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

Selfridge
Johnson
Mitchell

DEC 20 1954

Mr. W. H. King, Executive Officer
DMEA Field Team, Region IV
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA-3505 (Uranium)
Payrock Uranium, Inc.
Payrock Mines
Mesa County, Colorado

Dear Mr. King:

This will acknowledge your memorandum dated December 13, 1954, relating to the subject docket in which you request advice as to whether or not upon the filing of additional detailed information the docket may be opened for reconsideration under Docket No. DMEA-3505.

Under the circumstances explained in your letter of November 22, 1954, in which you denied the application and advised the applicant that it could file a new application for DMEA aid upon completing the geologic work necessary, a new docket number should be assigned the application of Payrock Uranium, Inc., upon its submission to your office.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (JB)

Approved:

C. H. JOHNSON

Member, Bureau of Mines (JB)

Thor H. Kiilsgaard

Member, Geological Survey (JB)

REAdams/esf (12/20/54)
Copy to: Docket
Admr. R. File
Oper. Committee
Messrs: T. H. Kiilsgaard, Rm. 5222
J. E. Crawford, Rm. 3641
Ellis
Adams

12/16/54 gla

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

Defense Minerals Administration
RECEIVED
DEC 16 1954

224 New Customhouse
Denver 2, Colorado

December 13, 1954

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 3505, Payrock Uranium, Inc., Payrock Mines, Mesa County, Colorado

Enclosed is a copy of a letter from Russell P. Kramer, President, Payrock Uranium, Inc., which states that additional information regarding this docket will be available within the next few days. Mr. Kramer would like to have the application reopened.

On November 22, four copies of the examination report together with two copies of Form 3B and a copy of a letter of denial to the applicant were transmitted to your office.

It is our understanding that the project will be essentially the same as that originally submitted but that more detailed information will be supplied.

Please advise us if this docket may be reopened under the same number when the additional information is received.

W. H. King

Enclosure

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

Defense Minerals Administration
RECEIVED
DEC 16 1954

224 New Customhouse
Denver 2, Colorado

December 13, 1954

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 3505, Payrock Uranium, Inc., Payrock Mines, Mesa County, Colorado

Enclosed is a copy of a letter from Russell P. Kramer, President, Payrock Uranium, Inc., which states that additional information regarding this docket will be available within the next few days. Mr. Kramer would like to have the application reopened.

On November 22, four copies of the examination report together with two copies of Form 3B and a copy of a letter of denial to the applicant were transmitted to your office.

It is our understanding that the project will be essentially the same as that originally submitted but that more detailed information will be supplied.

Please advise us if this docket may be reopened under the same number when the additional information is received.

W H King
W. H. King

Enclosure

C O P Y

Russell P. Kramer
President

AEGIS CASUALTY INSURANCE COMPANY
621 Kittredge Building
Denver 2, Colorado

December 9, 1954

Mr. W. H. King
Defense Minerals Exploration Administration
United States Department of Interior
224 New Customhouse
Denver 2, Colorado

Dear Mr. King:

Reference is made to your letter of November 22nd addressed to Payrock Uranium, Inc., which bears your Docket No. DMEA 3505. In this letter you stated that on the basis of the information submitted, the application for loan was denied without prejudice.

This is to advise that we now have additional pertinent information which was apparently not available to your Engineer's at the time the original application was submitted. We are preparing this information for submission to your office so that it may be considered along with the data supplied with our original application.

This letter is merely to notify you that the additional information will be forthcoming in the next few days, and to request that you hold this file open for further consideration in the light of the additional data.

Sincerely,

PAYROCK URANIUM, INC.

/s/ R. P. Kramer

Russell P. Kramer
President

RPK:bl

COPY

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

November 22, 1954

224 New Customhouse
Denver 2, Colorado

Payrock Uranium, Inc.
901 Texas Avenue
Grand Junction, Colorado

Re: Docket No. DMEA 3505

Gentlemen:

Reference is made to your application for Government aid on the Payrock Mines, Mesa County, Colorado.

A careful study of your property and data available to this agency reveals that your proposed extensive exploration program is not justified by any mineralization manifested at this time. No detailed geologic map of the claim area has been submitted from which an exploration program could be based on favorable target areas.

Under these circumstances your application is denied without prejudice. Geologic mapping cannot be considered as exploration when that mapping is required to establish the presence and location of exploration targets. It is suggested that should you elect, at some later date, to do the geologic work necessary to establish the presence and location of exploration targets we would be pleased to give consideration to a new application for DMEA aid on your property.

Very truly yours,

/s/ W. H. KING
W. H. King

/s/ E. N. HARSHMAN
for E. H. Koschmann

Field Team, Region IV

HMC:dm
cc: Administrator
DMEA
AHKoschmann
WMTraver
ALBrokaw
Mining Division
AEC
Chron

Reviewed by
DMEA OPERATING COMMITTEE
12-6-54
(date)

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

224 New Customhouse
Denver 2, Colorado

November [illegible]

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: [illegible]

From: Field Team, Region IV

Subject: Report of Examination, DMEA Docket [illegible] (Uranium), Haycock Uranium, Inc., Haycock Mine, [illegible] County, Colorado.

Enclosed are four copies of the report of examination on the subject docket, a copy of the letter of denial to the applicant, and two copies of Form [illegible].

W. H. King
W. H. King

for E. N. Harshman
E. N. Harshman

Reviewed by
DMEA OPERATING COMMITTEE
12-6-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

[illegible] Division
Region IV

[illegible]

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC [illegible] 1954

MEMORANDUM

To: [illegible] Field Team, Region IV

From: [illegible], Region IV

Subject: [illegible] (Uranium) [illegible] Uranium, Inc., [illegible] Mines, Mesa County, Colorado

[illegible]

[illegible]

[illegible]

[illegible]

W H King
[illegible] King

Reviewed by
DMEA OPERATING COMMITTEE
12-6-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
November 17, 1954

Memorandum

To: Executive Officer, DMEA Field Team, Region IV

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

Subject: DMEA 3505 (Uranium) Fayrock Uranium, Inc. (Fayrock claims) Mesa County, Colorado

Enclosed are the original and ten copies of a memorandum by M. E. Salsbury recommending denial of the captioned loan application which has my approval.

The brochure forwarded by your memorandum of September 21, 1954, requesting an examination and report, and a copy of the geologic report loaned us by I. H. Barnham of the Geological Survey are enclosed also.

W. H. Weaver

Enclosures

as 10
DMEA 3505
DMEA Corres.

WHW/gmh

Reviewed by
DMEA CLEARING COMMITTEE
12-6-54
(date)

IN REPLY REFER TO:

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

November 4, 1954

Memorandum

To: DMEA Field Team, Region IV

From: A. M. Kaechmann

Subject: DMEA Docket 3505, Payrock Uranium, Inc., Payrock Mines, Tenderfoot Mesa, Mesa County, Colorado

Enclosed are 11 copies of a geologic report by Lee J. Eicher of the U. S. Geological Survey covering the above docket.

Eicher concludes that although small ore deposits may occur in the Salt Wash member of the Morrison formation beneath the Payrock claim group, the program outlined by the applicant will not lead to the discovery of significant amounts of uranium ore. He recommends that the application for exploration assistance be denied until the applicant submits a geologic map of the claim area and a program of exploration based on favorable target areas shown by the geologic map.

Geologic mapping cannot be considered as exploration, when that mapping is required to establish the presence and location of exploration targets. It therefore appears that the application for exploration assistance should be denied without prejudice. Should the applicant subsequently do the geologic work necessary to establish the presence and location of exploration targets, a new program and application for Government assistance can be submitted.

E. M. Hawkman
per A. M. Kaechmann
Supervising Geologist
Colorado-Wyoming

Enclosures (11)

Reviewed by
DMEA OPERATING COMMITTEE
12-6-54
(date)

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

October 29, 1954

Memorandum

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

From: Arnold L. Brokaw, District Supervisor

Subject: DMEA 3505, Payrock Uranium, Inc., Payrock Mines, Tenderfoot Mesa, Mesa County, Colorado

Transmitted herewith are eleven copies of a geologic report by Lee J. Eicher, covering a field examination of the above-referenced DMEA application.

After studying the Payrock claims, Eicher concludes that the first step toward efficient exploration of the claims would be the preparation of the areal geologic map showing, among other things, favorability criteria with regard to uranium ore deposition. Eicher is of the opinion that the geologic map should be prepared for the applicant's own account and should be submitted to DMEA before a drilling project is considered. The applicant contends that the cost of preparing such a geologic map would properly be an exploration expense and should be included in the costs of the proposed exploration program, with participation by DMEA.

If the costs of the geologic map can not be included under the terms of a DMEA contract, then we recommend that the applicant be informed that further consideration of a drilling program will be delayed until the map is presented for Field Team consideration.

This application has been brought to the attention of the U. S. Atomic Energy Commission, Exploration Division, Grand Junction Operations Office. The Commission has been asked for its help and advice in evaluating the subject property.

WPWilliams
For Arnold L. Brokaw

WPW/mlr

Enclosures 11

Reviewed by
DMEA OPERATING COMMITTEE
12-6-54
(date)

Defense Minerals Exploration Adm.
RECEIVED
DEC - 2 1954

UNITED STATES DEPARTMENT OF THE INTERIOR

DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION
REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 3505, Payrock Uranium, Inc., Payrock Mines, Tenderfoot Mesa
Mesa County, Colorado

Uranium

Geologic Report

by

Lee J. Eicher
U. S. Geological Survey

October 29, 1954

Reviewed by
DMEA OPERATING COMMITTEE
12-6-54
(date)

DMEA 3505

INTRODUCTION AND SUMMARY

The Payrock Uranium, Inc., 901 Texas Avenue, Grand Junction, Colo., has applied (DMEA Docket No. 3505) to the Defense Minerals Exploration Administration for aid to conduct exploration for uranium ore on the Payrock claims 1 through 17, in secs. 17, 18, and 19, T. 51 N., R. 18 W., and sec. 24, T. 51 N., R. 19 W., New Mexico Principal Meridian, Mesa County, Colo. (fig. 1). The applicant proposes to do an unspecified amount of drilling at a total estimated cost of $25,000.

The property was examined October 7, 1954, by M. H. Salsbury, U. S. Bureau of Mines, W. P. Williams and L. J. Eicher, U. S. Geological Survey, and H. E. Roper, representative for the applicant.

The Payrock mining claims are located on the north side of Tenderfoot Mesa in the eastern part of the Gateway mining district. The claims are accessible by two roads. One access road (11 mi.) connects with Colorado State Highway 141 about four miles northeast of Gateway, Colo. That road is very steep and becomes impassable at times during the winter and spring months. The other road extends south to Outlaw Mesa, then northeast to the Forest Service road on the Uncompahgre Plateau and connects with Colorado State Highway 141 about 15 miles southwest of Whitewater, Colo.

