mineralized zone is conspicuous because of the extensive copper mineralization that has taken place. Chrysacholla and azurite coat the fractures and permeate the quartzite with brilliant blues and greens, and irregular masses of cuprite have been found. This copper color indicates a zone of from 10 to 150 feet wide trending in a northwesterly direction.

Irregularly spaced in this zone occur small (1 to 18 inches) pods of pitchblende. These pockets are elongated in a northerly direction and occupy space at the intersection of since-healed fractures. Typical pockets of pitchblende are shown in the attached color photographs. All occurrences discovered to date are consisted of a core of pitchblende surrounded by a thin layer of gumite which is in turn surrounded by varying amounts of carnotite (?) with the whole embedded in a reddish clay which comprises the rest of the fracture space. It is apparent that numerous pockets have been entirely leached out under the influence of the copper solutions leaving nothing but radioactive reddish clay.

(d) The prospect is accessible by road 10 miles east on Base Line Highway from Twenty-Nine Palms, then south on a dirt road some 9 miles. Nearest shipping points are Amboy, 50 road miles to the north and Cabizon 65 road miles to the west. Twenty-Nine Palms is the closest supply and resident point. However, supplies are somewhat costly and unreliable.

(e) Availability of man power, material supplies and equipment is fair, with Los Angeles being the closest reliable source. Water is available free of charge at Twenty-Nine Palms but must be hauled to the site and all power requirements must be fulfilled by portable units.

5. (b) The work proposal to be considered is as follows:

1. Road improvement. If any substantial scale operations are to be conducted it will be necessary to improve and extend the road to allow access for personnel, supplies and heavy equipment. A contractor has estimated the necessary expenditure at $3,000.

2. Exploration of this property is complicated by the intensive fracturing and the pod-like occurrences of ore. The distribution of these pods would appear to rule out drilling and makes drifting along the structure almost imperative. It is proposed that three tunnels be driven, one under each of the three main discoveries. The placement of these is shown in Figure 2. Tunnels 1 and 2 are to be driven to or through the zone of mineralization (but not to exceed 200 feet) and then will be turned to drift along the mineralized zone. Tunnel No. 3 is to be drifted along the structure for approximately 200 feet and then cross-cuts are to be made in either direction to determine the width of the mineralized zone. Each tunnel is to be a maximum of 400 feet for a total maximum of 1200 feet, of which approximately one-half will be drifting. Experience in the discovery tunnel has shown that a maximum of 5 feet per shift per day can be expected for drifting and 4 feet per shift per day for cross-cutting. Thus 270 shifts will be required for mining alone. Study reveals that two shifts per day is most economic, giving a total of 135 mining days. An additional twenty one-shift days will be required for the initial set-up for a total of 155 working days or approximately 7-1/2 months. It is expected that each shift will be 9 hours, consisting of 8 hours working time and one hour travel time.

Because of the fracturing it is impossible to determine how much timbering will be required. It has been necessary to timber approximately 30% of the discovery tunnel. Although it is hoped that this will improve with depth, we wish to request that timbering costs be separated from other mining costs.

To summarize, the tentative proposal is:

Contracted road work	$ 3,000.00	
Tunnel Footage, $33.11 per foot (see schedule attached) for a maximum of 1200 feet	39,732.00	
Timbering costs at $7.00 per foot for every foot actually timbered		
Total	$42,732.00	plus timbering costs.

(d) Experience and background of operating personnel:

C. G. Willis, A. B. Stanford, 1920. 35 years experience as geologist, petroleum and mining engineer, oil operator and producer.

Robin Willis, A. B. 1920; Ph D. 1924, Stanford. 35 years experience as geologist, petroleum and mining engineer, independent oil operator and consultant.

C. C. Winslow, 40 years experience as driller, production superintendent and drilling superintendent throughout the Mid-Continent, California and the Far East. Has been associated with C. G. Willis for the last 20 years.

T. H. Willis, B. S. 1948, M.B.A. 1950 Stanford. Six years experience geological exploration work.

Roland H. Morath, experienced since 1937 as laborer, mucker, mucking machine operator, timberman, miner and shift boss in numerous mines throughout the west, both hard rock and soft rock experience under various types of special conditions. Last previous mining job was as shift boss on the Santa Barbara Tunnel.

6. Estimate of costs.

(a) Independent Contracts:

Road construction and improvement $ 3,000.00

	Rate	Time	Amount	Total		Cost/ft.
(b) Labor						
(1)Miner-Foreman	$2.25/hr.	135 shifts	$2,886.00			
(1)Miner	2.00	155	2,945.00			
(2)Muckers	1.75	270	4,489.00			
(2)Miners' helpers	1.75	290	4,822.00	$15,142.00		$12.62
Supervision						
(1)Supervisor	$500/mo.	7.5 mo.		3,750.00		3.12
Engineering & Consult.						
Engineer	$50/day	40 days	$2,000.00			
Consultants	$100/day	10 days	1,000.00	3,000.00		2.50
Total Labor					$21,892.00	$18.24
(c) Materials & Supplies						
Powder				$ 3,420.00		$ 2.85
Drill steel				2,400.00		2.00
Water				400.00		.33
Fuel				1,000.00		.83
Pipe				550.00		.46
Hoses & Fittings				300.00		.25
Rails				500.00		.42
Ventilating System				300.00		.25
Miscellaneous(Small Tools)				250.00		.21
Timber	(See below)			-		-
Total Materials & Supplies					$ 9,120.00	$ 7.60

(d) Equip. Use Chg.

