DMA Form 1

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DMEA ~~DMA~~ Docket No. 2391

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EXPLORATION PROJECT

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REC'D 4 COPIES EACH MF-103 & 100 WITH 4 MAPS & ATTACHMENTS. TO USBM, USGS, & REGION IV.

Routing Slip--

To: CODE 700, RM. 4640 Date 2-26-52

To: Opr. Comm Date 3-12-52

To: Mittendorf Date

To: Ellis (Docket) Date

To: Code 700 Date 10/6/53

To: Mails & Files Date 11/13/53

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FILE COPY
SURNAME:

Murphy
Ellis
Wetherdorf

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

NOV 16 1953

Mr. J. B. Crowley
560 W. Highway No. 50
Grand Junction, Colorado

Re: Docket No. [illegible]-2391 (Pending)
Felum and J. B. Crowley
Peck Pet and Johnnie Lee Claims
Mesa County, Colorado

Dear Mr. Crowley:

Reference is made to our letter dated October [illegible], 1953, in which we stated that the subject docket would be considered closed unless certain information required to process the application and matter had reached this office on or before October 30, 1953. No answer to our letter having been received, we therefore regret to inform you that the subject docket is considered closed effective as of that date.

This is without prejudice to the merits of your proposed project. We regret the necessity of this action and express appreciation for your interest in the exploration program during the period your application has been under consideration.

Sincerely yours,

SIGNED

Vernon [illegible] Ellis, Chief
Mare [illegible] Disc. Metals Division

Murphy/mla
11-13-53
cc to: Adm. Reading File
Docket
Messrs. [illegible] Meiser, Adm. 3641
A. P. Butler, Jr., Adm. 3212, GSA
Ellis
Murphy
DMA Field Team, Region IV (2)

R.C.S.
11-16-53

Frank

Now 6 might be a little too early — however — in such cases where we do close the case — I still believe we should formally advise the operator by a letter

Do you agree?

I agree, although I believe Hoffland has indicated that it is not necessary. I believe a formal letter to applicant would be better procedure than memo to files.

FCP

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

DOCKET COPY
Murphy
EWE

November 6, 1953

Memorandum

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

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

Subject: Docket No. DMEA-2391 (Uranium)
Velma and J. B. Crowley
Pack Rat and Johnnie Mae Claims
Mesa County, Colorado

Inasmuch as this application cannot be processed due to lack of information from the Applicant and no response has been received to our letter of October 5, 1953, advising the Applicant that this docket would be closed on October 30 if the required data was not received, we are returning the docket herewith and recommend that it be considered closed.

Ernest Wm. Ellis

Ernest Wm. Ellis

cc to: Adm. Reading File
Docket
Messrs. H. D. Keiser, Rm. 3641
A. P. Butler, Jr., Rm. 3212, GSA
Ellis
Murphy
DMEA Field Team, Region IV (2)

FILE COPY
SURNAME:

Murphy
Ellis
Johnson

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

OCT - 5 1953

Mr. J. B. Crowley
560 [illegible] Hwy No. 50
Grand Junction, Colorado

Re: Docket No. DMEA-2391 (Uranium)
Velma and J. B. Crowley
Pack Rat and Johnnie Mae Claims
Mesa County, Colorado

Dear Mr. Crowley:

Reference is made to your letter of June 30, and our reply under date of July 3, 1953, concerning the above-docketed application.

You advised on June 30 that you desired to continue with the application and requested advice on how to proceed. The information you requested was contained in our reply of July 3.

In view of the number of letters written to you concerning your application and the delayed answers we have received, the conclusion must be drawn that you are not interested in an exploration contract on the Pack Rat and Johnnie Mae Claims. Therefore, unless the data requested in our last letter is available to this office on or before October 30, 1953, we will then consider the subject docket closed.

Sincerely yours,

SIGNED

Ernest W. Ellis, Chief
Rare & Misc. Metals Division

EWEllis/[illegible]/db
10-2-53
cc to: Adm. Reading File
Docket
Messrs: H.D.Keiser, Rm. 3641
A. P. Butler, Jr., Rm. 3212, OSA
Ellis
DMEA Field Team, Region IV (2)

R.C.S.
10-5-53

9/2/5 rgla

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

224 New Customhouse
Denver 2, Colorado

August 18, 1952

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 2391 (Uranium)
Velma and John B. Crowley, Pack Rat and Johnnie Mae Claims, Mesa County, Colorado

Enclosed are the original and three copies of the final report on DMEA 2391.

The field examiners recommend a project estimated to cost $34,500, Government participation $31,050.

We concur in this recommendation.

W. H. King

W. H. King

A. H. Koschmann

A. H. Koschmann

Enclosures

Mining Division
Region IV

August 18, 1952

Memorandum

To: Field Team, Region IV

From: Acting Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 2391 (Uranium)
Velma and John B. Crowley, Pack Rat & Johnnie
Mae Claims, Mesa County, Colorado

Enclosed are eleven copies of the engineering report by Scott W. Hazen, Jr., on DMEA 2391.

The examining engineer recommends a diamond drilling project estimated to cost $34,500, Government participation $31,050.

We concur in this recommendation.

W. H. King

W. H. King

Enclosures

Defense Minerals Administration
AUG 25 1952

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
July 30, 1952

Mining Division
Date Rec'd
JUL 31 1952
BUREAU OF MINES
Denver, Colorado

Memorandum

To: Executive Officer, Field Team, Region IV

From: Chief, Colorado Branch, Mining Division, Region IV

Subject: DMEA 2391 (Uranium), Velma and John B. Crowley, Pack Rat and Johnnie Mae claims, Mesa County, Colorado

Please find enclosed the original and ten copies of the "Summary, Conclusions, and Recommendations" on the above docket, by E. N. Marshman and Scott W. Hazen, Jr., and of Hazen's engineering report.

Hazen concludes the project is favorably located for the discovery of uranium reserves and the applicant is competent to carry on a mining program if exploration is successful. He recommends 10,400 feet of diamond drilling in 77 drill hole sites with additional drill holes to a maximum of 15,000 feet as fill in between the holes that encounter mineralization in the first phase of the program, the number and location of fill-in holes to be approved by Defense Minerals Exploration Administration representatives. A conflict in ownership may eliminate a small amount of drilling.

