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

224 New Customhouse
Denver 2, Colorado

April 8, 1954.

Mr. Ira N. Sprecher
306 South Second Street
Gallup, New Mexico

Re: Docket No. DMEA-3226

Dear Mr. Sprecher:

Consideration has been given your letter of March 10, 1954 and the report of Silas C. Brown.

Our understanding of the situation is not materially changed and we are, therefore, closing this docket.

We thank you for calling this area to our attention and should any future work on your property disclose favorable information you may submit another application.

Very truly yours,

W H King

W. H. King
DMEA Field Team
Region IV

A. H. Koschmann

A. H. Koschmann
DMEA Field Team
Region IV

HMC:cwm

cc: Docket
Administrator, DMEA, w/copy of Report
RPFischer " " "
WMTraver " " "
AHKoschmann " " "
Chron.

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. BOX 360
GRAND JUNCTION, COLO.

March 31, 1954

Memorandum

To: W. H. King, DMEA Field Team, Region IV

From: H. S. Johnson, Jr.,

Through: R. P. Fischer

G.H. Koschmann
RPF

Subject: Docket No. DMEA 3226 (Uranium), Ira N. Sprecher, Rainbow claims, McKinley County, New Mexico

I have received and examined the copies of the applicant's letter of March 10, and the report by Silas C. Brown. I do not think this additional information changes our understanding of the situation enough to warrant reopening the docket.

Mr. Brown's report essentially agrees with the geologic report submitted by us on February 24, the principal difference being in whether or not the weak radioactivity near the base of the Dakota formation is significant. It was my observation in the Grants District that the carbonaceous shales near the base of the Dakota are weakly radioactive almost everywhere. However, to date, the only ore occurrences known in the Dakota in this district appear to be in places where there are broad, shallow channels near the base of the formation. These places can usually be recognized by thicker lenses of fluvial sandstone and by the thickening of a unit which is composed of an intimate mixture of fine-grained sandstone and thin seams of sooty carbon. These favorable channel-type sediments frequently attain a thickness of 50 feet or more. In my examination of the Sprecher property in sec. 36, I did not recognize any evidence of favorable conditions such as these.

It is interesting to note in Mr. Sprecher's letter of March 10, that an anomaly has been discovered in sec. 31 just east of his property. At the time of my visit, I pointed out to members of Sprecher's group that the Dakota exposed along the rim in sec.31 appeared to be much more favorable for uranium than that in sec. 36. A glance at figure 1 accompanying my geologic report will show that this area in sec. 31 was considered by Arthur Mirsky (AEC) to be a channel and was so mapped by him.

In summary, I do not feel that the Dakota formation on Mr. Sprecher's property is composed of channel-type sediments such as those which have been found to contain significant deposits elsewhere in the district. Mr. Brown's report is not thought to change materially our understanding of the situation. It is, therefore, recommended that the docket not be reopened.

H. S. Johnson

HSJ/mlr

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
March 24, 1954

Memorandum

To: Executive Officer, DMEA Field Team, Region IV

From: Chief, Mineral Resources Branch, Mining Division, Region IV

Subject: DMEA 3226 (Uranium), Ira E. Sprecher, Trustee, (Black Rainbow claims), McKinley County, New Mexico

Enclosed are the original and ten copies of a memorandum by Russell R. McLellan, supplementing the final engineering report transmitted to you March 2, 1954.

The applicant requested, by letter of March 10, 1954, a review of his loan request on the basis of a report prepared for him by a consultant, Silas C. Brown.

In McLellan's opinion the report in no way alters his original conclusions and recommendations, mainly because the consultant's reconnaissance and report assume there is a possibility of a uranium occurrence on the applicant's leased ground by analogy with showings on property in adjoining Section 31.

In view of the above opinion, there is apparently no occasion to reopen the docket.

W. M. TRAVER,

W. M. Traver

enclosure

WMT/kp

cc: 10
DMEA 3226
Chron

RFFischer

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 80, Room 137
Denver Federal Center
Denver 14, Colorado
March 25, 1954

Memorandum

To: Chief, Mineral Resources Branch, Mining Division, Region IV

From: Russell E. McLellan

Subject: NMA 3885 (Uranium), Ira H. Sprecher, Trustee, (Black Rainbow claims), McKinley County, New Mexico

A review of Sprecher's letter of March 10, 1954, and of Silas C. Brown's report concerning the applicant's property failed to add materially to the information obtained during the field examination. In short, the extensive black shale bed at the base of the Dakota formation is slightly radioactive and may contain ore deposits in structurally favorable areas as indicated at the Ryde mine in an adjoining section; however, as nearly as can be determined, there is no structure on the Black Rainbow claims that resembles the apparent shmmeling encountered at the Ryde mine. The few locations where slightly higher radioactivity was noted have not been explored to any extent by the applicant. A few hundred dollars worth of bulldozer or hand trenching would be sufficient to determine the true merit of these limited exposures. The cost of such preliminary work can and should be financed by Sprecher.

During the field examination the Defense Minerals Exploration Administration representatives noted a definite thickening of the black shale, possibly a channel, in a cliff exposure well within the

the adjoining section to the east. Sprecher's attention was called to this occurrence and it was suggested that he investigate it. There is a slight possibility that the anomaly mentioned in Sprecher's letter is the result of uranium deposition within the above described structure. However, discovery of uranium ore on Section 31 will be of little or value to Sprecher unless a channel or mineralized zone trends west and crosses the line into Section 36.

In writer's opinion, Brown's report and the discovery of an anomaly in the section adjoining Sprecher's lease does not alter the conclusions and recommendations as presented in the geological and engineering reports. Additional exploration by the applicant in Section 31 may disclose favorable information; however, at this date sufficient evidence of ore in the black shale on the two leases to warrant the expenditure of Government funds for [illegible].

Russell R. McLellan
Russell R. McLellan
Mining Engineer

DMEA 3286
Karen

RFFischer

the adjoining section to the east. Sprecher's attention was called to this occurrence and it was suggested that he investigate it. There is a slight possibility that the anomaly mentioned in Sprecher's letter is the result of uranium deposition within the above described structure. However, discovery of uranium ore on Section 31 will be of little or no value to Sprecher unless a channel or mineralized zone trends westward and crosses the line into Section 36.

In the writer's opinion, Brown's report and the discovery of an anomaly in the section adjoining Sprecher's lease does not alter the conclusions and recommendations as presented in the geological and engineering reports. Additional exploration by the applicant in Section 36 may disclose favorable information; however, at this date there is insufficient evidence of ore in the black shale on the applicant's leases to warrant the expenditure of Government funds for exploration.

Russell R. McLellan
Russell R. McLellan
Mining Engineer

RRM/kp

cc - 10
DMRA 3226
Chron

RPFischer

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

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

DATE: March 24, 1954

Defense Minerals Administration
RECEIVED
MAR 26 1954

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

SUBJECT: Final Field Team Report, DMEA Docket 3226 (Uranium), Ira N. Sprecher, Applicant, Gallup, N. Mex.; Black Rainbow Claims, Sec. 36, T. 16 N., R. 18 W., McKinley County, New Mexico.

The Field Team of Region IV denied application for Government assistance to explore the property identified in the subject above.

Examination of the property indicated that the Morrison formation on the property is unfavorable for the occurrence of uranium ore, that beds of carbonaceous-shale in the Dakota contain too little uranium, 0.04 percent U_3O_8 maximum, and that there is no evidence that thicker and richer carbonaceous-shale is likely to be found on the property. The examiners recommended denial of the application and report that W. A. Carlson, geologist-in-charge of the Grants sub office, U. S. Atomic Energy Commission, agreed with their conclusions.

I concur with the conclusions of the Field Team and with its action in denying the application.

Arthur P. Butler, Jr.

Copies to: E. Wm. Ellis (2)

Defense Minerals Administration
RECEIVED
MAR 26 1954

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

March 24, 1954

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

Final Field Team Report, DMEA Docket 3226 (Uranium), Ira N. Sprecher, Applicant, Gallup, N. Mex.; Black Rainbow Claims, Sec. 36, T. 16 N., R. 18 W., McKinley County, New Mexico.

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I concur with the conclusions of the Field Team and with its action in denying the application.

Copies to: E. Wm. Ellis (2)

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

Defense Minerals Administration
RECEIVED
MAR 16 1954

March 16, 1954

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee, Room 4640

From: H. D. Keiser, Bureau of Mines Member
Uranium Commodity Committee

Subject: Report of Examination, DMEA Docket 3226, Ira N. Sprecher, Black Rainbow Claims, McKinley County, New Mexico

I have reviewed the subject report of the Field Team and have discussed it with Joseph O. Hosted, representative of the Atomic Energy Commission.

It is recommended that denial by the Field Team of the application involved be approved.

The report has been forwarded to the Chief, Minerals Division, Bureau of Mines, in accord with the routing slip attached thereto.

H. D. Keiser

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

Defense Minerals Administration
RECEIVED
1 8 1954

March 16, 1954

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee, Room 4640

From: H. D. Keiser, Bureau of Mines Member
Uranium Commodity Committee

Subject: Report of Examination, DMEA Docket 3226, Ira N. Sprecher, Black Rainbow Claims, McKinley County, New Mexico

I have reviewed the subject report of the Field Team and have discussed it with Joseph O. Hosted, representative of the Atomic Energy Commission.

It is recommended that denial by the Field Team of the application involved be approved.

The report has been forwarded to the Chief, Minerals Division, Bureau of Mines, in accord with the routing slip attached thereto.

Signed

H. D. Keiser

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

DEPARTMENT OF THE INTERIOR
Minerals Administration
RECEIVED
10 1954

224 New Customhouse
Denver 2, Colorado

March 8, 1954.

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Field Team, Region IV

Subject: Report of Examination - Docket DMEA-3226 (Uranium), Ira N. Sprecher, Black Rainbow Claims, McKinley County, New Mexico.

Enclosed are four copies of the report of examination on the subject docket, 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

Reviewed by
DMEA OPERATING COMMITTEE
3-15-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

March 8, 1954.

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Report of Examination - DMEA Docket 3226 (Uranium), Ira N. Sprecher, Rainbow Group, McKinley County, New Mexico.

Enclosed are eleven copies of the engineering report on the subject docket.

The applicant requested $4,040.00 for 200 hours of bulldozer work and 2400 feet of rotary drilling.

The engineer examiner concludes that there is little or no evidence that mineable material can be obtained at the surface or that higher grade ore will be encountered at depth by drilling. He recommends that the application be denied and we concur in this recommendation.

W H King
W. H. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
3-15-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
March 2, 1954

Memorandum

To: Executive Officer, DMEA Field Team, Region IV

From: Chief, Mineral Resources Branch, Mining Division, Region IV

Subject: DMEA 3286 (Uranium) Black Rainbow claims, Ira N. Sprecher, Trustee, McKinley County, New Mexico

Enclosed are the original and ten copies of the "Summary, Conclusions, and Recommendations" by E. S. Johnson, Geological Survey, and R. R. McLellan, Bureau of Mines, and of McLellan's engineering report on the above docket.

McLellan concludes the possibility of making a significant discovery on the applicant's property is poor, in spite of the fact that the shale bed shows slight radioactivity. He discerned no channeling or thickening of the shale which probably was responsible for the low-grade deposits at the adjoining Hogback No. 4 mine where the average grade ore mined was only 0.18 percent U_3O_8. He considers it very unlikely that sufficient ore would be discovered by any type of exploration to repay the Government loan, nor would the grade or quantity be sufficient to support any but the lowest cost mining operation. Moreover, the applicant and his associates should be able financially to do the small amount of work requested, and he recommends denial of the application.

I approve the conclusions and recommendations.

The brochure forwarded to this office by the Chief, Mining Methods Branch, Mining Division, Region IV, on January 18, 1954, is also enclosed.

W. M. Trever

W. M. Trever

enclosures

WMT/kp

cc 10
DMEA 3286
Chron

Reviewed by
DMEA OPERATING COMMITTEE
3-15-54
(date)

IN REPLY REFER TO:

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

February 26, 1954

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 3226, Ira H. Sprecher lease, McKinley County, New Mexico

Enclosed are 11 copies of a geologic report by H. S. Johnson, Jr., of the U. S. Geological Survey covering the above docket.

It has been recommended that the application be denied.

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

Enclosures (11)

Reviewed by
DMEA OPERATING COMMITTEE
3-15-54
(date)

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. BOX 360
GRAND JUNCTION, COLORADO

February 24, 1954

Memorandum

To: A. H. Koschmann, DMEA Field Team
Region IV

From: R. P. Fischer, Supervisor
Colorado Plateau District

Subject: DMEA 3226, Ira N. Sprecher lease, McKinley County, New Mexico

Transmitted herewith are eleven copies of a geologic report on the Ira N. Sprecher lease, sec. 36, T. 16 N., R. 18 W., McKinley County, N.Mex. Assistance was requested in exploring for uranium deposits. The proposed work consists of rim-stripping and drilling and is estimated to cost $4,040.

The attached report was prepared by H. S. Johnson, Jr., and is based on a joint field examination on February 3, 1954, in company with R. R. McLellan, USBM; W. A. Carlson, AEC; and the applicant.

On the basis of the distribution and habits of the known deposits in the area, the outcrop examination, and tests for radioactivity, it is concluded that the exploration applied for has little chance of yielding significant reserves of uranium ore. It is, therefore, recommended that the application be denied. Mr. Carlson of AEC is in agreement with these conclusions and the recommendation, and I also concur.

R P Fischer

R. P. Fischer

Enclosures 11

RPF/mlr

Reviewed by
DMEA OPERATING COMMITTEE
3-15-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 3226, Black Rainbow Claims

Ira M. Sprecher

McKinley County, New Mexico

Uranium

H. S. Johnson, Geologist
Geological Survey

R. R. McLellan, Mining Engineer
Bureau of Mines

February 18, 1954

Reviewed by
DMEA OPERATING COMMITTEE
3-15-54
(date)

DMEA 3226

BLACK RAINBOW CLAIMS
IRA N. SPERCHER
McKINLEY COUNTY, NEW MEXICO

Summary, Conclusions, and Recommendations

By E. S. Johnson
Geologist
Geological Survey
and
R. R. McLellan
Mining Engineer
Bureau of Mines

Reviewed by
DMEA OPERATING COMMITTEE

3-15-54
(date)

DMEA 3886

BLACK RAINBOW CLAIMS
IRA N. SPRECHER
McKINLEY COUNTY, NEW MEXICO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By H. S. Johnson and R. R. McLellan

In December of 1953, Ira N. Sprecher of Gallup, N. Mex., applied to the Defense Minerals Exploration Administration for assistance to explore for uranium on the Black Rainbow claims, sec. 36, T. 16 N., R. 18 W., New Mexico principal meridian, McKinley County, N. Mex. The applicant proposed testing portions of the Morrison and Dakota formations by bulldozer stripping and by drilling from approximately 12 sites which are to be determined by the results of the stripping. The applicant estimated the cost of the bulldozer stripping as $2,000.00 and the cost of drilling as $2,040.00 or a total expenditure of $4,040.00. Government participation would be 75 percent or $3,030.00.