	Est.Orig.Cost(Used)			
Compressor (1)	$3,000.00			
Jackhammers(3)	1,225.00			
Generator (1)	500.00			
Muck Cars (3)	300.00			
Supply Truck (1)	900.00			
Water Trailer(1)	400.00			
	$6,325.00 @ 60 mo. = $105/mo. x 7.5 mo. =		$ 800.00	$ .67

(e) Nothing

(f)	Permanent Improvements	Est.Orig.Cost		
	Water Tank (5000 gal.)	$ 300.00		
	Powder House	200.00		
	Blacksmith shop & shower room	500.00		
		$1,000.00 @ 60 mo. = $16/mo x 7.5 mo. =	$ 120.00	$ .10
(g)	Miscellaneous Costs			
	Maintenance	$ 800.00		
	Transportation of Equip., Mat., & Supplies	500.00		
	Payroll Costs (@ 12-1/2%)	1,900.00		
	Assay Costs (200 @ $5 ea.)	1,000.00		
Total Miscellaneous			$ 4,200.00	$ 3.50
(h)	Contingencies Allow 10%		$ 3,600.00	$ 3.00
Total (exclusive of timbering)			$39,732.00	$33.11
Add: Timbering costs @ $7.00/ft. actually timbered. (Maximum =			8,400.00	7.00)
Total Maximum Possible Cost			$48,132.00	$40.11

$30.61 excluding road

CHARLES M. HERON
MINING ENGINEER

JUL 13 1956

465 North Segovia Ave.
San Gabriel, California
February 25, 1956

Mr. C. G. Willis
417 South Hill Street
Los Angeles 13, California

Dear Mr. Willis:

Herewith I wish to give you a summary of my impressions and recommendations concerning your 13 uranium mining claims which I visited, February 21 and 22, in the Dale mining district, about 12 miles a little south of east from 29 Palms, in San Bernardino county.

The claims lie in a bare rugged area of metamorphic rocks, chiefly fairly coarse-grained quartzites, presumably of pre-Cambrian age; the only igneous rocks seen in the area were occasional diabase dikes and less frequent aplite dikes. (The aplite invariably gives a slightly higher count than the normal background count of the area.) The occurrences of uranium which have been found appear to lie along a belt striking roughly N30°W. Although the quartzites are badly distorted and broken, there is some evidence of bedding planes which have this same strike, N30°W, and a dip approximately 70° to the east. In certain zones the quartzite is distinctly schistose, and in other areas it is massive and blocky. In the more massive material there are numerous joint planes, cutting the quartzite in all directions. However, there seems to be a predominance of cracks or planes, the strikes of which parallel the bedding planes, but have a reverse dip. The ore which has been found appears to be at the intersection of these oppositely dipping cracks, usually where there is a small amount of crushing and fracturing of the quartzite. The quartzite itself is entirely impervious, except for the cracks, and the uranium minerals are found only in the cracks or where the slight crushing has made the material pervious. The cracks which we saw, and in which the uranium minerals have been found, are not faults, and are therefore not continuous.

All of the occurrences so far found appear spotty and discontinuous. At every point, practically, where highly radio-active material has been found, there have been seams of pitchblende (uraninite), grading into secondary minerals, carnotite, and an orange mineral which I take to be gummite. At the one point near the original discovery where we dug into the broken material, we found three very definite pockets, with evidence of others, within an area of perhaps 10 feet in diameter. I picked a $4\frac{1}{2}$ pound sample of the broken material, sorting it entirely visually. I should estimate that there might be as much as 50 to 60 pounds of this type of material available from the three spots in which it occurred. The amount could be increased by less careful selection, which would of course reduce the grade proportionately. The sample is of interest, but is essentially a type sample, which does not represent any definite tonnage at this stage of development. The sample has been sent to the Brown Laboratory at Grand Junction for assay.

About 30 feet to the southeast of this original discovery is another small pit in which similar material has been exposed. The 30 foot tunnel, some 28 feet

below this pit has reached the west-dipping plane of the cracks in the pit, but not those dipping east, and has not yet encountered any pockets of radio-active material. My Brunton survey of this work shows that another 15 feet of drifting will reach the east-dipping plane. The shallow (6 feet) surface trenches, suggested, along the general trend of these occurrences will show the continuity, or lack of continuity, and frequency of occurrence more quickly and less expensively than cross-cuts would do.

The rock in which the uranium occurs is too hard to be trenched by a bulldozer. The trenches should be cut at right angles to the trend of the occurrences, and a clean face exposed to a depth of 5 to 6 feet. The width need not be over a width convenient for mining, 5 or 6 feet; and where feasible, the face should be exposed on each side of the trench. The material along these cracks often shows a small amount of slicken_siding, indicating sufficient movement to account for the slightly crushed material at the intersection of the joint planes. The quality of the material found in the pockets which have so far been discovered warrants a reasonable search for the source of the ore. There are scattered exposures of this material so far found along a belt striking about N30°W over a distance of approximately 1600 feet in length.

I've suggested to Mr. Morath that the trenches be spaced at intervals between the definite discoveries, - starting not too far from the definite discoveries. This will give some notion as to the frequency of the occurrences along this zone, and if there were continuity to the occurrence, it would soon become apparent. I've also suggested that at the point in the canyon where the high reading is obtained the pit be continued to determine the source of this radio-activity. At present there are no recognizable radio-active minerals showing, but I suggest that the pit be continued until the source of the radio-activity is found. I feel strongly that Mr. Morath should continue his surface prospecting with a scintillometer, keeping on the look-out for some structural feature such as a well-defined fissure, which might be favorable for a substantial deposition.