The applicant states that Max A. Krey, consulting geologist, would supervise operations. He appears capable to perform the supervisory duties.

GEOLOGY AND ORE DEPOSITS

The rocks exposed in the vicinity of the Payrock claims are Mesozoic sediments that consist, from oldest to youngest, of the Upper Jurassic Morrison formation and the Lower Cretaceous Burro Canyon formation. The Morrison formation is subdivided into the Salt Wash member, which consists of sandstone and interbedded mudstone lenses, and the overlying Brushy Basin member, which consists primarily of variegated red and gray shales and several interbedded conglomeratic sandstone lenses. Overlying the Brushy Basin member is the Burro Canyon formation which is predominantly a conglomeratic sandstone containing lenses of gray shale.

All of the significant uranium-bearing deposits mined in the vicinity of the Payrock claims occur within the sandstone lenses in the upper one-third of the Salt Wash member of the Morrison formation. On fresh exposures the sandstones range in color from white to gray, or light red. Near deposits the sandstone is commonly speckled with limonite stains. The sandstone is composed dominantly of medium-fine to medium-sized quartz grains with minor amounts of interstitial clay and grains of pink and white chert and feldspar.

The sandstones are commonly lenticular and irregularly bedded. Scour and fill type of sedimentation formed thick, elongated, narrow lenses that are composed of sandstone containing thin, discontinuous lenses of mudstone, thin zones of mudstone-pebble conglomerate, and abundant fragments and masses of carbonaceous material. Uranium-bearing deposits are commonly localized in or near these "trash pockets". In the vicinity of the deposits the mudstone in contact with with the sandstone is gray-green in color.

Individual ore bodies vary in size. Minimum and maximum dimensions are about 1/2 to 1-1/2 feet thick, 3-15 feet wide, and 20-50 feet long. The ore bodies are commonly connected by thin seams of high-grade material. The average mineralized area (group of deposits) is 40-60 feet wide and 70-100 feet long.

The Payrock claims have produced 1,030 tons of ore averaging 0.27 percent U_3O_8 and 1.51 percent V_2O_5 during the period 1949 through June 1954.

PROPOSED EXPLORATION

The applicant proposes to explore the claims by means of an unspecified number of drill holes. The applicant proposes to spend $20,000 for rotary air drilling. The proposed drilling pattern consists of two phases. The first phase would be on a 425-foot diagonal spacing; 600-foot longitudinal spacing; the second phase would be on a 300-foot grid pattern in the favorable areas. The remaining holes would then be drilled on an unspecified spacing in the most favorable areas.

Since all available information shows that the mineralized areas are less than 100 feet in diameter and the favorable areas are probably not much larger, this plan of drilling does not seem feasible. Drilling by the Atomic Energy Commission on similar patterns in the immediate vicinity (fig. 2), suggested that geologic trends and favorable areas could not be delimited by this method. Also, geologic guides to areas favorable for the occurrence of deposits normally can not be obtained from air-rotary drilling.

A suggested alternative would be to map the detailed geology of the upper part of the Salt Wash member. Mapping would give information as to the favorableness of the outcrop of the Salt Wash sandstone units. A minimum of diamond-drill holes would then be drilled in specified areas to further delimit the favorable areas. This would logically be followed by a number of close-spaced holes (50 to 100-feet apart) to search for ore deposits. The close-spaced holes could probably be drilled by air-rotary methods. Although no accurate assays could be obtained by this method, the approximate depth, thickness, and grade of the mineralized material would be obtained by using a gamma-ray unit to probe the holes.

Therefore, it is suggested that the applicant complete a geologic map of the area showing the location and thickness of sandstone units, thickness of green mudstone in contact with the sandstone, and presence and relative amount of carbonaceous material in the sandstone. With that information, the applicant can probably submit a more logical proposed drilling program.

CONCLUSIONS AND RECOMMENDATIONS

Field examinations of the Payrock claims shows that geologic conditions may be favorable for the occurrence of uranium-bearing deposits. The deposits are likely to be small targets that would not be discovered by the applicant's proposed drilling program. It is recommended that the application be denied until the applicant submits the suggested geologic map accompanied by a more logical proposed drilling program.

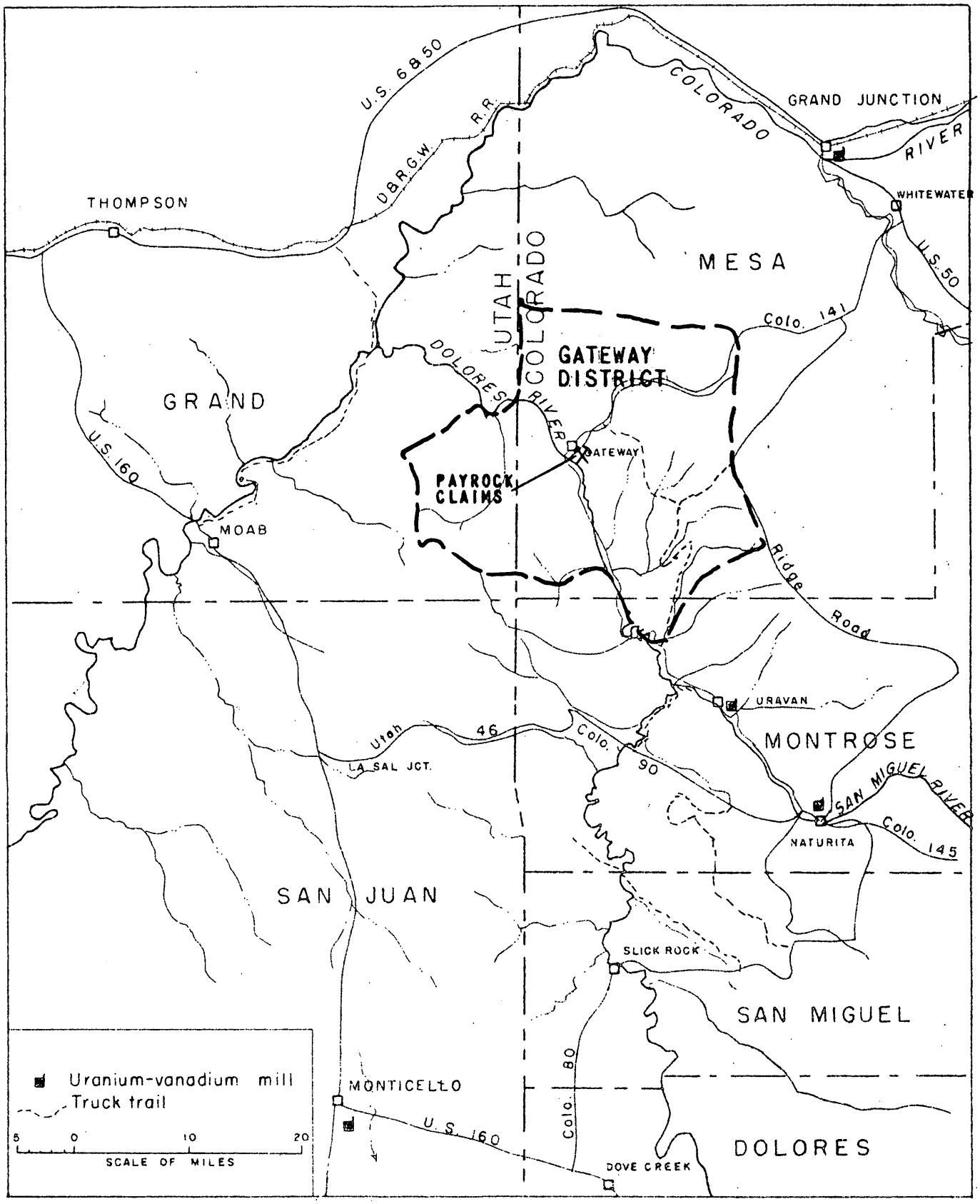
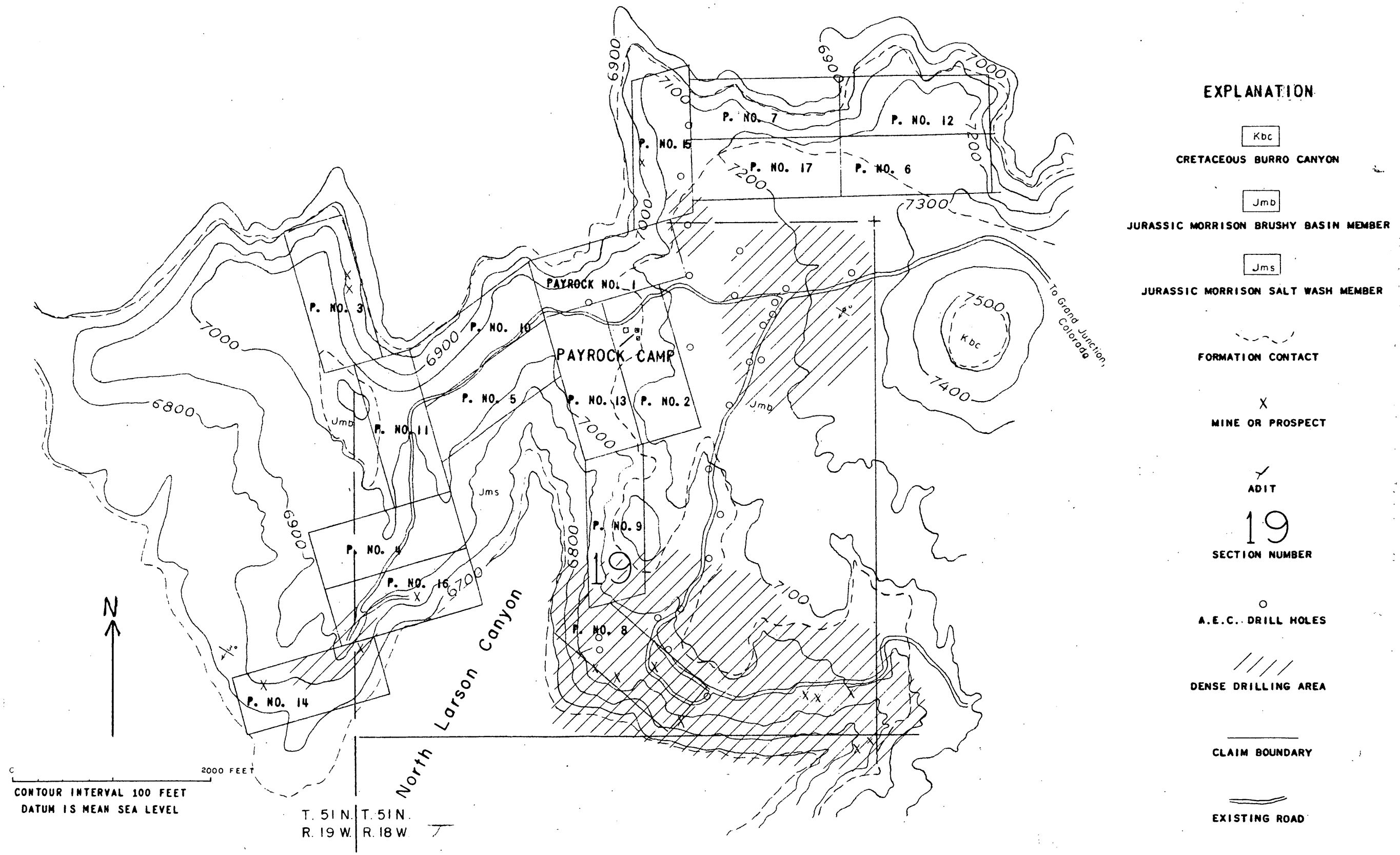


Figure 1. INDEX MAP OF PART OF THE COLORADO PLATEAU SHOWING LOCATION OF PAYROCK CLAIMS. GATEWAY DISTRICT, MESA COUNTY, COLORADO



Base from U.S.G.S. Gateway quadrangle map
GEOLOGY AFTER F.W. CATER JR.