The property was visited on February 3, 1954, by a Defense Minerals Exploration Administration examining team accompanied by the applicant. It was concluded that the claims do not show sufficient evidence of containing ore to justify the expenditure of Government funds for a program of exploration.

The area proposed for exploration is at the northwest end of the Zuni uplift. Here the Morrison formation is represented by the Recapture shale and Westwater Canyon members. The Recapture shale is about 200 feet thick and is composed primarily of fine to very fine sandstone with

occasional thin layers of green to reddish colored mudstone. Overlying the Recapture shale is the Westwater Canyon sandstone. This unit is about 250 feet thick and composed of medium to coarse, light brown to buff sandstone with thin, discontinuous lenses of green mudstone. The Westwater Canyon sandstone is not considered favorable for uranium deposits in this area because of its massive, uniform character and lack of sizeable mudstone lenses. Neither the Recapture nor the Westwater member is known to be mineralized in this part of the Ambrosia uplift.

The Dakota sandstone overlies the Morrison formation and is about 100 feet thick in this area. The basal 30 feet or so is composed of medium- to coarse-grained lenticular sandstones with interbedded carbonaceous shale units up to 15 feet thick. Above these, the Dakota is composed largely of gray shale and siltstone. Carbonaceous shales in the lower part of the Dakota are often weakly radioactive; and at the Hogback No. 4 mine, about 1.5 miles south of the area in question, one of these shale units has produced nearly 1,000 tons of ore assaying about 0.16 percent U_3O_8. However, in the area covered by this application, surface exposures do not appear favorable for the presence of an ore-grade deposit of the Hogback No. 4 type.

The applicant failed to submit detailed maps or a specific plan for exploration. Undoubtedly, the cost of drilling would be in excess of his estimate because angle holes would be favored, and it is doubtful that the rotary drill proposed for the job would drill such holes. If radiometric logging is not feasible in angle holes, it probably would be desirable to case the holes in order to obtain the best possible

recovery of cuttings for radiometric logging and chemical assay. Diamond drilling at a considerably higher cost probably would be more satisfactory providing a fair recovery of core could be obtained in the shale.

It is concluded that the claims do not show sufficient merit to justify the cost of an adequate program of exploration. The application is recommended for denial.

UNITED STATES DEPARTMENT OF THE INTERIOR

DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORTS OF EXAMINATION BY FIELD TEAM REGION IV

DMEA DOCKET 3226, Ira N. Sprecher, all of Sec.36, T. 16 N., R. 18 W, McKinley County, New Mexico

Uranium

Geologic Report

H. S. Johnson, Jr., Geologist

U. S. Geological Survey

February 24, 1954

Reviewed by
DMEA OPERATING COMMITTEE
3-15-54
(date)

DMEA 3226

IRA N. SPRECHER, ALL OF SEC. 36, T. 16 N., R. 18 W.
McKINLEY COUNTY, NEW MEXICO

INTRODUCTION AND SUMMARY

In December 1953, application (DMEA 3226) was made by Ira N. Sprecher of 306 South Second Street, Gallup, N. Mex. for Government assistance to explore for uranium on sec. 36, T. 16 N., R. 18 W., McKinley County, N. Mex. Section 36 is about 3 miles northeast of Gallup (fig. 1). A dirt road provides access to a point on its southern boundary, but there are no roads within the section itself. In October 1953, Mr. Sprecher obtained from the State of New Mexico a mining lease covering all of the section.

On February 3, 1954, the property was examined by R. R. McLellan of the Bureau of Mines and H. S. Johnson, Jr. of the Geological Survey, accompanied by W. A. Carlson, geologist in charge of the Grants district office of the Atomic Energy Commission. The applicant, Mr. Ira N. Sprecher, was also present during the examination.

To date there have been no mining or systematic prospecting operations on the property. The applicant has prospected the surface with Geiger and scintillation counters and has dug several shallow prospect holes, but no appreciable mineralization has been found. The applicant has had no previous mining or prospecting experience, and he has not presented a detailed program of exploration. He proposes to do 200 hours of bulldozer work to expose shales in the lower part of the Dakota formation, and he also proposes twelve 200-foot deep rotary drill holes to test parts of the Dakota and Morrison formations. The total cost of the project is estimated to be $4,040, of which the Government's part would be $3,030.

After examining the property, R. R. McLellan and the writer are in agreement that there is little chance that an economic uranium deposit would be discovered in the area that the applicant proposes to explore. The part of the Morrison formation which the applicant wishes to test by drilling consists of the 200-300 foot thick Westwater Canyon member. It is a massive, uniform, and continuous sandstone unit, and it does not appear favorable for uranium deposits. The Dakota sandstone in sec. 36 does contain thin beds of uranium bearing carbonaceous shale in the lower part. However, this shale is estimated to carry only 0.02 to 0.04 percent eU_3O_8 in the area examined, and there is no apparent reason to expect that better grade material would be found.

Because the geology of the area examined is not considered favorable for an economic uranium deposit, it is recommended that the application be denied.

GEOLOGIC SETTING

Section 36 is at the northwest end of the Zuni uplift. Exposed within the section are the Recapture shale and Westwater Canyon members of the Morrison formation, the Dakota sandstone, the Mancos shale, and the Mesa Verde formation. These beds strike approximately N, with a 30°-60° westerly dip in the south-central part of sec. 36, but they flatten abruptly to the north and east. In the northeast quarter of the section, the strike is nearly due east with a gentle northerly dip. The Dakota sandstone makes a strong north-trending hogback in the south-central portion of the section and forms a thin cap overlying the cliff-forming Westwater Canyon sandstone in the northeast portion of the section.

In sec. 36, the Recapture shale is about 200 feet thick and is composed primarily of fine to very fine sandstone with occasional thin layers of green to reddish colored mudstone. Above the Recapture shale is the Westwater Canyon sandstone. This unit is about 250 feet thick and is composed of medium to coarse, light brown to buff sandstone with thin, discontinuous lenses of green mudstone. Above this, the Dakota sandstone is about 100 feet thick. The basal 30 feet or so is composed of medium to coarse grained lenticular sandstones with interbedded carbonaceous shale units up to 15 feet thick. The upper part of the Dakota formation here is composed largely of gray shale and siltstone. Above the Dakota is a considerable thickness of Mancos shale and the Mesa Verde formation.

ORE DEPOSITS

In the Grants District, uranium deposits have been found in the Todilto limestone, the Morrision formation, and the Dakota sandstone. The Todilto is not exposed in sec. 36 and is too deeply buried to be reached with shallow drilling. The Morrison formation is not known to contain ore deposits in this part of the Zuni uplift, and where it is exposed in sec. 36, it does not appear favorable for them. The thin, discontinuous lenses of green mudstone in the Westwater Canyon member are commonly weakly mineralized and are estimated to contain 0.02 to 0.04 percent eU_3O_8 in places, but these lenses are usually less than 2 feet thick and 100-200 feet long. It is possible that one or more of them may contain significant mineralization where they are a little thicker and more continuous. However, in the area that the applicant proposes to explore, there is not enough of this mudstone to suggest that ore deposits may occur.

The Dakota sandstone in sec. 36 has several black carbonaceous shale beds up to 5 feet thick in the basal 30 feet or so of the formation. These shales are uniformly radioactive and are estimated by the writer to contain about 0.02 to 0.04 percent eU_3O_8. About 1.5 miles south of sec. 36, the Hogback No. 4 mine has produced nearly 1,000 tons of ore, averaging 0.18 percent uranium, from a black carbonaceous shale near the base of the Dakota. The shale at this point is about 15 feet thick and is reported to be related to a thick sandstone lens immediately below. These thicker sandstone and black shale lenses have been interpreted as stream channels by AEC geologists _/, and the better mineralization seems to be associated with them. Surface

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_/ Mirsky, Arthur, 1953, Preliminary report on uranium mineralization in the Dakota sandstone Zuni uplift, New Mexico: U. S. Atomic Energy Commission, RME-47.

---

exposures in sec. 36 do not indicate the present of deposits of the Hogback No. 4 type.

PROPOSED EXPLORATION

The applicant proposes to use a bulldozer to strip the carbonaceous shale outcrops in the basal 30 feet or so of the Dakota sandstone where it outcrops along the hogback in the central part of sec. 36. He also proposes drilling twelve 200-feet deep rotary drill holes through the Dakota and into the Morrison formation. No large scale base map is available for planning use, and no definite hole locations have been decided. During the field examination, Mr. Sprecher indicated that he would like to drill in the Mancos shale as well as the Dakota and Morrison formations if the DMEA would allow him to do so. He expects the whole project to cost about $4,040 of which the Government's part would be $3,030.

Along the hogback where the applicant proposes to drill, the beds are dipping west from 25° to about 50°. Holes placed so as to be normal to the beds would be most desirable, but it is doubtful that angle holes such as these could be drilled with the equipment which the applicant plans to use. No provision was made in the application for collecting samples or for assaying them. If any drilling should be done, radiometric logs of the holes would be highly desirable to supplement other sample data.

CONCLUSIONS AND RECOMMENDATIONS

As a result of our examination of the ground which the applicant proposes to explore, R. R. McLellan and the writer are in agreement that there is very little chance that an economic mineral deposit would be found. The Westwater Canyon sandstone is not considered favorable in this area because of its massive, uniform character and lack of sizable mudstone lenses. Although the Dakota sandstone does contain weakly radioactive carbonaceous shales, the surface exposures do not indicate the presence of an ore-grade deposit of the Hogback No. 4 type. Even if such a deposit should be found, it could not be expected to produce enough ore to repay the Government's part of the exploration expense. At best, a deposit of this type might produce about 1,000 tons of ore at about $30.00 per ton (0.2 percent U_3O_8) before mining expenses became too great because of increasing overburden. At a royalty of 5 percent, this would result in the repayment of only $1,500 of the Government's investment.

In view of the considerations presented above, it is recommended that the application be denied.

W. A. Carlson, geologist in charge of the Grants District for the Atomic Energy Commission, concurs with the conclusions and recommendations given above. _/

W. A. Carlson, oral communication

DMEA 3226

BLACK RAINBOW CLAIMS
IRA N. SPRECHER
McKINLEY COUNTY, NEW MEXICO

Engineering Report

By H. R. McLellan
Mining Engineer
Bureau of Mines

Reviewed by
DMEA OPERATING COMMITTEE

3-15-54
(date)

DGMA 3226

BLACK RAINBOW CLAIMS
IRA N. SPRECHER
McKINLEY COUNTY, NEW MEXICO

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ILLUSTRATIONS

Figure	Follows page
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2. Generalized Geologic Map, Church Rock Area, McKinley County, New Mexico	*

*See figure 1 with geologic report.

DMEA 3226

BLACK RAINBOW CLAIMS
IRA N. SPRECHER
McKINLEY COUNTY, NEW MEXICO

ENGINEERING REPORT

By

R. R. McLellan

INTRODUCTION

Ira N. Sprecher of Gallup, N. Mex., acting as trustee for a group of 24 persons, applied December 23, 1953, to the Defense Minerals Exploration Administration for assistance to explore for uranium on the Black Rainbow claims in McKinley County, N. Mex. The applicant proposed to utilize about 200 hours of bulldozer work to construct roads and strip overburden from a black shale bed containing traces of uranium mineralization. In addition he proposed to rotary drill about 2,400 feet of holes to investigate the exposed black shale at depth. Some of the holes were planned to test both the Dakota sandstone and the underlying Morrison formation. The total cost of the program was estimated as $4,040.00, Government participation 75 percent or $3,030.00.

The property was inspected on February 3, 1954, by a Region IV Defense Minerals Exploration Administration examining team accompanied by the applicant. It was concluded that indications of uranium mineralization on the claims are insufficient to warrant expenditure of Government funds for exploration. It was further concluded that the applicant and his associates are financially able to embark upon a

Reviewed by
DMEA OPERATING COMMITTEE
3-15-54
(date)

small program of exploration without assistance from the Government. It is recommended that the application be denied.

ACKNOWLEDGMENTS

The inspecting team received full cooperation from the applicant, Ira N. Sprecher, who devoted considerable time and effort towards making the examination as complete as possible.

LOCATION, TOPOGRAPHIC AND PHYSICAL FEATURES

The Black Rainbow claims Nos. 1 through 36 cover all of sec. 36, T. 16 N., R. 18 W., New Mexico principal meridian, McKinley County, N. Mex. (fig. 1). Section 36 is 4 miles by road northeast of Gallup, N. Mex. and is traversed from south to north by steeply dipping beds which form prominent hogbacks (fig. 1 with the geologic report). The uranium-bearing black shale crops out along the hogbacks at the base of the Dakota sandstone. The shale outcrop at and extending about 500 feet beyond the south section line is accessible by car. The remaining portion of the shale outcrop to the north is inaccessible except on foot.

The claims are within commuting distance of Gallup where equipment, supplies, and water can be obtained. Electricity, timber, or water are not available on the claims. Labor and housing are available at Gallup. The area is semiarid and is suitable for year around surface operations. Milling facilities are available at Monticello, Utah, 220 miles away, or at Durango, Colo., 207 miles away.