The most attractive occurrences which I saw were small cracks filled with uranium minerals. The core of this filling is made up of pitchblende, grading into secondary minerals, - brilliant yellow carnotite and orange colored gummite, and a very small amount of autonite. This pitchblende is presumably hydrothermal vein deposition, (in marked contrast to the secondary deposits of the sandstones of the Colorado, Utah and New Mexico), and the secondary materials have been formed as the surface waters reached the primary ore.

This area was prospected originally for copper, which shows as brilliantly colored outcrops of chrysocolla and perhaps some malachite. Wherever the pitchblende has been found the quartzite shows this brilliant copper stain. However, much of the material which is highly colored with chrysocolla gives very little radio-activity. Small hand specimens show a network of irregular veinlets filled with uranium, - a miniature pattern of the occurrence of what has been found up-to-date. Mr. Morath tells me that he was not guided in anyway in the original prospecting by the brilliant chrysocolla; however, I would suggest that any area where chrysocolla is found should be prospected.

As regards the proposed extension of the road to the present camp site, - at this stage of exploration, I suggest that the cost of the road could be spent

to better advantage on the preliminary prospecting and trenching, none of which will require heavy equipment. Certainly the present scattered exposures warrant the search for a substantial body of the very unusual uranium ore which has been found.

Thanking you for this assignment, I remain

Sincerely yours,

Chas M. Heron

Charles M. Heron

CHARLES M. HERON
MINING ENGINEER

465 North Segovia Avenue,
San Gabriel, California,
March 1, 1956.

Mr. C. G. Willis,
417 So. Hill Street,
Los Angeles, California.

Dear Mr. Willis:

Enclosed is the assay certificate from the Brown Laboratory. The 1.86% U_3O_8 ore has a value, according to the schedule published by the A.E.C., of $510.70 (before haulage allowance). This is, of course, a type sample and does not represent a specific tonnage; it was not picked as the highest grade material in the pockets of ore which you have found , but it does show a general distribution of uranium in the small area surrounding the brilliant yellow spots which you have found.

Under separate cover I am sending a slice of rock cut from one of the pieces of ore which I brought from your number 1 pit. One side of this specimen has been sprayed with lacquer to bring out the contrasts in color. You will note that on the other side there is a spot of pitchblend which did not show in the first cut. Perhaps the most interesting fact brought out by cutting this sample is that the rock is somewhat brecciated and that veinlets of gummite and pitchblend are found in the network of fractures in which they were originally deposited, while the more readily soluble minerals have been carried some little distances from the original deposits. These tiny seams of ore are definitely of a vein type of deposit and suggest what may be found on a bigger scale. I gave Dr. Hewett one part of this sample and I still have a piece.

With best regards, I remain,

Sincerely yours,

Chas. M. Heron

Charles M. Heron

Enc.

P.S. Thankyou for the uranium price schedules which just came.

THE BROWN LABORATORY

2263 Broadway
GRAND JUNCTION, COLORADO

RECEIVED
JUL 13 1956

ANALYTICAL DEPARTMENT

PHONE 1543-W

CERTIFICATE OF ANALYSIS

TO

Charles M. Heron
465 No. Segovia Ave.
San Gabriel, California

Date 2-25-56
Order No. 6028-S

Material: Ore Sample
Received: 2-24-56
For: Analysis

Lab. No.	Your No.	Description	%U_3O_8	%V_2O_5	%$CaCO_3$
6028-1	---		1.86		
		(Schedul value of this grade of ore is $310.70)			

W. E. Pilo
Analyst

PROSPECT 3411

FORM 1

LABORATORY REPORT

SMITH-EMERY COMPANY

ESTABLISHED 1910

CHEMISTS - ENGINEERS

781 EAST WASHINGTON BOULEVARD

LOS ANGELES 21, CALIFORNIA

ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS, AUTHORIZATION FOR PUBLICATION OF OUR REPORTS, CONCLUSIONS, OR EXTRACTS FROM OR REGARDING THEM IS RESERVED PENDING OUR WRITTEN APPROVAL AS A MUTUAL PROTECTION TO CLIENTS, THE PUBLIC AND OURSELVES.

LABORATORY
No. 419840 *Date* June 4, 1956

Sample Ore

Received 5-31-56 *Marked* "Sample No. 2"

Submitted by Cornelius G. Willis,
417 South Hill Street,
Los Angeles 13, California.

REPORT OF DETERMINATION

Uranium Oxide (U_3O_8) ---------- 60.85%

Respectfully submitted,

Smith-Emery Co.

CHEMISTS AND ENGINEERS

J.L.L.

PROSPECT 3411

FORM 1

LABORATORY REPORT

SMITH-EMERY COMPANY

ESTABLISHED 1910

CHEMISTS - ENGINEERS

761 EAST WASHINGTON BOULEVARD

LOS ANGELES 21, CALIFORNIA

RECEIVED JUL 13 1956

ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS, AUTHORIZATION FOR PUBLICATION OF OUR REPORTS, CONCLUSIONS, OR EXTRACTS FROM OR REGARDING THEM IS RESERVED PENDING OUR WRITTEN APPROVAL AS A MUTUAL PROTECTION TO CLIENTS, THE PUBLIC AND OURSELVES.

LABORATORY
No. 417773

Date April 17, 1956

Sample Rock

Received 4-13-56

Marked "Sample No. 1"

Submitted by C.G. Willis,
750 Subway Building,
417 South Hill Street,
Los Angeles 13, California.