Figure 2. MAP SHOWING THE PAYROCK CLAIMS, MESA COUNTY, COLORADO

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Reviewed by
DMEA OPERATING COMMITTEE
12-6-54
(date)

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
November 15, 1954

Memorandum

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

From: M. H. Salisbury

Subject: DMEA 3505 (Uranium) Fayrock Uranium, Inc. (Fayrock claims)
Mesa County, Colorado

An examination of the subject property was made by the writer and Leo J. Richer and W. P. Williams, Geological Survey, on October 7, 1954. They were accompanied by H. H. Roper of Grand Junction, Colorado, representing the applicant company which was requested Government assistance in exploration of 17 located claims, Fayrock Nos. 1 to 17, located in secs. 17, 18, and 19, T. 51 N., R. 18 W. and sec. 24, T. 51 N., R. 19 W., Mesa County, Colorado, 15 miles by access road and Colorado Highway 141 from Gateway, Colorado. An unspecified amount of rotary air-drilling at an estimated cost of $85,000.00, Government participation 75 percent, or $18,750.00, was proposed, to be carried out under the supervision of Max H. Bray, consultinggeologist.

The Geological Survey members of the examining team consulted with the Atomic Energy Commission, particularly in reference to drilling done by the Commission on the claims.

There have been small ore bodies mined on the property and on adjoining claims, all in the upper horizons of the Salt Wash member of the Jurassic-Morrison formation, and there is a reasonable possibility of finding similar deposits by further drilling exploration.

The results of Atomic Energy Commission drilling and rotary air drilling recently carried on by the applicant have been very poor. The proposed drilling was in two phases, the first on a 165-foot diagonal spacing and 600-foot longitudinal spacing; the second phase on a 300-foot grid pattern in the favorable areas. Remaining footage was to be used on an unspecified spacing in favorable areas. This pattern is similar to the one employed unsuccessfully by the Atomic Energy Commission.

Richer believes that the proposed drilling plan is not suitable for exploring an area where the probable target mine is less than 100 feet in maximum dimension. He suggests that a necessary preliminary to working out a feasible drilling program is preparation of a detailed geologic map showing location in outcrops and mine workings of sandstone units and green sandstone, their thickness, and the relative amount of carbonaceous material in the sandstone. From this information, the applicant could probably

review of a suitable drilling program which might include some core drilling, to be followed by rotary air drilling. It is of the opinion that this preliminary work is the responsibility of the applicant, and the Bureau of Mines impressionable reserve. The applicant apparently made this work done as part of the exploration project.

Pending submission of an acceptable exploration plan, it is recommended that the proposed RMA project be denied.

L. A. Everett, for
H. E. Salsbury
Mining Engineer

cc: 10
RMA 1505
RMA Corr.

HES/pmh

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

224 New Customhouse
Denver 2, Colorado

November 22, 1954

Payrock Uranium, Inc.
901 Texas Avenue
Grand Junction, Colorado

Re: Docket No. DMEA 3505

Gentlemen:

Reference is made to your application for Government aid on the Payrock Mines, Mesa County, Colorado.

A careful study of your property and data available to this agency reveals that your proposed extensive exploration program is not justified by any mineralization manifested at this time. No detailed geologic map of the claim area has been submitted from which an exploration program could be based on favorable target areas.

Under these circumstances your application is denied without prejudice. Geologic mapping cannot be considered as exploration when that mapping is required to establish the presence and location of exploration targets. It is suggested that should you elect, at some later date, to do the geologic work necessary to establish the presence and location of exploration targets we would be pleased to give consideration to a new application for DMEA aid on your property.

Very truly yours,

W H King
W. H. King

HMC:dm

cc: Administrator
DMEA
AHKoschmann
WMTraver
ALBrokaw
Mining Division
AEC
Chron

for E. N. Haushman
A. H. Koschmann

Field Team, Region IV

Reviewed by
DMEA OPERATING COMMITTEE

(date)

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

224 New Customhouse
Denver 2, Colorado

November 22, 1954

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Field Team, Region IV

Subject: Report of Examination, DMEA Docket 3505 (Uranium), Payrock Uranium, Inc., Payrock Mine, Mesa County, Colorado.

Enclosed are four copies of the report of examination on the subject docket, a copy of the letter of denial to the applicant, and two copies of Form 3b.

W H King
W. H. King

for E. N. Hawkinson
A. H. Koschmann

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

224 New Customhouse
Denver 2, Colorado

November 22, 1954

Memorandum

To: DMEA Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Report of Examination, DMEA Docket 3505 (Uranium), Payrock Uranium, Inc., Payrock Mines, Mesa County, Colorado

Enclosed are 11 copies of a memorandum engineering report on the subject docket.

The applicant requested $25,000 to explore the property by rotary air drilling.

The results obtained by the AEC drilling and the applicant's drilling in this area have not been satisfactory. The target areas are small and detailed geologic mapping is deemed necessary to base an exploration program on favorable target areas.

The engineer examiner recommends that the application be denied and we concur in this recommendation.

W H King

W. H. King

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
November 17, 1954

Memorandum

To: Executive Officer, DMEA Field Team, Region IV

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

Subject: DMEA 3505 (Uranium) Payrock Uranium, Inc. (Payrock claims)
Mesa County, Colorado

Enclosed are the original and ten copies of a memorandum by M. N. Salsbury recommending denial of the caption loan application which has my approval.

The brochure forwarded by your memorandum of September 21, 1954, requesting an examination and report, and a copy of the geologic report loaned us by E. N. Harshman of the Geological Survey are enclosed also.

W. M. Traver

W. M. Traver

enclosures

cc 10
DMEA 3505
DMEA Chron.

WMT/pah

IN REPLY REFER TO:

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

November 4, 1954

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 3505, Payrock Uranium, Inc., Payrock Mines, Tenderfoot Mesa, Mesa County, Colorado

Enclosed are 11 copies of a geologic report by Lee J. Eicher of the U. S. Geological Survey covering the above docket.

Eicher concludes that although small ore deposits may occur in the Salt Wash member of the Morrison formation beneath the Payrock claim group, the program outlined by the applicant will not lead to the discovery of significant amounts of uranium ore. He recommends that the application for exploration assistance be denied until the applicant submits a geologic map of the claim area and a program of exploration based on favorable target areas shown by the geologic map.

Geologic mapping cannot be considered as exploration, when that mapping is required to establish the presence and location of exploration targets. It therefore appears that the application for exploration assistance should be denied without prejudice. Should the applicant subsequently do the geologic work necessary to establish the presence and location of exploration targets, a new program and application for Government assistance can be submitted.

E. M. Hauchman
for A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (11)

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

October 29, 1954

Memorandum

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

From: Arnold L. Brokaw, District Supervisor

Subject: DMEA 3505, Payrock Uranium, Inc., Payrock Mines, Tenderfoot Mesa, Mesa County, Colorado

Transmitted herewith are eleven copies of a geologic report by Lee J. Eicher, covering a field examination of the above-referenced DMEA application.

After studying the Payrock claims, Eicher concludes that the first step toward efficient exploration of the claims would be the preparation of the areal geologic map showing, among other things, favorability criteria with regard to uranium ore deposition. Eicher is of the opinion that the geologic map should be prepared for the applicant's own account and should be submitted to DMEA before a drilling project is considered. The applicant contends that the cost of preparing such a geologic map would properly be an exploration expense and should be included in the costs of the proposed exploration program, with participation by DMEA.

If the costs of the geologic map can not be included under the terms of a DMEA contract, then we recommend that the applicant be informed that further consideration of a drilling program will be delayed until the map is presented for Field Team consideration.

This application has been brought to the attention of the U. S. Atomic Energy Commission, Exploration Division, Grand Junction Operations Office. The Commission has been asked for its help and advice in evaluating the subject property.

WPWilliams
For Arnold L. Brokaw

WPW/mlr

Enclosures 11

UNITED STATES DEPARTMENT OF THE INTERIOR

DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION
REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 3505, Payrock Uranium, Inc., Payrock Mines, Tenderfoot Mesa
Mesa County, Colorado

Uranium

Geologic Report

by

Lee J. Eicher
U. S. Geological Survey

October 29, 1954

DMEA 3505

DEPARTMENT OF THE INTERIOR
Defense Minerals Adm.
RECEIVED
DEC - 2 1954

INTRODUCTION AND SUMMARY

The Payrock Uranium, Inc., 901 Texas Avenue, Grand Junction, Colo., has applied (DMEA Docket No. 3505) to the Defense Minerals Exploration Administration for aid to conduct exploration for uranium ore on the Payrock claims 1 through 17, in secs. 17, 18, and 19, T. 51 N., R. 18 W., and sec. 24, T. 51 N., R. 19 W., New Mexico Principal Meridian, Mesa County, Colo. (fig. 1). The applicant proposes to do an unspecified amount of drilling at a total estimated cost of $25,000.

The property was examined October 7, 1954, by M. H. Salsbury, U. S. Bureau of Mines, W. P. Williams and L. J. Eicher, U. S. Geological Survey, and H. E. Roper, representative for the applicant.