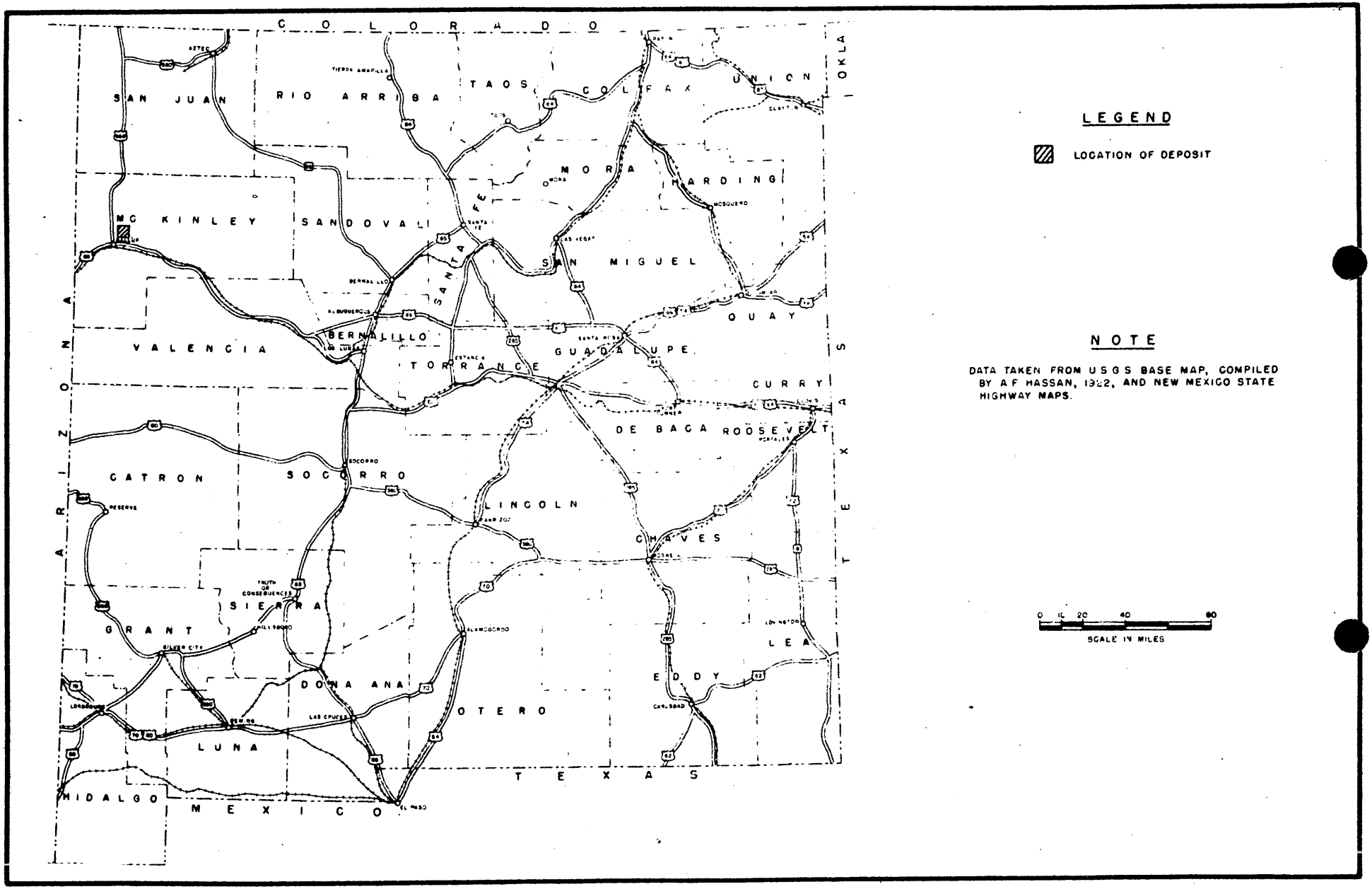


Fig. 1 - Location map, Black Widow claims, Mr. N. Sprecher, McKinley County, New Mexico, NMA 3826

HISTORY AND PRODUCTION

Sprecher became interested in section 36 after production commenced from the Hogback No. 4 mine in the adjoining section to the south. On October 1, 1953, the state of New Mexico leased section 36 to Sprecher who divided it into the 36 Black Rainbow mining claims. The applicant prospected the claims with a Geiger counter, dug a few very shallow pits in the black shale, and cut a few samples, none of which contained in excess of 0.04 percent U_3O_8. On the basis of the discovery in the adjoining section and the traces of uranium in section 36, Sprecher applied for assistance from the Defense Minerals Exploration Administration.

No production has come from the Black Rainbow claims. Approximately 1,000 tons of ore containing an average of 0.18 percent U_3O_8 has been produced from the Hogback No. 4 mine in the adjoining section; however, since most of the easily removed surface ore has been shipped, the mine is no longer able to produce at a profit, and operations have ceased.

OWNERSHIP

Section 36 of T. 16 N., R. 18 W., McKinley County, N. Mex., is owned by the state and is leased to Ira W. Sprecher who subdivided the entire section into the 36 Black Rainbow mining claims as listed in his application.

DESCRIPTION OF THE DEPOSITS

The only ore deposit thus far discovered in the black shale was developed by the Hogback No. 4 mine. At that mine the shale bed dips approximately 40 degrees to the west and stripping has indicated a

thickness of about 15 feet which is considerably greater than the average thickness encountered in the black shale on section 36. The deposit at the Hogback No. 4 mine possibly is in a channel represented by the pronounced thickening of the shale over a strike distance of several hundred feet. It was noted that the highest count of radioactivity, up to 0.3 percent U_3O_8, was in the basal 1 or 2 feet of the shale. Most of the ore undoubtedly was obtained from this zone. The outcrop of black shale in section 36 (fig. 1 with the geologic report) was walked and checked for radioactivity by the examining team. Scintillator readings closely checked the applicant's assay data by indicating grades ranging from a trace to 0.04 percent U_3O_8. No material was encountered along the outcrop that approached ore grade. As far as could be determined, no channel or sudden thickening of the shale was present in the area proposed for exploration.

MINEABLE ORE RESERVES

As no ore has been discovered on the Black Rainbow claims, no estimate of mineable ore reserve is possible.

PRESENT STATUS

Exploration and Development

Exploration and development to date consists of scintillator and Geiger counter examinations of the various sandstone and shale beds exposed on the claims. In addition, several pits averaging about 1 foot in depth have been dug along the black shale outcrop. None of the pits extended below the soft weathered zone.

Mining and Milling Equipment and Other Facilities

There is no mining or milling equipment or other facilities of any type on the property.

PROJECT PROPOSALS WITH COSTS

Commencing in the black shale at the south section line, the applicant proposed to conduct a combined stripping and road building program northward to approximately the east-west quarter line where faulting is evident. By stripping 7 or 8 feet of the weathered shale from the outcrop, he hopes to encounter ore or favorable areas in which a total of 2,400 feet of holes (rotary drilling) can be drilled to test the formations at depth. The drilling proposal includes exploration into the underlying Morrison formation which in this area contains a thin, discontinuous clay bed that exhibits slight radioactivity.

Sprecher estimates that 200 hours of bulldozer work at $10.00 per hour for a total of $2,000.00 will be sufficient to complete the stripping and road work. A total of 2,400 feet of rotary drilling at a price of $0.60 per foot for the first 100 feet and $1.10 per foot for the second 100 feet is estimated to cost $2,040.00. The total cost of the project is estimated to be $4,040.00, Government participation 75 percent or $3,030.00.

The applicant failed to consider the fact that angle holes would be preferable to vertical holes in exploring the steeply dipping beds, and that the rotary drills commonly employed in the area cannot drill angle holes. In the event that radiometric logging could not be

accomplished in the angle holes, the added expense of casing would be necessary to assure the recovery of a maximum amount of undiluted cuttings for radiometric logging and chemical assay. Undoubtedly, diamond drilling would be more satisfactory although the cost would be double or perhaps triple his estimate for rotary drilling.

APPLICANT'S SUMMARY OF COSTS

Bulldozer work--200 hours by contract at $10.00 per hour	$2,000.00
Rotary drilling-2,400 feet at $0.60 per foot for first 100 feet and $1.10 per foot for second 100 feet in each hole	2,040.00
Total cost of project	$4,040.00
Government participation	$3,030.00

CONCLUSIONS

It is concluded that the possibility of making a significant discovery in the black shale of section 36 is exceedingly poor. The fact that the shale is rather consistently radioactive is not unusual. Similar beds of shale throughout the Colorado Plateau are known to be slightly radioactive but are not of economic value. The noticeable channeling or thickening of the shale which may be responsible for the adjoining Hogback No. 4 deposit apparently does not occur in section 36.

It is probable that the grade of any additional ore produced from the black shale will not exceed that of the Hogback No. 4 ore. With an average grade of 0.18 percent U_3O_8 valued at approximately $30.00 per ton, more than 2,000 tons of ore would have to be mined

to repay the Government on the basis of 5 percent royalty. This ore would have to be obtained from low-cost surface mining operations as the indicated grade could not support the additional costs of underground mining. There is little or no evidence that mineable material can be obtained at the surface or that higher grade ore will be encountered at depth by drilling. It is further concluded that the applicant and his associates are financially able to bear the complete expense of the small program proposed in this application.

RECOMMENDATIONS

It is recommended that the application be denied.

W. A. Carlson, geologist in charge of the Grants district office of the Atomic Energy Commission, accompanied the examining team and concurs with the above conclusions and recommendations.

/kp

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

RECEIVED
19 1954

224 New Customhouse
Denver 2, Colorado

March 15, 1954.

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA-3226 (Uranium), Ira N. Sprecher, Rainbow claims, McKinley County, New Mexico.

Enclosed is copy of a report by Silas C. Brown, copy of a letter from the applicant, and copy of our reply.

W. H. King

Enclosures

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

224 New Customhouse
Denver 2, Colorado

March 15, 1954.

Mr. Ira N. Sprecher
Mid-Valley Title Co., Inc.
306 South Second Street
Gallup, New Mexico

Re: Docket No. DMEA-3226

Dear Mr. Sprecher:

A copy of your letter dated March 10, 1954 and a copy of the report by Silas C. Brown on the Rainbow claims have been forwarded to the Field Examiners for their consideration and comments.

If it is believed that the report of Silas C. Brown or the information you furnished relative to the anomaly in Section 31 justifies reopening this docket, we will advise you.

Very truly yours,

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

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

HMC:cwm

cc: Docket
Administrator, DMEA w/Encl.
WMTraver w/Encl.
RPFischer w/Encl.
AHKoschmann
Chron.

IRA N. SPRECHER, President

FANNIE A. SPRECHER, Sec'y and Treas.

MID-VALLEY TITLE CO., INC.
306 SOUTH SECOND STREET
GALLUP, NEW MEXICO

Title Service
McKINLEY COUNTY
VALENCIA COUNTY

New Mexico
REAL ESTATE
RANCHES

Phone 800

March 10, 1954

Mr. W. H. King
and
Mr. A. H. Koschmann
Field Team, Region IV
Defense Minerals Exploration
Administration
224 New Customhouse
Denver 2, Colorado

Re: Docket DMEA-3226

Gentlemen:

We received your letter of March 8, 1954 in the mail on this day, after having yesterday forwarded to you, in connection with this case, the Report, in quadruplicate, of Mr. Silas C. Brown, Consulting Geologist of Durango, Colorado, who had examined the property for us, but whose written report was delayed, due to other pressing matters, which had precedence over our request for a written report.

Request for a written report had not been made of Mr. Brown until after it had been suggested by one or the other of Messrs. McClelland, Johnson and Carlson, when they made the inspection under this application.

In the meantime an anomaly has been discovered, from the air, in Section 31, which adjoins our Section 36 on the East. Additional flying has been done over it. A ground crew of one of the individual miners in the Haystack Area, and the Chief Engineer and the Geologist of Santa Fe Pacific Railroad Company, have been working that Section within the past week.

We have no disposition to contend with your decision denying our application, but, inasmuch as it was made before Mr. Brown's report reached you, and in the light of the new interest in the large high mesa which extends well over into our Section 36, from the Santa Fe Railroad Company's Section 31, would it be asking too much that our case be reconsidered, or at least deferred until more information with reference to these new and additional investigations can be obtained and placed in your hands for consideration with our original application?

Sincerely,

Ira N. Sprecher

INS:dg

DMEA-3226

THE SPRECHER URANIUM PROSPECT

McKinley County, New Mexico

Introduction

The field reconnaissance work of the Sprecher, et al. properties, which consists of Section 36, Township 16 North, Range 18 West, N.M.P.M., McKinley County, New Mexico, was conducted on October 30 and 31, 1953. Since the survey was of a reconnaissance nature a detailed map of the area was not made and apparently is not available.

Evidence of Uranium ore enrichment was noted in the Dakota coal horizon and in probable Morrison sandstones immediately below the Dakota formation. None of the shows within the area outlined was of commercial quantity or quality, but more exploration work with the bulldozer or core drill may outline commercial ore bodies.

Geology and Discussion

The Morrison formation (Jurassic) is exposed in the southeastern part of Section 36, Township 16 North, Range 18 West. Going toward the northwestern part of the same section, the Dakota, Mancos and Mesaverde formations (Cretaceous) are exposed.

The Morrison formation is considered an objective exploratory horizon based upon enrichment found in "Gragg Rock", a boulder which had fallen from the Dakota-Morrison cliffs. The boulder is either of Morrison age or is from a transition zone between the Morrison and the overlying Dakota formation. More exploration work should be conducted along the Dakota-Morrison contact zone.

The main zone of enrichment in the area studied is in the "Coal horizon" of the Dakota formation (see sketch section). Commercial ore has been mined from this zone at the Ryde Mine in Section 12, Township 15 North, Range 16 West, about one and one-quarter miles south of Section 36. Extending along the same Dakota outcrop northward from the Ryde Mine are two spots which gave a higher gamma count than the normal background count, but neither appeared to be of commercial intermittent. These "hot" spots are, however, places where more exploration work should be conducted.

Any sand development in the Morrison formation should be checked with the scintillator but very little sand development was observed in the Morrison in Section 36.

The Mesaverde sands which occur in the extreme northwestern part of Section 36 should also be checked with the scintillator; especially those areas where the sandstone beds thicken rapidly, indicating channeling.

Many geological features occur in the area which are favorable for the occurrence of Uranium ores in commercial quantities and quality. First, the steep hogback is a zone of weakness along which Uranium ores may have migrated upward from deeper sources. There is no evidence of faulting at the surface, however, the steeply dipping beds may be faulted with depth. Primary and secondary Uranium ores are generally found near these zones of weakness and the secondary ores are found in diminishing quantities away from the source.

Second, sand development in the Morrison, Dakota and the Mesaverde formations, especially where channeling is present, is favorable for deposition of Uranium ores.

Third, and probably the most important fact, is the presence of some enrichment in the area even though that at the surface is not of marketable value. The surface indications at the Ryde mine to the south were not commercial at the surface either, but the ore value increased to commercial percentages with depth. Therefore, these enriched areas are the obvious places to start exploration work for possible richer ore bodies with depth.

Recommendations and Conclusions

To summarize: The presence of a zone of weakness, the apparent channeling of the sandstone beds and the presence of some local enrichment indicate that the area should be further explored.

It is recommended that the Dakota "coal" horizon be thoroughly explored with the scintillator and the enriched zones be bulldozed to check the possibilities of richer ores with depth. Because of the high angle dip of the beds, especially in the southern part of Section 36, only a limited number of core holes are recommended near the outcrop area. If the bulldozer work opens up richer ore than that at the surface then core holes may be planned to test the horizon at depths below the limits of the dozer.