I concur with the conclusions and recommendations.

W. M. Traver, Jr.

W. M. Traver, Jr.

enclosures

WMT/amh

cc 10
DMEA 2391
DMEA Chron.

Reviewed by
DMEA OPERATING COMMITTEE
8-29-52
(date)

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

200 New Customhouse
Denver 2, Colorado

August 15, 1952

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 2391, Pack Rat and Johnnie May Claims, Mesa County, Colorado, Velma and John B. Crowley.

Attached are 10 copies of the geological report by E. N. Harshman covering DMEA Docket 2391.

The applicant proposes to explore 9 claims on Beaver Mesa by 18000 feet of diamond drilling; the estimated average depth of the holes is 150 feet. Three miles of access road construction are also proposed.

Beaver Mesa is underlain by the Morrison formation, the Salt Wash member of which is the most productive uranium-ore horizon in the region. The Crowley property lies in a belt of closely spaced deposits that extends eastward across the central part of Beaver Mesa. One ore shoot has been found on the Crowley property, and 1100 tons of ore have been mined from it. Because of the favorable geological setting of this property, Harshman and members of the U. S. Geological Survey in the Grand Junction office agree that exploration here is justified and will probably lead to the discovery of significant bodies of uranium ore, and Harshman recommends that an exploration loan be approved.

The applicant has applied for a loan of $55,276.00, but did not furnish a detailed program of exploration. Harshman, therefore, has outlined an exploration program adequate to locate any significant ore bodies that occur on those parts of the property where excessively long adits or deep shafts will not be required for their exploitation. A maximum of 15,000 feet of holes is recommended, which, with the access road is estimated by the engineers of the U. S. Bureau of Mines to cost $34,500.00.

I concur in this recommendation.

The brochure is enclosed, herewith.

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

Enclosures (11)

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 2391, Velma and John B. Crowley

Pack Rat and Johnnie Mae Claims

Mesa County, Colorado

Uranium

E. N. Harshman, Geologist
U. S. Geological Survey

Scott W. Hazen, Jr., Mining Engineer
Bureau of Mines

July 28, 1952

DMEA 2391

VELMA AND JOHN B. CROWLEY
PACK RAT AND JOHNNIE MAE CLAIMS
MESA COUNTY, COLORADO

Summary, Conclusions, and Recommendations

By E. N. Harshman
Geologist
U. S. Geological Survey

and

Scott W. Hazen, Jr.
Mining Engineer
Bureau of Mines

DMEA 2391

VELMA AND JOHN B. CROWLEY
PACK RAT AND JOHNNIE MAE CLAIMS
MESA COUNTY, COLORADO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By E. N. Harshman and Scott W. Hazen, Jr.

Velma and John B. Crowley submitted an exploration loan application, DMEA 2391, requesting $55,276.00 to do 18,000 feet of diamond drilling to explore for uranium on the Pack Rat and Johnnie Mae claims, in Mesa County, Colo. The examining team recommends a maximum of 15,000 feet of diamond drilling at an estimated cost of $34,500.00 (Government participation--$31,050.00).

The claims are located on Beaver Mesa where shales and sandstones of the Morrison formation crop out along the mesa rim. The known uranium-vanadium ore bodies occur in the upper portion of the Salt Wash member of the Morrison formation in lenticular sandstone beds which dip 3° to 4° northeast. One excellent body of ore has been found on the Pack Rat No. 3 claim where about 1,100 tons of above-average ore have been mined. The claims are located in the belt of closely spaced deposits that extends eastward across Beaver Mesa, and the geologic possibilities of finding additional uranium-vanadium ore appear excellent.

Ore bodies of the size being mined contain sufficient values to justify sinking shafts the 150 to 200 feet necessary to reach the ore. Crowley is considered to be a very competent operator and has developed portable shaft equipment which will reduce the costs of sinking. His past work in the uranium field indicates an aggressive program of mining any ore found by exploration.

Crowley's ex-partner Ward may still have some interest in the property, and parts of the Johnnie Mae claims may be in conflict. In that event, exploratory drilling can be completed without entering the conflict area.

The examining team recommends a program of diamond drilling 10,400 feet in 77 drill hole sites which are considered to be favorably located. Additional drill holes for the remainder of a maximum footage of 15,000 feet are proposed to fill in between any holes encountering mineralization. This is considered necessary to prove adequately the extent and grade of the ore found in order to determine if the value of the reserves is sufficient to justify sinking shafts to mine the ore. The location and number of fill-in holes should have the prior approval of Defense Minerals Exploration Administration representatives. The estimated cost of the 15,000 feet of diamond drilling recommended is $34,500.00 and the Government's share will be 90 percent, or $31,050.00.

PACK RAT AND JOHNNIE MAY CLAIMS

MESA COUNTY, COLORADO

VELMA AND JOHN B. CROWLEY

DMEA DOCKET 2391

Geologic Report

By E. N. Harshman
U. S. Geological Survey

PACK RAT AND JOHNNIE MAY CLAIMS
MESA COUNTY, COLORADO

INTRODUCTION

Velma and John B. Crowley, in DMEA Docket 2391, have requested government assistance in exploring for uranium - vanadium deposits on 9 claims owned by them, located in Sec. 36, T. 51 N., R. 20 W., on Beaver Mesa, about 4½ miles (airline) southwest of Gateway, Mesa County, Colorado, (Fig. 1). From Gateway the property is reached by following a poor dirt road up John Brown canyon and along the northeast rim of Beaver Mesa, a distance of 13 miles.

The applicants propose to explore the 9 claims by 18,000 feet of diamond drilling, holes to be located on 200 foot centers and offset holes drilled near any of the original holes that show significant mineralization. The estimated average depth of the drill holes, given in the application, is 150 feet. Three miles of access road construction are proposed. The cost of the exploration program, including supervision, is estimated to be $55,276.00.

The property was examined on April 4, 1952, in company with H. K. Stager, U. S. Geological Survey, Grand Junction, Colorado, and D. R. MacLaren, U. S. Geological Survey, Denver, Colorado.