The Payrock mining claims are located on the north side of Tenderfoot Mesa in the eastern part of the Gateway mining district. The claims are accessible by two roads. One access road (11 mi.) connects with Colorado State Highway 141 about four miles northeast of Gateway, Colo. That road is very steep and becomes impassable at times during the winter and spring months. The other road extends south to Outlaw Mesa, then northeast to the Forest Service road on the Uncompahgre Plateau and connects with Colorado State Highway 141 about 15 miles southwest of Whitewater, Colo.

The applicant states that Max A. Krey, consulting geologist, would supervise operations. He appears capable to perform the supervisory duties.

GEOLOGY AND ORE DEPOSITS

The rocks exposed in the vicinity of the Payrock claims are Mesozoic sediments that consist, from oldest to youngest, of the Upper Jurassic Morrison formation and the Lower Cretaceous Burro Canyon formation. The Morrison formation is subdivided into the Salt Wash member, which consists of sandstone and interbedded mudstone lenses, and the overlying Brushy Basin member, which consists primarily of variegated red and gray shales and several interbedded conglomeratic sandstone lenses. Overlying the Brushy Basin member is the Burro Canyon formation which is predominantly a conglomeratic sandstone containing lenses of gray shale.

All of the significant uranium-bearing deposits mined in the vicinity of the Payrock claims occur within the sandstone lenses in the upper one-third of the Salt Wash member of the Morrison formation. On fresh exposures the sandstones range in color from white to gray, or light red. Near deposits the sandstone is commonly speckled with limonite stains. The sandstone is composed dominantly of medium-fine to medium-sized quartz grains with minor amounts of interstitial clay and grains of pink and white chert and feldspar.

The sandstones are commonly lenticular and irregularly bedded. Scour and fill type of sedimentation formed thick, elongated, narrow lenses that are composed of sandstone containing thin, discontinuous lenses of mudstone, thin zones of mudstone-pebble conglomerate, and abundant fragments and masses of carbonaceous material. Uranium-bearing deposits are commonly localized in or near these "trash pockets". In the vicinity of the deposits the mudstone in contact with with the sandstone is gray-green in color.

Individual ore bodies vary in size. Minimum and maximum dimensions are about 1/2 to 1-1/2 feet thick, 3-15 feet wide, and 20-50 feet long. The ore bodies are commonly connected by thin seams of high-grade material. The average mineralized area (group of deposits) is 40-60 feet wide and 70-100 feet long.

The Payrock claims have produced 1,030 tons of ore averaging 0.27 percent U_3O_8 and 1.51 percent V_2O_5 during the period 1949 through June 1954.

PROPOSED EXPLORATION

The applicant proposes to explore the claims by means of an unspecified number of drill holes. The applicant proposes to spend $20,000 for rotary air drilling. The proposed drilling pattern consists of two phases. The first phase would be on a 425-foot diagonal spacing; 600-foot longitudinal spacing; the second phase would be on a 300-foot grid pattern in the favorable areas. The remaining holes would then be drilled on an unspecified spacing in the most favorable areas.

Since all available information shows that the mineralized areas are less than 100 feet in diameter and the favorable areas are probably not much larger, this plan of drilling does not seem feasible. Drilling by the Atomic Energy Commission on similar patterns in the immediate vicinity (fig. 2), suggested that geologic trends and favorable areas could not be delimited by this method. Also, geologic guides to areas favorable for the occurrence of deposits normally can not be obtained from air-rotary drilling.

A suggested alternative would be to map the detailed geology of the upper part of the Salt Wash member. Mapping would give information as to the favorableness of the outcrop of the Salt Wash sandstone units. A minimum of diamond-drill holes would then be drilled in specified areas to further delimit the favorable areas. This would logically be followed by a number of close-spaced holes (50 to 100-feet apart) to search for ore deposits. The close-spaced holes could probably be drilled by air-rotary methods. Although no accurate assays could be obtained by this method, the approximate depth, thickness, and grade of the mineralized material would be obtained by using a gamma-ray unit to probe the holes.

Therefore, it is suggested that the applicant complete a geologic map of the area showing the location and thickness of sandstone units, thickness of green mudstone in contact with the sandstone, and presence and relative amount of carbonaceous material in the sandstone. With that information, the applicant can probably submit a more logical proposed drilling program.

CONCLUSIONS AND RECOMMENDATIONS

Field examinations of the Payrock claims shows that geologic conditions may be favorable for the occurrence of uranium-bearing deposits. The deposits are likely to be small targets that would not be discovered by the applicant's proposed drilling program. It is recommended that the application be denied until the applicant submits the suggested geologic map accompanied by a more logical proposed drilling program.

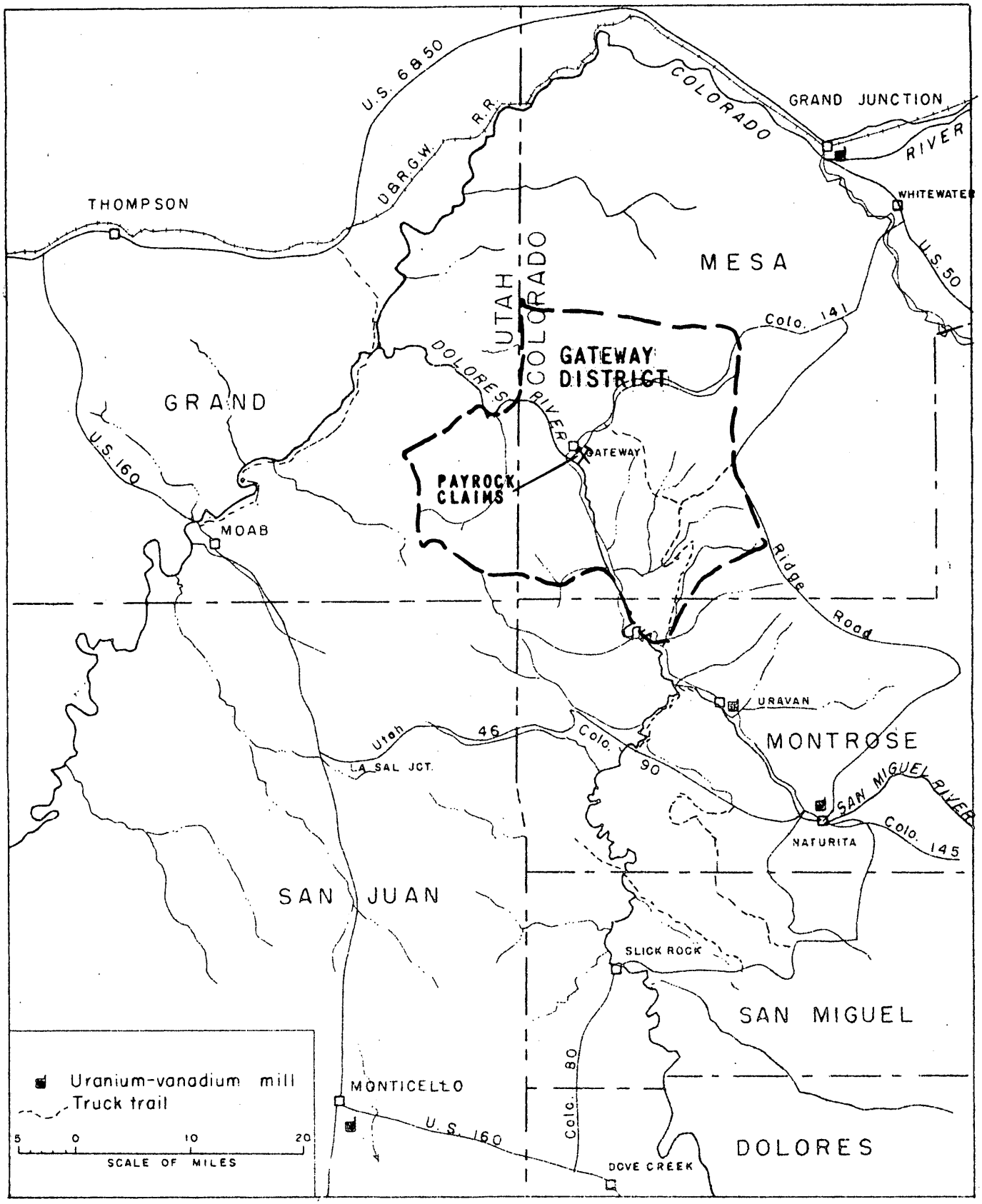
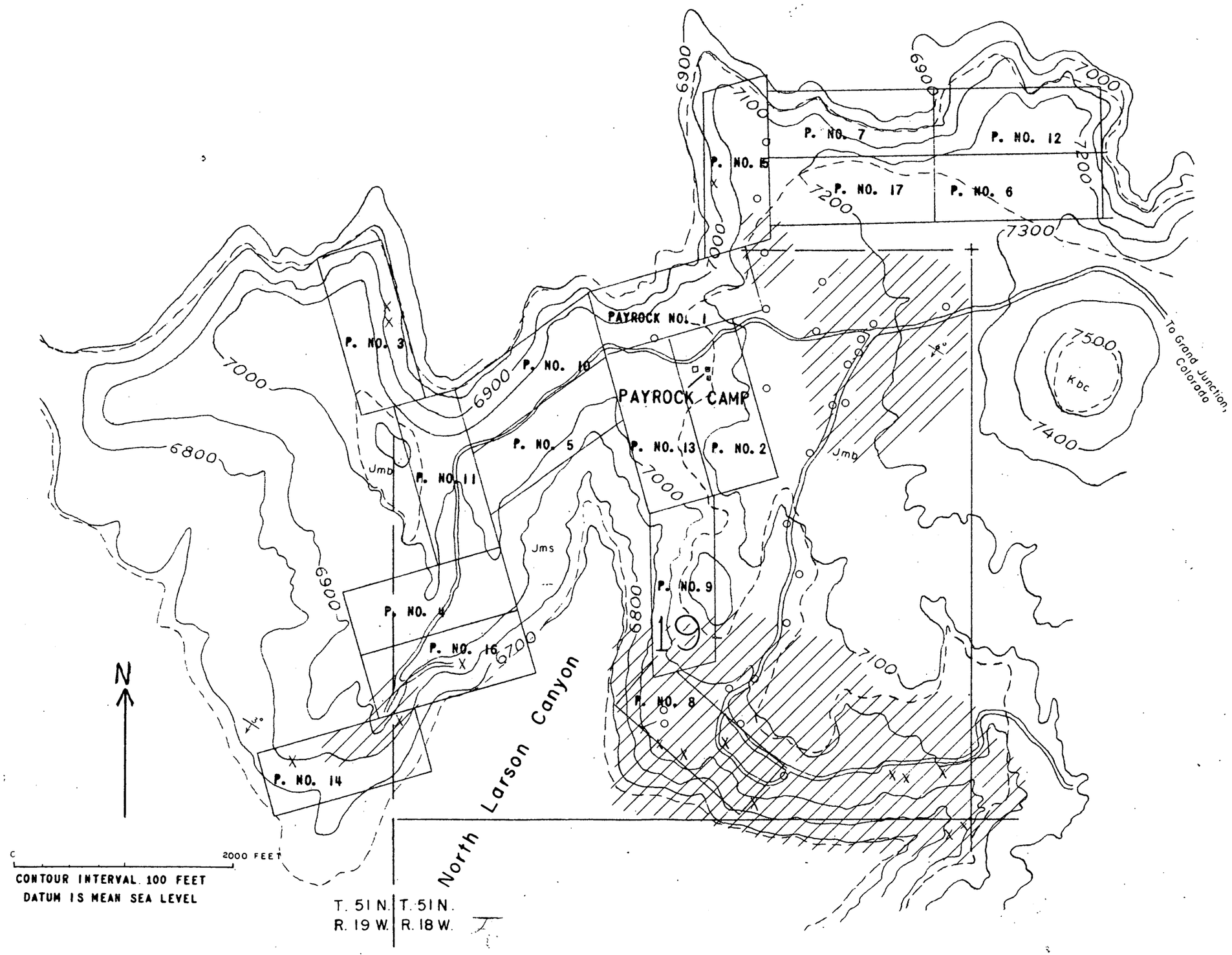