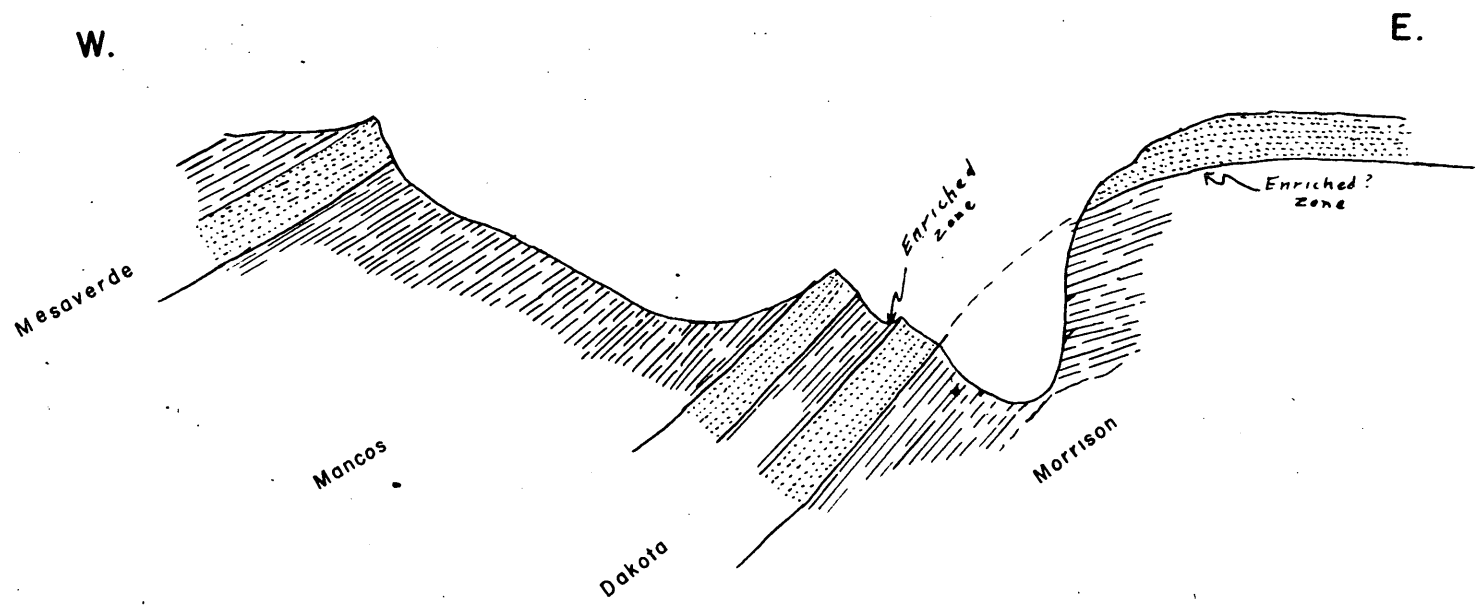
Going eastward in Section 36 where the Dakota beds cap the mesa, spot core drilling should be attempted. This coring campaign should test the Dakota and about the upper 25 feet of the Morrison for the possibility of enrichment in that horizon.

If enrichment is found in any of the exploratory holes then offset holes within a radius of 100 feet should be drilled to outline the limits of the ore body. The cores and cuttings should be checked with the scintillator as the hole is being drilled. Good representative samples of the "hot" cores and/or cuttings should be collected and an analysis be made of each. The thickness and richness of an ore body must be outlined for proper evaluation.

Respectfully submitted

Silas O. Brown

Durango, Colorado
March 6, 1954



SKETCH CROSS-SECTION

IN GENERAL AREA OF

Sec. 36-16N-18W

McKINLEY COUNTY, NEW MEXICO

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

OF THE INTERIOR
Minerals Administration
RECEIVED
MAR 10 1954

COPY

224 New Customhouse
Denver 2, Colorado

March 8, 1954.

Mr. Ira N. Sprecher
306 South Second Street
Gallup, New Mexico

Re: Docket DMEA-3226

Dear Mr. Sprecher:

Reference is made to your application for Government aid on the Black Rainbow 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 of Uranium is not considered sufficiently promising to justify Government participation. Under these circumstances, we regret to advise that your application for exploration aid is denied.

Very truly yours,

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

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

Reviewed by
DMEA OPERATING COMMITTEE
3-15-54
(date)

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 10 1954

224 New Customhouse
Denver 2, Colorado

March 8, 1954.

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Field Team, Region IV

Subject: Report of Examination - Docket DMEA-3226 (Uranium), Ira N. Sprecher, Black Rainbow Claims, McKinley County, New Mexico.

Enclosed are four copies of the report of examination on the subject docket, 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

denial
ltr to H Berry
3-12

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

March 8, 1954.

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Report of Examination - DMEA Docket 3226 (Uranium), Ira N. Sprecher, Rainbow Group, McKinley County, New Mexico.

Enclosed are eleven copies of the engineering report on the subject docket.

The applicant requested $4,040.00 for 200 hours of bulldozer work and 2400 feet of rotary drilling.

The engineer examiner concludes that there is little or no evidence that mineable material can be obtained at the surface or that higher grade ore will be encountered at depth by drilling. He recommends that the application be denied and we concur in this recommendation.

W. H. King

W. H. King

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
March 2, 1954

Memorandum

To: Executive Officer, DMEA Field Team, Region IV

From: Chief, Mineral Resources Branch, Mining Division, Region IV

Subject: DMEA 3226 (Uranium) Black Rainbow claims, Ira N. Sprecher, Trustee, McKinley County, New Mexico

Enclosed are the original and ten copies of the "Summary, Conclusions, and Recommendations" by H. S. Johnson, Geological Survey, and R. R. McLellan, Bureau of Mines, and of McLellan's engineering report on the above docket.

McLellan concludes the possibility of making a significant discovery on the applicant's property is poor, in spite of the fact that the shale bed shows slight radioactivity. He discerned no channeling or thickening of the shale which probably was responsible for the low-grade deposits at the adjoining Hogback No. 4 mine where the average grade ore mined was only 0.18 percent U_3O_8. He considers it very unlikely that sufficient ore would be discovered by any type of exploration to repay the Government loan, nor would the grade or quantity be sufficient to support any but the lowest cost mining operation. Moreover, the applicant and his associates should be able financially to do the small amount of work requested, and he recommends denial of the application.

I approve the conclusions and recommendations.

The brochure forwarded to this office by the Chief, Mining Methods Branch, Mining Division, Region IV, on January 18, 1954, is also enclosed.

W. M. Traver

W. M. Traver

enclosures

WMT/kp

cc 10
DMEA 3226
Chron

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Defense Minerals Exploration Administration
Denver Federal Center
Denver 2, Colorado

February 26, 1954

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 3226, Ira N. Sprecher lease, McKinley County, New Mexico

Enclosed are 11 copies of a geologic report by H. S. Johnson, Jr., of the U. S. Geological Survey covering the above docket.

It has been recommended that the application 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 360
GRAND JUNCTION, COLORADO

February 24, 1954

Memorandum

To: A. H. Koschmann, DMEA Field Team
Region IV

From: R. P. Fischer, Supervisor
Colorado Plateau District

Subject: DMEA 3226, Ira N. Sprecher lease, McKinley County, New Mexico

Transmitted herewith are eleven copies of a geologic report on the Ira N. Sprecher lease, sec. 36, T. 16 N., R. 18 W., McKinley County, N.Mex. Assistance was requested in exploring for uranium deposits. The proposed work consists of rim-stripping and drilling and is estimated to cost $4,040.

The attached report was prepared by H. S. Johnson, Jr., and is based on a joint field examination on February 3, 1954, in company with R. R. McLellan, USBM; W. A. Carlson, AEC; and the applicant.

On the basis of the distribution and habits of the known deposits in the area, the outcrop examination, and tests for radioactivity, it is concluded that the exploration applied for has little chance of yielding significant reserves of uranium ore. It is, therefore, recommended that the application be denied. Mr. Carlson of AEC is in agreement with these conclusions and the recommendation, and I also concur.

R. P. Fischer

R. P. Fischer

Enclosures 11

RPF/mlr

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 3226, Black Rainbow Claims

Ira N. Sprecher

McKinley County, New Mexico

Uranium

H. S. Johnson, Geologist
Geological Survey

R. R. McLellan, Mining Engineer
Bureau of Mines

February 18, 1954

DMEA 3226

BLACK RAINBOW CLAIMS
IRA N. SPRECHER
McKINLEY COUNTY, NEW MEXICO

Summary, Conclusions, and Recommendations

By H. S. Johnson
Geologist
Geological Survey
and
R. R. McLellan
Mining Engineer
Bureau of Mines

DMEA 3226

BLACK RAINBOW CLAIMS
IRA N. SPRECHER
McKINLEY COUNTY, NEW MEXICO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By H. S. Johnson and R. R. McLellan

In December of 1953, Ira N. Sprecher of Gallup, N. Mex., applied to the Defense Minerals Exploration Administration for assistance to explore for uranium on the Black Rainbow claims, sec. 36, T. 16 N., R. 18 W., New Mexico principal meridian, McKinley County, N. Mex. The applicant proposed testing portions of the Morrison and Dakota formations by bulldozer stripping and by drilling from approximately 12 sites which are to be determined by the results of the stripping. The applicant estimated the cost of the bulldozer stripping as $2,000.00 and the cost of drilling as $2,040.00 or a total expenditure of $4,040.00. Government participation would be 75 percent or $3,030.00.

The property was visited on February 3, 1954, by a Defense Minerals Exploration Administration examining team accompanied by the applicant. It was concluded that the claims do not show sufficient evidence of containing ore to justify the expenditure of Government funds for a program of exploration.

The area proposed for exploration is at the northwest end of the Zuni uplift. Here the Morrison formation is represented by the Recapture shale and Westwater Canyon members. The Recapture shale is about 200 feet thick and is composed primarily of fine to very fine sandstone with

occasional thin layers of green to reddish colored mudstone. Overlying the Recapture shale is the Westwater Canyon sandstone. This unit is about 250 feet thick and composed of medium to coarse, light brown to buff sandstone with thin, discontinuous lenses of green mudstone. The Westwater Canyon sandstone is not considered favorable for uranium deposits in this area because of its massive, uniform character and lack of sizeable mudstone lenses. Neither the Recapture nor the Westwater member is known to be mineralized in this part of the Zuni uplift.

The Dakota sandstone overlies the Morrison formation and is about 100 feet thick in this area. The basal 30 feet or so is composed of medium- to coarse-grained lenticular sandstones with interbedded carbonaceous shale units up to 15 feet thick. Above these, the Dakota is composed largely of gray shale and siltstone. Carbonaceous shales in the lower part of the Dakota are often weakly radioactive; and at the Hogback No. 4 mine, about 1.5 miles south of the area in question, one of these shale units has produced nearly 1,000 tons of ore assaying about 0.18 percent U_3O_8. However, in the area covered by this application, surface exposures do not appear favorable for the presence of an ore-grade deposit of the Hogback No. 4 type.

The applicant failed to submit detailed maps or a specific plan for exploration. Undoubtedly, the cost of drilling would be in excess of his estimate because angle holes would be favored, and it is doubtful that the rotary drill proposed for the job could drill such holes. If radiometric logging is not feasible in angle holes, it probably would be desirable to case the holes in order to obtain the best possible

recovery of cuttings for radiometric logging and chemical assay. Diamond drilling at a considerably higher cost probably would be more satisfactory providing a fair recovery of core could be obtained in the shale.

It is concluded that the claims do not show sufficient merit to justify the cost of an adequate program of exploration. The application is recommended for denial.

UNITED STATES DEPARTMENT OF THE INTERIOR

DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORTS OF EXAMINATION BY FIELD TEAM REGION IV

DMEA DOCKET 3226, Ira N. Sprecher, all of Sec.36, T. 16 N., R. 18 W, McKinley County, New Mexico

Uranium

Geologic Report

H. S. Johnson, Jr., Geologist

U. S. Geological Survey

February 24, 1954

DMEA 3226

IRA N. SPRECHER, ALL OF SEC. 36, T. 16 N., R. 18 W.
McKINLEY COUNTY, NEW MEXICO

INTRODUCTION AND SUMMARY

In December 1953, application (DMEA 3226) was made by Ira N. Sprecher of 306 South Second Street, Gallup, N. Mex. for Government assistance to explore for uranium on sec. 36, T. 16 N., R. 18 W., McKinley County, N. Mex. Section 36 is about 3 miles northeast of Gallup (fig. 1). A dirt road provides access to a point on its southern boundary, but there are no roads within the section itself. In October 1953, Mr. Sprecher obtained from the State of New Mexico a mining lease covering all of the section.

On February 3, 1954, the property was examined by R. R. McLellan of the Bureau of Mines and H. S. Johnson, Jr. of the Geological Survey, accompanied by W. A. Carlson, geologist in charge of the Grants district office of the Atomic Energy Commission. The applicant, Mr. Ira N. Sprecher, was also present during the examination.

To date there have been no mining or systematic prospecting operations on the property. The applicant has prospected the surface with Geiger and scintillation counters and has dug several shallow prospect holes, but no appreciable mineralization has been found. The applicant has had no previous mining or prospecting experience, and he has not presented a detailed program of exploration. He proposes to do 200 hours of bulldozer work to expose shales in the lower part of the Dakota formation, and he also proposes twelve 200-foot deep rotary drill holes to test parts of the Dakota and Morrison formations. The total cost of the project is estimated to be $4,040, of which the Government's part would be $3,030.

