STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : E. Wm. Ellis, DMEA Member, Uranium Commodity Committee

DATE: September 5, 1952

FROM : A. P. Butler, Jr., USGS Member, Uranium Commodity Committee

SUBJECT: Field Team Report DMEA Docket 1464X (Uranium) Moises Mirabal, Red Bluff Claims, Grants Area, Valencia County, N. Mex.

I have reviewed the report identified above and concur with the recommendations of the examining team, especially for the reasons set forth in the conclusions, that exploration assistance be denied for work on this property.

Arthur P. Butler, Jr.

Arthur P. Butler, Jr.

Copy to- E.Wm.Ellis (2)

E. Wm. Ellis, DMEA Member, Uranium
Commodity Committee

September 5, 1952

A. P. Butler, Jr., USGS Member, Uranium
Commodity Committee

Field Team Report DMEA Docket 1464X (Uranium) Moises Mirabal,
Red Bluff Claims, Grants Area, Valencia County, N. Mex.

I have reviewed the report identified above and concur with the recommendations of the examining team, especially for the reasons set forth in the conclusions, that exploration assistance be denied for work on this property.

Arthur P. Butler, Jr.

Copy to- E.Wm.Ellis (2)

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
WASHINGTON 25, D. C.

224 New Customhouse
Denver 2, Colorado

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 8 1952

September 3, 1952

Mr. Moises Mirabal
Box 576
Grants, New Mexico

Re: Docket DMA-1464X

Dear Mr. Mirabal:

Your letter of August 20 to Mr. Weston Bourret has been referred to this office for reply.

You, no doubt, have received our letter of August 27 stating the circumstances under which your application for exploration aid was denied.

A heavy backlog of work and shortage of help has prevented us from completing the application for Government aid in exploration as quickly as we would like.

Very truly yours,

W. H. King

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

cc: Ernest Wm. Ellis, Chief
Rare and Misc. Metals Div.
DMEA - Washington, D. C.

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

224 New Customhouse
Denver 2, Colorado

August 27, 1952

Memorandum

To: Acting Administrator, Defense Minerals Exploration Administration
Attention: 210

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 1464X, (Uranium) Moises Mirabal, Red Bluff Claims, Valencia County, New Mexico

Enclosed are the original and three copies of the final report on DMEA-1464, the original and one copy of Form 3b, and a copy of the letter of denial to the applicant.

W. H. King

W. H. King

A. H. Koschmann

A. H. Koschmann

Enclosures

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 2 1952

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

224 New Customhouse
Denver 2, Colorado

August 27, 1952

BV

Mr. Moises Mirabal
P. O. Box 576
Grants, New Mexico

Dear Mr. Mirabal:

Reference is made to your application for Government aid on the Red Bluff Uranium Claims.

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

A careful study of your property and data available to this agency reveals that the probability of disclosing mineable reserves by your proposed exploration program is not considered sufficiently promising to justify Government participation. Under these circumstances, we regreat to advise you that your application for exploration aid is denied.

Very truly yours,

/s/ W. H. King
W. H. King
Field Team, Region IV

/s/ A. H. Koschmann
A. H. Koschmann
Field Team, Region IV

HMC:oc
cc: Actg. Administrator DMEA
WRStorms
Subject
Chron.
AHKoschmann (2)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

August 27, 1952

Memorandum

To: Field Team, Region IV

From: Acting Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 1464K (Uranium) Moises Mirabal, Red Bluff Claims, Valencia County, New Mexico

Enclosed are eleven copies of the final engineering report on DMEA-1464 by L. L. Farnham and J. H. Soule' of the Bureau of Mines.

The examiners concur it is unlikely that the exploration of these claims would result in the discovery of a significant amount of uranium ore.

They recommend that the loan be denied.

We concur in this recommendation.

W. H. King

W. H. King

Mining Division
Date Rec'd.
AUG 21 1952
BUREAU OF MINES
Denver, Colorado

MINING DIVISION
REGION IV

August 18, 1952

Memorandum

To : W. H. King, Denver, Colorado

From : Chief, Arizona-New Mexico Branch, Mining Div., Region IV

Subject : Final Report, DMMA Docket 1464K, Red Bluff Uranium Prospect, Grants Area, Valencia County, N. Mex.

Enclosed are original and 10 copies of the section on Summary, Conclusions and Recommendations by J. N. Faick of the Geological Survey, and L. L. Farnham and J. H. Soule' of the Bureau of Mines, and the section on Engineering by the latter two men for the above report. A separate section on Geology will be submitted by the Geological Survey.

This report has my approval.

Brochure is enclosed.

Walter R. Storms

Walter R. Storms

CC: W. H. King (10)
A. F. Shride
DMMA-1464X
DF

WRStorms:als

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

200 New Customhouse
Denver 2, Colorado

August 22, 1952

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMA Docket 1464X, The Red Bluff Uranium Claims, Grants, Valencia County, New Mexico; Moises Mirabal, Applicant.

Enclosed are the original and 10 copies of the geological report by John N. Faick of the U. S. Geological Survey, covering the above docket.

It has been recommended that the loan be denied.

A. H. Koschmann
A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (11)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P.O. Box 4146, University Station
Tucson, Arizona

August 26, 1954

Memorandum

To: J. S. Keesmann, Denver, Colorado

From: J. A. Faick, Tucson, Arizona

Subject: Report on Docket DMA 14644, The Red Bluff Uranium Claims, Grants, Valencia County, New Mexico; Moises Mirabal, Applicant

Enclosed are the original and 10 copies of a geological report by John A. Faick on the above subject. The report recommends that the application for assistance in exploring the Red Bluff claims be denied.

John A. Faick
Geologist

Enclosures 11

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMA-1464X, Red Bluff Uranium Prospect

Grants Area, Valencia County, N. Mex.

J. N. Faick, Geologist
U. S. Geological Survey

L. L. Farnham, Mining Engineer
and
J. H. Soule', Mining Engineer
U. S. Bureau of Mines

August 1952

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By J. N. Faick[1], L. L. Farnham[2] and J. H. Soule[2]

In May 1951, the partnership of Moises Mirabal and Silvestre Candalaria applied to the Defense Minerals Administration under the Defense Production Act of 1950, as amended, for an exploration loan amounting to $25,000. The application was docketed as DMA-1464X. The funds requested were to be used in the exploratory drilling of a uranium prospect situated in the Grants area of northwestern New Mexico. The property was visited by the examining team on June 26, 1952.

Extensive prospecting and exploration has been underway in the Grants area since the discovery of uranium ores first were made in 1950. Uranium mineralization was found originally in the Todilto formation, an extensive but comparatively thin limestone bed of Jurassic age. The region has not as yet produced any appreciable amount of uranium because of the lack of milling facilities. A plant suitable for the treatment of the ores in the district was nearing completion in June 1952.

The principal uranium mineral found in the Todilto limestone is tyuyamunite. Other secondary minerals including carnotite are present, and minor amounts of pitchblende have been detected in some of the deposits in the area.

The subject property covered a small portion of a long flat-topped bench or mesa which was capped by the gently dipping Todilto limestone.

1/ Geologist, U. S. Geological Survey
2/ Mining Engineer, U. S. Bureau of Mines

Several short open-cuts along the outcrop of the limestone and 3 shallow pits on the floor of the bench constituted all the work that had been done upon the area selected for the proposed project. As exposed in these scattered openings the uranium mineralization was confined to irregular and disconnected zones in the limestone that seldom exceeded more than a few feet in any dimension. Samples taken by the applicant in the prospect openings showed that only a few of the best mineralized zones could be expected to yield an appreciable amount of material of marketable grade.

The disappointing results that followed the thorough exploration of a similar and adjoining area were considered the best evidence from which to judge the possibilities of the subject property. Based on the reliable information concerning the results attained on this adjacent area, the potential of the subject property would be of the order of 1,500 tons of ore with an average content of about 0.12 percent U_3O_8. Thus it was considered unlikely that the exploration of the 20 acres involved in this application would result in the discovery of a significant amount of uranium ore.

It is recommended that the application for Government aid in exploring the Red Bluff uranium prospect be denied.

John H. Soule
John Jr. Faik
W. C. Anderson
Walter R. Stormes
Calvin S. Bromfield
for A. F. Shride

THE RED BLUFF URANIUM CLAIMS
(MOISES MIRABAL, APPLICANT)
GRANTS, VALENCIA COUNTY, NEW MEXICO
DMA 1464X

URANIUM

Geology

By
John N. Faick
and
Elliot Gillerman
Geologists, U. S. Geological Survey

THE RED BLUFF URANIUM CLAIMS
(MOISES MIRABAL, APPLICANT)
GRANTS, VALENCIA COUNTY, NEW MEXICO
DMA 1464X

URANIUM

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ILLUSTRATIONS

Figure 1 - Location Map, Mirabal Uranium Prospect, Valencia County, New Mexico	See Engineering Report
Figure 2 - Claim Map, Red Bluff Uranium Prospect	" " "
Figure 3 - Applicant's Proposed Exploration, Red Bluff Uranium Prospect	" " "

INTRODUCTION

An application has been received by the Defense Minerals Administration for Government assistance in exploring for uranium on a portion of the Red Bluff group of claims located in Section 4, T. 12 N., R. 9 W. in Valencia County, approximately 10 miles north of Grants, New Mexico as shown on Figure 1. The property may be reached by traveling westward from Grants on U. S. Highway 66 a distance of 3 miles to the junction of State Highway 53 and following this northward about 7 miles at which point a graded access road leaves the highway and passes eastward across the Elkins Ranch to the deposits.

The examination was made by Messrs. Elliot Gillerman[1/], John N. Faick[1/], J. H. Soule[2/], and L. L. Farnham[2/], accompanied by Messrs. Moises Mirabal[3/], Silvestre Candalaria[4/], and A. B. Woodward, Jr.[5/] The examination was made the morning of June 26, 1952 and during part of the afternoon the DMEA engineers and geologists conferred with Messrs. Paul E. Melancon[6/] and Ralph H. Wilpolt[7/], geologists from the Atomic Energy Commission, who kindly explined the Grants uranium deposits with respect to the geology, mineralogy, exploration techniques, and economics. Following this discussion Mr. Phil Elsworth[8/] guided the DMEA geologists to several

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1/ Geologist, U. S. Geological Survey.
2/ Engineer, U. S. Bureau of Mines.
3/ Discoverer and part owner.
4/ Partner and part owner.
5/ Consulting Engineer, Albuquerque, New Mexico.
6/ Geologist in Charge, Grants Division, Atomic Energy Commission, Grants, New Mexico.
7/ Geologist, Atomic Energy Commission, Grand Junction, Colorado.
8/ Geologist, Atomic Energy Commission, Grants, New Mexico

uranium deposits now under development and explained the geologic occurrence, significance, and economic importance of different deposits. The DMEA engineers previously had visited many of the deposits and did not participate in the field trip with Mr. Elsworth. The DMEA field examiners are fully appreciative of the fine cooperation given by the geologists of the Grants Division of the Atomic Energy Commission, for without their cooperation it would not have been possible to make a satisfactory appraisal of the Red Bluff claims.

On July 17, 1952, the property was examined briefly by Messrs. H. C. Granger[9] and R. B. Raup[9]. The Red Bluff property is the subject of a short report for the AEC dated May 20, 1952, by J. P. Hadfield[10]

Ownership of the property is in the name of Moises Mirabal, the discoverer, and his partners Manuel and Sylvestre Candalaria. A small interest in the property is owned by Mr. Elkins, upon whose ranch lands the mining claims and access road are located. This interest entitles Mr. Elkins to 10 percent of the net proceeds of any ore produced and marketed from the property. Mr. A. B. Woodward, Consulting Professional Engineer, surveyed, mapped and sampled the property and is presently retained by the owners to provide technical and managerial advice and supervision.

The property is known as the Red Bluff group of claims, consisting of the Red Bluff Nos. 1 to 5 inclusive, the Red Bluff Nos. 7 to 10 inclusive, and the Gay Eagle claim. On the original application, form MF 103, the claims were erroneously reported as the Big Bluff claims instead of Red Bluff claims. The claims are in two groups but the

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9/ Geologist, U. S. Geological Survey.
10/ Geologist, Denver Exploration Branch, U. S. Atomic Energy Commission.

proposed exploration, Figure 3, is limited to the Red Bluff claims Nos. 7 and 8, Figure 2, in the southwestern part of Section 4.

REGIONAL GEOLOGY

The uranium deposits in the Grants district, New Mexico, are distributed irregularly over an area of several hundred square miles. The area is of moderate relief and characterized by plateau-type topography consisting of mesas, buttes, and benches capped by resistant beds of the Jurassic and Cretaceous formations.

A thick series of Mesozoic sediments is exposed in the district and these have a regional dip of about 4 degrees northeast, as a result of the Zuni uplift, the pre-Cambrian granite core of which is exposed in the Zuni Mountains to the southwest. Lava flows, both Miocene and Recent in age, cap several mesas north of Grants, and follow some of the present canyons. A few prominent cinder cones are present amid the lavas. These volcanic extrusives are part of the Mt. Taylor volcanic field.

The sedimentary section in the Grants area is about as follows:

System	Formation or Group	Member	Thickness	Character
Cretaceous	Dakota		80-100	Gray, massive cliff former; weathers blocky.
Jurassic	Morrison	Brushy Basin shale	100-200	Green or varicolored fissile shale and clay stone.
		Westwater Canyon sandstone	0-150	Tan, red and yellow sandstone, massive bedded; cliff former.
		Recapture Creek shale	100-200	Gray, red or green sandstone, shale or clay stone; massive, bedded, slope former.
		Bluff sandstone	50-100	Tan or light brown massive or thick bedded sandstone. A cliff former.
	San Rafael Group	Summerville	75	Thin bedded red, brown or chocolate colored sandstones and shales.
		Todilto limestone	0-30	Gray, thin bedded "platy" or "crinkly" limestone.
		Entrada sandstone	75	Thin bedded or massive red-brown sandstones and shales, cliff former.
		Carmel sandstone	15	Usually dark red, but often green and buff sandstone, shale, or limestone, with gypsum beds.
	Glen Canyon Group	Wingate sandstone	15	Bright red sandstone; cliff former.
Triassic	Chinle			Variegated shale, sandstone and limestone beds. Thin bedded. Slope former.

Of the several bench-forming sedimentary rocks, the Todilto limestone, of Jurassic age, is of major economic importance. This formation has yielded the greatest ore potential in the district, although several other formations contain uranium mineralization.

The Todilto limestone caps the lowest of the benches overlooking the valley and crops out over a distance of nearly 80 miles in a northwest-southeast direction. It ranges in thickness from 3 to 30 feet, but at the Red Bluff claims is about 20 feet thick, although in a few places, near the rim of the bench a few feet of the upper portion of the bed have been eroded off. Throughout the district the Todilto limestone can be conveniently divided into two parts, a lower or "platy" member and an upper more massive "crinkly" member.

The simple structure of the Todilto limestone is in places complicated by rolls in the bedding, by flexures and open folds, and by jointing. Some of these structures are undoubtedly diastrophic in origin, others may be diagenetic. The dominant structural trend is northwest-southeast.

Notable amounts of uranium frequently are localized in or near the rolls or folded portion of the "crinkly" limestone, but are seldom present in the "platy" beds. Tyuyamunite, carnotite, and small amounts of pitchblende are the chief ore minerals. They occur in the recrystallized crinkly member of the Todilto, although tyuyamunite and carnotite also occur coating fracture surfaces in the platy member. Uranophane is present along joint surfaces, and other uranium minerals have been found in trace amounts. Commercial ore is confined to the crinkly member of the Todilto limestone and to a few members of the Morrison formation.

Most of the ore deposits known at present are erratic in distribution, irregular in shape and small in size. Most deposits probably contain considerably less than 1000 tons of ore; however, a few probably contain several times this amount. Most of the deposits appear to be aligned in a northwest direction parallel to the axis of the small folds and rolls in the limestone; however, a northeast alignment of some of the deposits is locally apparent.

RED BLUFF CLAIMS

The Todilto limestone crops out on a bench over most of the area covered by the Red Bluff Nos. 7, 8, and 10, and the Gay Eagle claims. The limestone ranges from 15 to 20 feet in thickness, but part of the upper portion has been eroded away near the rim of the bench. The limestone bench is covered with a thin veneer of soil ranging in thickness from a few inches to about 3 feet. Numerous pits and open cuts in the limestone reveal uranium mineralization apparently concentrated along rolls and folds in the partly recrystallized crinkly member of the Todilto, with films of tyuyamunite along joints in the platy member, similar to occurrences elsewhere in the district. Within the crinkly limestone some of the mineralization appears to be in a dark colored limestone, possibly indicating the presence of disseminated pitchblende. Although the showings of ore within the pits were considered favorable, the patchy nature of the ore deposits throughout the district precludes the possibility of assuming continuous ore between the pits.

GRADE, TONNAGE, AND RESERVES

Acceptable estimates of grade and tonnage could not be made on the basis of this examination. No samples were taken by the examiners for assay, as a sample cut from a pit or trench would have little value

in determining grade because of the spotty, erratic distribution of uranium mineralization. Fourteen samples were taken by Mr. Woodward, the locations of which are shown on Figure 3, and the assays are as follows:

Sample No.	Percent U_3O_8	Sample No.	Percent U_3O_8
1	.06	9	.05
2	.03	10	.05
3	.03	11	.08
4	.26	12	.17
5	.04	13	.03
6	.02	14	.06
7	.04		
8	.03		

Although these samples are consistently low grade, they are not thought to be indicative of the true grade of the deposits by either Mr. Woodward or the DMEA examiners. A great deal more sampling or test mining will be required to establish the grade of ore that might be mined from the deposits.

Mr. Woodward estimates that about 2,000,000 tons of ore containing 0.08 percent U_3O_8 is available; however, the examiners for DMEA are of the opinion that these estimates are greatly exaggerated because they are based on faulty assumptions. Mr. Woodward has assumed that all of the Todilto limestone on the bench is mineralized throughout its full thickness of about 20 feet. Experience at other places in the district proves that the commercial grade ore is confined to the "crinkly" member of the Todilto limestone, and that only

small, scattered portions of this bed are sufficiently mineralized to constitute ore.

Evidence as to the amount and grade of ore and the size of ore bodies to be expected may be inferred from results of exploration on a nearby property located on an extension of the same limestone bench where geological conditions appear to be about the same as on the Red Bluff claims. This exploration discovered several small ore bodies by drilling, trenching, and test pitting. One of the largest bodies was estimated to contain about 1600 tons of ore averaging about 0.15 percent U_3O_8. Upon mining this ore body it was found to contain only about 700 tons of ore, somewhat less than 1/2 of the original estimate. These results show how difficult it is to estimate reserves even when considerable reliable data is available.

The above property, which was drilled and test-mined, is considered typical of the area, and by inspection is found to be geologically similar to the Red Bluff claims. The deposits on the Red Bluff property should be of similar grade and tonnage, as there is no reason to assume that either of the properties is any more favorable than the other as an ore bearing zone. From this analogy it is reasonable to suppose that as much as 1500 tons of ore containg about .12 percent U_3O_8 may be present in a few small ore bodies. This is an extremely tentative figure and is subject to at least a 50% error in either direction, but is the best estimate that can be made at present.

Ore having a minimum grade of 0.10 percent U_3O_8 is acceptable to the Atomic Energy Commission's Ore Purchasing Depot, which is operated by the Anaconda Copper Mining Company at Bluewater, New Mexico.

Ore containing 0.10 percent U_3O_8 will return the applicant about $7.50 per ton including bonus for new producers but without transportation allowance. This grade of ore should be profitable to the applicant because the overburden is thin and the deposits are favorably situated for efficient low-cost, open-pit mining methods. The ore contains a small amount of V_2O_5 and payments for this may amount to $2.00 or $3.00 per ton in addition to the payments for uranium.