Figure 1. INDEX MAP OF PART OF THE COLORADO PLATEAU SHOWING LOCATION OF PAYROCK CLAIMS. GATEWAY DISTRICT, MESA COUNTY, COLORADO



EXPLANATION

Kbc — CRETACEOUS BURRO CANYON

Jmb — JURASSIC MORRISON BRUSHY BASIN MEMBER

Jms — JURASSIC MORRISON SALT WASH MEMBER

FORMATION CONTACT

X — MINE OR PROSPECT

ADIT

19 — SECTION NUMBER

A.E.C. DRILL HOLES

DENSE DRILLING AREA

CLAIM BOUNDARY

EXISTING ROAD

Base from U.S.G.S. Gateway quadrangle map
GEOLOGY AFTER F.W. CATER JR.

Figure 2. MAP SHOWING THE PAYROCK CLAIMS, MESA COUNTY, COLORADO

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
November 15, 1954

Memorandum

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

From: M. H. Salsbury

Subject: DMEA 3505 (Uranium) Payrock Uranium, Inc. (Payrock claims)
Mesa County, Colorado

An examination of the subject property was made by the writer and Lee J. Eicher and W. P. Williams, Geological Survey, on October 7, 1954. They were accompanied by H. E. Roper of Grand Junction, Colorado, representing the applicant company which has requested Government assistance in exploration of 17 located claims, Payrock Nos. 1 to 17, located in secs. 17, 18, and 19, T. 51 N., R. 18 W. and sec. 24, T. 51 N., R. 19 W., Mesa County, Colorado, 15 miles by access road and Colorado Highway 141 from Gateway, Colorado. An unspecified amount of rotary air-drilling at an estimated cost of $25,000.00, Government participation 75 percent, or $18,750.00, was proposed, to be carried out under the supervision of Max H. Krey, consultinggeologist.

The Geological Survey members of the examining team consulted with the Atomic Energy Commission, particularly in reference to drilling done by the Commission on the claims.

There have been small ore bodies mined on the property and on adjoining claims, all in the upper horizons of the Salt Wash member of the Jurassic-Morrison formation, and there is a reasonable possibility of finding similar deposits by further drilling exploration.

The results of Atomic Energy Commission drilling and rotary air drilling recently carried on by the applicant have been very poor. The proposed drilling was in two phases, the first on a 425-foot diagonal spacing and 600-foot longitudinal spacing; the second phase on a 300-foot grid pattern in the favorable areas. Remaining footage was to be used on an unspecified spacing in favorable areas. This pattern is similar to the one employed unsuccessfully by the Atomic Energy Commission.

Eicher believes that the proposed drilling plan is not suitable for exploring an area where the probable target size is less than 100 feet in maximum dimension. He suggests that a necessary preliminary to working out a feasible drilling program is preparation of a detailed geologic map showing location in outcrops and mine workings of sandstone units and green mudstone, their thickness, and the relative amount of carbonaceous material in the sandstone. From this information, the applicant could probably

arrive at a suitable drilling program which might include some core drilling, to be followed by rotary air drilling. He is of the opinion that this preliminary work is the responsibility of the applicant, and the Bureau of Mines representative concurs. The applicant apparently wants this work done as part of the exploration project.

Pending submission of an acceptable exploration plan, it is recommended that the proposed DMEA project be denied.

F. W. Everett, for
M. H. Salsbury
Mining Engineer

cc 10
DMEA 3505
DMEA Chron.

MHS/pah

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED
Defense Minerals Administration
SEP 27 1954

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. 3505
Metal or Mineral URANIUM
Date Received
Estimated Cost $25,000
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: Payrock Uranium, Inc., 901 Texas Avenue, Grand Junction, Colorado; Incorporated in Colorado; R. P. Kramer, President, 621 Kitteredge Building, Denver, Colorado; M. E. Marcove, Vice-Pres., 526 Republic Bldg., Denver, Colorado; Harold E. Roper, Secretary, Treasurer & Manager, 901 Texas Avenue, Grand Junction, Colo.

(*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 Seventeen Payrock, Tenderfoot Mesa, T 51 N, R 18 W, lying in Sections 17, 18, and 19, and a small portion in T 51 N, R 19 W, Gateway Mining District, Mesa County, Colorado.

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

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

(*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. Enclosed Contract and Mining Deed

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

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

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

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

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

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

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

See accompanying paper

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

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

(*c*) The work will start within 30 days and be completed within 12 months from the date of an exploration project contract.

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

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

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

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

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

(*d*) *Operating equipment.*—Furnish an itemized list of any operating equipment to be rented, purchased, or which is owned and will be furnished by the Operator, with the estimated rental, purchase price, or suggested use-allowance based on present value, as the case may be. ~~Counter and probe reel = $750.00~~

(*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. ~~One cabin~~

(*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. NONE

(*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 Sept. 17, 1954

Payrock Uranium Inc.
(Applicant)

By Harold E. Roper
Sec'y Treasurer & Mgr.
901 TEXAS. GRAND JCT., COLO.

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.

Application for DMEA Aid

Payrock Uranium, Inc.
901 Texas Avenue
Grand Junction, Colorado

3-d. Four copies of Contract and Mining Deed attached.

3-f.

Name of Claim	Book	Page
Payrock Number 1	355	393
Payrock Number 2	355	438
Payrock Number 3	355	446
Payrock Number 4	360	75
Payrock Number 5	360	82
Payrock Number 6	360	7
Payrock Number 7	355	426
Payrock Number 8	360	6
Payrock Number 9	355	288
Payrock Number 10	355	453
Payrock Number 11	355	430
Payrock Number 12	360	81
Payrock Number 13	373	86
Payrock Number 14	373	86
Payrock Number 15	373	86
Payrock Number 16	373	87
Payrock Number 17	373	87

4-a. Mining for Uranium and Vanadium has been conducted on #14, #8, and #16 in past years, and is now being conducted on #3, which is leased to Lee Hetzel and Son who furnish their own equipment. All mine workings are accessible for examination.

4-b. Past production figures are not available in their entirety, but from 1951 to 1953 #14 produced approximately $12,000 worth of average 0.28% U_3O_8 and 1.38% V_2O_5. Plates #1, 2, and 3 show rock removal figures.

4-c. Geologic report attached. Please return this.

4-d. Property is 66 miles from Grand Junction, supply point; roads are adequate most of the year, and cabins on the property are used for residences for miners and drillers.

4-e. Manpower furnished by drilling contractor, as are materials, supplies, heavy equipment, etc. Water is needed only for drinking and worker's use, and power is not needed for this operation.

5-b. Maps and plates attached

5-d. Manager, Harold E. Roper, associated in uranium leasing and production twelve months. Manager of Payrock operations for four months. Past experience includes heavy equipment operation.

5-d. (Continued) Max A. Kroy, geologist supervising operations - graduate geologist, Kansas State College, 1949. Four and one half years experience oil industry and exploration. Nine months uranium geology and exploration as consulting geologist.

6-a.	Rotary Air Drilling Contract copy enclosed	$20,000.00
b.	Geologist - Contract $300.00 per month, estimated six months	1,800.00
c.	Geologist's expenses - Car, gas, meals, etc.	750.00
d.	Geiger counter, reel and probe	750.00
e.	None, present facilities adequate	
f.	drill ~~rods~~ ROADS	1,500.00
g.	Surveying and accounting	200.00
h.	None anticipated	

7-a. Yes

7-b. Money

REFER:
ITEM
3-D

O P T I O N

KNOW ALL MEN BY THESE PRESENTS:

That for and in consideration of the sum of Two Hundred ($200.00) Dollars, the receipt of which is hereby confessed and acknowledged, I hereby give and grant to HAROLD E. ROPER the sole and exclusive option to purchase for the sum of Thirty-five Thousand Dollars ($35,000.00), the following mining claims located in the Gateway Mining District in Mesa County, Colorado; the location certificates of which are recorded in the following books and pages of the records of the County Clerk and Recorder of Mesa County, Colorado, to-wit:

Name of Claim	Recorded in Book	Page
Pay Rock #1	355	393
Pay Rock #2	355	438
Pay Rock #3	355	446
Pay Rock #4	360	75
Pay Rock #5	360	82
Pay Rock #6	360	7
Pay Rock #7	355	426
Pay Rock #8	360	6
Pay Rock #9	355	288
Pay Rock #10	355	453
Pay Rock #11	355	430
Pay Rock #12	360	81
Pay Rock #13	373	86
Pay Rock #14	373	86
Pay Rock #15	373	86
Pay Rock #16	373	87
Pay Rock #17	373	87

together with all amended locations in connection therewith and together with all improvements located on said above described property.

The term of this option shall commence as of the date hereof and continue until the 23rd day of May, 1954, and for such further period as provided herein; it being understood that said option may be extended for the further term of 30 days from May 23, 1954, upon the payment to the Optionor at the office of Adams, Heckman & Traylor, in Grand Junction, Colorado, of the further sum of Five Hundred Dollars ($500.00) prior to the expiration date of May 23rd, 1954.

This option may be exercised by the payment by the

Optionee to the Optionor at the office of Adams, Heckman & Traylor, in Grand Junction, Colorado, of the sum of Ten Thousand Five Hundred ($10,500.00) Dollars on or before May 23, 1954, or within the period of any extension of this option. Contemporaneously with the payment of the sum of $10,500.00 including the option money as above provided, the Optionor shall place in escrow with the law firm of Adams, Heckman & Traylor, a good and sufficient mining deed conveying such claims to the Optionee, such deed warranting the title to such claims against all persons except the United States of America as of the time of the exercise of this option. The escrow instructions under which such deed shall be delivered to such escrow holder shall provide and the parties hereto so agree as follows:

1. To deliver to the Optionee, the deed to said above described unpatented mining claims, upon the payment to the escrow agent of the full purchase price of said property as provided herein.