The probability of finding additional ore on the Crowley property was discussed with geologists of the U. S. Geological Survey and the Atomic Energy Commission in Grand Junction, Colorado. They were of the opinion that from the geologic viewpoint exploration was warranted and that small

to moderate sized ore bodies should be discovered by drilling. The long range exploration drilling program of the U. S. Geological Survey includes work in the Beaver Mesa area.

GEOLOGY

The formations of the Beaver Mesa area are continental deposits of late Paleozoic and Mesozoic age dipping 2° to 4° NE., toward the axis of a broad northwesterly trending syncline. The mesa rim is capped by shales of the Brushy Basin member of the Morrison formation and the central portion of the mesa is capped by Dakota sandstone.

Most of the uranium-vanadium deposits are found in the Morrison sandstone. The Morrison formation is divided into 2 members with a combined thickness of 480 to 690 feet. The Salt Wash, or lower member, is composed of lenticular beds of gray, medium-grained sandstone, alternating with, and replacing, red and gray mudstone and shale. The sandstone beds are the most abundant. A zone of widespread sandstone beds occurs at the top of the Salt Wash member. Most of the uranium-vanadium deposits are found in this zone, locally termed the "ore rim." The Salt Wash member ranges from 220-260 feet thick. The Brushy Basin member of the Morrison formation is composed of 280 to 410 feet of light-colored, soft, bentonitic clay-shales and mudstones with occasional sandstone lenses.

The Crowley property lies in a belt of closely spaced deposits that, according to Fischer (1944), extends eastward across the central part of Beaver Mesa, the southern part of Tenderfoot Mesa, then swings southeast across Calamity Mesa, Outlaw Mesa, and the northern part of Blue Mesa. Ore deposits consist of carnotite mixed with a fine grained, micaceous,

gray vanadium mineral that coats the sand grains and partially or completely fills the interstices in the sandstone. Locally, the vanadium minerals are dark colored oxides. Plant remains are abundant in the ore bearing horizon and may be replaced by high-grade carnotite ore. Clay beds, in or underlying the mineralized sandstone, may contain some mineralization.

Ore bodies range from small lenticular masses containing several tons of ore to large tabular bodies a few hundred feet across and containing several thousand tons of ore. The long axes of the ore bodies usually are parallel to the sandstone bedding, but the ore may not follow any particular bed. Contacts between the ore and unmineralized sandstone generally are gradational but locally may be sharp. When the ore boundaries are sharp, they may cross the sandstone bedding planes at high angles and in smooth curves, the so-called "rolls" of the miners.

About 1100 dry tons of ore averaging 0.24% U_2O_3, 1.07% V_2O_5, and 3.5% moisture have been mined from one deposit on the Pack Rat Nos. 1 and 3 claims (fig. 2). The ore is in a crossbedded sandstone 60 to 80 feet below the top of the Salt Wash member of the Morrison formation. The ore body has an exposed length of about 100 feet, a width of 10 to 25 feet and a thickness of 2 to 12 feet. A number of faces in the present workings are still in ore (fig. 3). The trend of the long axis of the ore body, as measured in the face of the most southerly working, is about N. 45° E.

Some prospecting has been done in an adit located in the ore horizon about 200 feet east of the mine workings. Heavy snow made this adit inaccessible, but Mr. Adair Hill, foreman at the Crowley property, reported that only low grade and narrow mineralization had been exposed. A second prospect adit, 400 feet west of the mine, had been driven 50 feet in overburden and at the time of the examination had not reached the ore

bearing formation. A short winze, located on the Johnnie May No. 1 claim (fig. 2) was full of water, but it is reported to have not reached the ore horizon.

EXPLORATION PROGRAM

The exploration program submitted by the applicants was not in detail, and insufficient data were at hand to formulate a program of drilling. The applicants were requested to furnish a topographic map, drill hole locations, and estimate depths to the ore horizon. A topographic map was subsequently furnished, but no drill hole locations or depths were given.

The following diamond drill exploration program, formulated by the examining team, is believed to be adequate to locate any significant ore bodies located on the claims in areas where excessively long adits or deep shafts will not be required for their exploitation:

1. A line of 23 holes on 50 foot centers, estimated combined length 2900 feet, to explore the northern rim of the mesa in the area of known ore bodies. The ore horizon along this part of the mesa rim is generally covered by 5 to 75 feet of slope wash, tallus, and landslide debris (fig. 2).

2. A line of 17 holes on 50 and 100 foot centers, estimated combined length 3100 feet, 100 feet south of the line of holes proposed above (fig. 2).

3. A line of 7 staggered holes on 75 and 200 foot centers, estimated combined length 1250 feet, along the east side of the Pack Rat No. 1 claim and west of the outcrop of the ore horizon, which in this area is not on the Crowley claims (fig. 2).

4. Five lines of holes on 100 and 200 foot centers, 24 in number, with an estimated combined length of 2240 feet, to explore an embayment

in the ore rim on the Johnnie May Nos. 1 and 3 claims (fig. 2).

5. One line of 6 holes on 200 foot centers, estimated combined length 900 feet, to explore the northern parts of the Johnnie May Nos. 2, 4, 5, and 6 claims (fig. 2).

The depths of all diamond drill holes are estimated, and the following assumptions are made: a. The topographic map furnished by the applicant is correct; b. The regional dip of the sediments is $3\frac{1}{2}^{\circ}$ NE.; and c. The base of the ore horizon in the Pack Rat mine workings lies at elevation 980 feet.

In addition to the 10,400 feet of drill holes recommended above, some allowance must be made for errors in the estimated depths and for offset holes to be drilled around any of the original holes that encounter ore. A maximum of 15,000 feet of holes is therefore allowed for the complete program.

RECOMMENDATIONS

From the geological viewpoint, there is reason to believe that exploration on the Pack Rat and Johnnie May claims will lead to the discovery of significant bodies of uranium-vanadium ore. It is, therefore, recommended that DMEA Docket 2391 be approved for a loan of $34,500 (Government participation $31,050), this sum to cover the drilling of a maximum of 15,000 feet of diamond drill holes, supervision, boxing of cores, access roads, and other items outlined in the engineering report.