Geology and base by Mirsky, Arthur, 1953, Uranium mineralization in the Dakota sandstone, Zuni uplift, New Mexico: U. S. Atomic Energy Commission, RME-47

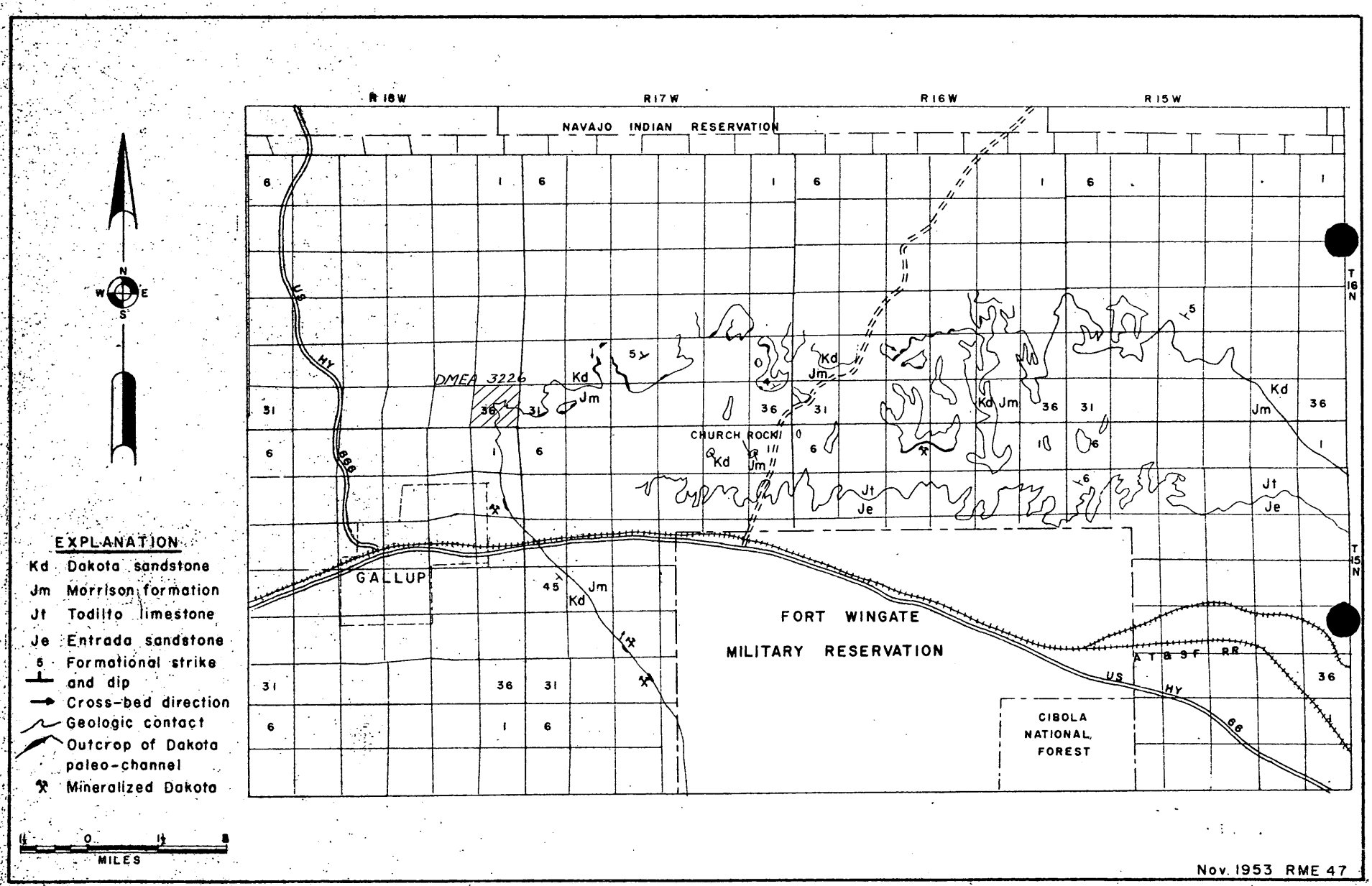


Figure 1-Generalized geologic map, Church Rock area, McKinley County, New Mexico

After examining the property, R. R. McLellan and the writer are in agreement that there is little chance that an economic uranium deposit would be discovered in the area that the applicant proposes to explore. The part of the Morrison formation which the applicant wishes to test by drilling consists of the 200-300 foot thick Westwater Canyon member. It is a massive, uniform, and continuous sandstone unit, and it does not appear favorable for uranium deposits. The Dakota sandstone in sec. 36 does contain thin beds of uranium bearing carbonaceous shale in the lower part. However, this shale is estimated to carry only 0.02 to 0.04 percent eU_3O_8 in the area examined, and there is no apparent reason to expect that better grade material would be found.

Because the geology of the area examined is not considered favorable for an economic uranium deposit, it is recommended that the application be denied.

GEOLOGIC SETTING

Section 36 is at the northwest end of the Zuni uplift. Exposed within the section are the Recapture shale and Westwater Canyon members of the Morrison formation, the Dakota sandstone, the Mancos shale, and the Mesa Verde formation. These beds strike approximately N, with a 30°-60° westerly dip in the south-central part of sec. 36, but they flatten abruptly to the north and east. In the northeast quarter of the section, the strike is nearly due east with a gentle northerly dip. The Dakota sandstone makes a strong north-trending hogback in the south-central portion of the section and forms a thin cap overlying the cliff-forming Westwater Canyon sandstone in the northeast portion of the section.

In sec. 36, the Recapture shale is about 200 feet thick and is composed primarily of fine to very fine sandstone with occasional thin layers of green to reddish colored mudstone. Above the Recapture shale is the Westwater Canyon sandstone. This unit is about 250 feet thick and is composed of medium to coarse, light brown to buff sandstone with thin, discontinuous lenses of green mudstone. Above this, the Dakota sandstone is about 100 feet thick. The basal 30 feet or so is composed of medium to coarse grained lenticular sandstones with interbedded carbonaceous shale units up to 15 feet thick. The upper part of the Dakota formation here is composed largely of gray shale and siltstone. Above the Dakota is a considerable thickness of Mancos shale and the Mesa Verde formation.

ORE DEPOSITS

In the Grants District, uranium deposits have been found in the Todilto limestone, the Morrision formation, and the Dakota sandstone. The Todilto is not exposed in sec. 36 and is too deeply buried to be reached with shallow drilling. The Morrison formation is not known to contain ore deposits in this part of the Zuni uplift, and where it is exposed in sec. 36, it does not appear favorable for them. The thin, discontinuous lenses of green mudstone in the Westwater Canyon member are commonly weakly mineralized and are estimated to contain 0.02 to 0.04 percent eU_3O_8 in places, but these lenses are usually less than 2 feet thick and 100-200 feet long. It is possible that one or more of them may contain significant mineralization where they are a little thicker and more continuous. However, in the area that the applicant proposes to explore, there is not enough of this mudstone to suggest that ore deposits may occur.

The Dakota sandstone in sec. 36 has several black carbonaceous shale beds up to 5 feet thick in the basal 30 feet or so of the formation. These shales are uniformly radioactive and are estimated by the writer to contain about 0.02 to 0.04 percent eU_3O_8. About 1.5 miles south of sec. 36, the Hogback No. 4 mine has produced nearly 1,000 tons of ore, averaging 0.18 percent uranium, from a black carbonaceous shale near the base of the Dakota. The shale at this point is about 15 feet thick and is reported to be related to a thick sandstone lens immediately below. These thicker sandstone and black shale lenses have been interpreted as stream channels by AEC geologists _/, and the better mineralization seems to be associated with them. Surface

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_/ Mirsky, Arthur, 1953, Preliminary report on uranium mineralization in the Dakota sandstone Zuni uplift, New Mexico: U. S. Atomic Energy Commission, RME-47.

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exposures in sec. 36 do not indicate the present of deposits of the Hogback No. 4 type.

PROPOSED EXPLORATION

The applicant proposes to use a bulldozer to strip the carbonaceous shale outcrops in the basal 30 feet or so of the Dakota sandstone where it outcrops along the hogback in the central part of sec. 36. He also proposes drilling twelve 200-feet deep rotary drill holes through the Dakota and into the Morrison formation. No large scale base map is available for planning use, and no definite hole locations have been decided. During the field examination, Mr. Sprecher indicated that he would like to drill in the Mancos shale as well as the Dakota and Morrison formations if the DMEA would allow him to do so. He expects the whole project to cost about $4,040 of which the Government's part would be $3,030.

Along the hogback where the applicant proposes to drill, the beds are dipping west from 25° to about 50°. Holes placed so as to be normal to the beds would be most desirable, but it is doubtful that angle holes such as these could be drilled with the equipment which the applicant plans to use. No provision was made in the application for collecting samples or for assaying them. If any drilling should be done, radiometric logs of the holes would be highly desirable to supplement other sample data.

CONCLUSIONS AND RECOMMENDATIONS

As a result of our examination of the ground which the applicant proposes to explore, R. R. McLellan and the writer are in agreement that there is very little chance that an economic mineral deposit would be found. The Westwater Canyon sandstone is not considered favorable in this area because of its massive, uniform character and lack of sizable mudstone lenses. Although the Dakota sandstone does contain weakly radioactive carbonaceous shales, the surface exposures do not indicate the presence of an ore-grade deposit of the Hogback No. 4 type. Even if such a deposit should be found, it could not be expected to produce enough ore to repay the Government's part of the exploration expense. At best, a deposit of this type might produce about 1,000 tons of ore at about $30.00 per ton (0.2 percent U_3O_8) before mining expenses became too great because of increasing overburden. At a royalty of 5 percent, this would result in the repayment of only $1,500 of the Government's investment.

In view of the considerations presented above, it is recommended that the application be denied.

W. A. Carlson, geologist in charge of the Grants District for the Atomic Energy Commission, concurs with the conclusions and recommendations given above. _/

W. A. Carlson, oral communication

DMEA 3226

BLACK RAINBOW CLAIMS
IRA N. SPRECHER
McKINLEY COUNTY, NEW MEXICO

Engineering Report

By R. R. McLellan
Mining Engineer
Bureau of Mines

DMEA 3226

BLACK RAINBOW CLAIMS
IRA N. SPRECHER
McKINLEY COUNTY, NEW MEXICO

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ILLUSTRATIONS

Figure	Follows page
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2. Generalized Geologic Map, Church Rock Area, McKinley County, New Mexico	*

*See figure 1 with geologic report.

DMEA 3226

BLACK RAINBOW CLAIMS
IRA N. SPRECHER
McKINLEY COUNTY, NEW MEXICO

ENGINEERING REPORT

By

R. R. McLellan

INTRODUCTION

Ira N. Sprecher of Gallup, N. Mex., acting as trustee for a group of 24 persons, applied December 23, 1953, to the Defense Minerals Exploration Administration for assistance to explore for uranium on the Black Rainbow claims in McKinley County, N. Mex. The applicant proposed to utilize about 200 hours of bulldozer work to construct roads and strip overburden from a black shale bed containing traces of uranium mineralization. In addition he proposed to rotary drill about 2,400 feet of holes to investigate the exposed black shale at depth. Some of the holes were planned to test both the Dakota sandstone and the underlying Morrison formation. The total cost of the program was estimated as $4,040.00, Government participation 75 percent or $3,030.00.

The property was inspected on February 3, 1954, by a Region IV Defense Minerals Exploration Administration examining team accompanied by the applicant. It was concluded that indications of uranium mineralization on the claims are insufficient to warrant expenditure of Government funds for exploration. It was further concluded that the applicant and his associates are financially able to embark upon a

small program of exploration without assistance from the Government. It is recommended that the application be denied.

ACKNOWLEDGMENTS

The inspecting team received full cooperation from the applicant, Ira N. Sprecher, who devoted considerable time and effort towards making the examination as complete as possible.

LOCATION, TOPOGRAPHIC AND PHYSICAL FEATURES

The Black Rainbow claims Nos. 1 through 36 cover all of sec. 36, T. 16 N., R. 18 W., New Mexico principal meridian, McKinley County, N. Mex. (fig. 1). Section 36 is 4 miles by road northeast of Gallup, N. Mex. and is traversed from south to north by steeply dipping beds which form prominent hogbacks (fig. 1 with the geologic report). The uranium-bearing black shale crops out along the hogbacks at the base of the Dakota sandstone. The shale outcrop at and extending about 500 feet beyond the south section line is accessible by car. The remaining portion of the shale outcrop to the north is inaccessible except on foot.

The claims are within commuting distance of Gallup where equipment, supplies, and water can be obtained. Electricity, timber, or water are not available on the claims. Labor and housing are available at Gallup. The area is semiarid and is suitable for year around surface operations. Milling facilities are available at Monticello, Utah, 220 miles away, or at Durango, Colo., 207 miles away.

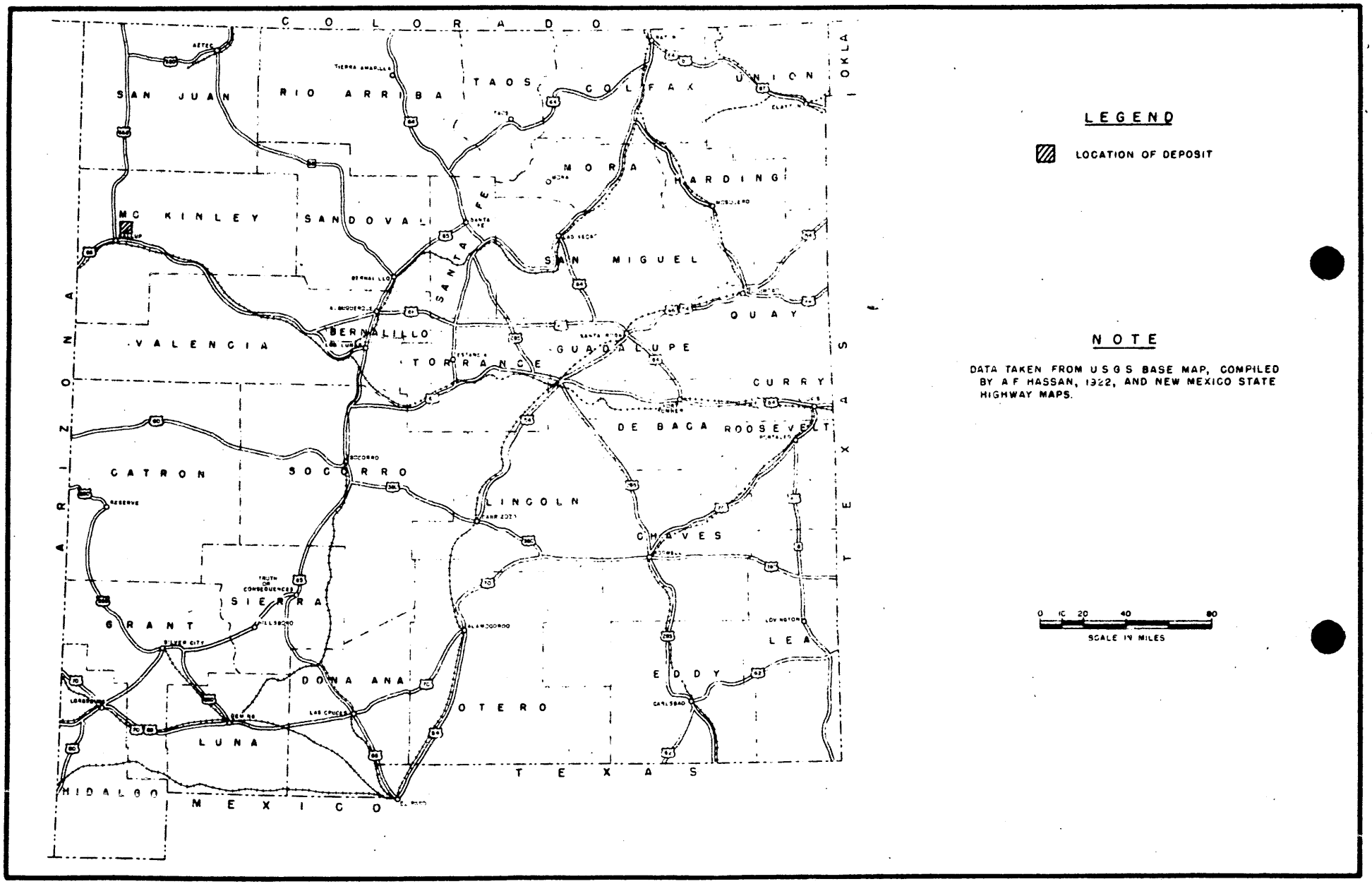


Fig. 1 - Location map, Black Rainbow claims, Ira N. Sprecher, McKinley County, New Mexico, NMA 3826

HISTORY AND PRODUCTION

Sprecher became interested in section 36 after production commenced from the Hogback No. 4 mine in the adjoining section to the south. On October 1, 1953, the state of New Mexico leased section 36 to Sprecher who divided it into the 36 Black Rainbow mining claims. The applicant prospected the claims with a Geiger counter, dug a few very shallow pits in the black shale, and cut a few samples, none of which contained in excess of 0.04 percent U_3O_8. On the basis of the discovery in the adjoining section and the traces of uranium in section 36, Sprecher applied for assistance from the Defense Minerals Exploration Administration.