2. The Optionor agrees and the escrow agent shall be so instructed that after the Optionee has made the payment of the sum of $10,500.00 upon the purchase price of said property, that the remaining balance of the purchase price shall be paid as follows: $8,166.66 on or before April 15, 1955; $8,166.66 on or before April 15, 1956; and $8,166.66 on or before April 15, 1957.

3. The Optionee agrees that if ore is mined and sold from said property prior to the final payment of the purchase price for such claims, that he will pay to the Optionor a royalty of 15 % on all ores mined and sold by him and upon any bonus or additional payment received from the sale of the said ore which royalty shall be paid to the Optionor through the escrow agent and all of such payments shall be applied upon the purchase price of said property. The Optionee agrees to furnish to the Optionor copies of all settlement sheets and sales accounts and to give to the Optionor the right and privilege at any time

of inspecting all the records of the operation of said property and the premises hereinabove described.

4. IT IS MUTUALLY AGREED that should the Optionee default in the payments as provided herein, or default in any of the material covenants on his part to be performed, the Optionor upon giving to the Optionee 30 days written notice of the default, may cancel and terminate the contract, provided, however, that the Optionee shall have the right to cure the default within said 30 days, but if said default is not cured within 30 days, then the Optionor may terminate the contract and all payments made by the Optionee shall be kept and retained by the Optionor as liquidated damages. Any notice of default shall be in writing and sent by registered mail to the Optionee at his present address in the City of Grand Junction, Colorado.

5. The Optionor warrants that he has good and marketable title to such mining claims except as to the interests therein of the United States of America, and that they have performed all assessment work and other matters necessary to maintaining his title to such unpatented claims.

6. The Optionor hereby grants to the Optionee or his agent, the privilege of going upon said property during the term of this option or any extension thereof for the purpose of making tests or doing any other exploration work, it being understood, however, that no ores will be taken or removed from said property by the Optionee until said Optionee has exercised his option to purchase said property.

7. Upon the exercise of this option by the payment of said sum of $10,500.00 as afore mentioned and until termination as above provided, the Optionee shall be entitled to go upon such property and mine, remove and sell ore therefrom as Optionee's own property subject to the royalty provisions

herein set forth.

8. IT IS FURTHER AGREED that the Optionor will pay the 1954 taxes based upon the 1953 production, and all other taxes heretofore assessed against said property.

9. If this option is not exercised as hereinbefore provided, any and all sums paid by the Optionee shall be forfeited by said Optionee and shall be kept and retained by the Optionor as and for liquidated damages and this option shall be held and considered as though it had never been granted.

This option shall extend to and be binding upon the heirs, executors, administrators, or assigns of the respective parties hereto.

WITNESS the names of the parties hereto this 17th day of April, 1954.

DONALD GRAHAM

By (signed) Scott W. Heckman
Optionor

Read and approved

(signed) Harold E. Roper
Optionee

(signed) Donald Graham
Optionor

Recorded at ..... o'clock ..... M., ...

Reception No. ..... Recorder.

REFER ITEM 3-D

THIS INDENTURE, Made this 16th day of July, in the year of our Lord one thousand nine hundred fifty-four, between

DONALD GRAHAM

of the County of Mesa and State of Colorado, party of the first part, and

PAYROCK URANIUM, INC., a corporation

of the County of Mesa and State of Colorado, party of the second part;

WITNESSETH, That the said party of the first part, for and in consideration of the sum of Ten Dollars and other good and valuable consideration - - - ~~Dollars~~ 100, to him in hand paid by the said party of the second part, the receipt whereof is hereby acknowledged, has granted, bargained, sold, remised, released and forever quit-claimed, and by these presents does grant, bargain, sell, remise, release and forever quit-claim, unto the said party of the second part, its ~~heirs~~ successors and assigns, the following described property, situate, lying and being in Gateway Mining District Mining District, in the County of Mesa, and State of Colorado, to-wit:

Pay Rock #1	recorded	in	Book	355	at Page	393
Pay Rock #2	"	"	"	355	" "	438
Pay Rock #3	"	"	"	355	" "	446
Pay Rock #4	"	"	"	360	" "	75
Pay Rock #5	"	"	"	360	" "	82
Pay Rock #6	"	"	"	360	" "	7
Pay Rock #7	"	"	"	355	" "	426
Pay Rock #8	"	"	"	360	" "	6
Pay Rock #9	"	"	"	355	" "	288
Pay Rock #10	"	"	"	355	" "	453
Pay Rock #11	"	"	"	355	" "	430
Pay Rock #12	"	"	"	360	" "	81
Pay Rock #13	"	"	"	373	" "	86
Pay Rock #14	"	"	"	373	" "	86
Pay Rock #15	"	"	"	373	" "	86
Pay Rock #16	"	"	"	373	" "	87
Pay Rock #17	"	"	"	373	" "	87

TOGETHER with all the dips, spurs, and angles, and all the metals, ores, gold and silver-bearing quartz, rock and earth therein, and all the rights, privileges and franchises thereto incident, appendant and appurtenant, or therewith usually had and enjoyed; and all and singular the tenements, hereditaments and appurtenances thereto belonging or in anywise appertaining, and the rents, issues and profits thereof; and all the estate, right, title, interest, claim and demand whatsoever, as well in law as in equity, of the said party of the first part, of, in or to the said premises, and every part and parcel thereof, with the appurtenances.

TO HAVE AND TO HOLD, all and singular, the said premises, together with the appurtenances and privileges thereto incident, unto the said party of the second part its successors ~~heirs~~ and assigns forever.

IN WITNESS WHEREOF, The said party of the first part has hereunto set his hand and seal the day and year first above written.

Signed, sealed and delivered in the presence of

Donald Graham [SEAL]

..... [SEAL]

..... [SEAL]

STATE OF COLORADO,
County of Mesa } ss.

The foregoing instrument was acknowledged before me this 16th day of July A. D. 1954, by Donald Graham

My commission expires April 21, 1956. Witness my hand and official seal.

Scott W. Hackman
Notary Public.

4-b.

Pay Rock Camp
September 1, 1954

Mr. Harold Roper

Dear Sir:

Mapping of Payrock #14 underground workings as requested was completed, and an estimated tonage of Rock in Place taken on Payrock claims 14 and 8 completed.

Due to discrepencies of AEC drill map and the holes on the ground, I was unable to locate but one hole underground. I assume it is hole #T337-A, which comes the closest to tie in. From this, I feel almost certain that no mining was done on Payrock #14, as was believed.

My opinion is that hole #T336 was never cut, and the ore on the floor of the drift, which is about 16 inches to 18 inches thick with a count of .30 U_3O_8 is about 5 feet to 10 feet ahead or NE of present face.

Should drifting be undertaken in order to cut hole #T337, I would suggest N 25° E for the next 25 or 30 feet to cut into Payrock #16 and the above hole. My figures show the North Drift about 10 to 15 feet from corner of Ford #1, and Payrocks #14 and #16.

After a check of workings on the Payrock #8, I am of the opinion that the lower half of this claim is worked out on the third rim, and a small showing remains in the incline 86 feet N 27° E of the east side center monument.

Claim #3 is now shipping from the second rim. The ore trend is about S 65° W, and is about 20 inches wide and the height of the drift is six foot. It appears to hold steady with no indication of opening up at this time.

Paul H. Alix

ITEM 4-C

REPORT ON

PAYROCK MINING CLAIMS GROUP

GATEWAY-CALAMITY MINING DISTRICT
MESA COUNTY, COLORADO

The mining property known as the Payrock Group, consisting of seventeen (17) contiguous claims, lies on Tenderfoot Mesa, approximately three miles east of the town of Gateway, Colorado. The claims are accessible by nine miles of dirt mine road through Casto Draw, connecting the claims with Colorado State Highway 141, four miles northeast of Gateway, Colorado. The claims are located approximately three miles northeast of the Dolores River, in sections 17, 18, and 19, T 51 N; R 18 W; and section 24, T 51 N; R 19 W; at an average elevation of 6900 feet. The year-around climate is favorable and the winters are not severe. Several cabins on the property could be used for housing facilities.

Validity of title to the claims lies outside the scope of this report, but it is believed that the titles are in order. The claims were surveyed in 1949.

Settlement sheets show that $8,955.35 of ore was taken from claims fourteen and sixteen during the period from March through September of 1953. The average grade of the carnotite ore was 0.34%; the vanadium was 1.5%. Both of these figures are average for this general region. The mining and extraction of ores from these claims in the past operations was done primarily on outcrops and exposed ore. At the present time, active production is being obtained from mine workings on Payrock #8. A road has also been dozed to an ore outcrop on Payrock #3 in preparation for mining operations.

Drilling operations are presently being carried out on the Ford claims which lie contiguous to the west of the Payrock property. Holes are, in part, on a fifty-foot spacing. Results are rumored to be very favorable.

GEOLOGY

The rock formations in the area consist mainly of contimental sediments of the Jurassic and Triassic age. The third rim of the Salt Wash member of the Morrison formation, Jurassic in age, caps Tenderfoot Mesa. There are a few remnants of Dakota Sandstone bluffs to the east, but none of these are near the Payrock group. Underlying this third rim Morrison Sandstone, which is approximately forty feet thick, is 200 feet of interbedded sandstones and shales, also in the Morrison formation. This makes up the so-called first and second rims of the Saltwash. The first rim, approximately 100 feet above the Jurassic Entrada Sandstone, is very consistent and forms a ledge on most of its outcrop. Its thickness being in the neighborhood of 60 feet. Between this first and third rims lies the second rim, which has a channel type appearance on the outcrop in places. That is, this sandstone member is highly lenticular and ranges in thickness up to 100 feet. These increased sand thickness zones are very indicative of old channel fills and often contain mineralization.

The Morrison Sandstones are of adequate thickness to be classified as potentially ore bearing. The color of the sandstones are brown to light reddish in color. Carboniferous material is present.

The Summerville Shale underlies the Morrison formation for an average thickness of seventy feet; this in turn overlies the Jurassic Entrada (Slick Rim) formation. The elevation of the top of the Entrada formation on Payrock #14 is 6,600 feet above sea level; on Payrock #8, the Entrada top is 6,675 feet. The regional dip of the beds is from two to four degrees southwest.

RECOMMENDATIONS

A drilling program should be initiated to explore the producing horizons and also outline the second rim possible channelizations.