REFERENCE

Fischer, R. P., Simplified geologic map of the vanadium region of southwestern Colorado and southeastern Utah; U. S. Geol. Survey, Strategic Minerals Investigations preliminary map 3-226, 1944.

DMEA 2391

VELMA AND JOHN B. CROWLEY
PACK RAT AND JOHNNIE MAE CLAIMS
MESA COUNTY, COLORADO

Engineering Report

By Scott W. Hazen, Jr.
Mining Engineer
Bureau of Mines

DMEA 2391

VELMA AND JOHN B. CROWLEY
PACK RAT AND JOHNNIE MAE CLAIMS
MESA COUNTY, COLORADO

CONTENTS

Engineering Report	Page
Introduction	1
Acknowledgments	1
Location, topography, and accessibility	2
History and production	3
Ownership and extent	4
Description of the deposits	6
Mineable ore reserves	7
Present status	9
Exploration and development	9
Mining and milling equipment and other facilities	10
Project proposals	10
Costs of the project	12
Production plan	18
Conclusions	18
Recommendations	19

ILLUSTRATIONS

Figure	Follows Page
1. Location map, Pack Rat and Johnnie Mae claims, Velma and John B. Crowley, Mesa County, Colorado	2
2. Claim map outlining the drilling, Pack Rat and Johnnie Mae claims, Velma and John B. Crowley, Mesa County, Colorado	19
3. Mine map, Velma and John B. Crowley claims, Mesa County, Colorado	*

*See figure following geologic report.

DMEA 2391

VELMA AND JOHN B. CROWLEY
PACK RAT AND JOHNNIE MAE CLAIMS
MESA COUNTY, COLORADO

ENGINEERING REPORT

By

Scott W. Hazen, Jr.

INTRODUCTION

Velma and John B. Crowley have submitted an exploration loan application, DMEA 2391, requesting $55,276.00 to do 18,000 feet of diamond drilling to explore for uranium on the Pack Rat and Johnnie Mae claims in Mesa County, Colo.

A field examination was made by the U. S. Geological Survey member of the examining team on April 4, 1952, and a field examination by the Bureau of Mines member of the examining team was made May 13, 1952. The applicants failed to submit adequate maps of the property showing the mine workings and topography and they did not specifically outline their proposed diamond drilling program. At the time of the examination, the applicants were requested to furnish adequate contour maps showing the topography and mine workings and the proposed drilling. These maps were received on June 18, 1952.

ACKNOWLEDGMENTS

John B. Crowley was contacted and provided necessary data on his equipment and mining program. Mike Hill, superintendent of the Pack Rat mine, accompanied the examining team and outlined the proposed project at the site. The assistance of these two men is gratefully acknowledged.

LOCATION, TOPOGRAPHY, AND ACCESSIBILITY

The Pack Rat and Johnnie Mae mining claims are in the West Gateway or Beaver Creek Mining District and are located on Beaver Mesa in sec. 36, T. 51 N., R. 20 W., N. M. P. M., Mesa County, Colo., almost on the Utah-Colorado state line (fig. 1).

Beaver Mesa is typical of the vanadium-uranium plateau region of southwestern Colorado and southeastern Utah. The mesa lies on the northeastern flank of the La Sal Mountains. The La Sal uplift and a series of folds have tilted the sedimentary formations about 3 to 4 degrees to the east and north. Erosion has carved the relatively flat sediments into isolated plateaus and steep-walled canyons.

Elevations in the area range from 6,000 to 7,000 feet. Streams from the higher elevations flow all year and numerous springs furnish water for drilling and domestic purposes. Winter snowfall may accumulate to 3 feet but usually averages about 6 inches in depth. Mining operations can be maintained for most of the year with short interruptions during the more severe storms and during the spring thaws.

Piñon and juniper trees grow in abundance on the mesas and ponderosa pine grows at the higher elevations. Mining timber and some dimension lumber can be obtained at local sawmills.

The Beaver Mesa district is 15 miles from Gateway, Colo., and is serviced by the John Brown Canyon access road. Except during spring thaws, this road is usable all year. Gateway is 60 miles from Grand Junction, Colo., the central supply source for the region. Colorado State Highway 141 from Grand Junction to Gateway is a partially improved dirt-and-gravel-surfaced road and is scheduled for improvement under the Government access road program.

Mining companies in the district provide camp facilities for their crews. Wages are paid at two scales, one which includes board and camp facilities and one at a higher scale which requires the crew to pay their own board and for camp facilities. The average increase is $2.00 per day under the higher scale.

HISTORY AND PRODUCTION

During 1916-1917, when high-grade uranium ore was selling at premium prices, some uranium ore is reported to have been packed out on horses from the Beaver Mesa district. The first road to the area by way of Sinbad Valley was built in 1939. This opened the district to more detailed prospecting, and, when the Government access road was built by way of John Brown Canyon in 1943, production increased considerably.

Exact production figures from the various mines in the district are not released by the operating companies or the Atomic Energy Commission.

From 1941 to 1944, the Corvusite or Stone mine, which is located a few miles to the west, and the Lumsden group, which is located adjacent to the Crowley property, produced approximately 1,900 tons of ore averaging 2.0 percent V_2O_5 and 0.2 percent U_3O_8. Since the renewed activity starting in 1948, these two areas have produced in excess of 10,000 pounds of U_3O_8 and about ten times that amount of V_2O_5. Although exact figures are not available, the Corvusite or Stone mine and the various mines in the Lumsden group are estimated to have produced at least 400 tons per month during the past year. This production has probably averaged 0.4 percent U_3O_8 and 2.2 percent V_2O_5.

During the past four months that the Crowley property operated, 800 tons of ore were produced assaying 0.24 percent U_3O_8 and 1.07 percent V_2O_5. At the time of the examination, the Pack Rat mine on the Crowley property was producing approximately 200 tons per month averaging the same grade as noted above. Mr. Hill, superintendent of the mine, believed that he would increase this production during the summer months to nearly 400 tons per month as he had developed ore averaging from 6 to 8 feet in thickness in half a dozen faces. The one outstanding feature of the mine is the exceptional thickness and size of the ore body being mined, However, with the tonnage being produced, even though it is of low-grade uranium content, it will not be long before the group of claims owned by Crowley will have produced the maximum pounds of uranium upon which the Atomic Energy Commission will pay bonus rates. When this point is reached, the value of the ore will be reduced by approximately one-half.