No production has come from the Black Rainbow claims. Approximately 1,000 tons of ore containing an average of 0.18 percent U_3O_8 has been produced from the Hogback No. 4 mine in the adjoining section; however, since most of the easily removed surface ore has been shipped, the mine is no longer able to produce at a profit, and operations have ceased.

OWNERSHIP

Section 36 of T. 16 N., R. 18 W., McKinley County, N. Mex., is owned by the state and is leased to Ira N. Sprecher who subdivided the entire section into the 36 Black Rainbow mining claims as listed in his application.

DESCRIPTION OF THE DEPOSITS

The only ore deposit thus far discovered in the black shale was developed by the Hogback No. 4 mine. At that mine the shale bed dips approximately 40 degress to the west and stripping has indicated a

thickness of about 15 feet which is considerably greater than the average thickness encountered in the black shale on section 36. The deposit at the Hogback No. 4 mine possibly is in a channel represented by the pronounced thickening of the shale over a strike distance of several hundred feet. It was noted that the highest count of radioactivity, up to 0.3 percent U_3O_8, was in the basal 1 or 2 feet of the shale. Most of the ore undoubtedly was obtained from this zone. The outcrop of black shale in section 36 (fig. 1 with the geologic report) was walked and checked for radioactivity by the examining team. Scintillator readings closely checked the applicant's assay data by indicating grades ranging from a trace to 0.04 percent U_3O_8. No material was encountered along the outcrop that approached ore grade. As far as could be determined, no channel or sudden thickening of the shale was present in the area proposed for exploration.

MINEABLE ORE RESERVES

As no ore has been discovered on the Black Rainbow claims, no estimate of mineable ore reserve is possible.

PRESENT STATUS

Exploration and Development

Exploration and development to date consists of scintillator and Geiger counter examinations of the various sandstone and shale beds exposed on the claims. In addition, several pits averaging about 1 foot in depth have been dug along the black shale outcrop. None of the pits extended below the soft weathered zone.

Mining and Milling Equipment and Other Facilities

There is no mining or milling equipment or other facilities of any type on the property.

PROJECT PROPOSALS WITH COSTS

Commencing in the black shale at the south section line, the applicant proposed to conduct a combined stripping and road building program northward to approximately the east-west quarter line where faulting is evident. By stripping 7 or 8 feet of the weathered shale from the outcrop, he hopes to encounter ore or favorable areas in which a total of 2,400 feet of holes (rotary drilling) can be drilled to test the formations at depth. The drilling proposal includes exploration into the underlying Morrison formation which in this area contains a thin, discontinuous clay bed that exhibits slight radioactivity.

Sprecher estimates that 200 hours of bulldozer work at $10.00 per hour for a total of $2,000.00 will be sufficient to complete the stripping and road work. A total of 2,400 feet of rotary drilling at a price of $0.60 per foot for the first 100 feet and $1.10 per foot for the second 100 feet is estimated to cost $2,040.00. The total cost of the project is estimated to be $4,040.00, Government participation 75 percent or $3,030.00.

The applicant failed to consider the fact that angle holes would be preferable to vertical holes in exploring the steeply dipping beds, and that the rotary drills commonly employed in the area cannot drill angle holes. In the event that radiometric logging could not be

accomplished in the angle holes, the added expense of casing would be necessary to assure the recovery of a maximum amount of undiluted cuttings for radiometric logging and chemical assay. Undoubtedly, diamond drilling would be more satisfactory although the cost would be double or perhaps triple his estimate for rotary drilling.

APPLICANT'S SUMMARY OF COSTS

Bulldozer work--200 hours by contract at $10.00 per hour	$2,000.00
Rotary drilling-2,400 feet at $0.60 per foot for first 100 feet and $1.10 per foot for second 100 feet in each hole	2,040.00
Total cost of project	$4,040.00
Government participation	$3,030.00

CONCLUSIONS

It is concluded that the possibility of making a significant discovery in the black shale of section 36 is exceedingly poor. The fact that the shale is rather consistently radioactive is not unusual. Similar beds of shale throughout the Colorado Plateau are known to be slightly radioactive but are not of economic value. The noticeable channeling or thickening of the shale which may be responsible for the adjoining Hogback No. 4 deposit apparently does not occur in section 36.

It is probable that the grade of any additional ore produced from the black shale will not exceed that of the Hogback No. 4 ore. With an average grade of 0.18 percent U_3O_8 valued at approximately $30.00 per ton, more than 2,000 tons of ore would have to be mined

to repay the Government on the basis of 5 percent royalty. This ore would have to be obtained from low-cost surface mining operations as the indicated grade could not support the additional costs of underground mining. There is little or no evidence that mineable material can be obtained at the surface or that higher grade ore will be encountered at depth by drilling. It is further concluded that the applicant and his associates are financially able to bear the complete expense of the small program proposed in this application.

RECOMMENDATIONS

It is recommended that the application be denied.

W. A. Carlson, geologist in charge of the Grants district office of the Atomic Energy Commission, accompanied the examining team and concurs with the above conclusions and recommendations.

/kp

Mr. Ira N. Sprecher (Trustee)
306 South Second Street,
Gallup, New Mexico

December 23, 1953

Subject: DMEA-3226
Re: Exploration Assistance
The Black Rainbow

My Dear Mr. Sprecher:

The receipt of your application dated December 11, 1953 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-3226 and referred to the Executive Officer, Region IV, 224 New Customhouse Building, Denver 2, Colorado.

Kindly refer to DMEA-3226 in any future correspondence relating to your application.

Sincerely yours,

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

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

December 23, 1953

Memorandum

To: Executive Officer, DMEA Field Team, Region IV

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number

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

DMEA 3226

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

If there is need for a field man to inspect, I stand by to take him to the properties.

Since November 3, 1953, the participation of D.M.E.A. is 75% of the cost to our 25% thereof--but we will go along on that.

I have kept our request down to an amount that is purely exploratory-----we make no attempt to ask the Administration to drill and prove, or disprove, our entire property-----so, the fact that our request is modest, and in keeping with what we interpret the real intent of the program to be, should recommend it to those who have the responsibility of administering it.

The instructions, that come with the forms, state that the applications can be submitted to the Denver office and/or to Washington.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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

Not to be filled in by applicant

Docket No. DMEA-3226
Metal or Mineral
Date Received 12-23-53
Estimated Cost
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Ira N. Sprecher
306 South Second Street, Gallup, New Mexico
Acting as TRUSTEE, under Declaration of Trust, for a group, whose names and addresses appear on attached sheet No. 1

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract All of
Section 36 in
Township 16 North, Range 18 West, N.M.P.M.
McKinley County, N. M.

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

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

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property. See attached sheet No. 2

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

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

4. *Physical description.*—(*a*) Describe in detail any mining or exploration operations which have been or now are being conducted upon the land, including existing mine workings and production facilities. State your interest, if any, in such operations. Also describe accessibility of mine workings for examination purposes. See attached sheet No.3

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. Not applicable

(*c*) Describe the geologic features of the property, including mineralization, type of deposit (vein, bedded, etc.), and your reasons for wishing to explore. Illustrate with maps or sketches. Send with your application (but not necessarily as a part of it) any geologic or engineering report, assay maps, or other technologic information you may have, indicating on each whether you require its return to you. See attached sheets Nos. 4 & 5

(*d*) State the facts with respect to the accessibility of the project; Access roads, distances to shipping, supply and residence points. See attached sheet No. 6

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power. See attached sheet No. 6

16—66551-1

5. *The exploration project.*—(*a*) [redacted]e the mineral or minerals for which you wis[redacted] explore Uranium

(*b*) Describe fully the proposed work, including a map or sketch of the property showing a plan (and cross sections if needed) of any present mine workings, and the location of the proposed exploration work as related to such features as contacts, veins, ore-bearing beds, etc. See attached sheet No. 7

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

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations. See attached sheet No. 8

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

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.). All to be contracted, see attached sheet No. 9.

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

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

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

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

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

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

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

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

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

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

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

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated December 11, 1953

[signature]
(Applicant)

By

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

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

Attached Sheet No. 1
to
D. M. E. A. FORM
MF-103

1 (d) NAME OF APPLICANT-----Additional Information

The names and addresses of the members of the group for whom Applicant is acting as Trustee, are these:

Fanny Riegel Evans,
Peekskill, New York
Lillian Till,
Gallup, New Mexico
O. C. Havens and Beatrice Havens, his wife,
Gallup, New Mexico
Leopold Meyer and Beatrice I. Meyer, his wife,
Albuquerque, New Mexico
Gordon Wilkinson and Lucille Wilkinson, his wife,
U. S. Air Corps
Alfred F. O'Donnell and Catherine O'Donnell, his wife,
Gallup, New Mexico
James F. Madsen and Viviane Madsen, his wife,
Bendix Corporation, Baltimore, Maryland
Ralph W. Mize and Bess Y. Mize, his wife,
Gallup, New Mexico
George Gragg and Doris Gragg, his wife,
Gallup, New Mexico
Uriel C. Sparks and Shirley Sparks, his wife,
Gallup, New Mexico
Ira N. Sprecher and Fannie Agnew Sprecher, his wife,
Gallup, New Mexico
D. B. Clarke and Corene R. Clarke, his wife,
Gallup, New Mexico
Edmund Ross and Evelyn E. Ross, his wife,
Albuquerque, New Mexico

Sec. 36 - 16N - 18W., N.M.P.M.
Ira N. Sprecher, Applicant
306 South Second Street
Gallup, New Mexico

(Attached Sheet No. 1)

APPLICATION NO. M-4455 LEASE NO. M-4455

Attached Sheet No. 2 to
D.M.E.A. Form
M.F. - 103

MINING LEASE

THIS INDENTURE, Made and entered into this 1st day of October 1953, by and between the State of New Mexico, acting by and through E. S. WALKER its Commissioner of Public Lands, in that behalf duly authorized party of the first part and hereinafter called the Lessor, and Ira N. Sprecher whose post office address is Gallup, New Mexico, party of the second part and hereinafter called the Lessee.

WITNESSETH:

WHEREAS, the lessee has duly filed an application for a mining lease for the purpose named hereinbelow covering the lands hereinafter described, and in said application has offered to pay an annual rental thereon of Nine hundred----------($900.00) DOLLARS per year, payable annually in advance, and with the said application has tendered the sum of Nine hundred----------($900.00) Dollars as the first annual rental and the further sum of Five ($5.00) Dollars application fee, and the lessor having accepted the said application as tendered.

WHEREFORE, and in consideration of the premises and of the covenants and agreements hereinafter contained on the part of the lessee to be kept, paid and performed, the lessor has granted and demised, leased and let, and by these presents does grant, demise, lease and let unto the lessee, exclusively, for the sole and only purpose of exploration, development, production and removal of Uranium ore hereinafter designated as the item, thereon and therefrom, with the right to own all the item so produced and saved therefrom and not reserved as royalty by the lessor under the terms of this lease, together with rights of way, easements and servitudes for pipe lines, telephone and telegraph lines, for tanks, powerhouses, and fixtures for producing, treating and caring for the item and housing and boarding employees, and any and all rights and privileges necessary, incident to or convenient for the economical operation of said land, alone or conjointly with neighboring lands, for the item, with the right for such purposes to the development or other lawful acquisition of water from said lands, but not the right to the water rights or water owned as an improvement by anyone else, and with the right of removing, either during or after the term hereof, all and any improvements placed or erected on the premises by the lessee, subject, however, to the conditions hereinafter set out, the following described land situated in the State of New Mexico, and more particularly described as follows:

Commencing at the NE corner of Section 36, T-16N, R-18W, which is also the NE corner of Black Rainbow No. 1 Claim and true place of beginning. thence S along the E boundary line of said Section 36 a distance of 5280 feet, more or less, to the SE corner of said Section 36 which is also the SE corner of Black Rainbow No. 9 Claim, thence W along the S boundary line of said Section 36 a distance of 5280 feet, more or less, to the SW corner of said Section 36 which is also the SW corner of Black Rainbow No. 36 Claim, thence N along the W boundary line of said Section 36 a distance of 5280 feet, more or less, to the NW corner of said Section 36 which is also the NW corner of Black Rainbow No. 28 Claim, thence E along the N boundary line of said Section 36 a distance of 5280 feet, more or less, to the NE corner of said Section 36 which is also the NE corner of Black Rainbow No. 1 Claim and the true place of beginning.