REPORT OF DETERMINATION

Uranium Oxide (U_3O_8) ---------- 0.40%

Respectfully submitted,

Smith-Emery Co.

CHEMISTS AND ENGINEERS

G.L.C

JUL 18 1956

MINING LEASE FOR URANIUM AND OTHER MINERALS

THIS MINING LEASE FOR URANIUM AND OTHER MINERALS entered into this 31st day of January, 1956, by and between Roland H. Morath, Edward D. Adamson, and Robert J. Roush, hereinafter referred to as "Owners" and C. G. WILLIS, hereinafter referred to as "Lessee",

W I T N E S S E T H :

WHEREAS, Owners are the owners of those certain thirteen mining claims situated in the Dale Mining District in Riverside County, California, and described as Ram's Nos. 1 to 9, inclusive, and 11 to 14, inclusive, said claims being more particularly described in EXHIBIT "A" attached hereto and made a part hereof, and the parties hereto desire to enter into a lease for the prospecting, mining and development of said claims on the terms and conditions herein set forth,

NOW, THEREFORE, THE PARTIES HERETO AGREE AS FOLLOWS:

Owners hereby demise, lease and let, exclusively, to the Lessee said mining claims described in said EXHIBIT "A" for the purpose of prospecting, exploring, mining, operating, developing, extracting, taking and removing uranium and other mineral ores therefrom, and treating and processing the same thereon, together with the right to build the necessary plant or plants thereon for such purposes, together with rights-of-way, easements and servitude for ingress and egress, and for pipe lines, power, telephone and telegraph lines therefrom and thereto, for a term of fifty (50) years from date hereof on the following terms and conditions:

1) Lessee agrees to pay Owners a royalty of ten per cent (10%) of the gross proceeds of all uranium ore and other minerals and ores and all products removed and sold from the operation of the premises; "gross proceeds" being defined as the net amount received for the sale of uranium ore and other minerals after deducting any and all transportation costs and all

(Note: A memorandum of this lease has been recorded in Book 1895, Page 314, et seq., Records of Riverside County, California).

smelter treatment charges, refining charges, and other deductions and expenses charged by the smelter, custom mill, reduction works, refinery, or other purchaser, and sales tax, if any. There shall be included within said ten per cent (10%) royalty ten per cent (10%) of the amount received by the Lessee as premium, subsidies, bonus or other payments received for production of uranium ore or other minerals from the state or federal government.

2) Lessee agrees to pay Owners a guaranteed minimum royalty and rental of Nine Hundred Dollars ($900.00) per quarter for the first three (3) years of the term of this Lease, said minimum guaranteed royalty and rental to be increased to the sum of Eighteen Hundred Dollars ($1,800.00) per quarter thereafter for the balance of the term hereof.

3) Minimum rental and royalty in the amount of $3,600.00 has been paid for the first year of the term hereof contemporaneously with the execution of this agreement. The next minimum royalty and rental payment shall be due and payable on the 20th day of the fifth month of the second year of the term hereof for the first quarter of the said second year, and minimum rentals and royalties shall be payable on the 20th day of every third month thereafter for the preceding quarter for which they are due. All minimum rental or royalty payed in accordance with paragraph 2 hereof, except the first year's minimum rental paid upon the execution of this agreement as above set forth, shall apply towards any royalty accrued or thereafter accruing under the terms of paragraph 1 hereof. If and when the sum of the royalties paid, in accordance with paragraphs 1 and 2 hereof, shall during any one year of the term hereof equal the annual minimum rental payable during such year, then no further minimum rental shall be due for such year. All royalties and rentals shall be payable by check to owners as follows:

1/3rd thereof to Roland H. Morath, at P. O. Box 444, Bell, Calif.

1/3rd thereof to Edward D. Adamson, at 6734 Cord Ave., Rivera, Calif.

1/3rd thereof to Robert J. Roush, at 11060 S. Brink Ave., Norwalk, Calif.

or to such other parties at such other addresses as each of said Owners shall designate, and Lessee shall not be required to issue more than three checks for each royalty payment due hereunder. Any royalties payable under the provisions of paragraph 1 hereof in excess of amounts of minimum royalties theretofore paid and accrued and any royalties due under the provisions of paragraph 4 hereof shall be due and payable on the 20th day of the second month following the close of any quarter of the term hereof for which quarter any such royalties are payable.

4) In addition to the royalties payable under paragraphs 1 and 2 hereof, Lessee agrees to pay to Owners 25% of the net profits from the Lessee's operations of the demised premises after deducting all prospecting, exploring, developing, mining, treating, refining and other costs of every kind and nature incurred in connection with said operations, including as a part of such costs all payments made under the provisions of paragraphs 1 and 2 hereof, and including in said costs all sales taxes, license fees and other taxes payable in connection with said operations, excepting only Federal or State Income Taxes. Lessee agrees that he will not include in the cost of said operation any salary paid to himself for his services in connection with said operations.

5) Upon the execution of this agreement, Lessee agrees to commence, and thereafter prosecute with diligence the prospecting, exploration and development of said mining claims in a good and miner-like fashion and in a manner necessary to good and economical mining with due regard to the development and preservation of said claims as a workable mine. In this connection Lessee agrees to expend not less than a minimum sum of $10,000.00 on account of said operations (not including any rental or royalty payments

Rider to be attached to Lease at end of paragraph 5.