PROPOSED EXPLORATION

The original exploration proposal submitted by the applicant was indefinite, but was later modified to correspond with recommendations made by Mr. C. A. Woodward, Jr. During the DMEA examination the proposal was reviewed with the applicants and a few alternatives and emissions were discussed with the thought of reducing the over-all exploration costs.

The proposed project as revised is essentially the same as the drilling program submitted by A. B. Woodward, Figure 3, but the proposed shaft work and test pitting is eliminated. The present preposal is to drill about 150 vertical wagon-drill holes through the Todilto limestone, on a modified grid system having a spacing of about 75 feet between holes. The average depth of the holes is expected to be about 20 feet. This program, estimated to cost about $5,000, appeared feasible to the geologists of both AEC and DMEA, and is probably adequate to discover whatever ore bodies may be present. All the cuttings would have to be sampled and assayed, probably at 3 foot intervals to get accurate data. The use of a vacuum-type sample collector would be necessary to reduce any errors that might be incurred due to possible inexperience or incompetence of the individuals who

will collect the samples. All samples will be assayed for the applicant free of charge by the Atomic Energy Commission and full advantage should be taken of this provision.

The applicant proposes to confine the exploration to the Red Bluff Nos. 7 and 8 claims and if the application is approved, it should be insisted that drilling of Red Bluff No. 7 be completed before drilling of Red Bluff No. 8 is started. This would provide an opportunity to appraise the results when the project is about ½ completed and if the results are not satisfactory, then the program should be terminated. The proposed program as set forth above has the approval of the Atomic Energy staff at Grants; however, Mr. Melancon expressed the opinion that some of the ore is situated so that it could be tested by direct mining without exploratory drilling.

EVALUATION OF THE PROJECT

In the opinion of the examiners it is doubtful if the Defense Minerals Exploration Administration should participate in exploration of the uranium deposits at Grants, a function that rightfully belongs under the jurisdiction of the Grants division of the Atomic Energy Commission. However, if DMEA approves the Red Bluff application for assistance, then the proposed program should not only have approval of the AEC geologists, but should have the cooperation of the AEC staff in advising on sampling methods, assaying the samples, and obtaining drill hole records and interpreting the results.

The Red Bluff claims are in an area of favorable ground according to criteria developed by the AEC geologists who have made a preliminary study of the Red Bluff claims and the adjoining area. These geologists believe the ore indications and geology on the Red Bluff claims are

sufficiently favorable to warrant additional exploration and tentatively plan to drill the area if an exploration drilling program is undertaken near Grants. The DMEA examining team, however, is of the opinion that the deposits are too small and too low grade to justify exploration. This conclusion is based on the poor results obtained by exploring an adjacent property. Mr. Granger states that on the Red Bluff claims the geological structures and evidence of mineralization are much less conspicuous than in areas where important uranium discoveries have been made, and for this reason believes the property is not likely to be very productive.

CONCLUSIONS

Examination of the Red Bluff claims has resulted in the following conclusions:

1. Uranium mineralization is confined to the "crinkly" member of the Todilto limestone, and occurs in small, discontinuous, erratically distributed ore bodies of low-grade.

2. On the applicant's property ore reserves probably do not exceed 1500 tons with a uranium content of about 0.12 percent.

3. The deposits are so small that the Government share of the exploration costs cannot be repaid out of production.

4. Some of the ore is exposed in open pits and so situated that it could be mined without additional exploration; a desirable way to test the ore.

5. Because the properties are located on ranch land belonging to Mr. Elkins, the applicants have agreed to pay him 10 percent of

net returns from production. This is a serious detriment to the operation, because the grade of ore is too low to afford a satisfactory margin of profit.

6. The property is in an area under the jurisdiction of the Atomic Energy Commission without whose full cooperation the exploration project could not be continued to a satisfactory conclusion, and the examiners understand that the AEC does not at the present time have trained personnel available for direct supervision of the exploration. Neither the DMEA nor the applicant is in a position to assure competent direction of the exploration project.

7. If the proposed exploration is not done by the applicant with DMEA assistance, a modified program may be conducted by the AEC at a later date. This would have a definite possibility of obtaining more satisfactory results than if the program is conducted by the applicant.

RECOMMENDATIONS

It is recommended that the application for financial assistance in exploring the Red Bluff claims be denied because of the small size and low uranium content of the ore bodies. The amount of uranium in the area of the proposed exploration is insufficient to repay the Government's share of the cost of exploration or to assure a successful, profitable operation for the applicant. Examination reveals that the deposits will probably not yield enough ore of acceptable grade to materially improve the national mineral supply position, therefore the deposits are not regarded as sufficiently promising to justify DMEA participation.

DMA-1464X, RED BLUFF URANIUM PROSPECT
GRANTS AREA, VALENCIA COUNTY, N. MEX.

Engineering Report

By L. L. Farnham
Mining Engineer

and

J. H. Soule'
Mining Engineer
U. S. Bureau of Mines

August 1952

DMA-1464X, RED BLUFF URANIUM PROSPECT
GRANTS AREA, VALENCIA COUNTY, N. MEX.

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INTRODUCTION

In May 1951, the partnership of Mirabal and Candalaria applied to the Defense Minerals Administration under the Defense Production Act of 1950, as amended, for an exploration loan amounting to $25,000. This sum was increased later to a request for $27,100. The application was docketed as DMA-1464X. The funds requested were to be used for the exploratory drilling of a uranium prospect.

The property was visited by the examining team on June 26, 1952.

ACKNOWLEDGMENTS

Acknowledgments are made to Ralph H. Wilpott and Paul E. Melancon, geologist of the Atomic Energy Commission, for the help and cooperation they extended the DMEA examiners. Thanks are due also to the applicants and their consulting engineer, A. B. Woodward, Jr., of Albuquerque, N. Mex.

LOCATION AND PHYSICAL FEATURES

The applicant's claims are situated about 15 miles by road north of the town of Grants in Sec. 4, T. 12 N., R. 9 W. of Valencia County, N. Mex. (figure 1). The property can be reached by driving westward from Grants on U. S. Highway 66 for 3.3 miles to the junction of State Highway 53, proceed northeastward on this latter highway for 7.7 miles to a branch road, turn sharply to the right and continue southeasterly for 0.8 miles past the corrals of the Henry Elkins ranch to a fence, after passing the gate proceed northeasterly for 0.7 miles to a road fork, take the left hand branch and continue for 2.8 miles to the central portion of the subject property.

The claims are in an area of moderate relief and lie at an altitude of approximately 6,500 feet above sea level.

HISTORY AND PRODUCTION

The applicant's claims were located in 1950, shortly after the presence of uranium mineralization was detected in the Grants area. A sheepherder is said to have made the original discovery on Hay Stack mountain which is several miles northwest of the subject property. Following the discovery of uranium in the area, several well financed companies have been and are still conducting extensive exploration in the surrounding region. The more active of these companies are the Santa Fe Railroad, the Anaconda Copper Mining Co., Shattuck-Denn Mining Corp., and F. A. Sitton.

The initial exploration was restricted to the Todilto limestone in which the uranium minerals first were found. More recently carnotite was found in the Morrison sandstone which is several hundred feet higher, stratagraphically, than the Todilto limestone. Several companies were engaged in the exploration of the deposits in the Morrison at the time the area was visited.

Mining facilities have only recently become available in the district, so little or no production of uranium ore has as yet resulted from the various operations. The Anaconda Copper Mining Co., acting as ore purchasing agent for the Atomic Energy Commission, was erecting a mill in the area near Bluewater for the treatment of the district's ores. Shipments to this plant first were started in June 1952 and the ore was being stock-piled for future treatment.

No ore has been produced from the subject property.

OWNERSHIP AND EXTENT

The parthership of Moises Mirabal and Silvestre Candalaria owns two separated groups of unpatented lode mining claims. The northernmost group consisting of 5 claims was not included in the loan application.

The site of the proposed exploration is on a portion of the southern group and covers the Red Bluff No. 7, about one half of the Red Bluff No. 8, and a small strip of the western end of the Gray Eagle claim, involving an area of less than 20 acres. The southern side of Red Bluff No. 8 and Red Bluff No. 10 adjoins the northern side of the property belonging to the Anaconda Copper Mining Co. (figure 2).

Henry Elkins holds the surface rights to the ranch lands upon which the Red Bluff groups are located. Apparently for that reason the applicants have agreed to pay Henry Elkins a royalty of 10 percent of the net mill value of any ore produced from the subject property.

DESCRIPTION OF THE DEPOSITS

The uranium mineralization on the applicant's property occurs in a bed of Jurassic limestone, known as the Todilto. The outcrops of this formation extend for many tens of miles along the northeasterly side of the Zuni mountains. Regionally the bed varies in thickness from a few feet to as much as 30 feet. It has been divided into two members called the "crinkly" and the "platy". In the Grants area practically all the ore has been confined to the upper or "crinkly" member.

On the subject property the gentle dipping Todilto limestone forms the cap rock of one of the numerous flat-topped benches or mesas that overlook the valley. The limestone was well exposed around the top of the irregular escarpment that formed the westerly and northerly sides of the bench (figure 3). There the bed, due to more or less erosion, varied from 3 to 15 feet in thickness. The limestone apparently underlies the surface of the entire project area, although it was covered largely by soil that ranged from a few inches to several feet in thickness. East of the westerly rim of the bench several prospect pits had exposed the limestone to a maximum depth of about 9 feet below the surface.

In the district, as well as on the subject property, the principal uranium mineral found in the Todilto is tyuyamunite, a yellow colored lime uranite. Other secondary uranium minerals are present and small amounts of pitchblende have been found in some of the deposits in the area. The uranium minerals on the Red Bluff claims occur largely as thin yellow films and coatings along bedding planes and fractures in the limestone. This vivid yellow stain is often very deceptive when judging the grade of mineralized material.

Many small and detached areas in the limestone contained minor folds and in some cases the mineralization appeared to favor such structures. These disturbed areas were sporadic in occurrence and of limited lateral extent.

On the limestone outcrop along the westerly side of the rim of the bench, 5 short open-cuts had been made at the spots which showed

the greatest amount of uranium minerals. No appreciable mineralization was evident in the exposed limestone that separated these various cuts. Three shallow prospect pits, located east of the rim, had been sunk in the "hotter" spots as were indicated by a Geiger counter. In the larger and best appearing of these pits the yellow uranium minerals were distributed irregularly in varying amounts over a length of about 12 feet, an average width of 5 feet, and to a depth of approximately 7 feet. It appeared that this excavation had fairly well outlined the limits of the better mineralization. Thus the indicated magnitude of this individual deposit was of the order of some 30 tons of mineralized material, only a portion of which would probably constitute ore. Thus the uranium mineralization exposed on the project area was confined to small irregular and discontinuous "patches" that occurred at random in the upper portion of the limestone.

ORE RESERVES

There are no appreciable ore reserves exposed in the area selected for the proposed exploration.

Fourteen samples were taken in the project area by the applicants' engineer. The results of these samples are listed as follows:

Red Bluff Samples
By A. B. Woodward, Jr.

Sample Number	Sample Length	Description	Percent U_3O_8
1	5.5 ft.	Hard limestone, minor stain	0.06
2	6.0	Below No. 1, minor stain	0.03
3	6.6	Thin bedded limestone, minor stain	0.03
4	7.0	Tight fold in limestone, medium stain	0.26
5	7.0	Tight fold in limestone, minor stain	0.04
6	5.0	Broken fold in limestone, minor stain	0.02
7	4.0	Below No. 6, minor stain	0.03
8	4.5	Brecciated limestone, some stain	0.04
9	6.5	Below no. 7, hard limestone, no stain	0.05
10	4.5	Hard limestone, medium stain	0.05
11	2.5	Below No. 10, hard massive limestone	0.08
12	8.0	Limestone, fracturing, medium stain	0.17
13	9.0	Hard limestone, trace stain	0.03
14	6.2	Hard limestone, trace stain	0.06

A composite of all of the above samples contained 0.12 percent V_2O_5.

These samples were cut from the sides of all the scattered cuts and pits that had been made at the spots where the better mineralization was exposed (figure 3). In only two of these openings did the samples contain more than 0.10 percent U_3O_8 which constitutes the minimum grade of ore that will be purchased by the Atomic Energy Commission. The weighed average of all the samples was 0.072 percent U_3O_8. If the two highest results were eliminated from the calculations, the average of the remaining 12 samples would be 0.04 percent U_3O_8. These

sample results show that only a fractional part of the better mineralized areas in the limestone can be expected to constitute ore.

Confidential information was given the examiners concerning the results of an exploration project completed recently on an area that adjoins the subject property. So far as could be observed the geologic conditions on this adjacent property were identical to those existing on the applicants' claims. The thorough exploration of the adjoining area, consisting of closely spaced drilling, trenching, and test pitting, revealed not more than 1,500 tons of ore which had an average content of about 0.12 percent U_3O_8. The largest individual ore body found by this work contained less than 1,000 tons, while the balance of the total tonnage was found in a number of small scattered areas, each of which contained from a few tons to as much as several tens of tons of ore. As there was no evidence to indicate that the applicants' property was either more or less favorable than this adjoining area, it seemed reasonable to presume that the ore potential of the two areas would not differ greatly in tonnage or grade. Thus based on this similarity to the neighboring property the potential of the area proposed for exploration would be of the order of 1,500 tons having an average content of about 0.12 percent U_3O_8.

According to the Atomic Energy Commission's current price schedule, an ore containing 0.12 percent U_3O_8 and a like amount of V_2O_5, would have a value at the mine of $11.07 a ton. The sellers share of the trucking charges from the mine to the purchase depot at Bluewater probably would amount to about $1.00 a ton. Hence the net value of the ore at the mill would be approximately $10.00 a ton.

PRESENT STATUS

Only a small amount of exploratory work has been done on the Red Bluff claims. There were 8 prospect openings on the proposed project area as shown on figure 3. No work was being done on the property at the time of the examination.

PROPOSED EXPLORATION

The applicants originally submitted a proposal to explore the area by wagon drilling which they estimated would cost $25,000. No definite schedule or program was submitted at that time. During the examination, the engineer retained by the applicants presented a revised schedule for the proposed work. This consisted of wagon drilling the area on a grid pattern with holes spaced on 71-foot centers as shown on figure 3. About 132 hole locations are shown of the 150 proposed. The additional holes were to be used in the closer spacing of the grid in any interesting area that might be encountered. The holes were to be drilled to an average depth of 20 feet. Thus for 150 holes the total footage would be 3,000 feet. This plan would adequately explore the area. Comparable results with less drilling might be obtained by spacing the holes at 100-foot centers.

The revised cost estimates submitted to the examining team are as follows.

Applicants' Revised Cost Estimates

Item	Cost
Wagon drill, compressor, rods, bits, hoses, pickup truck and accessories	$13,600
Sample room and office	1,000

Applicants' Revised Cost Estimates (Con't.)

Item	Cost
Drill 150 holes to 20-foot depths	$ 2,300
Approximately 600 assays	5,400
Freight on samples	300
Ten 20-foot test pits	1,200
Sample preparation from test pits	1,200
Assaying test pit samples	100
Supervision and engineering	2,000
Total	$27,100

Several of the items listed above are not necessary. All assaying costs may be deleted because the Atomic Energy Commission will assay all samples free of charge. Test pitting was not considered necessary. For a project of this type no equipment need be purchased, as rental of the necessary equipment for the short duration of the exploration would be much more economical. Better still, the wagon drilling could be contracted to advantage.

Examiners Revised Cost Estimates

Item	Cost
Contract 3,000 feet of wagon drilling @ $0.75 a foot	$ 2,250
Sampling 3,000 feet of wagon drill holes @ $0.25 a foot	750
Supervision and engineering for 3 months ..	1,800
Depreciation and supplies for pickup truck or car	210
Total	$ 5,010

Thus it would appear possible to complete the proposed project for about $5,000.

SUMMARY, COST OF PROJECT

The minimum cost for exploring the relatively small area as estimated by the examiners would amount to about $5,000, or a unit cost of $1.67 per foot of drilling. On the basis of a 90 percent contribution, the Government's share of the cost of the project would amount to $4,500. On the ore with an estimated net mill value of $10 a ton, the royalty rate payable to the Government would be $0.35 for each ton produced. Thus in order to repay the Government's contribution the property would have to produce nearly 13,000 tons of ore, whereas 1,500 tons was considered as a fairly reasonable estimate of the potential of the project area. Hence in all probability the property could not produce sufficient ore to repay the loan.

CONCLUSIONS AND RECOMMENDATIONS

Minor amounts of uranium mineralization were found in a number of superficial prospect openings on the subject property. As exposed in these scattered openings the mineralized areas were small, irregular, disconnected "patches" that seldom exceeded a few feet in any dimension. Of the 14 samples taken from the better mineralized spots, only 2 samples were of ore-grade. Based on the results of the former exploration of the uranium-bearing limestone on an adjoining property, the potential of the subject property cannot be reasonably expected to exceed 1,500 tons having a net mill value of $10 a ton.

The Government's share of the revised estimates of the cost of the proposed exploration would amount to about $4,500. To repay this sum would require ore reserves of approximately 13,000 tons with a

value of $10 a ton. This tonnage exceeds the inferred reserves by over 800 percent. Thus it does not appear likely that the proposed exploration of the relatively small area involved in the application would result in the discovery of a significant amount of uranium ore.

If the exploration were attempted as contemplated by wagon drilling, the supervision, collection of the samples, and interpretation of the results should be in the hands of trained personnel, otherwise the work might prove very misleading. The applicants are not competent in this respect and the Atomic Energy Commission whose function it should best be, have no personnel available for such work. Therefore it is recommended that the application for a loan on the Red Bluff No. 7 and No. 8 claims be denied.