Containing 640.00 acres and comprising
36 partial mining claims designated as follows:

Black Rainbow No. 1	Black Rainbow No. 19
Black Rainbow No. 2	Black Rainbow No. 20
Black Rainbow No. 3	Black Rainbow No. 21
Black Rainbow No. 4	Black Rainbow No. 22
Black Rainbow No. 5	Black Rainbow No. 23
Black Rainbow No. 6	Black Rainbow No. 24
Black Rainbow No. 7	Black Rainbow No. 25
Black Rainbow No. 8	Black Rainbow No. 26
Black Rainbow No. 9	Black Rainbow No. 27
Black Rainbow No. 10	Black Rainbow No. 28
Black Rainbow No. 11	Black Rainbow No. 29
Black Rainbow No. 12	Black Rainbow No. 30
Black Rainbow No. 13	Black Rainbow No. 31
Black Rainbow No. 14	Black Rainbow No. 32
Black Rainbow No. 15	Black Rainbow No. 33
Black Rainbow No. 16	Black Rainbow No. 34
Black Rainbow No. 17	Black Rainbow No. 35
Black Rainbow No. 18	Black Rainbow No. 36

Sec. 36 - 16N - 18W.
Ira N. Sprecher, Applicant
306 S. 2nd St., Gallup, New Mexico

TO HAVE AND TO HOLD said land, and all rights and privileges granted hereunder to and unto the lessee for a term of five years from date hereof, subject to a preferential right of renewal as hereinafter provided.

In consideration of the premises, the parties covenant and agree as follows:

1. The lessee agrees to pay to the lessor as rental for the leased premises the sum of Nine hundred------($900.00) Dollars per annum so long as this lease shall remain in force, payable annually in advance on the successive anniversary dates of this lease and in addition to such rental the lessee agrees to pay to the lessor a sum equal to five per cent (5%) of the net value of the proceeds derived from the sale of the item produced on the land after treatment and transportation charges are deducted.

2. The lessee agrees to make full settlement on the 20th day of each month for all royalties due the lessor for the preceding month, under the terms of this lease, and to permit the lessor or its agents, at all reasonable hours, to examine lessee's books, relating to the production and sale of the item. Lessee further agrees to submit to lessor annual verified reports, showing in detail lessee's operaton for the preceding year.

3. All mining operations hereunder shall be carried on in a workmanlike manner in conformity with the laws of the State of New Mexico and with any rules and regulations of any department of said state issued under authority of State Law.

4. It is expressly agreed that the consideration hereinbefore specified is a good, valuable and substantial consideration and sufficient in all respects to support each and every covenant herein, including specifically the option granted the lessee to extend this lease from time to time during its five-year term, upon the payment or tender of further rental hereinafter provided for.

In event the lessee shall elect to surrender any or all of the said acreage, he shall deliver to the Commissioner a duly executed release thereof; and in event said lease has been recorded, then he shall furnish and deliver to said Commissioner a certified copy of a duly recorded release.

5. The lessee may at any time by paying to the State of New Mexico, acting by its Commissioner of Public Lands, or other authorized officer, all amounts then due as provided by the terms herein and the further sum of Ten ($10.00) Dollars, surrender and cancel this lease insofar as the same covers all or any portion of lands herein leased and be relieved from all further obligations or liability hereunder, in the manner as hereinbefore provided.

6. All payments due hereunder shall be made by cash, cashier's check or post office money order on or before the day such payment is due, to the lessor at the above post office address.

7. The lessee, with the consent of the lessor, shall have the right to assign this lease. Provided, however, that no assignment of an undivided interest shall be recognized or approved by the lessor. Upon approval in writing by the lessor of an assignment, the assignor shall stand relieved from all obligations to the lessor with respect to the lands embraced in the assignment and the lessor shall likewise be relieved from all obligations to the assignor as to such tracts, and the assignee shall succeed to all of the rights and privileges of the assignor with respect to such tracts and shall be held to have assumed all of the duties and obligations of the assignor to the lessor as to such tracts.

8. Lessee shall be liable and agrees to pay for all damages to the range, livestock, growing crops or improvements caused by lessee's operations on said land. When requested by the lessor, the lessee shall bury pipelines below plow depth.

9. The lessor shall have, and the lessee hereby expressly gives and grants, a lien upon any improvements erected by the lessee on the leased premises for the security of any rentals or royalty payments due the lessor under the terms of this lease. The lessee shall not remove any machinery or fixtures placed on said premises unless and until all payments and obligations due the lessor under the terms of this agreement shall have been paid or satisfied.

10. Nothing herein contained shall be held or construed to prevent the lessor from leasing or letting the said lands or any portion thereof for grazing or agricultural purposes, or for leasing them for the exploration, development and production of products from deposits other than the item, including oil and gas, or for leasing them for the operation of a business, or for selling them under a deferred purchase contract with minerals reserved, or for patenting them with minerals reserved, or for the issuance of rights of way and easements over, upon or across them for public highways, railroads, tramways, telegraph, telephone and power lines, irrigation works, mining, logging and for any of the purposes mentioned hereinabove in this paragraph, and for other purposes.

11. The lease herein is issued subject to all valid existing rights and with special but not exclusive reference to the present existence of any of the matters mentioned in the paragraph next above.

12. This lease shall not become effective until the lessee shall file with the Commissioner of Public Lands a good and sufficient bond, to be approved by him, in the sum of Thirty Six hundred---($3600.00) DOLLARS, in favor of the State of New Mexico, for the use and benefit of the Commissioner of Public Lands, conditioned upon the faithful compliance with all and singular the terms and provisions of this lease.

13. However, where any of the lands involved herein are embraced in a patent issued by the State of New Mexico with minerals reserved, or a deferred state purchase contract with minerals reserved, this lease shall not be effective and no rights shall inure to the lessee unless the bond designated in the paragraph next above shall be for an additional sum of *****NIL***** Dollars, in favor of the State of New Mexico, for the use and benefit of each purchaser holding purchase contract or deed to any lands embraced herein on which such development is about to be commenced, his grantees or successors in interest, to secure the payment for such damage to the livestock, range, water, crops or tangible improvements on such lands as may be suffered by such purchaser or his successors in interest by reason of such development, use and occupation of such lands by the lessee. Provided, however, that if any such purchaser shall file with the Commissioner of Public Lands a waiver duly executed and acknowledged by him of his rights to require such bond, such development, occupation and use of the lands by the lessee may be permitted without the bond herein required.

14. Upon failure or default of the lessee or any assignee to comply with any of the provisions or covenants hereof, the lessor is hereby authorized to cancel this lease and such cancellation shall extend to and include all rights hereunder as to the whole of the tract so claimed, or possessed by the lessee or assignee so defaulting; provided, however, that before any such cancellation shall be made, the lessor shall mail to the lessee, or assignee so defaulting, by registered mail, addressed to the post office address of such Lessee or assignee as shown by the records of the State Land Office, a notice of intention of cancellation specifying the default for which cancellation is to be made, and if within thirty days from the date of mailing said notice the said lessee or assignee shall remedy the default specified in said notice, cancellation shall not be made.

15. Upon the expiration of the term of this lease, the lessee shall have a preferential right to a renewal lease over any and all other applicants, providing all terms and conditions of this lease shall have been fully performed.

16. All terms of this agreement shall extend to and bind the heirs, executors, administrators, successors and assigns of the parties hereto.

IN WITNESS WHEREOF, the party of the first part has hereunto signed and caused its name to be signed by the Commissioner of Public Lands thereunto duly authorized with the seal of his office affixed, and the lessee has signed this agreement, the day and year first above written.

STATE OF NEW MEXICO
By
(Signed, E S Walker)
Commissioner of Public Lands
Lessor

(Signed, Ira N. Sprecher)
Lessee.

(Seal of Commissioner of Public Lands)

Sec. 36 - 16N - 16W.
Ira N. Sprecher, Applicant
336 South 5th Street
Gallup, New Mexico

Assignment Page No. 2

Attached Sheet No. 3
to
D.M.E.A. Form
M.F. - 103

4 PHYSICAL DESCRIPTION

(a) There are no mining operations now on the property. Members of the group have prospected many portions of the area with Scintillation Counters No. 111, and have dug shallow holes with hand tools and have encountered shales and sand stones that have low radio activity.

The group employed Mr. Silas C. Brown, Prominent consulting Geologist, Durango, Colorado, who recommended bull-dozer work in the Dakota Shale.

Sec. 36 - 16N - 18W., N.M.P.M.
Ira N. Sprecher, Applicant
306 South 2nd Street
Gallup, New Mexico

ATTACHED SHEET No. 4.
to
D.M.E.A. Form
M.F. - 103

4 PHYSICAL DESCRIPTION

(c) Most of the whole Section gives evidence of zones of Weakness and much folding of the beds.

Also, in this Section is the junction of the high mesas, coming in from the East, with the Hog-back (Nutria Uplift) which continues South Easterly for many miles.

The Dakota sand stone with black shale form the cap of the High Mesa coming from the East, but all the beds in evidence curve downward into Section 36, and, on the Nutria Uplift side of the "V", the Dakota bed, with accompanying shale, "have broken" off and dip severely from about 60° to almost vertical.

In the East half of Section 12 in Township 15 North Range 18 West--- about one and one quarter of a mile Southerly from Applicants Section 36 ---(see Maps - Attached Sheet No. 5) --- an excellent small mine has been developed, by A. W. Hyde, in the black shale above the lower Dakota sandstone, and approximately 900 tons of Uranium-bearing shale have been shipped from it. The operator of that mine had the experience of not getting into "pay" until he had removed the upper seven or eight feet of the "weathered" shale.

The same conditions, that prevail at the hereinbefore described mine, are present on Applicants Section 36, and, there is the possibility of developing a much larger ore body by reason of the fact that the beds slope down into the folded and faulted area, at the point of the "V".

Sec. 36
16N - 18W,
I.N.Sprecher,
Applicant
306 S.2nd St.
Gallup, N.M.

Over all areas, where the Dakota shale is present, there is more than normal radio activity indicated by the Scintillating Counters, and each of six shallow samples, taken from different locations, and tested by New Mexico Bureau of Mines and by A.E.C. at Grants, N.M., has shown low radio activity.

We have no written report from him, but Mr. Silas C.Brown

Attached Sheet No. 4 - Continued
to
D.M.E.A. Form
M.F. - 103

4 PHYSICAL DESCRIPTION - Continued.

a prominent and highly recommended consulting Geologist, of Durango, Colorado, examined Section 36, and recommended that we remove the weathered top portion of the Dakota shale with a bulldozer operation in the belief that the results would be similar to those at the Hyde mine in Section 12.

Attached Sheet No. 6
to
D. M. E. A. Form
MF-103

4 (d) The Section 36 is (by road) not more than 4 miles, North and East of the Town of Gallup, New Mexico, which is on the Main Line of the Santa Fe Railway and on U. S. Highway 66, and, via both these arteries of travel, it is about 50 miles to the Uranium treating plant of Anaconda Copper Mining Company near Grants, New Mexico.
Section 36 is only two and one-half miles North of the Railway and highway at points thereon that are two miles East of Gallup.
The section itself is very rough and broken.
The proposed bull-dozing operation will construct a road into the Section as it proceeds. Otherwise, to reach the Section, only minor road work needs to be done for the proposed exploration.

4 (c) Gallup has been a large Coal mining town for many, many years. Experienced man power is present, and all materials, supplies and equipment also are available. There are several well equipped and experienced operators in the Grants-Haystack Area who have splendid equipment, and who are available for the work that is contemplated.

Sec. 36 - 16N - 18W., N.M.P.M.
Ira N. Sprecher, Applicant
306 South Second Street
Gallup, New Mexico

Attached Sheet No. 7
to
D.M.E.A. Form
MF - 103

5 THE EXPLORATION PROJECT.

(b) The proposed work will consist of

(b-1) bull-dozing off the upper seven or eight feet of the shale beds in the lower Dakota formation, some of which dip at angles ranging from about 60° to almost vertical, (building a road thru the beds as the uncovering proceeds) to reach a presently inaccessible portion of the Section, where,

(b-2) Several holes will be drilled to test the Dakota sand-stone as well as the underlying Morrison formation where those beds fold down into the zone of weakness---- all as shown on the Map----attached sheet No. 5.

Sec. 36 16N - 18W., N.M.P.M.
Ira N. Sprecher, Applicant
306 South Second Street
Gallup, New Mexico

Attached Sheet No. 8
to
D.M.E.A. Form
M.F. - 103

5 THE EXPLORATION PROJECT

(d) Applicant has had no mine operating experience, but he, and several of his associates, have had business experience, operating their businesses for many years and/or are trained, experienced engineers, and, inasmuch as all the work of the project will be contracted to others, applicant and associates are amply qualified to supervise and direct the actual work, following the recommendations of the Geological advisers.

Attached Sheet No. 9
to
D.M.E.A. Form
MF-103

6 ESTIMATE OF COSTS

(a) Independent Contracts

200 hours (25 days, 8 hours each) of bulldozer work to be contracted at $10.00 per hour	2000.00
2400 feet of drilling (in twelve locations, as suggested by tests to be made following the bulldozing operations) to be contracted at $0.60 per foot for the first 100 feet, and at * $1.10 per foot for the second 100 feet	2040.00
Total	$4040.00

*Knowledge gained as the work progresses may suggest the drilling of one or more holes deeper than 200 feet, and, if such a change in program seems the wise thing to do, we shall make the change.