Ore has been located in the first rim of the Morrison in North Larsen Canyon, lying between Payrock claims #16 and 8, which also makes this rim a possible producing zone.

An average drilling depth of 200 feet should test the second and third rims of the Morrison formation and further explore the area.

This property merits a major drilling exploration program and it is the writer's opinion that new discoveries of uranium ore will be made on the Payrock mining claims.

Max A. Krey
Geologist

APPLICATION FOR DMEA AID

Payrock Uranium, Inc.
901 Texas Avenue
Grand Junction, Colorado

5 b

The map showing the proposed drilling locations for the Payrock mining claims is enclosed in this report.

The writer does not believe that detail plane table mapping would be beneficial in locating further ore deposits; therefore nearly all proposed locations have been laid out on a pattern diagram. This pattern consists of two phases of drilling. The first phase being placed on a 425' diagonal spacing; 600' longitudinal spacing. The second phase, after choosing the most favorable areas, will be to interspace the first phase of drilling on a 300' grid pattern. A third phase of drilling would then be performed in the highly favorable areas.

A channel, visible on the outcrop, is believed to trend S 75° W; passing through claim numbers 15 to 3 and extending on through the adjacent property to the west as shown on the accompaning map. Ore is presently being mined on claim #3 and ore is present on the outcrop on #15 in the same horizon. Controlled drilling locations are therefore proposed for this possible mineralized channel.

Max A. Krey
Geologist

ITEM 6-A

DRILLING CONTRACT

THIS AGREEMENT Made and entered into by and between PAY ROCK URANIUM, INC., a corporation, first party, and HOWARD M. BINKLEY of Grand Junction, Colorado, second party, WITNESSETH THAT:

WHEREAS first party is the owner of certain lode mining claims in Mesa County, Colorado, known as Pay Rock Claims No. 1 to 17, inclusive, and is desirous of having the same drilled for the purpose of discovering and locating ores containing uranium and other valuable minerals in commercial quantities and second party being a drilling contractor, NOW THEREFORE THIS AGREEMENT, WITNESSETH THAT:

1. Second party contracts and agrees to do and perform drilling on said claims as follows:

a. By August 15, 1954, to move onto said claims one rotary dry drilling rig and equipment and supplies necessary for the efficient and proper operation thereof and commence drilling as directed by first party;

b. To thereafter diligently and without cessation drill said claims, as directed, until $20,000 worth of drilling, computed as hereinafter provided, has been performed;

c. To keep his equipment in good working order;

d. To conduct the drilling operations in such manner as to permit the taking of ore samples of the drilled areas;

e. To do and perform all drilling in a good workmanlike manner; to mark and plot all drill holes in a manner permitting identification thereof; to abide by all applicable regulations, if any, of the United States and its agencies; to keep his employees covered by Workmens' Compensation insurance and to promptly pay all labor and other bills incurred by him in such operations.

2. First party agrees:

a. To provide and maintain access roads to said claims of a nature permitting second party to move equipment to and from said claims;

b. To provide instructions as to such drilling, either by a geologist or other agent of first party;

c. To provide containers for samples and to have an agent on said premises to package samples and to make such inspection of drill holes as first party may desire;

d. To pay second party, as total compensation for such drilling, as follows:

> On each drill hole that is drilled 70¢ per foot for the first 100 feet, 90¢ per foot for the next 50 feet, $100 per foot for the next 50 feet, and $1.10 per foot for each foot drilled over 200 feet.

e. At the time of the execution of this agreement to deposit $7,000 with the United States Bank of Grand Junction, Colorado, to be paid out to second party upon a joint certification of footage drilled and within 60 days from the date hereof to deposit an additional $13,000 with said bank to be paid out as above provided.

Dated: June 14 1954.

First Party:
PAY ROCK URANIUM, INC.

by (signed) R. P. Kramer
President

ATTEST:

(signed) Harold E. Roper
Secretary

Second Party:

(signed) Howard M. Binkley
Howard M. Binkley

AMENDMENT TO DRILLING CONTRACT

The foregoing drilling contract is amended by mutual consent in the following respects:

1. If the first party desires, at the conclusion of the first $5,000.00 worth of work done under the foregoing agreement or at any time thereafter, to have the balance of the drilling called for by said agreement done at some other point or places than the mining claims referred to in said contract, first party shall have such right and shall notify second party of the place or places it desires to have such drilling done.*

2. Said contract is in all other respects ratified and confirmed.

Dated: June 15, 1954.

First Party:

PAY ROCK URANIUM, INC.

by (signed) Harold E. Roper
Secretary-Treasurer and
General Manager

Second Party:

(signed) Howard M. Binkley
Howard M. Binkley

*Expense of moving to be borne by first party.

EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D. C.~~

OFFICIAL BUSINESS

U. S. GEOLOGICAL SURVEY
NORTH 157 HOWARD ST.
SPOKANE 4, WASHINGTON

SEP 22 730PM 1954 WASH.
30 CENTS

Mr. George C. Selfridge, Chairman
Operating Committee
Defense Minerals Exploration Administration
Department of the Interior
Washington 25, D. C.

Reg 4
Denial
400

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

224 New Customhouse
Denver 2, Colorado

October 28, 1954

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Field Team, Region IV

Subject: Report of Examination, DMEA Docket 3504 (Tungsten)
Anna C. Mining Co., Anna C. Group, Boulder County, Colorado

Enclosed are the original and three copies of the report of examination on the subject docket, two copies of Form 3b, and a copy of the letter of denial to the applicant.

Geologic evidence indicates that the proposed work would not result in the discovery of a significant amount of tungsten. It was therefore considered unnecessary to have the Bureau of Mines participate in the examination at this time.

W H King
W. H. King

for E. N. Hawkinson
A. H. Koschmann

Reviewed by
DMEA OPERATING COMMITTEE
10-29-54
(Date)

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

COPY

224 New Customhouse
Denver 2, Colorado

October 18, 1954

Mr. M. W. MacKenzie
Anna C. Mining Company
Rt. 2, Box 383A
Boulder, Colorado

Re: Docket DMEA 3504

Dear Mr. MacKenzie:

Reference is made to your application for Government aid on the Anna C. Group.

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 tungsten 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
W. H. King
Field Team, Region IV

/s/ E. N. HARSHMAN
for A. H. Koschmann
Field Team, Region IV

HMC:dm
cc: O. B. Scott
Rye, Colorado
Administrator
AHKoschmann
WMTraver
Subject
Chron

RECEIVED
DMEA OPERATION SUPERVISOR
10-29-54

IN REPLY REFER TO:

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

October 12, 1954

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 3504, Anna C Mining Company, Boulder County, Colorado

Enclosed are 9 copies of the geologic report by D. R. MacLaren of the U. S. Geological Survey covering the above docket.

The applicant proposes to explore for tungsten ore (ferberite) on the 125-foot level of the Sunset mine by 90 feet of crosscutting, and 118 feet of drifting on the Scott vein and a branch from it. Ferberite occurs along shear zones in pre-Cambrian schist, granite, and pegmatite. Ore is limited to narrow stringers or small pods along the footwall or hangingwall sides of the shear zones.

MacLaren concludes that the requested exploration program will not lead to the discovery of significant deposits of ferberite and therefore recommends denial of the application for exploration assistance.

I concur in this recommendation.

E. M. Hawkins
for A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (9)

Reviewed by
DMEA OPERATING COMMITTEE
10-29-54
(date)

ANNA C MINING COMPANY

BOULDER COUNTY, COLORADO

DMEA DOCKET 3505

Geologic Report

Reviewed by
DMEA OPERATIONS COMMITTEE
10-29-54
(Date)

By D. R. MacLaren
U. S. Geological Survey

ANNA C MINING COMPANY
BOULDER COUNTY, COLORADO

INTRODUCTION

The Anna C Mining Company, Route 2, Box 365, Boulder, Colorado, has applied for Defense Minerals Exploration Administration assistance to explore for tungsten ore (ferberite) in the Grand Island mining district, Boulder County, Colorado. The company, which is a partnership between M. W. MacKenzie of Boulder, Colorado, and O. S. Scott of Rye, Colorado, has control, through the ownership by Mr. Scott, of the Anna C and Gold Coin Lode claims (U. S. Mineral Survey No. 18374) and the Sunset and Hidden Treasure Lode claims (U. S. Mineral Survey No. 18629). The claims are in sec. 11, T. 1 S., R. 73 W., 6th P. M., and are about one and one-third air miles northwest of Nederland, Colorado.

The applicant proposes to crosscut north from the Sunset No. 2 shaft on the 125-foot level, to the Scott vein, a distance of 90 feet, to drift 60 feet on the Scott vein and 36 feet on a vein branching from the Scott to the Narrow vein. The applicant estimates the cost of this project will be $7,278 of which the Government's share will be $5,458.50.

An examination was made October 1, 1954, in company with M. W. MacKenzie. The Annie C shaft was flooded, but these workings were examined by H. T. Schlumberger and are described in his report for DMEA Docket 2138. The Sunset No. 2 shaft was accessible and the working therefrom on the 65-foot level and the 125-foot level were examined and mapped. On the surface a trench 30 feet long, 5 to 8 feet wide, and 5 to 12 feet deep on the Scott vein was examined and a sketch was made showing the location of the trench with respect to other workings.

It is concluded that a small amount of tungsten ore might be found, but the chance of making a significant discovery is poor. Therefore it is recommended that the application be denied.

GEOLOGY

The rocks of the area are pre-Cambrian schist of the Idaho Springs formation, that have been intruded by irregular bodies of pegmatite and Boulder Creek granite. There are three principal veins on the property, the Anna C vein which strikes N. 5° E. and dips 60° to 70° E., the Scott vein which strikes N. 30° E. and dips 74° to 80° SE, and the Narrow vein which strikes N. 75° E. and dips 80° SE (figure 1).

The Anna C vein has been stoped above the 115-foot level from the Anna C shaft and above the 65-foot level from the Sunset No. 2 shaft. No production figures are available, but according to Schaeberger the total production from this vein has probably been less than one thousand units WO_3.

The Scott vein is exposed by a trench 30 feet long, 5 to 8 feet wide, and 5 to 12 feet deep. According to MacKenzie 760 pounds of ore averaging 34.65 WO_3 were hand sorted from 8 tons of rock from this trench, and were shipped to Industrial Supply Company in Boulder, Colorado.

A shaft, now caved but said to be 60 feet deep, is on the Narrow vein. There is no record of any workings or production from this shaft. From the small amount of dump material remaining around the collar of the shaft, it is doubtful that much drifting or any stoping was done.