5A) During any year of the term hereof, commencing with the fourth year of said term, in which Lessee does not expend a minimum of $20,000 on account of labor, materials, services and other costs of mining and development, the minimum royalty payable under the provisions of paragraph 2 hereof shall be increased to $3,000 per quarter. Any amounts due on account of said increase shall be paid Owners on the next royalty payment date following the end of the year of the term hereof for which said amounts are due.

payable hereunder) during each of the calendar years 1956-1957-1958.

Rider, Attached 5 pg

6) Owners hereby warrant and guarantee their title to the demised premises, and further agree to cooperate with Lessee in his operations in every reasonable way, including the granting of any access to or exits from said property.

7) Owners shall have the right at all reasonable times to enter, at Owners' risk, upon and into the leased premises and the workings thereon for the purpose of examination and inspection thereof. Owners shall have access, at all reasonable times, to the records of production and the cost thereof and such other records as will show compliance on the part of the Lessee with the provisions of this instrument. Lessee agrees to furnish owners, upon their request in writing, with results of sampling and other analyses, core tests and mining data and other information derived by him in the course of exploring, mining, producing, processing, treating and other operations. Lessee shall keep and maintain books and records covering said operation and the cost thereof, which records are to be open to inspection by owners and their authorized agents at all reasonable times.

9) All machinery and improvements placed upon the leased premises by Lessee may be removed by him within thirty (30) days after the termination of this Lease, excepting tracks, mine timbering, buildings affixed to the soil and any other improvements affixed to the soil having little or no salvage value.

10) Lessee shall have the right at any time during the term of this lease to quitclaim this lease in its entirety or as to any portion of the premises covered thereby, and upon any such quitclaim, Lessee shall be relieved of all obligations thereafter accruing with respect to that portion of the leased premises so quitclaimed, excepting only any rentals and royalties theretofore accrued; provided, however, that only a total quitclaim and surrender shall relieve Lessee of the obligations to make the

payments due under paragraph 2 hereof. Should Lessee quitclaim a part, but not all, of the leased premises, the portions quitclaimed shall remain subject to such easements and rights-of-way as may be necessary and convenient for Lessee's operations on the portion retained. Except as so provided, full right to the land so quitclaimed shall revest in Owners who shall have the right to make full use of said quitclaimed premises and shall have the right to such easements and rights-of-way over the portions retained by Lessee as may be necessary and convenient for their operations on said quitclaimed premises.

11) All labor, materials and services used in the operations of Lessee shall be at the cost and expense of Lessee and Owners shall not be chargeable with or liable for any part thereof, and Lessee shall protect the leased premises against liens of every character arising from his operations thereon.

12) Lessee shall and hereby agrees to indemnify and save harmless Owners against all claims and demands for or on account of destruction, loss of or damage to property of any third party or for injury to or death of any person or persons arising from Lessee's operations under this lease.

13) In connection with his operations on the leased premises, Lessee shall carry workmen's compensation and employer's liability insurance in the amounts required by law, and shall carry bodily injury insurance in at least $100,000/$300,000 limits, and property damage insurance in the amount of at least $50,000.

14) Lessee shall pay all taxes on his improvements and personal property used by him in connection with his operations on the leased premises and nine-tenths of all taxes levied and assessed against the mineral rights on the leased premises and nine-tenths of any license, severance, production or other tax on the minerals produced from said leased premises. Owners agree to pay ten per cent of the taxes levied and assessed against the mineral rights in said leased premises and ten per cent of any license,

severance, production or other tax on the minerals produced from said leased premises.

15) In all operations under this lease, Lessee shall, at his own expense, comply with any and all federal or state laws, ordinances, regulations and requirements governing mining operations.

16) Lessee hereby waives all claims against Owners for loss or damage to property in or about the premises and for injuries to persons in or about the premises from any cause arising at any time hereafter or from any cause which may now exist.

17) Should Lessee be in default in the making of any of the payments called for under paragraphs 1 through 4 hereof and should said default continue for thirty days after written notice from Owners specifying said default, or should Lessee be in default with respect to any of the other terms of this lease and fail within sixty days after written notice from Owners specifying such default to commence to rectify said default and to continue to use due diligence to rectify the same until it is fully rectified or cured, Owners may terminate this lease at any time thereafter during the continuance of such default by giving written notice to Lessee of such election to terminate; provided, however, that should Lessee in good faith contest the amount of any payment due under the provisions of paragraphs 1 or 4 hereof, then no default shall be deemed to exist hereunder until thirty days after the matter has been settled by mutual agreement or decided by a court of competent jurisdiction. No implied covenant or condition shall be read into this lease relating to prospecting or mining or the time therefor, or to any operations of Lessee hereunder, or to the measure of diligence thereof. Termination of this lease, in accordance with the provisions of this paragraph 17, shall be the sole remedy of Owners for any default of Lessee hereunder, provided, however, that upon such termination Lessee shall be liable to Owners for any unpaid royalties theretofore accrued under the provisions of paragraphs 1 through 4 hereof.

18) If Lessee is delayed or interrupted or prevented from performing his obligations as herein provided by acts of God, wars, fires, floods, strikes, insurrection, injunction and regulations, orders, or requirements of government, then in all such cases Lessee shall be excused without liability from performance of his obligations hereunder during the period of each such delay, prevention or disability; but all of the provisions hereof shall again come into full force and effect upon the termination of the period of delay, prevention or disability resulting from any of the causes aforesaid.