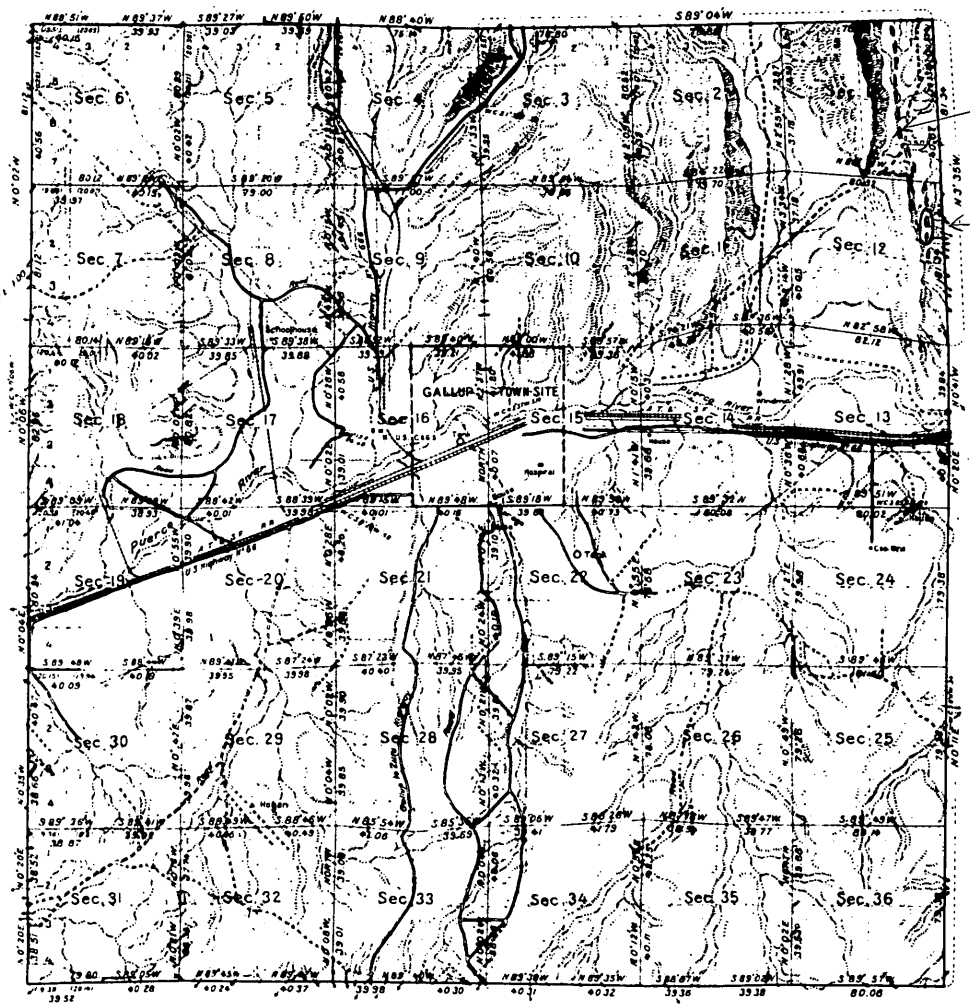
Sec. 36 - 16N - 18W., N.M.P.M.
Ira N. Sprecher, Applicant
306 South Second Street
Gallup, New Mexico

Attached Sheet No. 5 - Continued
to
D.M.E.A . Form
M.F. - 103

ORIGINAL

TOWNSHIP NO. 15 NORTH, RANGE NO. 18 WEST OF THE NEW MEXICO PRINCIPAL MERIDIAN, NEW MEXICO

Dependent Resurvey



Nutria Uplift
Approximate Course of Dakota Shale

Hyde Mine

This plat of the resurvey of T.15 N.,R.18 W.,delinea-tes a retracement and reestablishment of the lines of the original survey as shown upon the plat approved November 30,1881,in their true original position accord-ing to the best available evidence of the position of the original corners;all differences between the measure-ments shown on the original plat and those derived in the retracement have been distributed proportionally between accepted corners in accordance with surveying rules;reference will be made to the original plat for the showing of areas and more detailed descriptions of the various smaller subdivisions.

Authority for the resurvey is contained in letter "g" Santa Fe 042440 dated June 26, 1930, approved by the Assistant Secretary June 28, 1930.

Scale: 40 Chains to an Inch Area Resurveyed 23027.94 Acres

LINES DESIGNATED	BY WHOM SURVEYED	GROUP		MILEAGE		WHEN SURVEYED	
		Nº	DATE	MLS	CHS	BEGUN	COMPLETED
Exterior	E.H.Kimmell, U.S.S.	250	Jan 16, 1931	23	73.46	Mar 16, 1931	Apr 4, 1931
Subdivisional	" " "			59	76.35	"	"

Office of U.S. Supervisor of Surveys

Denver Colorado, April 27, 1932

The above plat of Township Nº 15 North, Range Nº 18 West of the New Mexico Principal Meridian, New Mexico, is strictly conformable to the field notes of the survey thereof which have been examined and approved.

Thomas Schmen
U.S. Supervisor of Surveys

DEPARTMENT OF THE INTERIOR
GENERAL LAND OFFICE
Washington, D.C., September 15, 1932

The survey represented by this plat having been correctly executed in accordance with the requirements of law and the regulations of this office, is hereby accepted.

Chas C. Snell
Assistant Commissioner

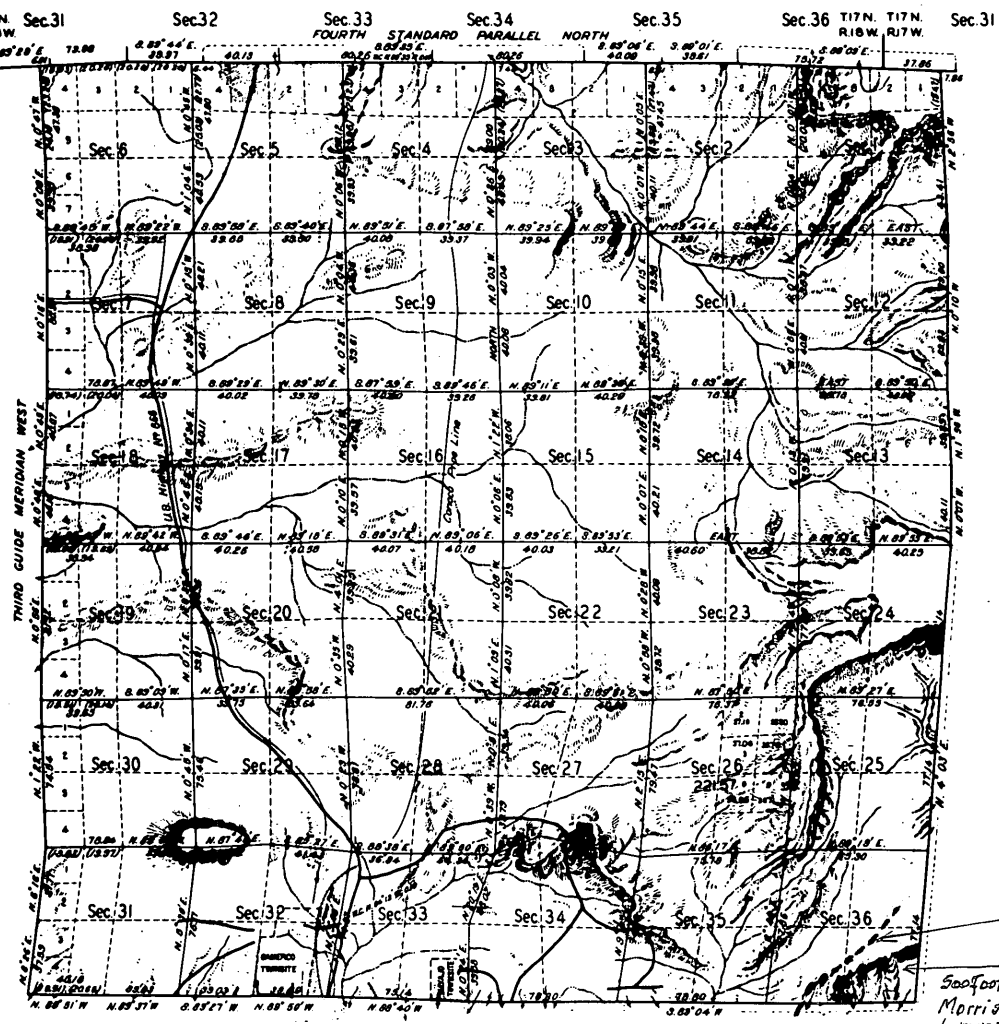
Sec. 36 - 16N-18W., N.M.P.M.
Ira N. Sprecher, Applicant
306 So. 2nd St., Gallup, N.M.

Attached Sheet No. 5 - Continued

ATTACHED SHEET No. 5
to
D.M.E.A. Form
M.F. - 103

TOWNSHIP Nº 16 NORTH, RANGE Nº 18 WEST, OF THE NEW MEXICO PRINCIPAL MERIDIAN, NEW MEXICO.

Dependent Resurvey



THIS PLAT OF THE RESURVEY OF T.16 N., R. 18 W., DELINEATES A RETRACEMENT AND REESTABLISHMENT OF THE LINES OF THE ORIGINAL SURVEY AS SHOWN UPON THE PLAT APPROVED JANUARY 17, 1882, IN THEIR TRUE ORIGINAL POSITION ACCORDING TO THE BEST AVAILABLE EVIDENCE OF THE POSITION OF THE ORIGINAL CORNERS; ALL DIFFERENCES BETWEEN THE MEASUREMENTS SHOWN ON THE ORIGINAL PLAT AND THOSE DERIVED IN THE RETRACEMENT HAVE BEEN DISTRIBUTED PROPORTIONALLY BETWEEN ACCEPTED CORNERS IN ACCORDANCE WITH SURVEYING RULES; REFERENCE WILL BE MADE TO THE ORIGINAL PLAT FOR THE SHOWING OF AREAS AND MORE DETAILED DESCRIPTIONS OF THE VARIOUS SMALLER SUBDIVISIONS, EXCEPT WHERE NEW LOTTINGS ARE SHOWN HEREON IN WHICH CASES REFERENCE WILL BE MADE TO THIS PLAT.

RESURVEY AUTHORIZED BY GENERAL LAND OFFICE LETTER "E" DATED MARCH 20, 1931.

Nutria Uplift
Approximate Course
of Dakota Shale

Almost Vertical face of
500 foot Mesa - Dakota Cap - thick
Morrison Member folds down
to meet Nutria Uplift

Main Magnetic Declination, 13° 30' E. Scale: 40 Chains to an Inch. Area Resurveyed, 22895.06 Acres.

LINES DESIGNATED	BY WHOM SURVEYED	GROUP		MILEAGE		WHEN SURVEYED	
		Nº	DATE	MLS.	CHS.	BEGUN	COMPLETED
Standard Parallel	Oscar B. Walsh USS	255	Mar 24, 1931	6	41.74	Sept 24, 1931	Nov 5, 1931
Exterior	" "	"	" "	11	74.47	" "	" "
Subdivisional	" "	"	" "	59	60.90	" "	" "

OFFICE OF U.S. SUPERVISOR OF SURVEYS
DENVER, COLORADO, APRIL 26, 1935

THE ABOVE PLAT OF TOWNSHIP Nº 16 NORTH, RANGE Nº 18 WEST, OF THE NEW MEXICO PRINCIPAL MERIDIAN, NEW MEXICO, IS STRICTLY CONFORMABLE TO THE FIELD NOTES OF THE SURVEY THEREOF WHICH HAVE BEEN EXAMINED AND APPROVED.

U. S. SUPERVISOR OF SURVEYS.

DEPARTMENT OF THE INTERIOR
GENERAL LAND OFFICE
WASHINGTON, D.C., MAY 17, 1935.

THE SURVEY REPRESENTED BY THIS PLAT HAVING BEEN CORRECTLY EXECUTED IN ACCORDANCE WITH THE REQUIREMENTS OF LAW AND THE REGULATIONS OF THIS OFFICE, IS HEREBY ACCEPTED.

Antoinette Funk

ASSISTANT COMMISSIONER

Sec. 36 - 16N - 18W., N.M.P.M.
Ira N. Sprecher, Applicant
306 So. 2nd St., Gallup, N.M.

Attached Sheet No. 5

Geology and base by Mirsky, Arthur, 1953, Uranium mineralization in the Dakota sandstone, Zuni uplift, New Mexico: U. S. Atomic Energy Commission, RME-47

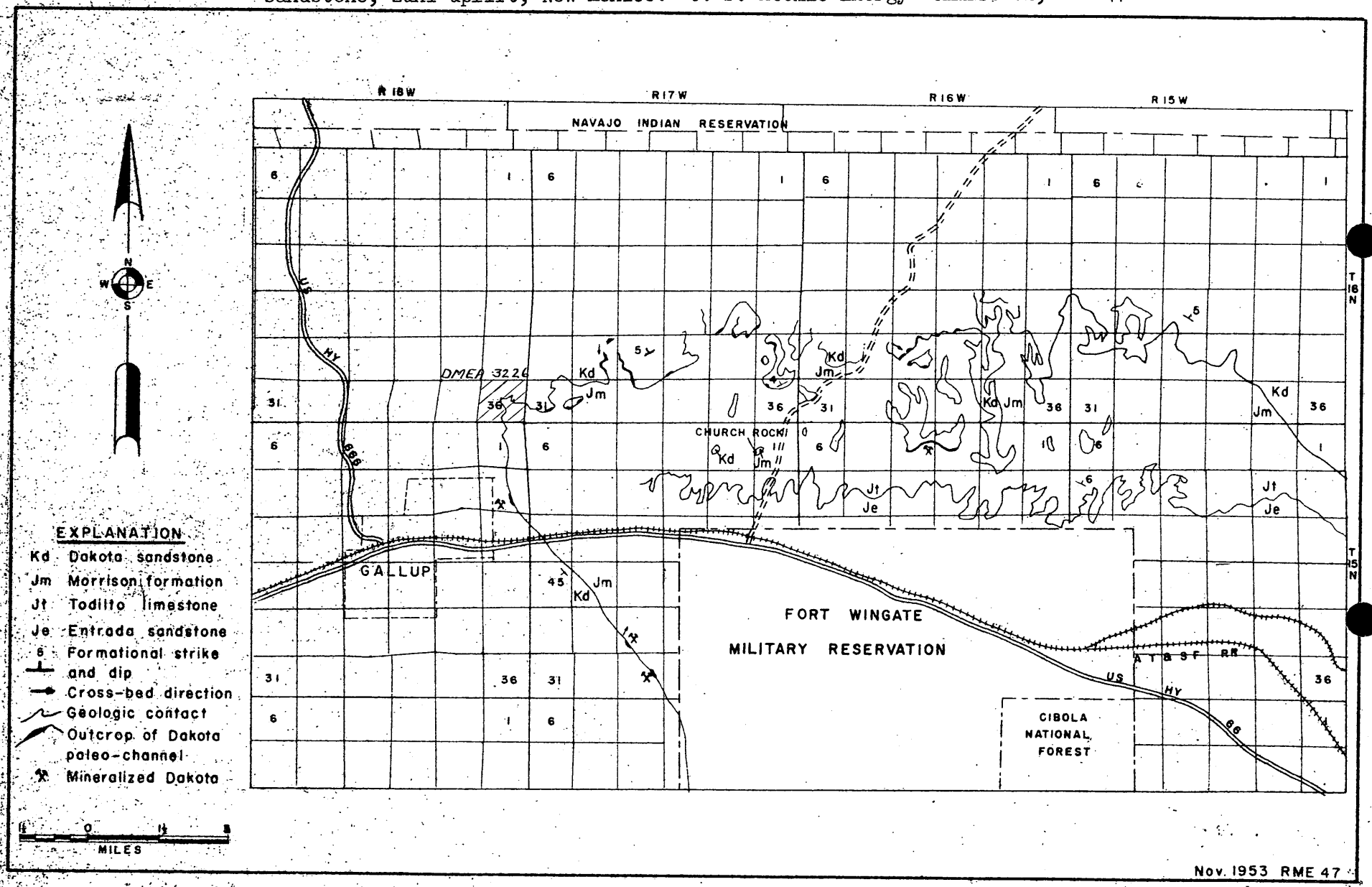


Figure 1-Generalized geologic map, Church Rock area, McKinley County, New Mexico