The Anna C and the Scott veins are in shear zones up to 5 feet wide that consist of slightly silicified, barren, sheared wall rock. Some ferberite and bare quartz occur as streaks in the hangingwall and footwall of the shear zones. Only locally and in small amounts do they occur in the

central portion. In the workings from the Anna C shaft, according to Schaesberger, the average width of ferberite in the footwall streak is about one inch, although widths up to four inches were observed. Ore deposition in the Anna C appears to have been controlled to some extent by the intersection (inferred) of the Anna C vein and the Narrow vein, and to some extent by the wall rock. In the Sunset No. 2 workings there is some evidence that ore deposition is controlled by the contact between the schist and the granite. The trench on the Scott vein exposes a few small lenses of bare quartz and ferberite in sheared granite.

CONCLUSIONS AND RECOMMENDATIONS

It is concluded that a small amount of ferberite ore has been found in the Anna C vein along schist-granite contacts and at vein intersections; that 16,000 pounds of rock from a trench on the Scott vein produced 414.9 pounds WO_3; that small amounts of ore may be found as a result of the proposed exploration, but that the chance of making a significant discovery is poor. Therefore it is recommended that this application be denied.

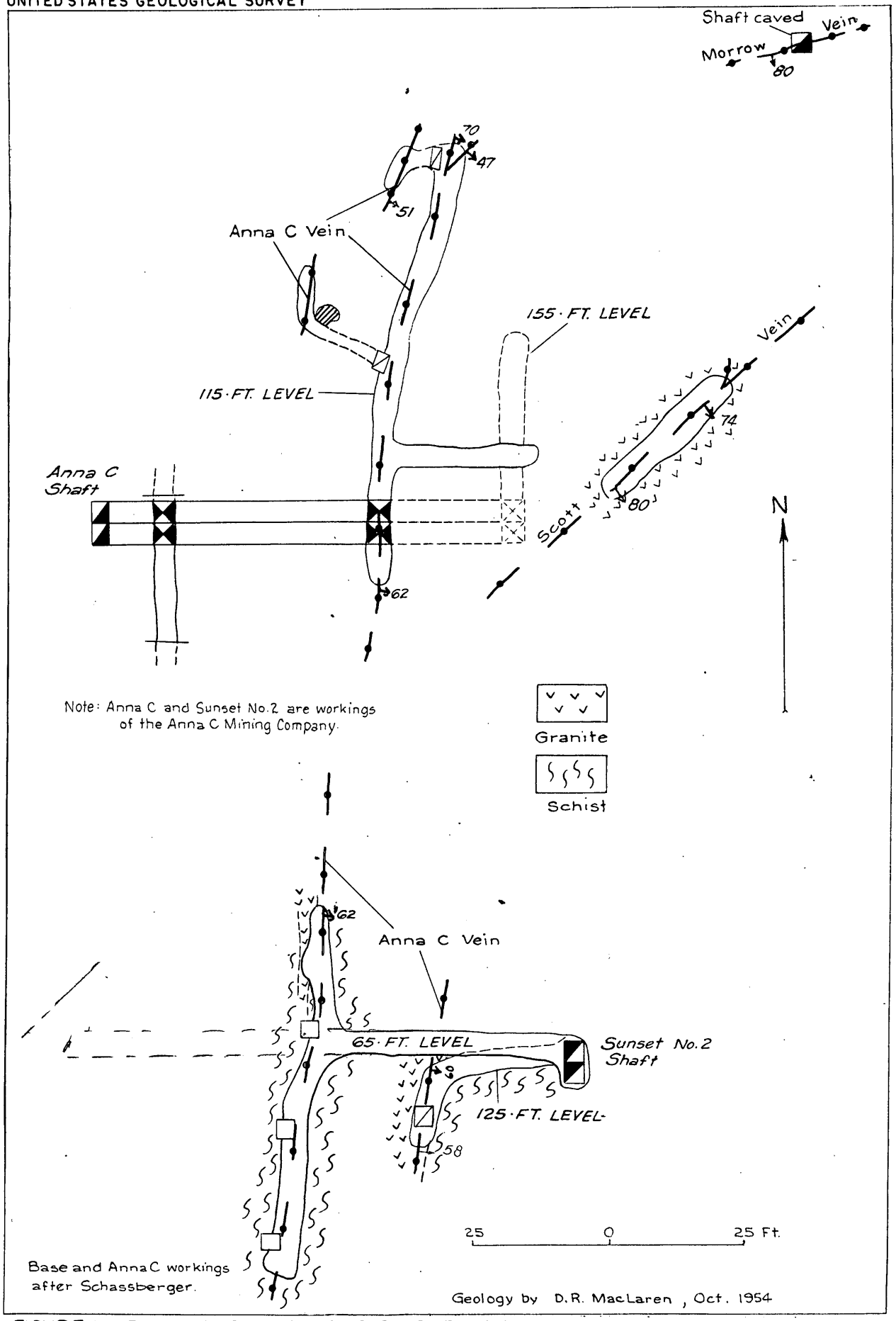


FIGURE 1 — PLAN SHOWING VEINS ON SURFACE, AND IN THE ANNA C AND SUNSET NO. 2 WORKINGS, BOULDER COUNTY, COLORADO.

MEMORANDUM

To: Administrator, DMEA

NOV 9 - 1954

From: Iron and Ferro-Alloys Division, DMEA

Subject: Denial of application for exploration assistance to the amount of $7,276.00
Docket No. DMEA 3585 - Tungsten
Anna C. Mining Company, Route 2, Box 385, Boulder, Colo., M. W. Mechanuzis, Boulder, Colo., and C. B. Scott, Rye, Colo.
Boulder County, Colorado

The denial of the subject application by Region IV is based on the following information:

1. The applicant requested exploration assistance to the amount of $7,276.00 to explore for Tungsten on the Anna C Mine, Boulder County, Colorado.

2. Holdings consist of Anna C and Gold Coin claims, U. S. Mineral Survey No. 18374B, and the Sunset and Hidden Treasure claims, U. S. Mineral Survey No. 18625C, in Sec. 11, T. 1s, R. 73W, 6th P.M.

3. The property has been worked through the Anna C and Sunset No. 2 shafts to a depth of 125 feet, with about 300 feet of drifting and crosscutting. Stoping was carried out down to the 125 feet level.

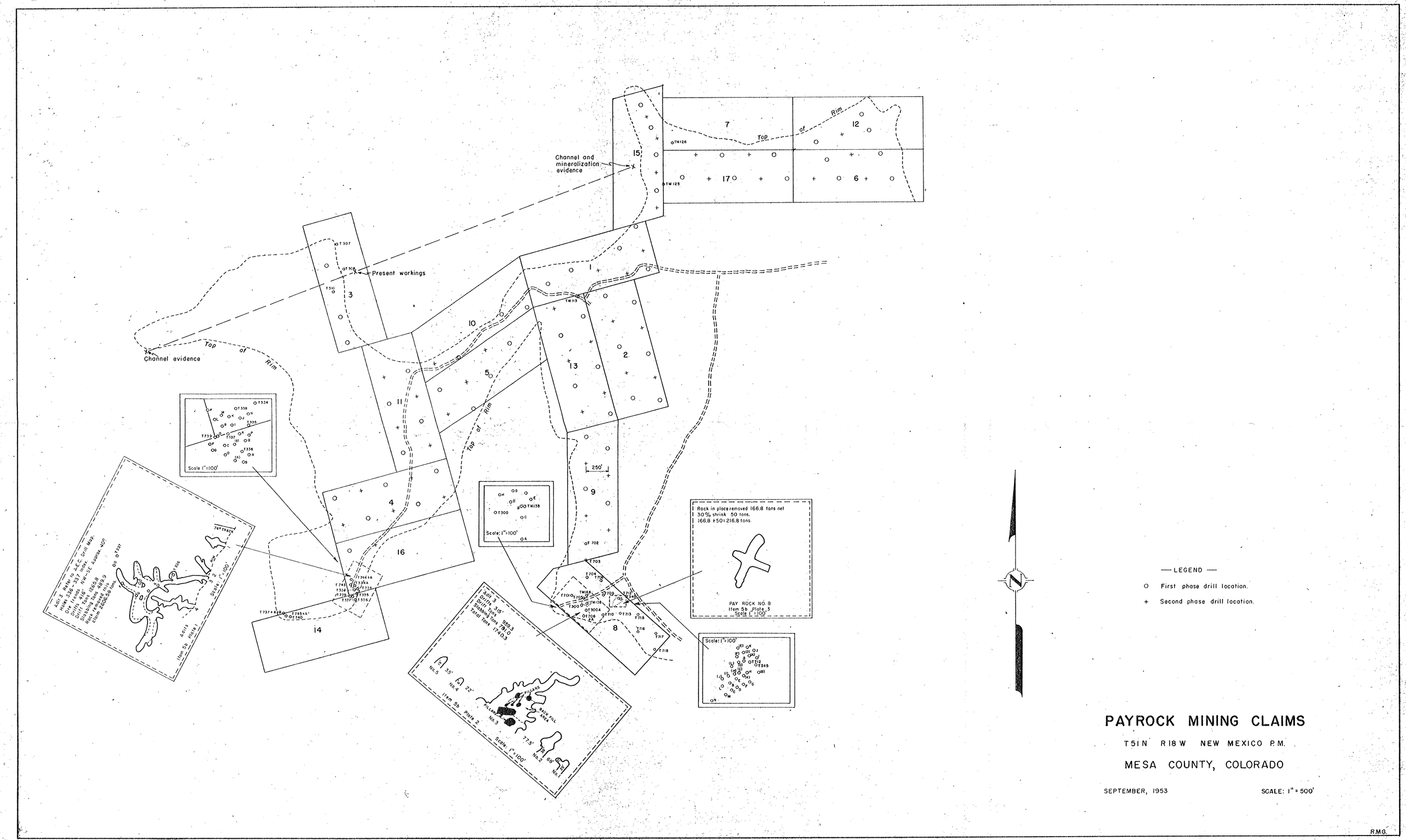
4. The rocks are pre-cambrian schist intruded by irregular bodies of pegmatite and granite. There are three principal veins in shear zones which show irregular veinlets of ferberite on the hanging and footwalls.

5. No data are available on the actual production of the property, but it is estimated to be less than 1,000 units of WO_3.

6. The Field Team concluded that while some small ore zones might be found there is little possibility of making a significant discovery, and recommended that the application be denied.

TLChapman:fcc
11-8-54
cc: Docket
Adm. Read.
File
Operating Comm.
Code 400

W. S. Martin, Chief
Iron and Ferro-Alloys Division



PAYROCK MINING CLAIMS

T51N R18W NEW MEXICO P.M.

MESA COUNTY, COLORADO

SEPTEMBER, 1953

SCALE: 1" = 500'

R.M.G.