OWNERSHIP AND EXTENT

Velma and John B. Crowley, husband and wife, doing business as joint tenants, own the nine mining claims upon which exploration is proposed. These claims were located in 1943 by Crowley and a partner named Ward. Crowley has obtained Ward's interest through a purchase contract. Terms of the purchase contract as outlined by Crowley indicate Ward has not been paid in full as the remaining amount is being paid by royalty on production.

Legal descriptions of the nine claims, held by location, are given in form MF-103 attached to the application. The claims are filed at Grand Junction, Colo. The filing book and page numbers were requested from the applicants but have not been furnished.

The nine claims listed and shown on the accompanying map, figure 2, are:

Pack Rat No. 1
Pack Rat No. 2
Pack Rat No. 3
Johnnie Mae No. 1
Johnnie Mae No. 2
Johnnie Mae No. 3
Johnnie Mae No. 4
Johnnie Mae No. 5
Johnnie Mae No. 6

The claims are not all standard size as a settlement of a conflict with the owners of the adjacent Lumsden group of claims has cut off approximately 300 feet of the northerly end of the Johnnie Mae Nos. 2, 4, 5, and 6 and part of the Johnnie Mae No. 1. The claim map submitted by Crowley is based on a survey after the settlement was made and amended locations recorded.

There appears to be another conflict between Crowley's locations of the six Johnnie Mae claims and the Gateway Mining and Development Company claims. The latter company purchased its claims from the Corvusite Mining and Exploration Company which was unable to furnish good possessory title to the LaSal No. 4, LaSal No. 5, LaSal No. 6, and LaSal No. 7 claims. It is apparent that this conflict was with Crowley on the Johnnie Mae claims. However, this was not determinable as no one will admit the conflict, and amended filings may have cleared the titles. Conflicts of this nature are quite common in the uranium mining region and are usually settled without recourse to law. In addition to the four claims listed above, the Tetzloff claim, a later location by the Gateway Mining and Development Company, may also be in conflict.

If this conflict does exist, it will eliminate drilling south of an east-west line crossing approximately through the point of the inside angular corner on the east side line of the Johnnie Mae No. 1 claim. These claims are all staked and the area of conflict can be accurately laid out in the field. Drilling should be confined to the area which is not in conflict.

DESCRIPTION OF THE DEPOSITS

Sedimentary formations which are exposed in the Beaver Mesa district dip about 3 to 4 degrees to the northeast and include the series from the Chinle of Triassic age to the Dakota of Cretaceous age. The Morrison formation of Jurassic age underlies the Dakota. Igneous intrusives of late Tertiary age are found in the La Sal Mountains a short distance to the west.

Beaver Mesa is on the northeast-dipping flank of the Sinbad Valley - Fischer Valley anticline. This is considered to be a favorable location as many of the larger producing areas in the plateau are on the flanks of major anticlines.

The Morrison formation is divided into two units--the upper Brushy Basin unit, composed of clays and shales and thin sandstone lenses, and the lower Salt Wash unit, composed of sandstone lenses from 10 to 50 feet thick which are interbedded with clays and shales. Uranium-vanadium ore from Beaver Mesa has come from the upper sandstone lenses of the Salt Wash unit.

Field evidence gathered in the past few years has shown that mineralized zones can be recognized by the alteration of sandstones to a light gray or white and by the alteration of the underlying red

shales to a light blue-green color. Uranium-vanadium ores within these mineralized zones occur as deposits in crossbedded sandstones, in sandstone-mudstone contacts, and in rolls in the sandstones. There appears to be some relationship between the deposits and fractures and joints but this is not entirely proven at this time.

The individual ore deposits vary in size from areas covering as much as 1,000 square feet to small high-grade pods containing a few tons. The uranium-vanadium ratio is considered to be 1:10 but will vary considerably within a deposit. In some few instances, the uranium content will equal the vanadium content.

MINEABLE ORE RESERVES

The only mine on the nine claims is on the Pack Rat No. 3, located on figure 2 and shown in detail on figure 3 with the geologic report. This mine is exceptional for the size of the ore body being worked. Many of the ore bodies in the district are quite small, contributing less than a hundred tons of ore, but this particular ore body has produced at least 1,100 tons and ore is exposed in many faces of the workings. The ore varies in grade over widths of 6 to 8 feet with an additional 6 feet exposed at one point under the floor of the drift level. The operator is shipping almost all of the rock blasted with practically no sorting as the entire mining width has averaged 0.24 percent U_3O_8 and 1.07 percent V_2O_5.

Mineable ore reserves are difficult to predict in uranium mining, especially where considering an ore body which is an exception to the average for size. The mining in this case has progressed in all directions from the drift and there are few exploratory headings ahead of

the mining. It seems reasonable to expect or estimate a mineable reserve of 1,000 tons in the known ore body now being mined.

There are no other known exposures of ore on the claims. Most of the ore horizon east and west of the mine on the Pack Rat No. 3 claim is covered by overburden and slump. It has not been prospected. A 20-foot incline was driven near the northeast corner of the Johnnie Mae No. 1 claim but did not encounter the ore horizon. If an average of 3-1/2 degrees is used as the dip of the ore horizon and this is plotted, the base of the ore horizon (fig. 2) lies above the incline. This is doubtful as mining on the Lumsden group is below this elevation. Apparently there is a local change in strike or dip or faulting which was not evident at surface.

The Lumsden group which lies north of and adjacent to the Johnnie Mae claims has been actively mined for several years; however, production records and mining progress are not obtainable as the operating company will not release any data on its work. The claims have been drilled, according to recent reports, but data on this also are not available. It is rumored that ore was found by the drilling and this started the recent action to settle the claim conflict between Crowley and the owners of the Lumsden group.