19) It is understood and agreed that Owners expect to further prospect the general vicinity surrounding the leased premises for uranium and other minerals and that Lessee contemplates giving them such financial and other assistance in such prospecting endeavors as may be mutually agreed upon. It is mutually agreed that during the period of this agreement, any claims filed upon by or to which Owners or Lessee or any of them shall in the future acquire title within three miles of any portion of the leased premises shall, as of the date said Owner or Owners or Lessee acquires said title, be subject to this agreement and included as part of the premises covered hereby.

20) Any notice required hereunder by Owners to Lessee shall be in writing and directed to C. G. Willis, 750 Subway Terminal Building, 417 South Hill Street, Los Angeles 13, California, and any notice required hereunder by Lessee to Owners shall be in writing and directed to Owners in care of Edward D. Adamson at 6734 Cord Ave., Rivera, California; a duplicate copy of said notice to be sent to Robert J. Roush at 11060 S. Brink Avenue, Norwalk, California.

Either party hereto may change the address to which notices shall be sent by written notice to the other party. Such notices shall be deemed to have been delivered 48 hours after having been sent registered mail and deposited in the United States Mail.

21) Time is the essence of this agreement.

This lease shall bind and inure to the benefit of the heirs, assigns and successors in interest of the parties hereto.

IN WITNESS WHEREOF, the parties hereto have executed this Mining Lease the day and year first hereinabove written.

OWNERS:

[redacted]

Robert J. Roush.

Edward D. Adamson

Roland H. Marath

LESSEE:

C. B. Willis

STATE OF CALIFORNIA, } ss.
County of Los Angeles

ON THIS 9th day of February, A.D., 1956, before me, Mary E. Seykora a Notary Public in and for said County and State, personally appeared C. B. Willis, known to me, to be the person whose name is subscribed to the within Instrument, and acknowledged to me that he executed the same.

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

Mary E. Seykora
Notary Public in and for said County and State.

ACKNOWLEDGMENT — GENERAL — WOLCOTTS FORM 232

My Commission Expires November 3, 1959

57449

[redacted] executed the same.

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

C. R. Stanley
Notary Public in and for said County and State.

ACKNOWLEDGMENT — GENERAL — WOLCOTTS FORM 232

My Commission Expires May 2, 1959

57449

[redacted] subscribed to the within Instrument, and acknowledged to me that he executed the same.

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

Notary Public in and for said County and State.

ACKNOWLEDGMENT — GENERAL — WOLCOTTS FORM 232

57449

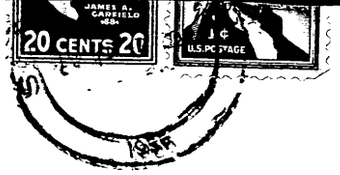
EXHIBIT "A" attached to and made a part of Mining Lease for Uranium and other Minerals dated January 31, 1956, by and between Roland H. Morath, Edward D. Adamson, and Robert J. Roush, "Owners", and C. G. Willis, "Lessee".

The leased premises referred to and covered by said lease are particularly described as follows:

Those certain Lode or Vein Mining Claims situated in the Dale Mining District in Riverside County, California, designated Ram Nos. 1 through 9, inclusive, and Ram Nos. 11 through 14, inclusive, recorded in the Official Records of Riverside County at the book and page respectively hereinafter set forth, said claims of Ram Nos. 1 through 9, inclusive, having been amended by amendments to Mining Claim recorded in said Official Records of Riverside County, at the book and page respectively hereinafter set forth:

Claim	Claim Recorded in Book	Page	Amendment Recorded in Book	Page
Ram No. 1	1751	200	1782	68
Ram No. 2	1751	199	1782	64
Ram No. 3	1751	198	1782	61
Ram No. 4	1767	443	1805	84-85
Ram No. 5	1767	442	1805	83-84
Ram No. 6	1767	440	1805	85-86
Ram No. 7	1767	441	1805	86-87
Ram No. 8	1767	439	1805	82-83
Ram No. 9	1790	262	1826	120
Ram No. 11	1825	449-50		
Ram No. 12	1829	249		
Ram No. 13	1829	250		
Ram No. 14	1829	248		

1201 N. DIVISION STREET
SPOKANE 2, WASHINGTON



Mr. George C. Selfridge, Chairman
DMEA Operating Committee
Department of the Interior
Washington 25, D. C.