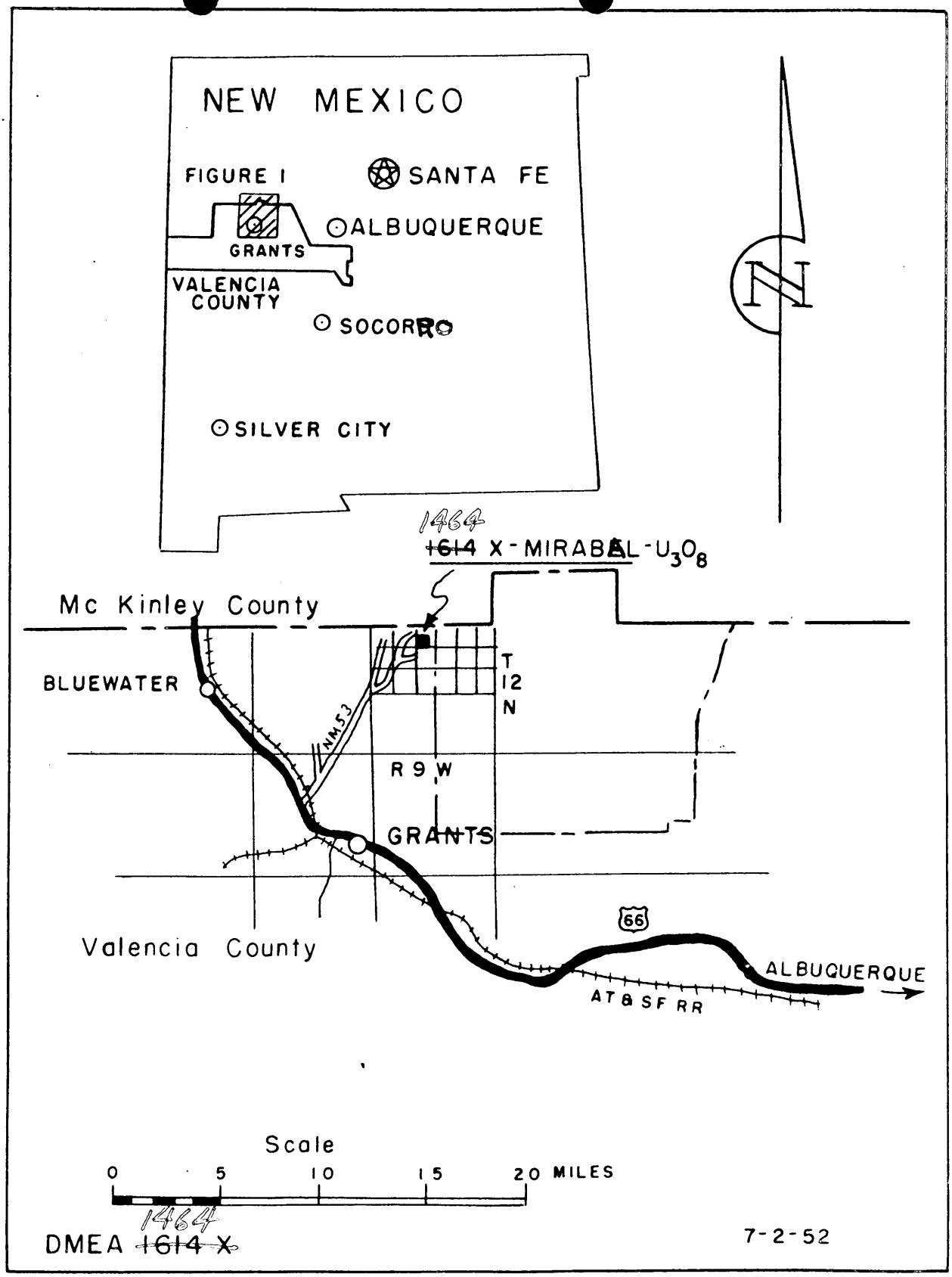


FIGURE 1 – LOCATION MAP, MIRABAL URANIUM PROSPECT
VALENCIA COUNTY, NEW MEXICO

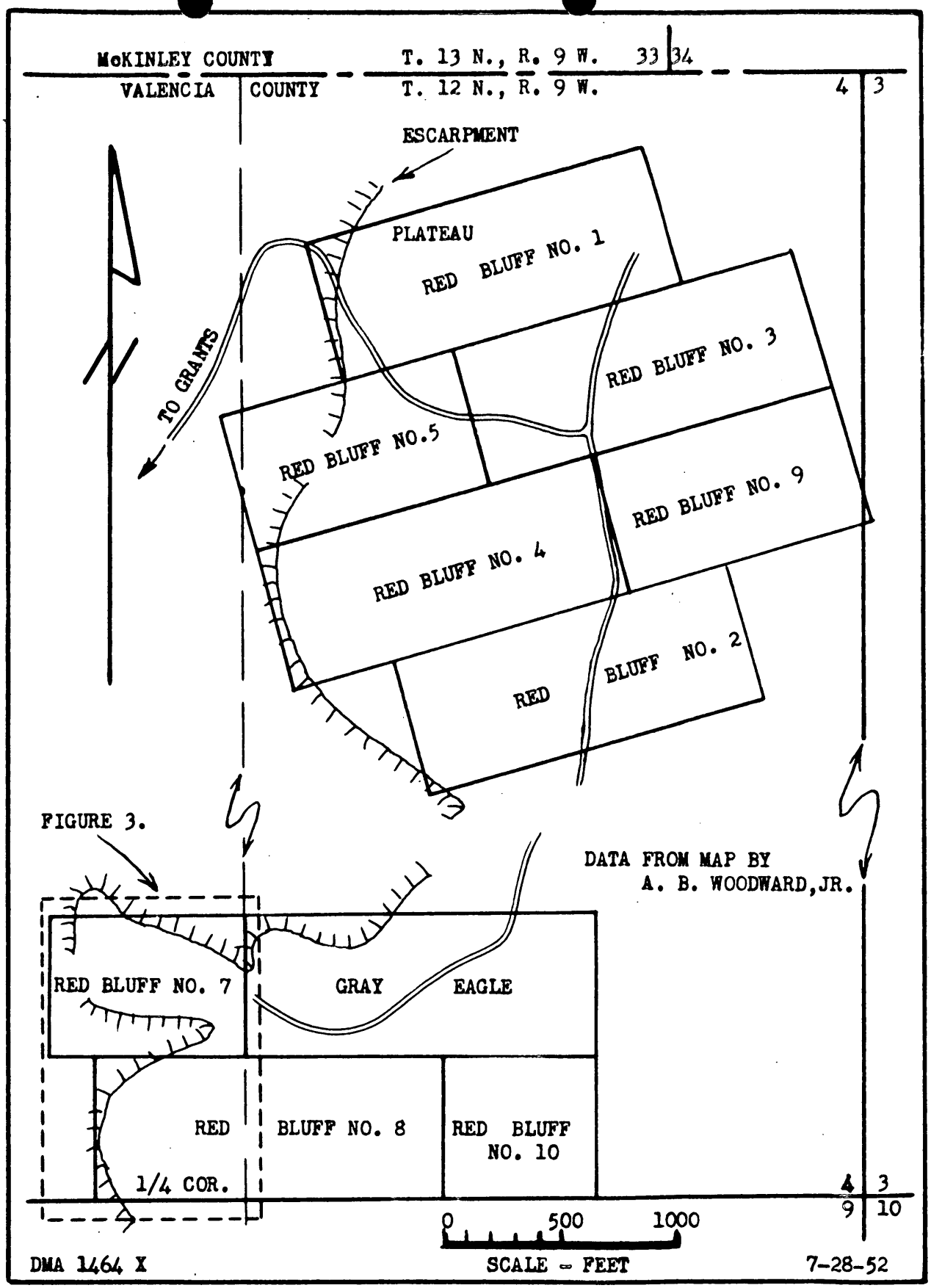
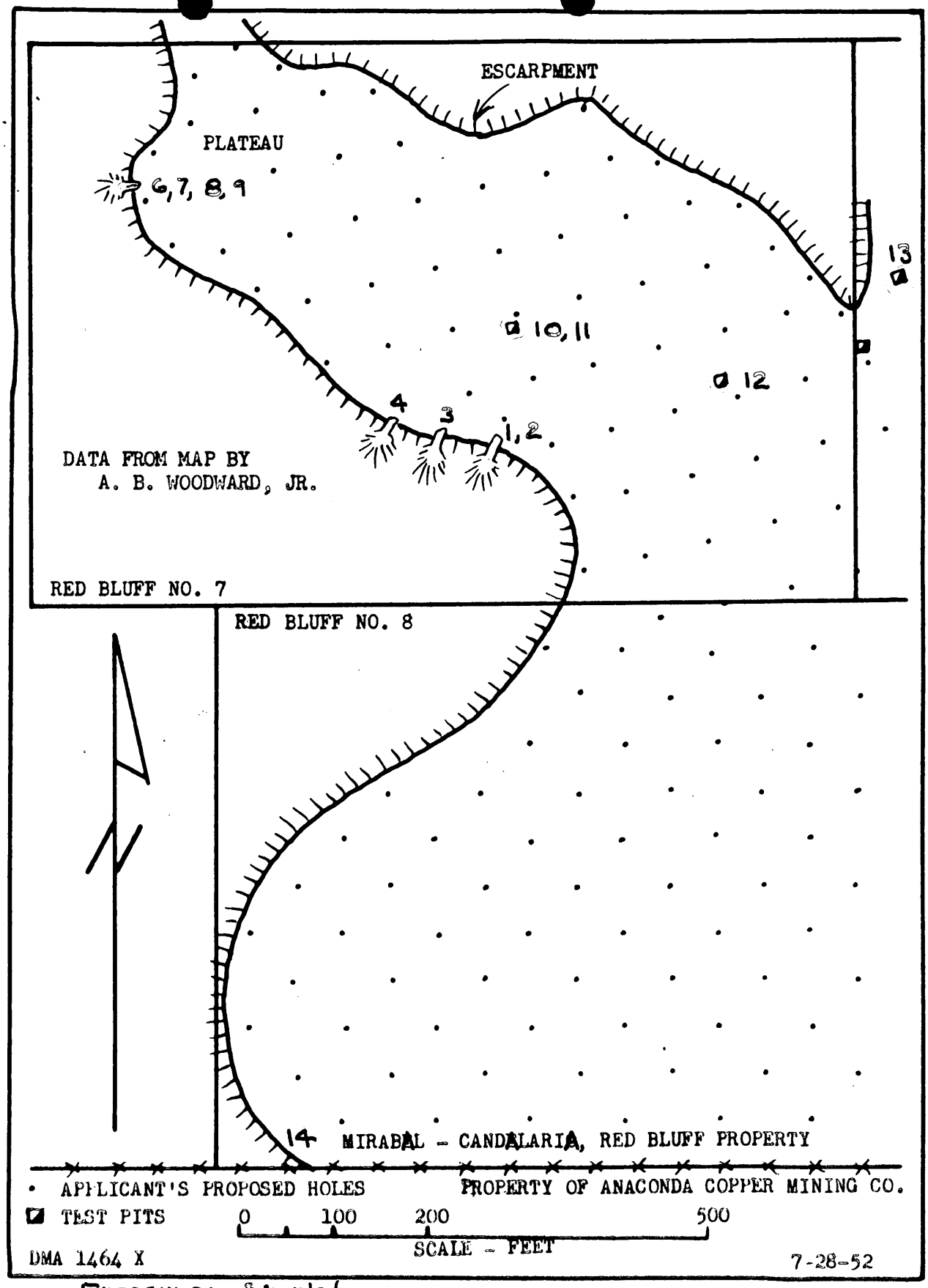


FIGURE 2. - CLAIM MAP, RED BLUFF URANIUM PROSPECT



Exposures Sampled
3 Samples

FIGURE 3. - APPLICANT'S PROPOSED EXPLORATION, RED BLUFF URANIUM PROSPECT

C
O
P
Y

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

224 New Customhouse
Denver 2, Colorado

August 27, 1952

Mr. Moises Mirabal
P. O. Box 576
Grants, New Mexico

1464

Dear Mr. Mirabal:

Reference is made to your application for Government aid on the Red Bluff Uranium Claims.

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

A careful study of your property and data available to this agency reveals that the probability of disclosing mineable reserves by your proposed exploration program is not considered sufficiently promising to justify Government participation. Under these circumstances, we regreat to advise you that your application for exploration aid is denied.

Very truly yours,

/s/ W. H. King
W. H. King
Field Team, Region IV

/s/ A. H. Koschmann
A. H. Koschmann
Field Team, Region IV

HMC:oc
cc: Actg. Administrator DMEA
WRStorms
Subject
Chron.
AHKoschmann (2)

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
WASHINGTON 25, D. C.

New Customhouse
Denver 2, Colorado

August 27, 1952

Memorandum

To: Acting Administrator, Defense Minerals Exploration Administration
Attention: 210

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 1464X, (Uranium) Moises Mirabal, Red Bluff Claims, Valencia County, New Mexico

Enclosed are the original and three copies of the final report on DMEA-1464, the original and one copy of Form 3b, and a copy of the letter of denial to the applicant.

W. H. King

W. H. King

A. H. Koschmann

A. H. Koschmann

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 2 1952

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

UNIVERSITY OF THE PACIFIC
DR. TED TAKAGI LIBRARY
STOCKTON
SEP 2 1952

August 27, 1952

Memorandum

To: Field Team, Region IV

From: Acting Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 1484X (Uranium) Mineral Mineral, Red Bluff Claims, Valencia County, New Mexico

Enclosed are eleven copies of the final engineering report on DMEA-1484 by L. L. Fanshee and J. R. Soule' of the Bureau of Mines.

The examiners concur it is unlikely that the exploration of these claims would result in the discovery of a significant amount of uranium ore.

They recommend that the loan be denied.

We concur in this recommendation.

W. H. King

W. H. King

Mining Division
Date Rec'd
AUG [illegible] 1952
BUREAU OF MINES
Denver, Colorado

MINING DIVISION
REGION IV

August 18, 1952

Memorandum

To : W. R. Ring, Denver, Colorado

From : Chief, Arizona-New Mexico Branch, Mining Div., Region IV

Subject : Final report, DMEA Docket 1464A, Red Bluff Uranium Prospect, Grants Area, Valencia County, N. Mex.

Enclosed are original and 10 copies of the section on Summary, Conclusions and Recommendations by J. A. Falck of the Geological Survey, and L. L. Farmer and J. A. Coule' of the Bureau of Mines, and the section on Engineering by the latter two men for the above report. A separate section on Geology will be submitted by the Geological Survey.

This report has my approval.

Structure as enclosed.

Walter R. Storms

Walter R. Storms

cc: W. R. Ring (10)
A. F. Birch
DMEA-1464A
WF

WRStorms:mls

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

200 New Customhouse
Denver 2, Colorado

August 22, 1952

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMA Docket 14644, The Red Bluff Uranium Claims, Grants, Valencia County, New Mexico; Moises Mirabal, Applicant.

Enclosed are the original and 10 copies of the geological report by John W. Falck of the U. S. Geological Survey, covering the above docket.

It has been recommended that the loan be denied.

A. H. Koschmann
A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (11)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P.O. Box 4111, University Station
Tucson, Arizona

August 26, 1954

Memorandum

To: A. B. Lapham, Denver, Colorado

From: J. A. Reick, Tucson, Arizona

Subject: Report on Docket DM 14141, The Red Bluff Uranium Claims, Grants, Valencia County, New Mexico; Weiss Mineral, Applicant

Enclosed are the original and 10 copies of a geological report by John A. Reick on the above subject. The report recommends that the application for assistance in exploring the Red Bluff claims be denied.

John A. Reick
Geologist

Enclosures 11

[illegible]

[illegible]

[illegible]

J. [illegible], Geologist
U. S. Geological Survey

[illegible], Mining Engineer
and
J. [illegible], Mining Engineer
U. S. Bureau of Mines

August 1952

[illegible]

[illegible] [illegible] [illegible]

[illegible]

[illegible]

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[illegible]

[illegible]

[illegible]

THE RED BLUFF URANIUM CLAIMS
(ALBERT MIRABAL, APPLICANT)
GRANTS, VALENCIA COUNTY, NEW MEXICO
DMA 14641

URANIUM

Geology

By
John H. Feick
and
Elliot Gillerman
Geologists, U. S. Geological Survey

THE RED BLUFF URANIUM CLAIMS
(MOBILE MINERAL, APPLICANT)
GRANTS, VALENCIA COUNTY, NEW MEXICO
NMA 1464X

URANIUM

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Grade, Tonnage, and Reserves	6
Proposed Exploration	9
Evaluation of the Project	10
Conclusions	11
Recommendations	12

ILLUSTRATIONS

Figure 1 - Location Map, Mirabal Uranium Prospect, Valencia County, New Mexico	See Engineering Report
Figure 2 - Claim Map, Red Bluff Uranium Prospect	" " "
Figure 3 - Applicant's Proposed Exploration, Red Bluff Uranium Prospect	" " "

INTRODUCTION

An application has been received by the Defense Minerals Administration for Government assistance in exploring for uranium on a portion of the Red Bluff group of claims located in Section 4, T. 12 N., R. 9 W. in Valencia County, approximately 10 miles north of Grants, New Mexico as shown on Figure 1. The property may be reached by traveling westward from Grants on U. S. Highway 66 a distance of 3 miles to the junction of State Highway 53 and following this northward about 7 miles at which point a graded access road leaves the highway and passes eastward across the Hinkins Ranch to the deposits.

The examination was made by Messrs. Elliot Gillerman[1], John A. Fleck[1], J. C. Soule[2], and L. L. Farnham[2], accompanied by Messrs. Moises Mirabal[3], Silvestre Gandalaria[4], and A. S. Woodward, Jr.[5] The examination was made the morning of June 26, 1952 and during part of the afternoon the DMA engineers and geologists conferred with Messrs. Paul E. Melancon[6] and Ralph E. Wilpolt[7], geologists from the Atomic Energy Commission, who kindly explained the Grants uranium deposits with respect to the geology, mineralogy, exploration techniques, and economics. Following this discussion Mr. Phil Ellsworth[8] guided the DMA geologists to several

---

1/ Geologist, U. S. Geological Survey.
2/ Engineer, U. S. Bureau of Mines.
3/ Discoverer and part owner.
4/ Partner and part owner.
5/ Consulting Engineer, Albuquerque, New Mexico.
6/ Geologist in Charge, Grants Division, Atomic Energy Commission, Grants, New Mexico.
7/ Geologist, Atomic Energy Commission, Grand Junction, Colorado.
8/ Geologist, Atomic Energy Commission, Grants, New Mexico

uranium deposits now under development and explained the geologic occurrence, significance, and economic importance of different deposits. The DMEA engineers previously had visited many of the deposits and did not participate in the field trip with Mr. Elsworth. The DMEA field examiners are fully appreciative of the fine cooperation given by the geologists of the Grants Division of the Atomic Energy Commission, for without their cooperation it would not have been possible to make a satisfactory appraisal of the Red Bluff claims.

On July 17, 1952, the property was examined briefly by Messrs. A. D. Granger[9] and R. B. Raup[9]. The Red Bluff property is the subject of a short report for the AEC dated May 20, 1952, by J. F. Hadfield[10]

Ownership of the property is in the name of Moises Mirabal, the discoverer, and his partners Manuel and Sylvestre Candelaria. A small interest in the property is owned by Mr. Elkins, upon whose ranch lands the mining claims and access road are located. This interest entitles Mr. Elkins to 10 percent of the net proceeds of any ore produced and marketed from the property. Mr. A. E. Woodward, Consulting Professional Engineer, surveyed, mapped and sampled the property and is presently retained by the owners to provide technical and managerial advice and supervision.

The property is known as the Red Bluff group of claims, consisting of the Red Bluff Nos. 1 to 5 inclusive, the Red Bluff Nos. 7 to 10 inclusive, and the Gay Eagle claim. On the original application, form MF 103, the claims were erroneously reported as the Big Bluff claims instead of Red Bluff claims. The claims are in two groups but the

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9/ Geologist, U. S. Geological Survey.
10/ Geologist, Denver Exploration Branch, U. S. Atomic Energy Commission.

proposed exploration, Figure 3, is limited to the Red Bluff claims nos. 7 and 8, Figure 2, in the southwestern part of Section 4.

GEOLOGY

The uranium deposits in the Grants district, New Mexico, are distributed irregularly over an area of several hundred square miles. The area is of moderate relief and characterized by plateau-type topography consisting of mesas, buttes, and benches capped by resistant beds of the Jurassic and Cretaceous formations.

A thick series of Mesozoic sediments is exposed in the district and these have a regional dip of about 4 degrees northeast, as a result of the Zuni uplift, the pre-Cambrian granite core of which is exposed in the Zuni Mountains to the southwest. Lava flows, Late Miocene and Recent in age, cap several mesas north of Grants, and follow some of the present canyons. A few prominent cinder cones are present amid the lavas. These volcanic extrusives are part of the Mt. Taylor volcanic field.

The sedimentary section in the Grants area is about as follows:

System	Formation or Group	Member	Thickness	Character
Cretaceous	Dakota		80-100	Gray, massive cliff former; weathers blocky.
Jurassic	Morrison	Brushy Basin shale	100-200	Green or varicolored fissile shale and clay stone.
		Westwater Canyon sandstone	0-150	Tan, red and yellow sandstone, massive bedded; cliff former.
		Recapture Creek shale	100-200	Gray, red or green sandstone, shale or clay stone; massive, bedded, slope former.
		Bluff sandstone	50-100	Tan or light brown massive or thick bedded sandstone. A cliff former.
	San Rafael Group	Summerville	75	Thin bedded red, brown or chocolate colored sandstones and shales.
		Todilto limestone	0-30	Gray, thin bedded "platy" or "crinkly" limestone.
		Entrada sandstone	75	Thin bedded or massive red-brown sandstones and shales, cliff former.
		Carmel sandstone	15	Usually dark red, but often green and buff sandstone, shale, or limestone, with gypsum beds.
	Glen Canyon Group	Wingate sandstone	15	Bright red sandstone; cliff former.
Triassic	Chinle			Variegated shale, sandstone and limestone beds. Thin bedded. Slope former.