The diamond drilling proposed is confined to areas where the ore horizon will be less than 200 feet in depth. This is considered advisable as the claims are so situated as to require mining by shaft or long adit through other ownerships. If ore is encountered in any drill hole, it will be necessary to drill several additional holes to prove the size and grade of the ore body in order to determine the economics of sinking a 150- to 200-foot shaft to reach the ore.

PRESENT STATUS

Exploration and Development

There is only the one mine on the nine claims, location shown on figure 2 and details of the underground workings on figure 3 with the geologic report. The mine was developed from a thin seam of ore found along a short outcrop of the ore horizon which had been exposed by erosion. The mine has developed an exceptionally large ore body for this district. The limits of the ore have not been reached and the operation is producing about 200 tons per month.

Most of the ore horizon on the Pack Rat No. 3 claim is obscured by overburden and slump and there has been little prospecting along the horizon because of this. The ore horizon is probably not exposed on any of the other claims except for a possibility on the Johnnie Mae No. 1.

The claims are located on very favorable ground and are adjacent to a recognized major mineralization zone which includes the Gateway Mining and Development Company claims and the Lumsden group.

If the diamond drilling encounters an ore body, the ore will have to be well outlined as to tonnage and grade in order to estimate values for comparison with mining costs required to sink 150- to 200-foot shafts for mining. The only alternative is to drive long adits from the ore horizon on other property.

Crowley has done considerable mining from shafts in the uranium region and has developed portable headframes and equipment which have reduced his costs for sinking.

The diamond drilling is being confined to maximum depths of about 200 feet because of the economics of mining involved at these depths.

Mining and Milling Equipment and Other Facilities

The operator has very little mining equipment available on the property other than a small compressor, some items of light mining equipment, and small tools at the Pack Rat underground workings located on the Pack Rat No. 3 claim. There is no milling equipment, and other facilities consist of the diamond drilling and accessory equipment listed in the application and included in the section on costs of the project later in this report.

PROJECT PROPOSALS

The applicants have proposed a program of diamond drilling on all the claims. The drilling, as proposed, was to be laid out on a grid basis and holes drilled on 200-foot spacings with the alternate rows offset or staggered in a diamond pattern. The applicants did not provide adequate maps showing the proposed drill holes. At the time of the field examination in May 1952, Crowley was requested to furnish a contour map showing 20-foot contours, mine claims, mine workings, and the proposed drilling. These maps were received June 18, 1952. The maps provided all necessary data except the location of the drill holes. Accordingly, drill hole sites have been laid out, as shown on figure 2. These begin with a series of 23 holes, approximately 2,900 feet of drilling, at 50-foot intervals along the ore rim across the southern side of the Pack Rat No. 3 claim. These holes are located to prospect this favorable area which is accessible to mining and which is now covered by overburden and slump. A second series of 17 holes, approximately 3,100 feet of drilling, is located along the access road on the edge of the bench about 100 feet south of the first series of holes.

The second series of holes is spaced at 100-foot intervals except in the vicinity of the mine workings where the interval is reduced to 50 feet. If ore is found in any of these holes, additional holes are recommended at closer intervals to fill in around the hole encountering mineralization. The two series of holes should be drilled first and the location and amount of fill-in holes should have the prior approval of the Defense Minerals Exploration Administration representatives.

Seven holes, approximately 1,250 feet of drilling, are located at about 200-foot intervals along the east side of the Pack Rat No. 1 claim. This area is thought to be less favorable, primarily because of depth and mining accessibility.

Twenty-four holes, approximately 2,240 feet of drilling, are located on the Johnnie Mae No. 1 claim. These are in five rows spaced at 200-foot intervals in a north-south direction and 100-foot intervals in an east-west direction. These explore a favorable area along the head of an eroded area and a depression. The base of the ore horizon may be exposed on this claim but this is based on the projection of the average bedding dips and is questionable because of the distance of the projection. Local changes in strike or dip and minor faulting may be present which would place the base at greater depth or north and east of the claim corner. The incline, 20 feet deep, did not find the ore horizon but it could be more than 20 feet above the horizon. Six more holes, approximately 900 feet of drilling, are located across the north end of the Johnnie Mae Nos. 2, 4, and 6 claims. These holes are spaced at 200-foot intervals.

The amount of drilling shown on the map includes 77 holes amounting to an estimated 10,400 feet. The total amount recommended by the examining team is 15,000 feet.

Since the base of the ore horizon is not definitely known, the depth of each drill hole can only be estimated within 10 to 20 feet. The actual footage for the 77 holes listed may amount to as much as 12,000 feet if the base of the ore horizon is deeper than expected. Accordingly, the fill-in holes and their footages will vary and may amount to the remainder of the 15,000 feet of drilling recommended. The location and number of fill-in holes should have prior approval of the Defense Minerals Exploration Administration representatives. Every effort must be made to obtain maximum core recovery; core should be saved and boxed until logged and checked by the Defense Minerals Exploration Administration representatives and, if desired, by representatives of the U. S. Geological Survey and the Atomic Energy Commission working in the uranium region. Disposal of the core should be decided on by the mutual agreement of the Government agencies.

If the conflict of ownership does exist, it will necessitate elimination of some holes on the Johnnie Mae No. 1 claim.

COSTS OF THE PROJECT

The applicants have purchased two new Chicago-Pneumatic diamond drills complete with pumps. They intend to purchase trucks for mounting these drills and also have a pickup truck and a water truck and tank for providing water. Adequate water is available at a spring near the west end of the Pack Rat No. 3 claim. The applicants intend to furnish this equipment on a depreciation basis.

The proposal for renting a bulldozer for access roads, access roads to drill sites, and drill site preparation is necessary but the $17,000.00 requested at $100.00 per day plus operator at $20.00 per day is out of line. The first row of holes on 50-foot centers on the Pack Rat No. 3 claim will require considerable bulldozing for road work to drill sites but the holes are roughly on the same contour and the holes can be drilled on the roadway which will eliminate individual drill site preparation. The other holes are nearly all on the bench area or in areas which will require little road work. A bulldozer can be rented for $15.00 per hour, operator included. This amounts to $120.00 per day. Twenty-five days' bulldozing, or $3,000.00, for access roads to drill sites and drill site preparation seems entirely adequate.