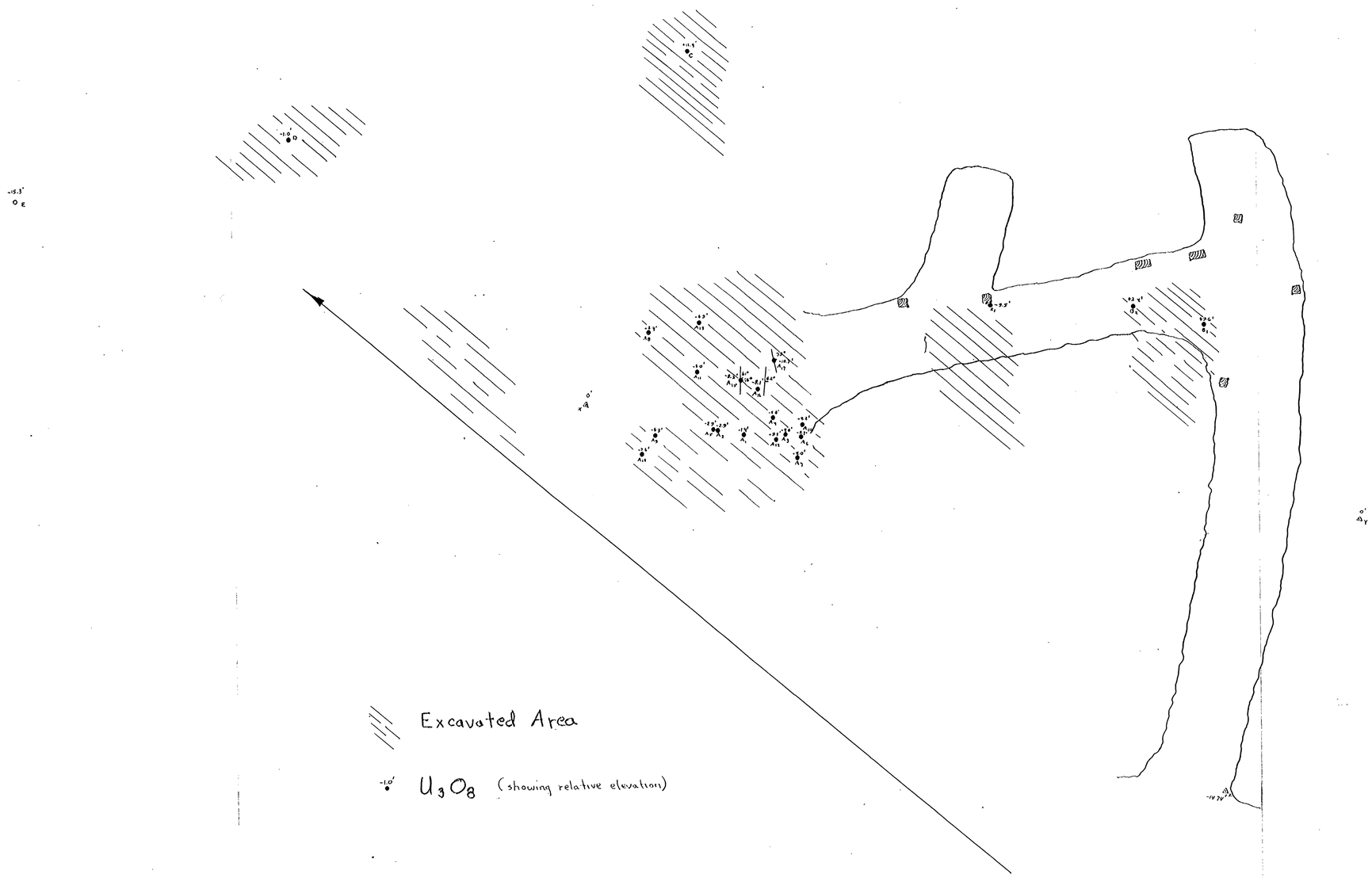


FIGURE 3

REVISIONS		
NO.	DATE	BY
1		
2		
3		
4		
5		

Ram Mine

Discovery Workings

DRAWN BY KW	SCALE 1" = 4'	MATERIAL
CHK'D	DATE 6-30-56	DRAWING NO.
TRACED	APP'D	

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMEA 4380
(URANIUM)