Of the several bench-forming sedimentary rocks, the Todilto limestone, of Jurassic age, is of major economic importance. This formation has yielded the greatest ore potential in the district, although several other formations contain uranium mineralization.

The Todilto limestone caps the lowest of the benches overlooking the valley and crops out over a distance of nearly 30 miles in a northwest-southeast direction. It ranges in thickness from 3 to 30 feet, but at the Red Bluff claims is about 20 feet thick, although in a few places, near the rim of the bench a few feet of the upper portion of the bed have been eroded off. Throughout the district the Todilto limestone can be conveniently divided into two parts, a lower or "platy" member and an upper more massive "crinkly" member.

The simple structure of the Todilto limestone is in places complicated by rolls in the bedding, by flexures and open folds, and by jointing. Some of these structures are undoubtedly diastrophic in origin, others may be diagenetic. The dominant structural trend is northwest-southeast.

Notable amounts of uranium frequently are localized in or near the rolls or folded portion of the "crinkly" limestone, but are seldom present in the "platy" beds. Tyuyamunite, carnotite, and small amounts of pitchblende are the chief ore minerals. They occur in the recrystallized crinkly member of the Todilto, although tyuyamunite and carnotite also occur coating fracture surfaces in the platy member. Uranophane is present along joint surfaces, and other uranium minerals have been found in trace amounts. Commercial ore is confined to the crinkly member of the Todilto limestone and to a few members of the Morrison formation.

Most of the ore deposits known at present are erratic in distribution, irregular in shape and small in size. Most deposits probably contain considerably less than 1000 tons of ore; however, a few probably contain several times this amount. Most of the deposits appear to be aligned in a northwest direction parallel to the axis of the small folds and rolls in the limestone; however, a northeast alignment of some of the deposits is locally apparent.

RED BLUFF CLAIMS

The Tedilto limestone crops out on a bench over most of the area covered by the Red Bluff Nos. 7, 8, and 10, and the Gay Eagle claims. The limestone ranges from 15 to 20 feet in thickness, but part of the upper portion has been eroded away near the rim of the bench. The limestone bench is covered with a thin veneer of soil ranging in thickness from a few inches to about 3 feet. Numerous pits and open cuts in the limestone reveal uranium mineralization apparently concentrated along rolls and folds in the partly recrystallized crinkly member of the Tedilto, with films of tyuyamunite along joints in the platy member, similar to occurrences elsewhere in the district. Within the crinkly limestone some of the mineralization appears to be in a dark colored limestone, possibly indicating the presence of disseminated pitchblende. Although the showings of ore within the pits were considered favorable, the patchy nature of the ore deposits throughout the district precludes the possibility of assuming continuous ore between the pits.

GRADE, TONNAGE, AND RESERVES

Acceptable estimates of grade and tonnage could not be made on the basis of this examination. No samples were taken by the examiners for assay, as a sample cut from a pit or trench would have little value

in determining grade because of the spotty, erratic distribution of uranium mineralization. Fourteen samples were taken by Mr. Woodward, the locations of which are shown on Figure 3, and the assays are as follows:

Sample No.	Percent U_3O_8	Sample No.	Percent U_3O_8
1	.06	9	.05
2	.03	10	.05
3	.03	11	.06
4	.26	12	.17
5	.04	13	.03
6	.02	14	.06
7	.04		
8	.03		

Although these samples are consistently low grade, they are not thought to be indicative of the true grade of the deposits by either Mr. Woodward or the DMA examiners. A great deal more sampling or test mining will be required to establish the grade of ore that might be mined from the deposits.

Mr. Woodward estimates that about 2,000,000 tons of ore containing 0.08 percent U_3O_8 is available; however, the examiners for DMA are of the opinion that these estimates are greatly exaggerated because they are based on faulty assumptions. Mr. Woodward has assumed that all of the Todilto limestone on the bench is mineralized throughout its full thickness of about 20 feet. Experience at other places in the district proves that the commercial grade ore is confined to the "crinkly" member of the Todilto limestone, and that only

small, scattered portions of this bed are sufficiently mineralized to constitute ore.

Evidence as to the amount and grade of ore and the size of ore bodies to be expected may be inferred from results of exploration on a nearby property located on an extension of the same limestone ranch where geological conditions appear to be about the same as on the Red Bluff claims. This exploration discovered several small ore bodies by drilling, trenching, and test pitting. One of the largest bodies was estimated to contain about 1000 tons of ore averaging about 0.15 percent U_3O_8. Upon mining this ore body it was found to contain only about 700 tons of ore, somewhat less than 1/2 of the original estimate. These results show how difficult it is to estimate reserves even when considerable reliable data is available.

The above property, which was drilled and test-mined, is considered typical of the area, and by inspection is found to be geologically similar to the Red Bluff claims. The deposits on the Red Bluff property should be of similar grade and tonnage, as there is no reason to assume that either of the properties is any more favorable than the other as an ore bearing zone. From this analogy it is reasonable to suppose that as much as 1500 tons of ore containing about .15 percent U_3O_8 may be present in a few small ore bodies. This is an extremely tentative figure and is subject to at least a 50% error in either direction, but is the best estimate that can be made at present.

Ore having a minimum grade of 0.10 percent U_3O_8 is acceptable to the Atomic Energy Commission's Ore Purchasing Depot, which is operated by the Anaconda Copper Mining Company at Bluewater, New Mexico.

ore containing 0.16 percent U_3O_8 will return the applicant about 7.50 per ton including bonus for new producers but without transportation allowance. This grade of ore should be profitable to the applicant because the overburden is thin and the deposits are favorably situated for efficient low-cost, open-pit mining methods. The ore contains a small amount of V_2O_5 and payments for this may amount to $2.00 or $3.00 per ton in addition to the payments for uranium.

PROPOSED EXPLORATION

The original exploration proposal submitted by the applicant was indefinite, but was later modified to correspond with recommendations made by Mr. C. A. Woodward, Jr. During the DMEA examination the proposal was reviewed with the applicants and a few alternatives and omissions were discussed with the thought of reducing the over-all exploration costs.

The proposed project as revised is essentially the same as the drilling program submitted by A. B. Woodward, Figure 3, but the proposed shaft work and test pitting is eliminated. The present proposal is to drill about 150 vertical wagon-drill holes through the Todilto limestone, on a modified grid system having a spacing of about 75 feet between holes. The average depth of the holes is expected to be about 20 feet. This program, estimated to cost about $5,000, appeared feasible to the geologists of both DMEA and USGS, and is probably adequate to discover whatever ore bodies may be present. All the cuttings would have to be sampled and assayed, preferably at 3 foot intervals to get accurate data. The use of a vacuum-type sample collector would be necessary to reduce any errors that might be incurred due to possible inexperience or incompetence of the individuals who

will collect the samples. All samples will be assayed for the applicant free of charge by the Atomic Energy Commission and full advantage should be taken of this provision.

The applicant proposes to confine the exploration to the Red Bluff Nos. 7 and 8 claims and if the application is approved, it should be insisted that drilling of Red Bluff No. 7 be completed before drilling of Red Bluff No. 6 is started. This would provide an opportunity to appraise the results when the project is about completed and if the results are not satisfactory, then the program should be terminated. The proposed program as set forth above has the approval of the Atomic Energy staff at Grants; however, Mr. Belanger expressed the opinion that some of the ore is situated so that it could be tested by direct mining without exploratory drilling.

EVALUATION OF THE PROJECT

In the opinion of the examiners it is doubtful if the Defense Minerals Exploration Administration should participate in exploration of the uranium deposits at Grants, a function that rightfully belongs under the jurisdiction of the Grants division of the Atomic Energy Commission. However, if DMEA approves the Red Bluff application for assistance, then the proposed program should not only have approval of the AEC geologists, but should have the cooperation of the AEC staff in advising on sampling methods, assaying the samples, and obtaining drill hole records and interpreting the results.

The Red Bluff claims are in an area of favorable ground according to criteria developed by the AEC geologists who have made a preliminary study of the Red Bluff claims and the adjoining area. These geologists believe the ore indications and geology on the Red Bluff claims are

sufficiently favorable to warrant additional exploration and tentatively plan to drill the area if an exploration drilling program is undertaken near [illegible]. The [illegible] examining team, however, is of the opinion that the deposits are too small and too low grade to justify exploration. This conclusion is based on the poor results obtained by exploring an adjacent property. Mr. [illegible] states that on the Red Bluff claims the geological structures and evidence of mineralization are much less conspicuous than in areas where important uranium discoveries have been made, and for this reason believes the property is not likely to be very productive.

CONCLUSIONS

Examination of the Red Bluff claims has resulted in the following conclusions:

1. Uranium mineralization is confined to the "crinkly" member of the Todilto limestone, and occurs in small, discontinuous, erratically distributed ore bodies of low-grade.

2. On the applicant's property ore reserves probably do not exceed 1,[illegible] tons with a uranium content of about [illegible] percent.

3. The deposits are so small that the Government share of the exploration costs cannot be repaid out of production.

4. Some of the ore is exposed in open pits and so situated that it could be mined without additional exploration, a desirable way to test the ore.

5. Because the properties are located on ranch land belonging to Mr. Hilkins, the applicants have agreed to pay him 10 percent of

net returns from production. This is a serious detriment to the operation, because the grade of ore is too low to afford a satisfactory margin of profit.

6. The property is in an area under the jurisdiction of the Atomic Energy Commission without whose full cooperation the exploration project could not be continued to a satisfactory conclusion, and the examiners understand that the AEC does not at the present time have trained personnel available for direct supervision of the exploration. Neither the DMEA nor the applicant is in a position to assure competent direction of the exploration project.

7. If the proposed exploration is not done by the applicant with DMEA assistance, a modified program may be conducted by the AEC at a later date. This would have a definite possibility of obtaining more satisfactory results than if the program is conducted by the applicant.

RECOMMENDATIONS

It is recommended that the application for financial assistance in exploring the Red Bluff claims be denied because of the small size and low uranium content of the ore bodies. The amount of uranium in the area of the proposed exploration is insufficient to repay the Government's share of the cost of exploration or to assure a successful, profitable operation for the applicant. Examination reveals that the deposits will probably not yield enough ore of acceptable grade to materially improve the national mineral supply position, therefore the deposits are not regarded as sufficiently promising to justify DMEA participation.

[illegible]

Introduction

In May 1951, the partnership of [illegible] and [illegible] applied to the Defense Minerals Administration under the Strategic Production Act of 1950, as amended, for an exploration loan [illegible] to $25,000. This sum was [illegible] to a request for [illegible]. The application was [illegible] as [illegible]. The funds requested were to be used for the exploratory drilling of a [illegible] prospect.

The property was visited by the examiner [illegible] on June [illegible], 1952.

[illegible]

[illegible] are made to [illegible] in report and [illegible] [illegible] of the [illegible] [illegible] the [illegible] and [illegible] [illegible] [illegible] examiner. [illegible] are [illegible] to the applicant's [illegible] [illegible] [illegible] [illegible], [illegible] [illegible], [illegible].

[illegible]

The applicant's claims are situated about 20 miles by road north of the town of [illegible] in Sec. 4, T. 12 [illegible], R. 9 W. of Yolanda County, [illegible] (Figure 1). The property can be reached by driving westward from [illegible] on U. S. Highway 66 for 3.1 miles to the junction of State Highway 33, proceed northeastward on this latter highway for 7.7 miles to a [illegible] road, turn sharply to the right and continue southeasterly for 0.8 miles past the corrals of the [illegible] Ranch to a [illegible], after passing the [illegible] proceed northeasterly for 0.7 miles to a good [illegible] road [illegible] [illegible] and continue for 2.0 miles to the [illegible] portion of the [illegible] property.

The claims are in an area of moderate relief and lie at an elevation of approximately 6,000 feet above sea level.

History and Ownership

The applicant's claims were located in 1952, shortly after the presence of uranium mineralization was detected in the Trails area. A group order as said to have made the original discovery on Jay Stack mountain which is several miles northwest of the subject property. Following the discovery of uranium in the area, several well financed companies have been and are still conducting extensive exploration in the surrounding region. The more active of these companies are the Santa Fe Railroad, the Anaconda Copper Mining Co., Kalluck-Dom Mining Corp., and Fe-Co Nation.

The initial exploration was restricted to the Jackpile formation in which the uranium mineral first was found. More recently carnotite was found in the Morrison Sandstone which is stratigraphically below the Jackpile. Several companies were engaged in the exploration of the deposits in the vicinity of the Jackpile area when restricted.

Mining Exploration has only recently begun during the last year, so little or no production of uranium ore has yet resulted from the various operations. The Anaconda Copper Mining Co., which is the purchaser, acted for the Atomic Energy Commission, has erected a mill in the area near Bernalillo for the treatment of the mineral's ores. Shipments to this plant have been started in June 1952 and the ore was being stockpiled for future treatment.

No ore has been produced from the subject property.

OWNERSHIP AND EXTENT

The partnership of Moises Mirabal and Silvestre Gamalerio owns two separated groups of unpatented lode mining claims. The northernmost group consisting of 5 claims was not included in the lease application.

The site of the proposed exploration is on a portion of the southern group and covers the Red Bluff No. 7, about one half of the Red Bluff No. 8, and a small strip of the western end of the Gray Eagle claim, involving an area of less than 20 acres. The southern side of Red Bluff No. 8 and Red Bluff No. 10 adjoins the northern side of the property belonging to the Anaconda Copper Mining Co. (figure 3).

Henry Elkins holds the surface rights to the ranch lands upon which the Red Bluff groups are located. Apparently for that reason the applicants have agreed to pay Henry Elkins a royalty of 10 percent of the net mill value of any ore produced from the subject property.

DESCRIPTION OF THE DEPOSITS

The uranium mineralization on the applicant's property occurs in a bed of jurassic limestone, known as the Todilto. The outcrops of this formation extend for many tens of miles along the northeasterly side of the Zuni mountains. Regionally the bed varies in thickness from a few feet to as much as 30 feet. It has been divided into two members called the "crinkly" and the "platy". In the Grants area practically all the ore has been confined to the upper or "crinkly" member.

On the subject property the gently dipping Toklito limestone forms the cap rock of one of the numerous flat-topped benches or mesas that overlook the valley. The limestone was well exposed around the top of the irregular escarpment that formed the westerly and northerly sides of the bench (figure 1). There the bed, due to more or less erosion, varied from 3 to 15 feet in thickness. The limestone apparently underlies the surface of the entire project area, although it was covered largely by soil that ranged from a few inches to several feet in thickness. East of the westerly rim of the bench several prospect pits had exposed the limestone to a maximum depth of about 8 feet below the surface.

In the district, as well as on the subject property, the principal uranium mineral found in the Toklito is tyuyamunite, a yellow colored lime uranite. Other secondary uranium minerals are present and small amounts of autunite have been found in some of the deposits in the area. The uranium minerals on the Red Bluff claims occur largely as thin yellow films and coatings along bedding planes and fractures in the limestone. This vivid yellow stain is often very deceptive when judging the grade of mineralized material.

Very small and detached areas in the limestone contained minor folds and in some cases the mineralization appeared to favor such structures. These disturbed areas were sporadic in occurrence and of limited lateral extent.

In the limestone outcrop along the westerly side of the rim of the bench, a short open-cut had been made at the spot which showed

the greatest amount of uranium minerals. No appreciable mineralization was evident in the exposed limestone that separated these various cuts. Three shallow prospect pits, located east of the pits and been sunk in the "better" spots as were indicated by a Geiger counter. In the larger and best appearing of these pits the yellow uranium minerals were distributed irregularly in varying amounts over a length of about 12 feet, an average width of 5 feet, and to a depth of approximately 7 feet. It appeared that this excavation had fairly well outlined the limits of the better mineralization. Thus the indicated magnitude of this individual deposit was of the order of some 30 tons of mineralized material, only a portion of which would probably constitute ore. Thus the uranium mineralization exposed on the project area was confined to small irregular and discontinuous "patches" that occurred at random in the upper portion of the limestone.

Conclusions

There are no appreciable ore reserves exposed in the area selected for the proposed exploration.

Fourteen samples were taken in the project area by the applicants' engineer. The results of these samples are listed as follows:

[illegible] samples

[illegible] W. D. Woodward, Jr.

Sample number	Depth in feet	Description	Mercury per ton
1	[illegible]	Hard limestone, light stain	0.00
2	0.0	Below No. 1, light stain	0.03
3	0.0	Hard fossil limestone, light stain	0.03
4	7.0	Light fossil limestone, light stain	0.20
5	7.0	Light fossil limestone, light stain	0.04
6	0.0	Dense fossil limestone, light stain	0.02
7	4.0	Below No. 6, light stain	0.03
8	4.0	Brecciated limestone, some stain	0.08
9	0.0	Below No. 7, hard limestone, no stain	0.03
10	8.0	Hard limestone, heavy stain	0.00
11	2.0	Below No. 10, hard massive limestone	0.03
12	0.0	Limestone, fractured, heavy stain	0.17
13	9.0	Hard limestone, trace stain	0.03
14	0.2	Hard limestone, trace stain	0.00

A composite of all of the above samples contained 0.14 pounds mercury per ton.

These samples were cut from the sides of the excavation and the pick test and test made at the spots where the pick test was exposed (page 2). In only two of these spots did the samples contain more than 0.20 pounds mercury which constitutes the cut-off grade of ore that will be purchased by the Atomic Energy Commission. The weighted average of all the samples was 0.08 pounds mercury per ton. If the two higher results were eliminated from the calculations, the average of the remaining 12 samples would be 0.03 pounds mercury per ton. These

sample results show that only a fractional part of the lower mineralized areas in the limestone can be expected to constitute ore.

Confidential information was given the examiners concerning the results of an exploration project completed recently on an area that adjoins the subject property. So far as could be observed the geologic conditions on this adjacent property were identical to those existing on the applicants' claims. The thorough exploration of the adjoining area, consisting of closely spaced drilling, trenching and test pitting, revealed not more than a few tons of ore which had an average content of about 0.12 percent U_3O_8. The largest individual ore body found by this work contained less than 1,000 tons, while the balance of the total tonnage was found in a number of small scattered areas, each of which contained from a few tons to as much as several tens of tons of ore. As there was no evidence to indicate that the applicants' property was either more or less favorable than this adjoining area, it seemed reasonable to presume that the ore potential of the two areas would not differ greatly in tonnage or grade. Thus based on this similarity to the neighboring property the potential of the area proposed for exploration would be of the order of 1,600 tons having an average content of about 0.12 percent U_3O_8.

According to the Atomic Energy Commission's current price schedule, an ore containing 0.12 percent U_3O_8 and a fair amount of V_2O_5 would have a value at the mine of $33.50 a ton. The bottom grade of the containing ranges then in use to the processor (spot or stockpile) probably would come to about $18.00 a ton. Hence the net value of the ore at the mill would be approximately $30.00 a ton.

[illegible]

Only a small amount of exploratory work has been done on the [illegible] claims. There were 6 prospect openings on the proposed project area as shown on Figure 3. No work was ever done on the property at the time of the examination.

[illegible]

The applicants originally submitted a proposal to explore the area by wagon drilling which they estimated would cost $25,000. A detailed schedule of program was submitted at that time. During the examination, the engineer employed by the applicants presented a revised schedule for the proposed work. This consisted of wagon drilling the area on a grid pattern with holes spaced on 75-foot centers as shown on Figure 3. About 125 hole locations are shown to be also proposed. The additional holes were to be used in the closer spacing of the grid in any interesting area to be sampled in exploration. The holes were to be drilled to an average depth of 40 feet. This and the holes on 150-foot centers would be 3,000 feet. This plan would not adequately explore the area. Geophysical results with less drilling might be obtained by spacing the holes at 150-foot centers.