Supervision requested is excessive. One engineer-sampler at $600.00 per month can survey in the drill holes and do the sampling. Sampling on the drilling project is extremely important. An experienced and trained person should be employed.

The applicants indicate they will furnish camp facilities and equipment.

The project is estimated to require 4 months to complete.

Detail of Estimated Costs

1. Fixtures and Improvements

Facilities - fixtures - buildings		None

2. Operating Equipment

Purchased		None
Rented		
One tractor-bulldozer for constructing roads to drill sites only and in preparation of drill sites.		
Estimated rental per day $100.00, or, if including operator, at $120.00, 25 days		$3,000.00
Furnished by Operator		
Two Chicago-Pneumatic diamond drills, including pumps and mounted on trucks		
New drills, used trucks Value $8,000.00 each - total $16,000.00 Depreciation allowable per month $\frac{\$16,000.00}{60} = \$267.00$		
Allowance for 4 months	$1,068.00	
One water truck and tank for servicing drills		
Value $4,000.00, used Depreciation per month $\frac{\$4,000.00}{60} = \$67.00$		
Allowance for 4 months	268.00	
One pickup truck for service, supplies, moving equipment and crew		
Value $1,800.00, used Depreciation allowance per month $\frac{\$1,800.00}{60} = \$30.00$		
Allowance for 4 months	120.00	
Total depreciation allowance		1,456.00

3. Rehabilitation and Repairs

Facilities - buildings - installations - fixtures		None

4. Labor

Hourly rates used are for 40-hour week with time and one-half allowable for time in excess of 40 hours per week.

Hourly rates are calculated at the higher rate prevailing in the district, and, therefore, the cost of camp facilities is not to be charged as an expense to the project.

Two diamond drill operators at base rate of $2.50 per hour, or $130.00 each, for 6-day week		
Cost for 18 weeks for 2 men, 2 x $130.00 x 18 =	$4,680.00	
Two diamond drill helpers at base rate of $2.00 per hour, or $104.00 each, for 6-day week		
Cost for 18 weeks for 2 men, 2 x $104.00 x 18 =	3,744.00	
One truck driver for water truck at base rate of $2.00 per hour, or $104.00, for 6-day week		
Cost for 18 weeks	1,872.00	
One bulldozer operator--allowed only if bulldozer is rented without operator--at base rate per hour of $2.50, or $130.00 per week, for 6-day week (Money already encumbered under equipment rental)		
Total labor cost (not including bulldozer operator)		$10,296.00

5. Supervision

One engineer-sampler at $600.00 per month, for 4 months		2,400.00

6. Operating Materials and Supplies (estimated costs)

Supplies

Timber	None
Explosives	None
Track	None

Diamond drilling

Pipe - standpipe and water pipe	$ 100.00	
Gas and oil for drills for 4 months	1,250.00	
Repair parts - drills, equipment, etc.	1,000.00	
*Drill casing	750.00	
*Drill rods	750.00	
*Core barrels (including replacements)	750.00	
*Drill rod couplings, fittings, tools, parts, etc.	750.00	
Core boxes for core storage	400.00	
Gas and oil for pickup and water truck	1,250.00	
Total		$7,000.00

*Semiexpendable items with possible salvage value at end of project. Government's equity to be considered.

7. Diamond bits

Bits will probably be received on consignment and not purchased except in case of loss of bit. Records must be maintained on all bits received and used to insure credit for diamond salvage at resetting and Government's equity at close of project.

Bit cost is estimated at $0.50 per foot for the 15,000 feet — 7,500.00

8. Power — None

9. Transportation

Freight - drill rods, casing, repair parts, etc. — 500.00

10. Compensation — 450.00

11. Social Security — 198.00

12. Assaying — 1,500.00

13. Bookkeeping

$50.00 per month, 4 months — 200.00

Total — $34,500.00

This total reflects a reduction of the $5,000.00 requested for access roads, a $9,000.00 reduction in bulldozer rental, approximately $5,000.00 in labor and supervision, and about $750.00 in other items--or a total of $19,750.00.

The estimated cost averages $2.30 per foot of drilling for the 15,000 feet recommended. The applicants' estimated cost was $2.79 per foot for the requested 18,000 feet of drilling. Their cost estimate, however, included $12,000.00 bulldozing, $5,000.00 access roads, and $2,400.00 for bulldozer operator which is about $1.08 per foot for this item alone. This has been reduced to $3,000.00, or $0.20 per foot, in this report. The applicants' cost per foot less bulldozing would be $1.71 ($2.79 - $1.08) per foot compared to this report's estimate of $2.10 ($2.30 - $0.20). Diamond drill contractors in the uranium field are now bidding about $2.30 to $2.50 per foot for comparable drilling less than 250 feet deep and with a short water haul.

It seems advisable in this case to propose the use of a short form contract specifying 15,000 feet of diamond drilling as shown on figure 2 plus additional holes as directed and approved by the Defense Minerals Exploration Administration representatives. The applicants should be limited in the amount of bulldozing allowable to the minimum necessary to provide access to drill sites and drill site preparation. The applicants may be willing to provide all necessary labor and supplies and do the drilling for about $2.00 per foot, bulldozing excepted, or $2.25 per foot including bulldozing.

PRODUCTION PLAN

Ore produced will be trucked to the U. S. Vanadium Corporation processing plant at Uravan, Colo., about 65 miles to the south.

Crowley's group of nine claims is considered as a single producing unit by the Atomic Energy Commission for the purpose of payment of bonus for the first 10,000 pounds of uranium produced. An average grade of 0.2 percent U_3O_8 will require 2,500 tons of ore to reach the bonus limit. At the present rate of production, this limit will have been reached before completion of the drilling program.

CONCLUSIONS

The Crowley claims are located in a favorable area which is highly recommended by the Grand Junction field personnel of both the U. S. Geological Survey and Atomic Energy Commission. Crowley is considered to be a very competent operator and capable of economically mining ore from the depths which are indicated. The one mine which is being operated has developed an exceptionally large ore body for this district. Ore bodies of this size contain sufficient values to justify sinking shafts to the depth necessary to mine the ore.