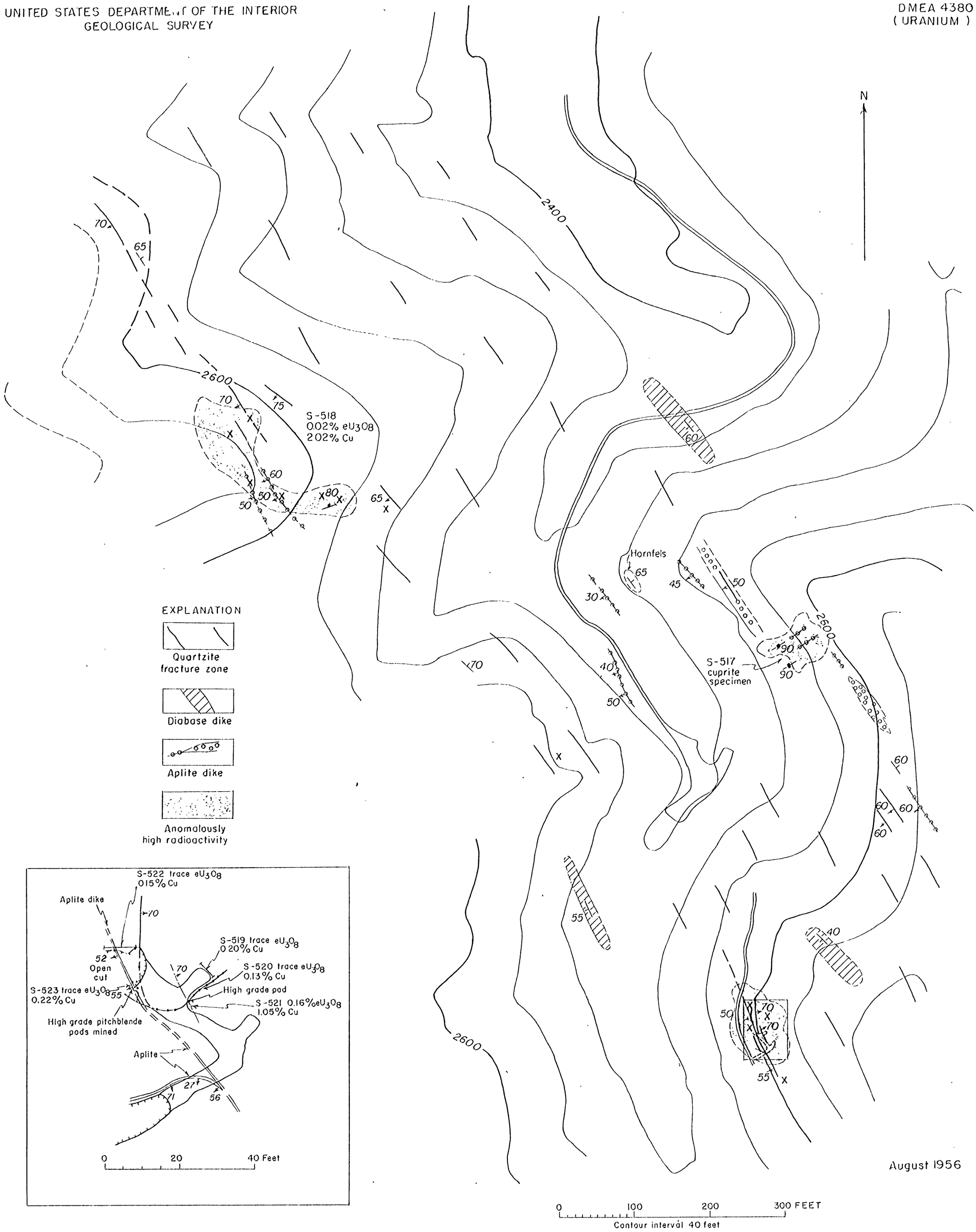


Figure 2. RAM CLAIMS, RIVERSIDE COUNTY, CALIFORNIA

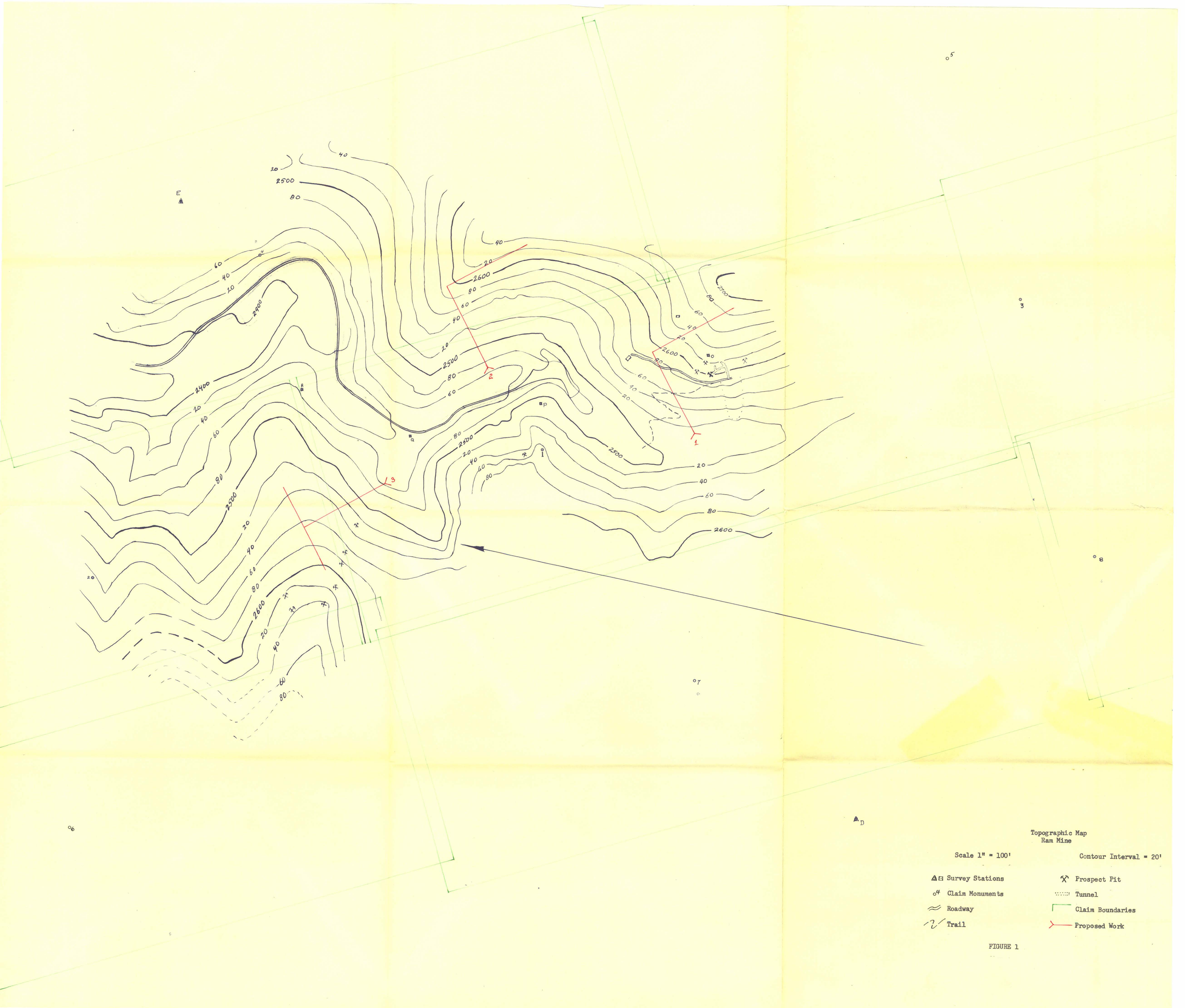

Topographic Map
Ram Mine
Scale 1" = 100'
Contour Interval = 20'
Survey Stations
Claim Monuments
Roadway
Trail
Prospect Pit
Tunnel
Claim Boundaries
Proposed Work

FIGURE 1