The revised cost estimates submitted by the engineering firm are as follows.

Applicants' revised cost estimates

Item	Cost
Wagon drilling compressor, hose, bits, rods, pump, tools and accessories	$[illegible]
Camp cook and office	4,000

Applicants' [illegible] (Cont'd)

Item	Cost
[illegible] to [illegible]	$ [illegible]
[illegible]	[illegible]
Freight on Samples	[illegible]
[illegible] test pits	[illegible]
[illegible]	[illegible]
Assaying, cost per sample	[illegible]
Supervision and Engineering	[illegible]
Total	[illegible]

Several of the items listed above are not necessary. The assaying costs may be deleted because the [illegible] will assay all samples free of charge. Test pitting was not considered necessary. For a project of this type no equipment need be purchased, as rental of the necessary equipment for the short duration of the exploration would be more economical. Further, the wagon drilling could be contracted to advantage.

[illegible] Estimated Cost [illegible]

Item	Cost
Contract [illegible] feet of wagon drilling @ [illegible]	$ [illegible]
Sampling [illegible] feet of wagon drill holes @ [illegible]	[illegible]
Supervision and Engineering [illegible]	[illegible]
[illegible] and supplies for [illegible]	[illegible]
Total	$ [illegible]

[illegible] would appear possible to complete the proposed project for about [illegible].

Probable cost of exploration

The minimum cost for exploring the relatively small area as estimated by the examiners would amount to about [illegible] or a unit cost of $[illegible] per foot of drilling. On the basis of a 50 percent contribution by the government's share of the cost of the project would amount to [illegible]. At the site mean an estimated net mill value of [illegible] a ton, the royalty rate payable to the government would be [illegible] for each ton produced. This is under to repay the government's contribution if the property would have to produce about [illegible] tons of ore. Based upon the [illegible] estimate of the probable of the project [illegible] and the probability the property would produce enough ore to repay the [illegible]

Conclusions and recommendations

Most results of previous exploration were found in a number of superficial prospect openings on the subject property. As exposed in these scattered openings the mineralized areas are small, irregular, discontinuous [illegible]. The [illegible] exposed a few feet in any dimension. Of the 20 samples taken from the [illegible] openings, only a [illegible] were of [illegible]. Based on the results of the [illegible] exploration of the mineralized [illegible] on adjoining property, the potential of the subject property cannot be reasonably expected to exceed [illegible] tons having a net mill value of [illegible] a ton.

The Forest Service's view of the several estimates of the cost of the proposed exploration work appear to [illegible]. To repay this cost would require the [illegible] of approximately [illegible] tons with a

value of $10 a ton. This tonnage exceeds the inferred reserves by over one percent. Thus it does not appear likely that the proposed exploration of the relatively small area involved in the application would result in the discovery of a significant amount of usable ore.

If the exploration were attempted as contemplated by wagon drilling, the supervision, collection of the samples, and interpretation of the results would be in the hands of trained personnel, otherwise the work might prove very unsatisfactory. The applicants are not competent in this respect and the Atomic Energy Commission which function it should best do, have no personnel available for such work. Therefore it is recommended that the application for a lease on the red shale No. 7 and No. 8 claims be denied.

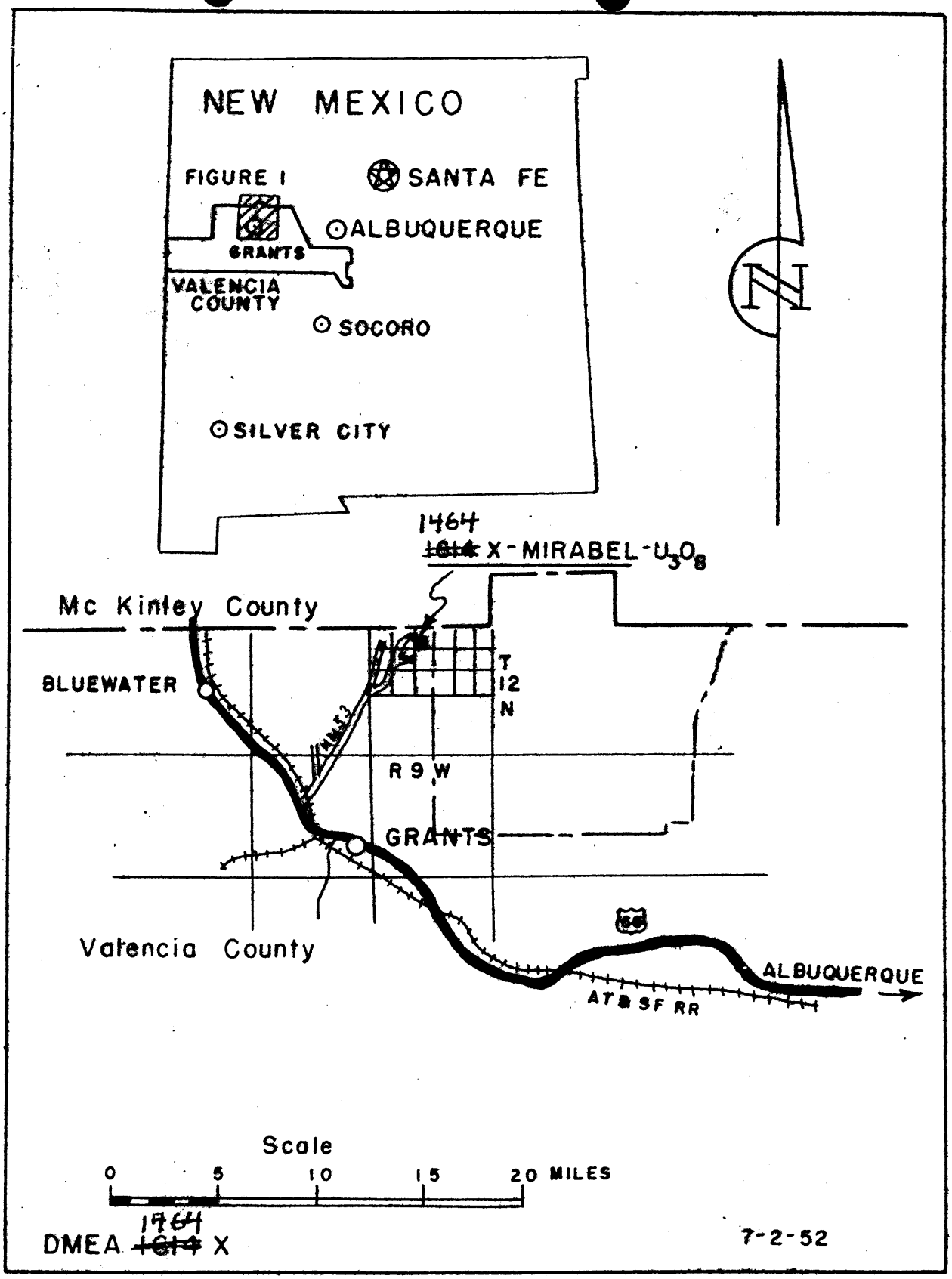


FIGURE 1 – LOCATION MAP, MIRABEL URANIUM PROSPECT
VALENCIA COUNTY, NEW MEXICO

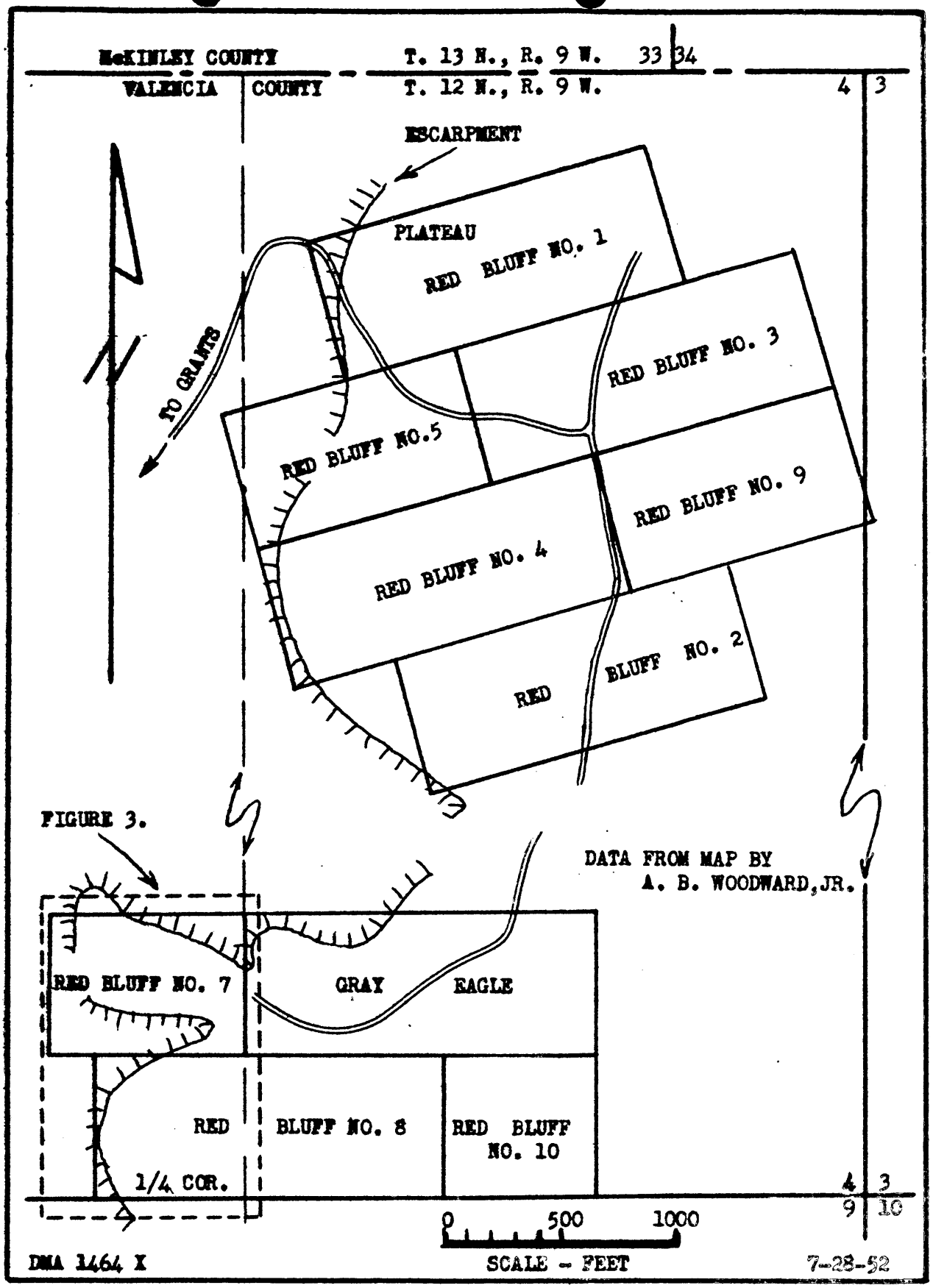
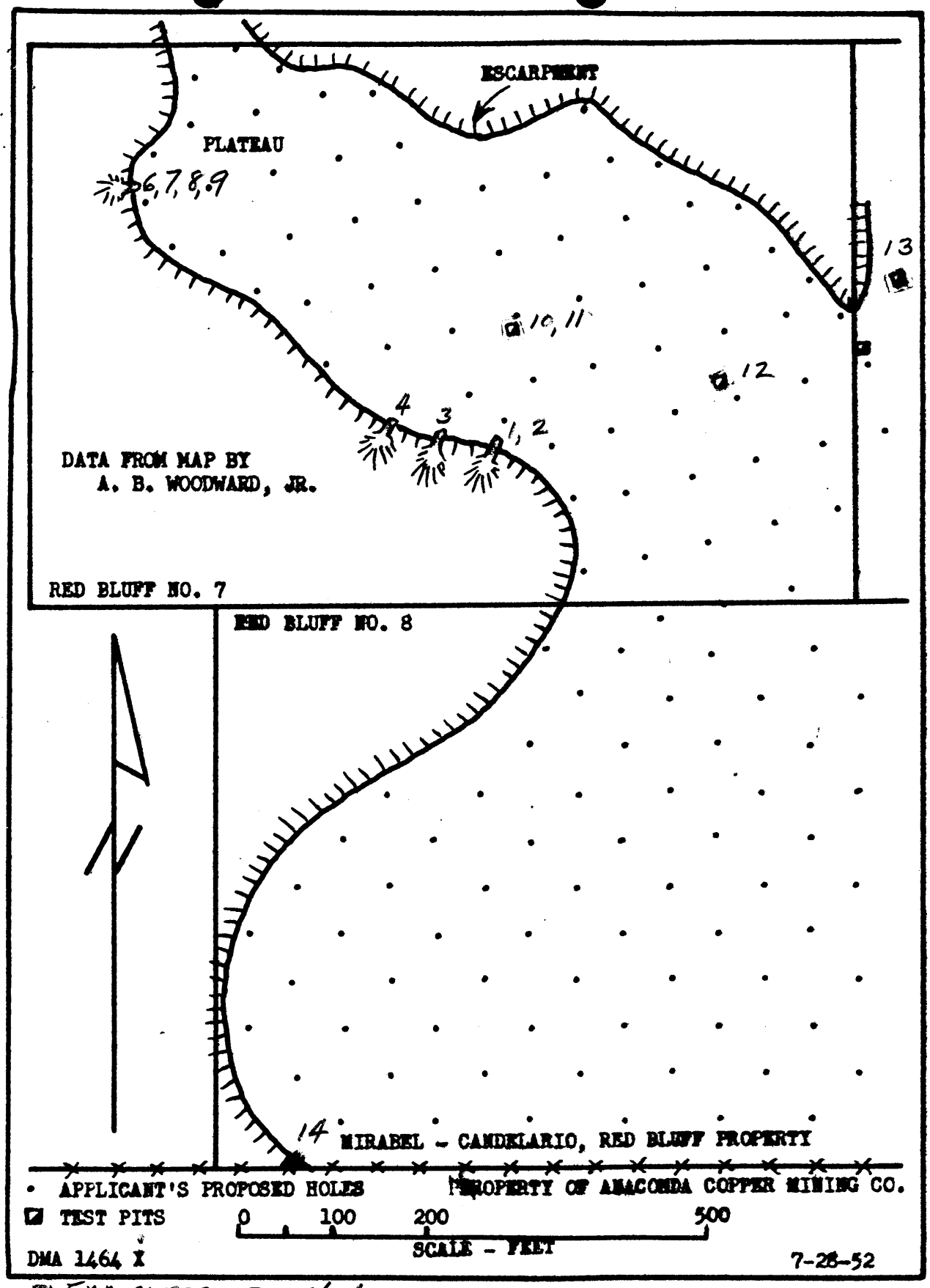


FIGURE 2. ♠ CLAIM MAP, RED BLUFF URANIUM PROSPECT



* Exposures sampled.

FIGURE 3. - APPLICANT'S PROPOSED EXPLORATION, RED BLUFF URANIUM PROSPECT

700
FILE COPY
SURNAME:

Ellis
Hiatt

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

AUG 27 1952

Mr. Moises Mirabal
Box 576
Grants, New Mexico

Re: Docket No. DMA-1461X (Uranium)
Red Bluff Uranium Mine
Valencia County, New Mexico

Dear Mr. Mirabal:

Your letter of August 20, 1952, addressed to Mr. Weston Bourret, former Chief, Minor and Rare Metals, Defense Minerals Administration, has been referred to this Division for attention.

Pursuant to our letter sent you on March 13, 1952, a copy of which is attached, your application was transferred to our Region IV office, 224 New Courthouse Building, Denver 2, Colorado, for a field examination. Accordingly, we are referring your inquiry to Mr. W. H. King, Executive Officer, DMEA Field Team, Region IV, at the above address, in order that he may inform you the status of your application.

Sincerely yours,

8/27/52

signed

Ernest Wm. Ellis, Chief
Rare and Misc. Metals Division

GLAult/EWEllis/gla
8-26-52
cc to: Adm. Reading File
Docket
Mr. Ellis
DMEA Field Team, Region IV (2) (with original incoming letter)

Blacket copy

COPY

Grants, New Mexico
August 20, 1952

Mr. Weston Bourret, Chief
Minor and Rare Metals
U. S. Department of the Interior
Defense Minerals Administration
Washington 25, D. C.

RE: Uranium - KMA - 1464X

Dear Mr. Bourret:

Please refer to my letter of November 28, 1951, in which I quoted letter of November 10, 1951, with which I submitted maps of my claims to support application for loan of $25,000 for exploration assistance. With the exceptions of your representative checking the claims about a month ago, have heard nothing further, and will appreciate any information you can give me as to this status of my application.

Thanking you, I am,

Yours very truly,

/s/ Moises Mirabal
Moises Mirabal
Box 576
Grants, New Mexico

Original referred to Region IV

Sa

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

July 7, 1952

Memorandum

To: Robert E. Adams, Administrative Officer

From: Grace L. Ault, Secretary to
Ernest Wm. Ellis, Chief
Rare and Misc. Metals Division

Subject: Applications handled by Region IV
under delegation of authority

You will recall that as a result of our discussion of our Divisional Report for the month of June you pointed out a difference in the number of applications we showed as pending Field Team examinations, and as a result we returned the docket in DMA-1464X Moises Mirabel to Mails and Files for the reason that it is within the delegation of authority of Region IV to process.

I have reviewed those applications which we show on our list of pending applications to see if there were others which might be adding to this duplication, statistically speaking. Since both of the attached dockets apparently are being handled by Region IV because of the amounts involved (DMA-1699X - $12,000, DMA-2032 - $10,000) I am returning them for you to check your records. If you agree that these should not be carried on our pending list, they will be deducted from our total for the month of July.

Grace L. Ault

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

July 2, 1952

Memorandum

To: Mails and Files

From: Grace L. Ault, Secretary to
Ernest Wm. Ellis, Chief
Miscellaneous Metals Division

Subject: Docket No. DMA-1464X (Uranium)
Moises Mirabal
Red Bluff Uranium Mine
Valencia County, New Mexico

In discussing a slight variation in our monthly Division report ending June 30, 1952, today with Mr. Adams, he said that this application was held on your records as being processed in Region IV under their delegation of authority, whereas we had transferred it to the Field Office on March 13, 1952, for a field team examination.

Accordingly, the docket is returned to you herewith, and we have marked our records that it has been removed from our active list of pending applications as of June 30, 1952.

Grace L. Ault

FILE COPY
700 SURNAME:

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

MAR 13 1952

AIR MAIL

Schmidt
Ellis
Hedges
Hayes
Kefauver

Mr. Moises Mirabal
P. O. Box 576
Grants, New Mexico

Re: Docket No. DMA-1464, (Uranium)
Red Bluff Uranium Mine
Valencia County, N. M.

Dear Mr. Mirabal:

Your application for assistance in exploring your property in Valencia County, New Mexico, under the above captioned docket number, has been reviewed by the Rare and Miscellaneous Metals Division of the Defense Minerals Exploration Administration and has been referred to Mr. J. H. East, Jr., Executive Officer, Region IV, DMEA Field Team, 224 New Customhouse Building, Denver 2, Colorado, for a field examination.

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

Sincerely yours,

C. O. Mittendorf (for) S.N. 3-13-52

Acting Administrator
Defense Minerals Exploration
Administration

FSchmidt/jem 3/10/52
cc to: Adm. Reading File
Docket
Messrs. Kauffman, A.J. Rm. 1347
Butler, A.P. Rm. 3206 GS
Schmidt
Ellis
Field Team, Region IV (2)

FILE COPY
SURNAME:

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

Schmidt
Ellis

MAR 13 1952

AIR MAIL

Mr. J. H. East, Jr.
Executive Officer, Region IV
DMEA Field Team
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMA-1464X, (Uranium)
Red Bluff Uranium Mine
Valencia County, N. M.

Dear Mr. East:

This application is referred to you for a field examination.

This property adjoins an area explored by the Anaconda Copper Company. The Atomic Energy Commission has directed so much exploration work on these uranium lands of New Mexico in this vicinity that it is suggested that the evaluation and exploration and sampling of this subject area be discussed with the A.E.C. at Grand Junction.

The drill pattern of the Applicant assumes that his entire area of limestone contains uranium ore and it is simply a matter of thoroughly drilling the area with 150 holes to get the details. If the property merits exploration it seems that the first stage should be to determine whether the mineralization is really widespread with some uniformity, by drilling a skeleton pattern of scout holes the results of which might justify a second stage of drilling to round out the details.

The area under consideration in this application is only a small part of the same limestone formation which adjoins. It is thought that successful exploration results on the subject area might be of great importance to the larger adjacent areas of which it may be a sample.

Sincerely yours,

(signed) FRANK E. JOHNSON

Chairman, Operating Committee
Defense Minerals Exploration
Administration

F.N. 3-13-52

Enclosures

APPROVED: J. H. Boggs
Member, Bureau of Mines

T. P. Thayer
Member, Geological Survey

FSchmidt/jem 3/10/52
cc to: Adm. Reading File
Docket
Messrs. Kauffman, A.J. Rm. 1347
Butler, A. P. Rm. 3206 GS
Schmidt
Ellis
Field Team, Region IV

3/10/52 glm

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Ernest Wm. Ellis, Uranium Commodity Committee DATE: March 5, 1952
Member, DMEA Attention: Mr. Schmidt

FROM : A. P. Butler, Jr. Uranium Commodity Committee
Member, USGS

SUBJECT: DMEA Docket 1464 X Red Bluff Uranium Mine, Valencia County, N. Mex., Moises Mirabal

I recommend, as indicated in our conversation of March 3, that the application designated above should be forwarded for investigation by the field team. The property is in an area where other uranium deposits are being actively explored and developed. Reported assays of some samples are indicative of material of marketable grade. The property therefore warrants field investigation to define a suitable program of exploration.

The exploration proposed appears too intensive for the first stage of exploration for deposits of this type. It should be critically reviewed by the field team to determine appropriate stages and optimum spacing of holes needed to explore adequately for workable deposits. The property is in an area where geologists of the Atomic Energy Commission are investigating similar deposits and following closely results of development work carried on by several companies. I suggest that the members of the field team arrange to consult with members of the Atomic Energy Commission's Grand Junction Exploration Branch and obtain the benefit of their experience and suggestions.

Copy to: E. W. Ellis

Arthur P. Butler Jr.

Addendum

I note on examining the field team report pertaining to DMA Docket 1221X, Black Rose Uranium Prospect, Sandoval County, N. Mex., that the applicant for docket 1221X employed A. B. Woodward Jr., the same engineer who made the examination for DMEA Docket 1464X (Uranium). In connection with the application for docket 1221X Woodward reported analyses of 0.09 to 0.10 percent U_3O_8. Analyses of Bureau of Mines and Geological Survey samples from two of Woodward's localities, apparently made by the same assayers who analysed Woodward's samples were reported as none. The latter result is confirmed by radioactivity measurements made by the Geological Survey and Bureau of Mines. It appears, therefore, that results of analyses reported by Woodward in DMEA Docket 1464X should be viewed with skepticism.

IN REPLY REFER TO:

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

Ernest Wm. Ellis, Uranium Commodity Committee
Member, DMEA Attention: Mr. Schmidt

March 5, 1952

A. P. Butler, Jr. Uranium Commodity Committee
Member, USGS

DMEA Docket 1464 X Red Bluff Uranium Mine, Valencia County, N. Mex.,
Moises Mirabal

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Copy to: E. W. Ellis

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3/6/52 gla

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

March 5, 1952

Memorandum

To: Rare and Miscellaneous Metals Division
Defense Minerals Exploration Administration
Ernest Ellis
Room 4070

From: A. J. Kauffman, Jr.
Rare and Precious Metals Branch

Subject: DMEA Docket 1464X, Red Bluff Uranium Mine, Valencia County, New Mexico.

Attention: Mr. Schmidt

This property appears to be situated in a potential uranium producing area. Mr. Schmidt's suggestions relative to the docket are agreeable to us. It is also felt that the field team should discuss the problem with the Atomic Energy Commission people in the area.

A. J. KAUFFMAN, JR.

Attachment

2/26/52 gla

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

224 New Customhouse

Denver 2, Colorado

February 19, 1952

Memorandum

To: Secretary to the Operating Committee, Defense Minerals Exploration Administration

From: Executive Officer, Field Team, Region IV

Subject: Report on Red Bluff Uranium Mine, Valencia County, New Mexico, Moises Mirabal, Applicant, Docket DMA 1464X.

Enclosed is a copy of a report pertaining to the above application by A. B. Woodward, Jr., Professional Engineer, which is in response to your letter to Moises Mirabal dated December 4, 1951.

W. H. King

W. H. King, for
J. H. East, Jr.

Enclosure

-- REPORT ON --

RED BLUFF URANIUM MINE

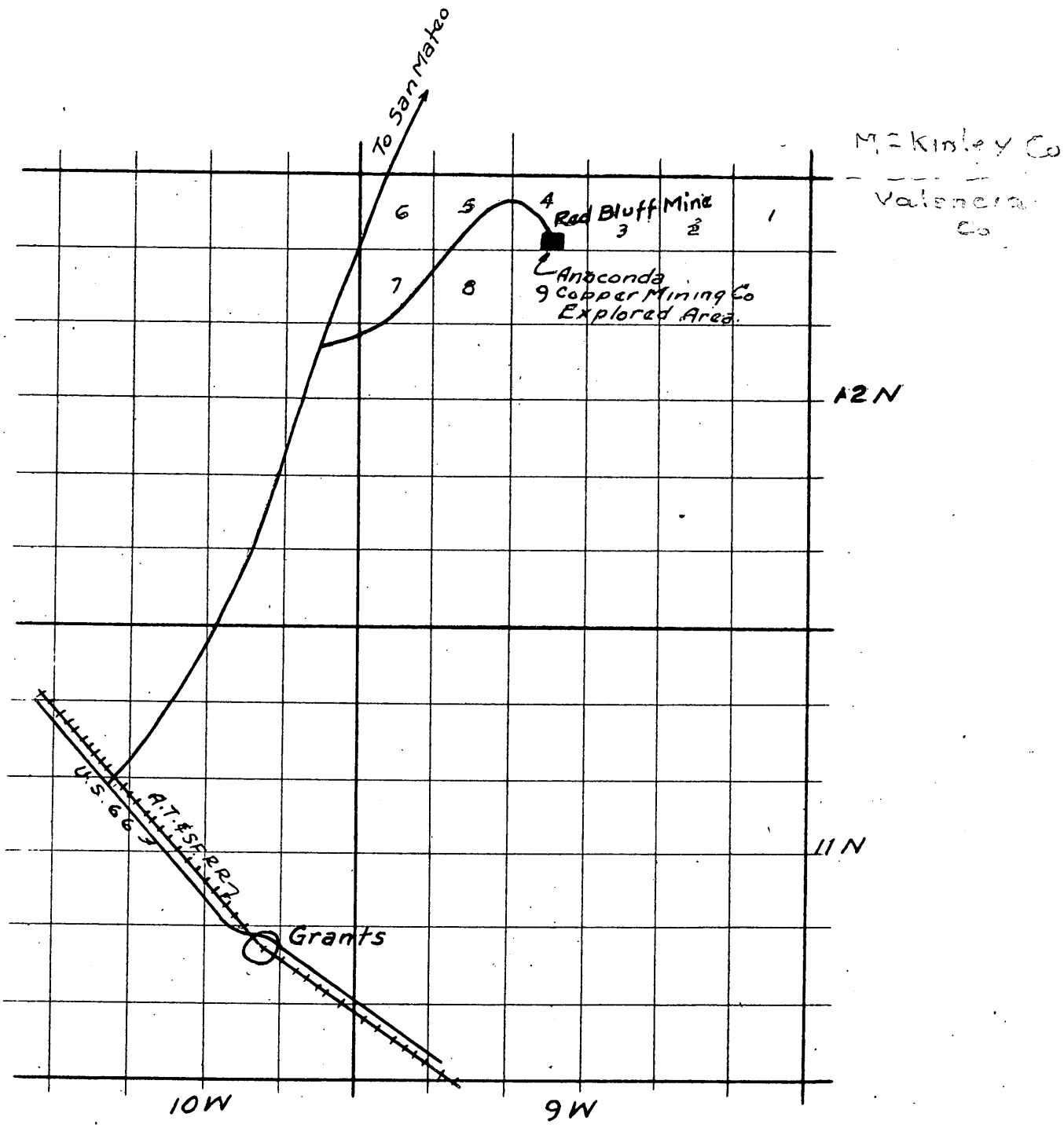
SECTION 4, TOWNSHIP 12 NORTH, RANGE 9 WEST, N. M. P. M.

VALENCIA COUNTY

NEW MEXICO

By: A. B. Woodward, Jr.,
Professional Engineer #1159 New Mexico
212 South Third St.,
Albuquerque, N. M.

January, 1952.



LOCATION MAP

RED BLUFF URANIUM MINE

LOCATION:

The Red Bluff Uranium Mine is located in Valencia County, New Mexico, some 10 miles North of the town of Grants and more particularly in the South ½ of Section 4, Township 12 North, Range 9 West, N. M. P. M. It is bounded on the south by land of the Anaconda Copper Company in Section 9 and upon which there has been very appreciable exploratory work accomplished in 1951 and continuing on into this year.

Access to this property is had over a bladed road taking off from the Grants-San Mateo Road at the Elkins Ranch Gate. By road it is some 12 miles from the property to U. S. Highway 66 and the Santa Fe Railroad Mainline Tracks and 15 miles to the town of Grants.

MINE PROPERTY AND OWNERSHIP:

The Red Bluff Uranium Mine is composed of four unpatented lode mining claims:

Red Bluff No. 7	12.176 acres
Red Bluff No. 8	20.661 acres
Red Bluff No. 10	9.421 acres
Gay Eagle	20.661 acres

Fee title is vested in the United States and possessory title through valid lode mining claim locations is vested in Messrs. Sylvestre Candelaria and Moises Mirabel, who in turn have given Henry Elkins a 10% of net proceeds interest in exchange for right-of-way over Elkins land and other considerations.

HISTORY:

Uranium was discovered in this district in 1950. J. E. Jones and Moises Mirabel made discoveries of Uranium minerals in limestone and located these claims together with other claims in the North half of the same section. Early in 1951, Sylvestre Candelaria purchased Jones interest in the claims, had claims surveyed, filed amended locations, proceededto do exploration work and built a much needed access road.

CLIMATE-TOPOGRAPHY-VEGETATION:

The climate is typical of the arid Southwest for elevations approximately 6500 feet. Summers are hot with temperatures up to 105 deg. and the major portion of rainfall comes in July and August. Winters are not severe although there is much freezing weather. Occassionally snow falls to a maximum depth of one foot but seldom remains on the ground longer than a week.

The area covered by the claims under consideration is a bench, sloping gently upward to the East and terminated on the East and West sides by bluffs. Over much of this bench lies a thin layer of sandy soil intersperced with outcrops of limestone. The thickness of the soil increases to the East.

The vegetation consists of grass and sparse pinon, pine and cedar trees.

WATER AND POWER:

No attempt has been made to develop water on these claims. Water can be hauled from wells on the Elkins Ranch or from Grants. Since any operation on these claims will be open pit there will be no large quantities of water needed.

Due to location, requirements and length of operations, power requirements should be met by diesel driven equipment.

TRANSPORTATION:

All transportation will be by truck haul to mills or stock piles the establishment of which are reported to be placed to the Northwest of Grants in the near future. Depending on location the haul may vary from 8 to 15 miles.

GEOLOGY:

The Uranium on this property is found in the Todilto Limestone of Jurassic Age.

The limestone for the most part is thin bedded varying from ½ to 6 inches in thickness. Exposures of beds up to 2½ feet in thickness were noted.

The bedding is flat, dips varying from place to place from zero to 10 deg. in varying directions. Judging from stadia elevations taken at the lower contact of this limestone it would appear that this formation is dipping gently to the Northeast.

There are numerous rolls, folds and fractures in the limestone which apparently do not extend downward into the underlying sandstone.

The surface for the most part is obscured by aluvium vary in depth from 0 to 6 feet and within the area mapped averaging less than 2 feet.

Under the limestone is a bed of massive sandstone, white of color at the contact and changing to a reddish brown within 4 to 5 feet.

There is no evidence of alteration in the limestone other than weathering on the fractures.

MINERALOGY:

The predominating visable uranium mineral is a greenish yellow to sulphur yellow powdery mass or stain on the fractures or bedding planes of the limestone. It appears to be Antenite probably mixed to some extent with Carnotite.

There is a reddish brown powdery mineral which I have not identified but which causes strong action on a Geiger counter.

There are occassional black specks in the limestone which may be an uranium mineral such as is found in the uranium deposits near Green River, Utah.

It is noteworthy that all prospect holes in the limestone show varying strength of Uranium staining.

The Uranium content apparently is not governed by the amount of visable staining for Sample No. 11 appeared to be pure limestone with no visable uranium minerals and upon assay it showed a content of .08% U_3O_8.

Although no visable Vanadium could be noted a composite of 15 samples returned .12% V_2O_5 on assaying.

ORE RESERVES:

The entire area of the Mining Claims under consideration contain not less than 2,000,000 tons of Uranium bearing limestone.

The area mapped and which is under consideration for exploration shows a minimum of 500,000 tons of Uranium bearing limestone. The exploratory work and sampling done so far can only be considered indicative since the samples taken are too far apart to give any definite answers as to the values in the intervening space. However they do give an average of .07% U_3O_8 and .12% V_2O_5.

There are zones of rich ore and zones of very low grade ore.

It is believed that it may be possible to prove between 400,000 and 500,000 tons of ore that will assay .10% U_3O_8 and .12% V_2O_5 or better, which if mined at the rate of 500 tons per day will prove to be profitable.

PROPOSED MINING METHODS AND ESTIMATED COSTS:

There are two ways in which this ore body can be mined; both by open pit method;

First and most desirable if the average value can be held at .10% U_3O_8 and .12% V_2O_5. is to open pit the entire area and ship 80 to 90% of the limestone ore at rate of 500 tons per day.

Presently the only value I can place on this ore is based on Circular 5, Schedule 1 issued by the Atomic Energy Commission of February 7, 1949.

Value of ore- -.10% U_3O_8 - -12% V_2O_5	Per Ton	$1.74

Costs: Per Ton		
Drilling- -blasting, loading, crushing	$ .80	
Supervision, overhead, taxes	.25	
Amortization of investment ($75,000)	.15	
Total	$1.20	
Net Profit		$ .54

Times- $\frac{400,000}{500}$ = 800 days, say 2½ years.

400,000 x .54 = $216.000 profit.

Second the richer portions of ore as shown by exploratory work could be selectively mined in which case it would probably be necessary to maintain a value of .20% V_3O_8 and proportionate V_2O_5 content. Costs arising from this method will greatly increase over that outlined above and depending on varying factors may run from $3.50 to $7.00 per ton and cannot be estimated at this time. This method should only be used if the first method proves impossible for many thousand tons of low grade ore will be left behind that can never be mined at a profit.

It is assumed that the 50¢ per pound of contained V_3O_8 allowance for development work would apply to the following exploratory program and to future development work.

RECOMMENDED PROCEDURE FOR EXPLORATION:

Time - - 90 field days

Estimated Cost:	Capitol Account	$14,600.00
	Exploration Expense	12,000.00
	Total	$26,600.00

Capitol Account:

1. Equipment should be obtained under a rental-purchase agreement. All equipment would be used if production were undertaken. If project were abandoned salvage of this item would approximate 60%
   a. Wagon Drill complete with hoses
   b. 220 Cubic foot diesel driven compressor.
   c. Drill rods to 30 foot long, tungsten carbide detachable bits, sample sacks, pipe, small tools and supplies.
   d. ½ ton pick-up truck. $13,600.00

2. Small sample room and office 1,000.00

$14,600.00

Exploration Expence:

3. Drill vertical holes at locations shown on accompanying map, catch cuttings for each 5 foot of hole and assay cuttings.
   a. Approximately 150 holes avg. 20 feet deep $2,000.00
   b. Approximately 600 assays-V_3O_8, V_2O_5. 5,400.00
   c. Freight on samples 300.00

4. Sink 10-4'x 6' shafts to bottom of limestone at selected drill holes, crush all ore excavated, prepare samples and assay. This will establish a factor between values shown by drill holes and shaft samples. It is probable that a factor can thus be determined which by applying it to all drill holes, the resulting established value will more nearly approximate the true value of the mass than the drill hole value.

a. 10 shafts - 20 feet	$1,200.00	
b. Hauling, crushing, preparing samples	1,200.00	
c. Assaying	100.00	
5. Supervision and engineering	2,000.00	
	$12,500.00	$27,100.00

CONCLUSION:

1. There are at least 2,000,000 tons of Uranium bearing limestone on these claims covered by relatively little alluvium.

2. Present exploratory work indicates the possibility of developing large tonnages of low grade ore that if properly mined will show a profit justifying the proposed exploratory program.

3. The portion of the property shown on the accompanying map, being about 25% of the total, should be drilled as indicated on the map and an evaluation made from these results would form a basis for future action.

4. The only prospect hole on the claims to the East of the portion mapped lies some 1000 feet from the area considered and shows values similar to those found in the area. This indicates the ore continuing eastward from the partially explored area.

5. Should results of the proposed exploratory program fail to show a sufficient tonnage of .10% Uranium Ore to mine and ship the major percentage of the limestone it is probable that sufficient relatively high grade areas will be indicated so that by selective mining the exploratory program can be salvaged and some profit made.

A. B. Woodward, Jr.

SAMPLE RECORD

NO.	LENGTH CUT	$\%U_3O_8$	$\%V_2O_5$	DESCRIPTION
1	5.5' Vert.	.06	Composite	Surface to 5.5' depth. Hard Ls. Minor Stain
2	6.0 Vert.	.03	.12	5.5 Depth to S. S. Hard Ls. Minor Stain
3	6.6 Vert.	.03	"	Surface to 6.6'-Thin Bedded Ls. Minor Stain
4	7.0' Slope	.26	"	Surface to Bottom-Tight Fold in Ls. Med. Stain
5	7.0' Slope	.04	"	Surface to Bottom-Tight Fold in Ls. Minor Stain
6	5.0' Vert.	.02	"	Surface to 5.0' depth. Hard L.s. Broken Fold-Minor Stain
7	4.5 Vert.	.04	"	Surface to 4.5' depth. Brec. LS Hard-Some Stain
8	4.0 Vert.	.03	"	Bed under #6. Hard Ls-Minor Stain
9	6.5 Vert.	.05	"	Bed under #8. Hard Ls. Brec. No Stain
10	4.5 Vert.	.05	"	Begin at Surface-Hard Ls. Med. Stain
11	2.5 Vert.	.08	"	Below #10-Hard Massive Ls. No Stain. Bot. Ls.
12	8.0 Vert.	.17	"	Limestone-Fracturing-Med. Stain
13	9.0 Vert.	.03	"	Hard Ls. Some Fracturing- Tr. Stain
14	6.2 Vert.	.06	"	Hard Ls. Tr. Stain
15	4.5 Vert.	.03	"	Brec. Ls. Med. Stain.
16	Grab Ore Dump	.28	.14	Same pit as #15. Ore Est. 50% of total Excav.

16 | 12-6 | .08 includes
12-8 | #16. Grab ?

W. E. HAWLEY
ASSAYER
CHEMISTS

EL PASO, TEXAS
BOX 4

SUPERIOR, ARIZONA
BOX 764

HAWLEY & HAWLEY

W. E. HAWLEY, MANAGER

DOUGLAS, ARIZONA
537 12TH STREET
BOX 151

F. L. HAWLEY
SHIPPER'S REPRESENTATIVES
BULLION BUYERS
ORE BUYERS

HANOVER, N. M
BOX 234

We hereby certify that the following results were obtained from samples of A. B. Woodward, Jr.

OFFICE NO.	MARKED	GOLD OZS. % U_3O_8	SILVER OZS.	COPPER Per Cent % V_2O_5	LEAD Per Cent		GOLD VALUE	SILVER VALUE	TOTAL VALUE
249710	1	.06							
	2	.03							
	3	.03							
	4	.26							
	5	.04							
	6	.02							
	7	.04							
	8	.03							
	9	.05							
	10	.05							
	11	.08							
	12	.17							
	13	.03							
	14	.06							
	15	.03							
	16	.28		.14					
	Composite 1 to 15, in.			.12					

METAL QUOTATIONS:

Gold $35.00 _____ Per oz. _____ Copper ____ c per lb.

Silver, _____ Per oz. _____ Per lb.

Charge: $ _____

Date 1/10/52

HAWLEY & HAWLEY

Per W E Hawley Assayer.

700

FILE COPY
SURNAME:

Gordon
Ellis

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

DEC 19 1951

Mr. Moises Mirabal
P.O. Box 576
Grants, New Mexico

Re: Uranium Prospect
Grants, New Mexico
DMA docket 1464X

Dear Mr. Mirabal:

This will acknowledge receipt of your letter of December 10, 1951.

We shall be glad to resume review of your application when you remit the data you are compiling.

Sincerely yours,

Ernest Wm. Ellis, Acting Chief
Rare and Misc. Metals Division

ERGordon'lm
12/18/51

cc: Admn. Reading File 12-19-51 JCB
✓ Mails and Files Br.
C. O. Mittendorf
Mr. Keiser, USGS, 3204 GSA
Mr. Hosted, AEC, 3204 GSA
Field Team, Reg. IV
Docket
Ernest Wm. Ellis
E. R. Gordon

BY

Mails + Files Br.

DEPARTMENT OF THE INTERIOR
RECEIVED
DEC 17 1951
Defense Minerals Administration,
Production Expansion Division.

P. O. Box 576
Grants, New Mexico
Dec. 10, 1951

Mr. C. O. Mittendorf
Acting Administrator, DMEA
Washington 25, D. C.

Re: Grants, New Mexico
DMA docket - 1464X - Uranium

Dear Mr. Mittendorf:

Please accept our thanks for your favor of 4th inst., regarding above.

We are employing a qualified mining engineer to do the neceesary surveying and examination of our ground, and to compile your form MF-103, and to submit it as a revised application. We are prepared to cover our share of the estimated expenses.

Yours truly

Moises Mirabal

MOISES MIRABAL

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 14 1951

400

FILE COPY
SURNAME:

Gordon
Mittendorf

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

DEC 4 1951

Mr. Moises Mirabal
P.O. Box 576
Grants, New Mexico

Re: Grants, New Mexico
DMA docket - 1464X - Uranium

Dear Mr. Mirabal:

Your letters of November 10 and 28, 1951, addressed to Mr. Beurret, have been referred to this office together with your application for an exploration project, DMA 1464X.

On your application, form MF-103, we note your reply to question 9 to the effect that you have no money available to cover your share of the expenses of the project. Unless you are prepared to cover your share of the estimated expense, your application must be denied. Further, we find the information thus far submitted to be inadequate to enable us to judge the merits of your request.

Accordingly, kindly advise us whether you are prepared to cover your share of the estimated costs. If so, we suggest that you promptly remit to us a complete and detailed description of the work you propose to do and the estimated costs. It would be preferable if you did this by submitting new replies to questions 21, 22 and 23, form MF-103, answering each question completely and in the fullest detail possible.

Sincerely yours,

C. O. Mittendorf (fw)

S.N. 12-4

Acting Administrator
Defense Minerals Exploration
Administration

ERGordon'lm
11/30/51

BL

cc: Admn. Reading File
Reports and Records
Mr. Keiser - 3204 GSA
Mr. Hosted - 3204 GSA
Field Team Reg. IV
Docket

RARE + LIGHT METALS

DEFENSE MINERALS ADMINISTRATION
WASHINGTON, D. C.

NOV 30 9 04 AM '51

DEPARTMENT OF THE INTERIOR
RECEIVED

NOV 30 1951

Defense Minerals Administration
Executive Director's Office

Grants, New Mexico
November 28, 1951

Mr. Heston Bourret, Chief
Minor and Rare Metals
U.S. Department of the Interior
Defense Minerals Administration
Washington 25, D.C.

"Re: Uranium
DMA - 1464x
Letter:

Reference is made to your letter of October 23, covering my application dated Nov 20, 1951 for exploration assistance in the amount of $25,000. Along with this letter I am sending maps of my claims and the claims checked off with an "x" are the claims that are to participate in this application. If there is any further information needed, will appreciate hearing from you."

Dear Mr. Bourret,

I wrote you on November 10th as above written.

As I have heard nothing from you, will you please acknowledge receipt of this letter and advise if you received the maps mailed you November 10th.

Thanking you, I am

Yours very truly,

Moises Mirabal

Moises Mirabal
Box 576
Grants, New Mexico

Grants, New Mexico
November 10, 1951

DEFENSE MINERALS
ADMINISTRATION
WASHINGTON, D.C.
NOV 13 1 46 PM '51

Mr. Weston Bourret, Chief
Minor and Rare Metals
U. S. Department of the Interior
Defense Minerals Administration
Washington 25, D. C.

Re: Uranium
DMA-1464x

Dear Mr. Bourret:

Reference is made to your letter of October 23, covering my application dated May 28, 1951 for exploration assistance in the sum of $25,000.

Along with this letter I am sending maps of my claims and the claims checked off with an "x" are the claims that are to participate in this application.

If there is any further information needed, will appreciate hearing from you.

Very truly yours,
Moises Mirabal

Moises Mirabal
Box 576
Grants, New Mexico

330
FILE COPY
SURNAME:

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

Gordon
Bourret

OCT 23 1951

a. E.

Mr. Neiman Mirabal
Box 576
Grants, New Mexico

re: Uranium
DMA-1464x

Dear Mr. Mirabal:

Reference is made to our letter of July 2, 1951 covering your application dated May 28, 1951 for exploration assistance in the sum of $25,000.

Inasmuch as we have had no reply from you regarding our request for information needed to permit further consideration of your application we wish to advise that unless we hear from you within sixty days we will consider your file closed and your application as withdrawn.

Very truly yours,

Weston Bourret

Weston Bourret, Chief
Minor and Rare Metals

10-23

EGordon/mh 10-22-51
cc: Adm. Read. File
DMA docket file
Minor and Rare Metals
Field team IV
Keiser, USGS
Hosted, USGS

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. dma-1464X

Date received 6/4/51

Participation

Moises Mirabal
P. O. Box 576
Grants, New Mexico.

Name and address of applicant

Date May 28, 1951

FILL IN THIS BLOCK

Date of application May 18, 1951 (letter)

Estimated cost $25,000

Mineral or metal Uranium

Percentage of Government participation 90

Location of mine Sec. 4, Twnsp 12 N, Rge 9 E, Approx. 9 miles N. of Grants, N. M..

Date of filing MF-100 May 28, 1951

DMA Docket Number, if available

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation? Parnership

*2. If a partnership, state names and addresses of partners. Manuel & Silvestre Candelaria, 509 S. 3rd St. Albuquerque N. Mex.

*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.

*4. Describe the mining and general business experience of (a) the applicant, and (b) the person or persons who will manage the project. (a) & (b) same. 33 yrs. mining independently fluorspar & copper.

*5. Are you the owner or the lessee of the property? partner-owner

6. If owner, state what claims, liens, or encumbrances, if any, are against the property. None

7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.

9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)? No money available.

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property. 10 mining claims as previously described.

(*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted. See 'Location of mine'

NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area. same

*11. State the present and former names of the property, if any. Big Bluff No's. 1-5 incl., Big Bluff No's 7-10 incl., Gay Eagle.

*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads. 9 miles from Grants and railroad. Country road barely passable.

*13. State source and quantity of water available for operations and its sufficiency at all seasons. State amount of power to be used, rate per hour or other cost, and source.

*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work. None

15. State in detail how the ore could be shipped and how and where milled. Shipped by truck to railhead at Grants for transport to existing AEC agents or to local mill or local stockpile.

*16. History:

(*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.

(*b*) State briefly the known history and production of adjoining and neighboring properties. none

(*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

*17. Production:

(*a*) If mine is in production, furnish the following information: No

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.) No

(*a*) Describe the ore or mineral deposits briefly.

(*b*) Submit available maps and assay data.

(*c*) Give estimated tonnage and grade of each class of ore reserves.

19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

Deposit easily recovered with proper mechanization after intelligent exploration program.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?

21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

NOTE.—The Government will not participate in a project that will require more than 2 years to complete.

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:

(*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.

(*b*) Supervisors, by numbers and positions, with salaries of each.

(*c*) Cost of necessary repairs to existing facilities, structures, and buildings.

(*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.

(*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.

(*f*) Cost of rental for equipment which the operator proposes to rent.

(*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.

(*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.

(*i*) Cost of power, water, utilities, and any other items not provided for above.

24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

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

Mirabal-Candalaria Partnership
(Name of company)

By Moises Mirabal
(Signature of authorized official)

May 28, 1951
(Date)

Partner
(Title)

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

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

SUPPLEMENTAL SHEET---APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACTØ OF 1950

Moises Mirabal
P. O. Box 576
Grants, New Mexico.

Question No. 8:

Have spent approximately $2,000.00 on discovery, filing, survey, exploration and development.

Question No. 13:

Year-around supply of water at well within 1 mile of property. All power to be small portable, self-contained units.

Question No. 16 (a)

No exploration prior to discovery of uranium in the area in 1950.

Question No. 16 (c)

No private examination of testwork. AEC and others have appraised adjoining and similar properties in the area. AEC has appraised the area in general including this property.

Question No. 20:

Uranium in flat, bedded limestone deposit---practically no overburden.

Question No. 21:

Clean off surface of deposit at chosen spots, wagon drill and sample cuttings. About 18 months time required in that production and exploration will be accomplished simultaneously after initial exploration work.

Question No. 22:

Please refer to Atomic Energy Commission for authoritative reports and maps of the area including this property.

Question No. 23:

(a) and (b): Labor & Supervisory	$11,184
(c) None	
(d) Tool shed $600, Ramp $500, Machine shop $800, Bunkhouse $800	2,700
(e) Bulldozer $6000, Compressor $2300, 2-Jackhamers @ $300 ($600)	8,900
(f) None	
(g) None	
(h) Sundrie small mining and maintenance tools, bunkhouse equipment, water tank, etc.	1,916
(i) Haul water (18 months)	300
Total	$25,000

Mirabal-Candalaria Partnership

Moises Mirabal May 28, 1951
Moises Mirabal, Partner

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. Dma-1464X

Date received 6/4/51

Participation

Moises Mirabal
P. O. Box 576
Grants, New Mexico.

Name and address of applicant

Date May 28, 1951

FILL IN THIS BLOCK

Date of application May 18, 1951 (letter)

Estimated cost $25,000

Mineral or metal Uranium

Percentage of Government participation 90

Location of mine Sec. 4, Twnsp 12 N, Rge 9 E, Approx. 9 miles N. of Grants, N. M..

Date of filing MF-100 May 28, 1951

DMA Docket Number, if available

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation? Parnership

*2. If a partnership, state names and addresses of partners. Manuel & Silvestre Candelaria, 509 S. 3rd St. Albuquerque

*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.

*4. Describe the mining and general business experience of (a) the applicant, and (b) the person or persons who will manage the project. (a) & (b) same. 33 yrs. mining independently fluorspar & copper.

*5. Are you the owner or the lessee of the property? partner-owner

6. If owner, state what claims, liens, or encumbrances, if any, are against the property. None

7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.

9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)? No money available.

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property. 10 mining claims as previously described.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted. See 'Location of mine'

    NOTE.—If both areas are the same, so state. Same The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any. Big Bluff No's. 1-5 incl., Big Bluff No's 7-10 incl., Gay Eagle.

*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads. 9 miles from Grants and railroad. Country road barely passable.

*13. State source and quantity of water available for operations and its sufficiency at all seasons. State amount of power to be used, rate per hour or other cost, and source.

*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work. None

15. State in detail how the ore could be shipped and how and where milled. Shipped by truck to railhead at Grants for transport to existing AEC agents or to local mill or local stockpile.

*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties. none
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

*17. Production:
    (*a*) If mine is in production, furnish the following information: No

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
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(3) Shipped or sold				

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    (*a*) Describe the ore or mineral deposits briefly.
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19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions. Deposit easily recovered with proper mechanization after intelligent exploration program.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?

21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

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22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
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24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

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

Mirabal-Candelaria Partnership
(Name of company)

By Moises Mirabal
(Signature of authorized official)

May 28, 1951
(Date)

Partner
(Title)

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

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

SUPPLEMENTAL SHEET---APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACTØ OF 1950

Moises Mirabal
P. O. Box 576
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(a) and (b): Labor & Supervisory	$11,184
(c) None	
(d) Tool shed $600, Ramp $500, Machine shop $800, Bunkhouse $800	2,700
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(h) Sundrie small mining and maintenance tools, bunkhouse equipment, water tank, etc.	1,916
(i) Haul water (18 months)	300
Total	$25,000

Mirabal-Candalaria Partnership

Moises Mirabal May 28, 1951
Moises Mirabal, Partner

Form MF-103
(April 1951)

U. DEPARTMENT OF THE INTER R
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. Dma-1464X

Date received 6/4/51

Participation

Moises Mirabal
P. O. Box 576
Grants, New Mexico.

Name and address of applicant

Date May 28, 1951

FILL IN THIS BLOCK

Date of application May 18, 1951 (letter)

Estimated cost $25,000

Mineral or metal Uranium

Percentage of Government participation 90

Location of mine Sec. 4, Twnsp 12 N, Rge 9 E,
Approx. 9 miles N. of Grants, N. M..

Date of filing MF-100 May 28, 1951

DMA Docket Number, if available

INSTRUCTIONS

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*1. Is applicant an individual, partnership, or corporation? Parnership

*2. If a partnership, state names and addresses of partners. Manuel & Silvestre Candelaria, 509 S. 3rd St. Albuquerque N. M.

*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.

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16—64067-1

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CERTIFICATION

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Mirabal-Candalaria Partnership (Name of company)

By Moises Mirabal (Signature of authorized official)

May 28, 1951 (Date)

Partner (Title)

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

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

SUPPLEMENTAL SHEET---APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACTØ OF 1950

Moises Mirabal
P. O. Box 576
Grants, New Mexico.

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(f) None	
(g) None	
(h) Sundrie small mining and maintenance tools, bunkhouse equipment, water tank, etc.	1,916
(i) Haul water (18 months)	300
Total	$25,000

Mirabal-Candalaria Partnership

Moises Mirabal May 28, 1951
Moises Mirabal, Partner

Form MF-100
(March 1951)

U[redacted] DEPARTMENT OF THE INTER[redacted]
DEFENSE MINERALS ADMINISTRATION

Form approved.
Budget Bureau No. 42-R1026.

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

NOT TO BE FILLED IN BY APPLICANT

Docket No. Oma-1464 X

Date received 6/4/51

Moises Mirabal
Box 576
Grants, New Mexico

Name and address of applicant

Resubmit on form 103
Contact AEC geologist in Grants for assistance in
preparing and a program for
obtaining all work and
drilling as a step of Contract
Loans. No purchase of equipment.

Audio. claim maps

Date May 28, 1951

INSTRUCTIONS

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

GENERAL TECHNICAL DATA

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

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

   Indicate whether mine is flooded or not. Describe any pumping problems. Give size or productive capacity.
3. For each operation listed above supply the following:
   (*a*) Distance and direction from nearest town and shipping point. 9 miles
   (*b*) Mining district. newly created--may be named "Mt. Taylor" or "Haystack"
   (*c*) Township, Section, Range. 12 N, 4, 9E.
   (*d*) County, State. Valencia, New Mexico
4. (*a*) State whether or not property is now in operation, and if in operation, by whom operated.
   (*b*) Are you operating this property as:
   - ☐ Owner.
   - ☐ Lessee.
   - ☐ Contractor.
5. Number of years in production _____

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

   Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who manage the project.
7. History:
   (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for suspension of operation.
   (*b*) State briefly the known history and production of adjoining and neighboring properties.
   (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

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

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

If more lines are needed continue on separate sheet.

9. Capital Stock Issues:

For Corporate Applicants

Item	Authorized (a)	Outstanding (b)	Par Value (c)	Number of Shares Outstanding (d)	Dividend Rate Last Paid* (e)
Common stock	$	$	$		
Preferred stock	$	$	$		

*Indicate period covered.

10. Production: No production yet

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

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

12. Ore or Mineral Reserves:

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

(*b*) If deposit is other than pla

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

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

TOTAL ORE OR MINERAL RESERVES

Ore or Mineral Reserve	Estimated Tons (a)	Metal or Mineral Content Per Ton (Grade) (b)	Gross Value Per Ton (c)	Recoverable Unit Value Per Ton (d)	Estimated Cost of Production Per Ton (e)
Measured (proved)					
Indicated (probable)					

(*c*) If placer:

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

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

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

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

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

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

13. Access Roads:

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

14. Water Supply:

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

15. Power:

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

16. Labor: No labor yet employed

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

17. Equipment and Facilities:

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

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

CERTIFICATION

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

Mirabal-Candalaria Partnership
(Name of company)

By Moses Mirabal
(Signature of authorized official)

May 28, 1951
(Date)

Partner
(Title)

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

U. S. GOVERNMENT PRINTING OFFICE 16—63792-1

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

[illegible]

July [illegible], 1951

[illegible]

[illegible]

[illegible]

[illegible]

Your application dated [illegible] July 18, 1951 for [illegible] has been received by the Silver and Base Metals Branch, [illegible] Division.

After review of your application we find that it is [illegible] with [illegible] essential points as follows:

(a) You have failed to submit a claim map showing property lines and location of proposed drilling.

(b) [illegible] your proposed exploration [illegible] straight general basis

(c) [illegible] any equipment in performance of this work.

[illegible] for [illegible] the approval of this [illegible]

Very truly,

[illegible]
[illegible] Director
[illegible] Division

[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

FILE COPY
SURNAME:

Bourret

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

AIR MAIL

Dna 1464

July 2, 1951

Mr. Moises Mirabal
P. O. Box 576
Grants, New Mexico

Dear Mr. Mirabal:

Your application of May 28, 1951 for an exploration project in the amount of $25,000 has been received by the Minor and Rare Metals Branch, Supply Division.

After a preliminary review of the material submitted with your request we find that you have failed to submit a map showing the location of your various claims and the position of the proposed drill holes. Also I wish to advise that in the case of exploration drilling we prefer that all work be done on a contract basis in order to eliminate wherever possible the purchase of equipment in undertaking the work.

Please contact at your early convenience the AEC geologist at Grants, New Mexico, for assistance in laying out a type of program that will have the approval of the Atomic Energy Commission.

It should be understood by you that this letter in no way represents a committment on the part of DMA to enter into a formal contract at this time.

Yours very truly,

Tom Lyon

Tom Lyon, Director
Supply Division

WBourret/bf
cc: Adm. Reading File
Lyon
Hosted-Keiser
AEC geologist, Grants, New Mexico
Bourret
Field Team IV
Files

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

AIR MAIL

July 2, 1951

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P. O. Box 576
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Yours very truly,

Tom Lyon, Director
Supply Division

"Bourret/bf
cc: Adm. Reading File
Lyon
Hosted-Keiser
AEC geologist, Grants, New Mexico
Bourret
Field Team IV
Files

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

OCT 23 1951

Mr. Moises Mirabal
Box 576
Grants, New Mexico

re: Uranium
DMA-1h6ix

Dear Mr. Mirabal:

Reference is made to our letter of July 2, 1951 covering your application dated May 28, 1951 for exploration assistance in the sum of $25,000.

Inasmuch as we have had no reply from you regarding our request for information needed to permit further consideration of your application we wish to advise that unless we hear from you within sixty days we will consider your file closed and your application as withdrawn.

Very truly yours,

Weston Bourret

Weston Bourret, Chief
Minor and Rare Metals

EGordon/mh 10-22-51
cc: Adm. Read. File
DMA docket file
Minor and Rare Metals
Field team IV
Keiser, USGS
Hosted, USGS

Duplicates

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

224 New Customhouse

Denver 2, Colorado

Dup

February 19, 1952

Memorandum

To: Secretary to the Operating Committee, Defense Minerals Exploration Administration

From: Executive Officer, Field Team, Region IV

Subject: Report on Red Bluff Uranium Mine, Valencia County, New Mexico, Moises Mirabal, Applicant, Docket DMA 1464X.

Enclosed is a copy of a report pertaining to the above application by A. B. Woodward, Jr., Professional Engineer, which is in response to your letter to Moises Mirabal dated December 4, 1951.

W. H. KING

W. H. King, for
J. H. East, Jr.

Enclosure

JFS:ld

cc: Docket, chron.
Koschmann

FEB 20 1952

DEC 19 1951

Mr. Melvin Mirabal
P.O. Box 576
Grants, New Mexico

Re: Uranium Prospect
Grants, New Mexico
RMA Docket 14643

Dear Mr. Mirabal:

This will acknowledge receipt of your letter of December 10, 1951.

We shall be glad to resume review of your application when you remit the data you are compiling.

Sincerely yours,

SIGNED

Ernest Wm. Willis, Acting Chief
Rare and Misc. Metals Division

MEGordon:lm
12/18/51

cc: Admin. Reading File
Mails and Files Br.
C. O. Mittendorf
Mr. Keiser, USGS, 3204 GSA
Mr. Hosted, AEC, 3204 GSA
Field Team, Reg. IV
Docket
Ernest Wm. Willis
M. E. Gordon

Out

Mr. Meinos Mirabal
P.O. Box 576
Grants, New Mexico

Re: Uranium Prospect
Grants, New Mexico
DMA docket 14487

Dear Mr. Mirabal:

This will acknowledge receipt of your letter of December 10, 1951.

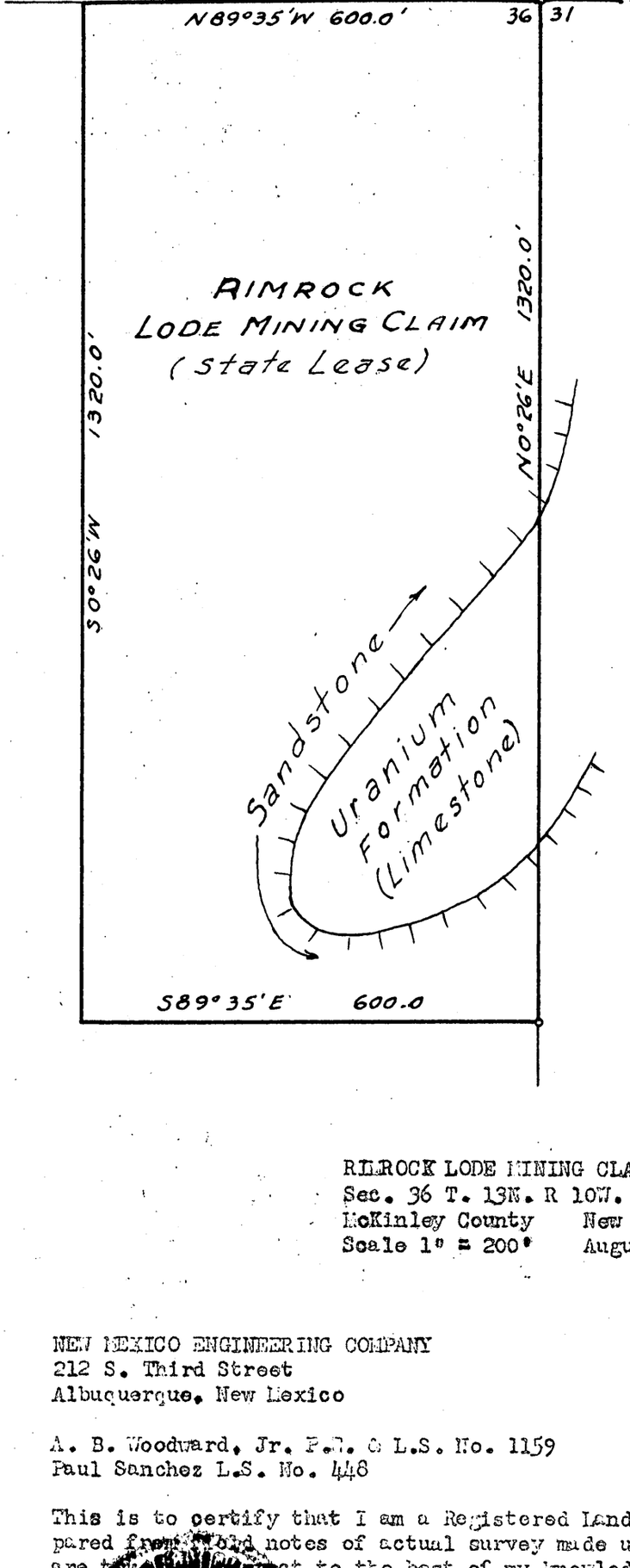
We shall be glad to resume review of your application when you remit the data you are compiling.

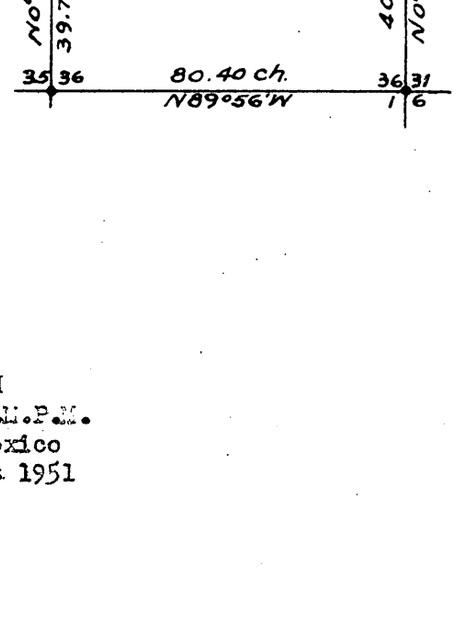
Sincerely yours,

Ernest Wm. Ellis, Acting Chief
Rare and Misc. Metals Division

EWGordon'lm
12/18/51

cc: Admn. Reading File
Mails and Files Br.
C. D. Mittendorf
Mr. Keiser, USGS, 3204 GSA
Mr. Rosted, AEC, 3204 GSA
Field Team, Reg. IV
Docket
Ernest Wm. Ellis
E. W. Gordon





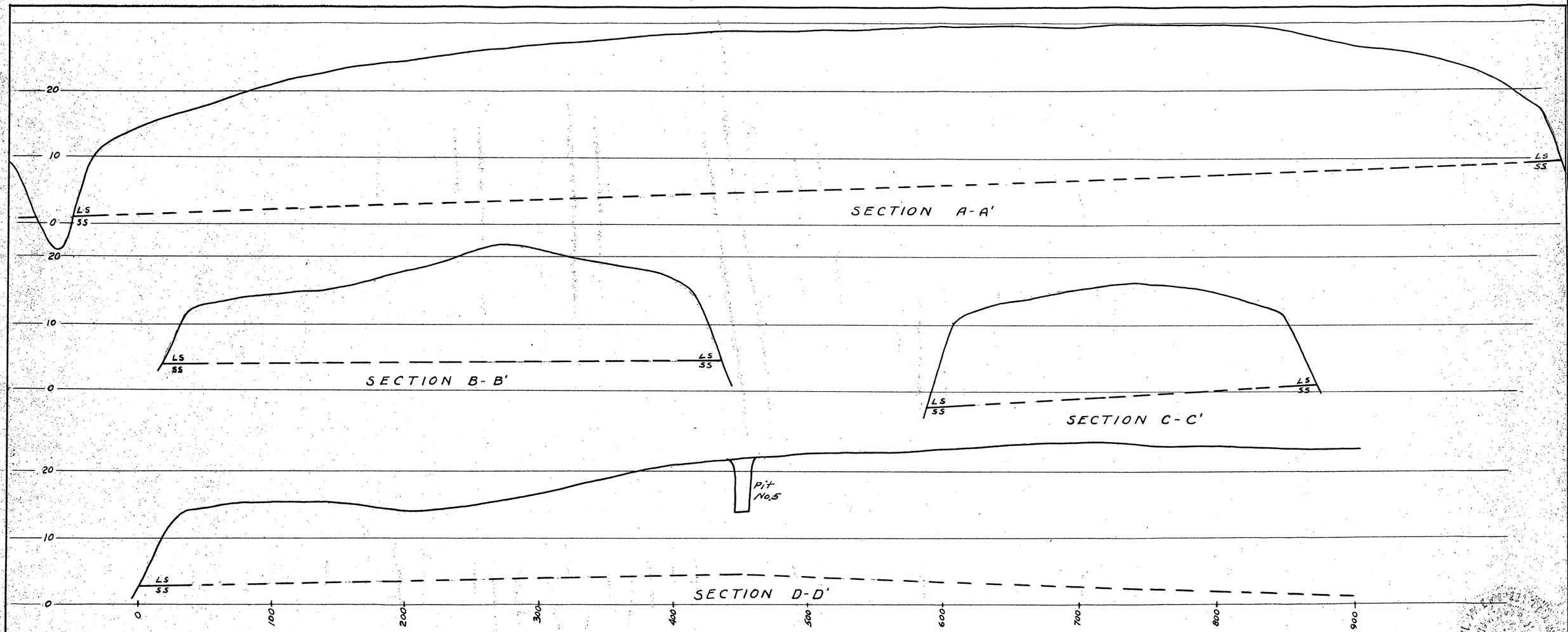
RIMROCK LODE MINING CLAIM
Sec. 36 T. 13N. R 10W. N.M.P.M.
McKinley County New Mexico
Scale 1" = 200' August 1951

NEW MEXICO ENGINEERING COMPANY
212 S. Third Street
Albuquerque, New Mexico

A. B. Woodward, Jr. P.E. & L.S. No. 1159
Paul Sanchez L.S. No. 448

This is to certify that I am a Registered Land Surveyor, that this map was prepared from field notes of actual survey made under my direction and that the same are true and correct to the best of my knowledge and belief.

A B Woodward Jr



RED BLUFF URANIUM MINE
VALENCIA COUNTY, NEW MEXICO

SECTIONS

Scales - H = 1" = 50' V = 1" = 10' Jan. 1952

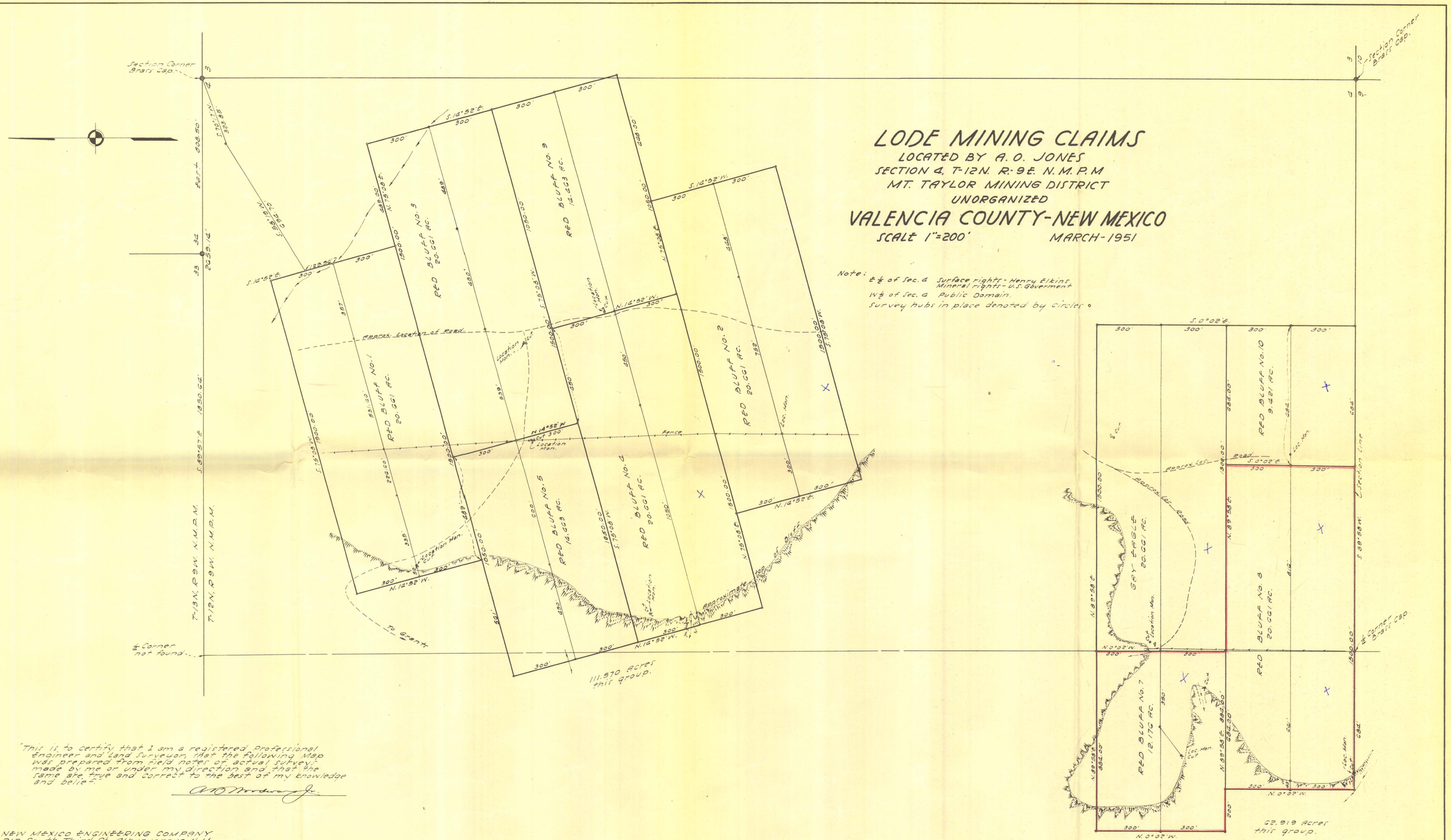
LODE MINING CLAIMS

LOCATED BY A. O. JONES
SECTION 4, T-12N. R-9E. N.M.P.M.
MT. TAYLOR MINING DISTRICT
UNORGANIZED

VALENCIA COUNTY-NEW MEXICO

SCALE 1"=200' MARCH-1951

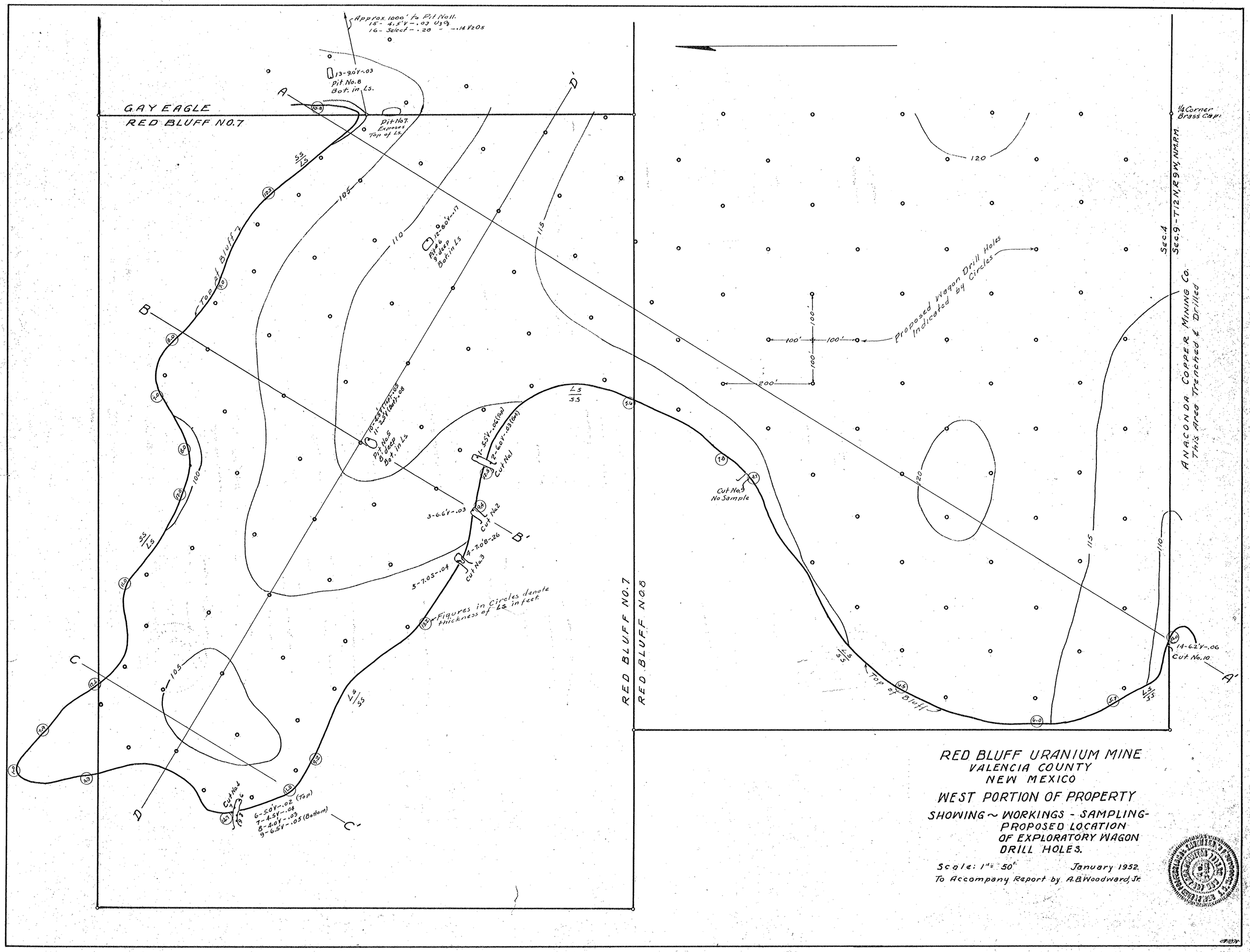
Note: E½ of Sec. 4 Surface rights - Henry Elkins
Mineral rights - U.S. Goverment
W½ of Sec. 4 Public Domain.
Survey hubs in place denoted by circles.



"This is to certify that I am a registered professional engineer and land surveyor, that the following Map was prepared from field notes of actual survey made by me or under my direction and that the same are true and correct to the best of my knowledge and belief."

A. O. Woodward Jr.

NEW MEXICO ENGINEERING COMPANY
218 South Third St. Albuquerque, N.M.
A. O. Woodward Jr. P.E. & L.S. No. 1159
P.H. Sanchez, L.S. No. 228



RED BLUFF URANIUM MINE
VALENCIA COUNTY
NEW MEXICO

WEST PORTION OF PROPERTY

SHOWING ~ WORKINGS - SAMPLING-
PROPOSED LOCATION
OF EXPLORATORY WAGON
DRILL HOLES.

Scale: 1" = 50' January 1952.

To Accompany Report by A.B. Woodward, Jr.