The applicants have purchased nearly $20,000.00 worth of exploration equipment without aid and Crowley's past record indicates he will immediately initiate an aggressive program of mining any ore found by the exploration. It is concluded that the program proposed has an excellent possibility of discovering a sizable tonnage of uranium ore.

RECOMMENDATIONS

A program consisting of 15,000 feet of diamond drilling is recommended. The initial drilling of 77 holes is outlined on figure 2 and the remaining footage is to be drilled as fill-in holes to outline ore bodies found. The estimated cost for the 15,000 feet of drilling is $34,500.00, or $2.30 per foot. The Government's share will be 90 percent, or $31,050.00.

amh

FILE COPY
SURNAME:
Hooker
Murphy
Ellis
Mitchell

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

JUL 8 1953

Mr. J. B. Crowley
560 U. S. Highway No. 50
Grand Junction, Colorado

Re: Docket No. DMEA-2391(Uranium)
Velma and John B. Crowley
Pack Rat and Johnnie Mae Claims
Mesa County, Colorado

Dear Mr. Crowley:

Reference is made to your letter dated June 30, 1953, in which you state that you want the above-captioned application reactivated; but under your name only, as Velma Crowley is no longer interested in the project.

Before an exploration contract can be recommended, we must have the information requested in my letter dated September 16, 1952. I am attaching a copy of this letter, since you mention that you have not been able to find the original letter in your files.

In addition to the data requested in the above letter, we will also require an Owner's Consent to Lien on the property signed by your wife, Velma Crowley. We are enclosing seven (7) copies of the "Owner's Consent to Lien" forms which you will kindly have filled out, signed, and returned to this office.

We note that you wish to revise the original application and have the drilling done by a contractor instead of yourself. We are in agreement with that proposal and further suggest that the bulldozing work, mentioned in the application, be combined with the drilling on a basis of unit cost per foot of hole drilled. The Field Team has suggested a cost of $2.00 per foot for drilling only and $2.25 per foot including bulldozing the roads and drill sites.

When the above requested information is received we will continue with the processing of your application.

Sincerely yours,

SIGNED

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

EWEllis/FMMurphy/db
7-8-53
cc to: Adm. Reading File
Docket
Messrs: H.D.Kaiser, Rm. 3641

Messrs: Ellis
Murphy
DMEA Field Team, Region IV (2)

R.C.G.
7-8-53

7/6/53 gla

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 3 1953

June 30,1953

Mr.Ernest Wm. Ellis,Chief
Rare & Misc.Metals Division
U.S.Department of the Interior
Defense Minerals Exploration Administration
Washington 25,D.C.

Re:Docket No.DMEA-2391 (Uranium)
Velma and J.B.Crowley
Pack Rat and Johnnie Mae Claims
Mesa County,Colo.

Dear Mr. Ellis

In acknoledgement of your letter of June 22,I wish to state that I do want to continue with the application.

Our office has been moved from Dove Creek,Colo.to Grand Junction,Colo and in the move some of our files have been misplaced,and I do not have your letter of September 16,1952.

Since our last correspondence,Velma Crowley is no longer interested in the above claims.

I would like very much to revise the conditions of the application,and have the drilling contracted by a drilling Company,as our own drills are not available for this job at this time.

Your advise on how to proceed will be greatly appreciated.

Sincerely yours,

J B Crowley

J.B.Crowley
560 U.S.Hiway No.50
Grand Junction,Colo.

RECEIVED
JUL -7 1953
GENERAL COUNSEL
DEFENSE MINERALS
ADMINISTRATION

FILE COPY
SURNAME:

Docket
J. Keane
Ellis
Mattaway

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

JUN 22 1953

Mr. John R. Crowley
P. O. Box 294
Cove Creek, Colorado

Re: Docket No. [illegible]A-2391 (Uranium)
Velma and John R. Crowley
Pack Rat and Johnnie May Claims
Mesa County, Colorado

Dear Mr. Crowley:

Your attention is called to our several communications since September 16, 1952, with regard to the proposed exploration project on the above-captioned claims. On December 9, 1952, "due to bad weather and other circumstances," you requested postponement of the processing of this application "for a short time" until you advised us.

Inasmuch as we have received no further word from you, we assume that you no longer desire us to proceed with consideration of this application. We wish to cooperate with you in the matter of allowing ample time to submit the information requested. However, if the data outlined in our letter of September 16, 1952, has not been received by July 20, 1953, we will then consider the docket closed.

Sincerely yours,

SIGNED

Ernest A. Ellis, Chief
Rare Misc. Metals Division

cc 6/22

EAEllis/db
6-19-53
cc to: Adm. Reading File
Docket
Messrs. H. Keiser, Rm. 3041
A.P. Butler, Jr., Rm. 3206, GSA
Ellis
DMA Field Team, Region IV (2)

FEB 4 1953

Mr. John H. Crowley
P. O. Box 294
Cove Creek, Colorado

Re: Docket No. [illegible]
Velma and John H. Crowley
Jack Mack and Johnnie [illegible]
Mesa County, Colorado

Dear Mr. Crowley:

Reference is made to your reply of December 9, 1952, to our inquiries concerning information required to further process your application, wherein you requested that we withhold further action for a short time until we heard from you.

So that we may, on our records currently, will you kindly advise when we may expect to receive the requested information?

Very truly yours,

SIGNED

Robert [illegible] Ellis, Jr.
Chief, Land Classification Section

[illegible]/ls
2-4-53
cc to: Adm. Mining File
Docket
Messrs. [illegible]-3647
[illegible]-32[illegible]
Ellis
Knouse
Field Term, [illegible] (2)

700 FILE COPY
SURNAME:

F. L. Knouse

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

FEB 4 1953

Mr. John B. Crowley
P. O. Box 294
Nove Creek, Colorado

Re: Docket No. DMEA-2391 (Uranium)
Velma and John B. Crowley
Pack Rat and Johnnie Ray Claims
Mesa County, Colorado

Dear Mr. Crowley:

J. C. 2/4/53

Reference is made to your reply of December 9, 1952, to our inquiries concerning information required to further process your application, wherein you requested that we withhold further action for a short time until we heard from you.

So that we may keep our records current, will you kindly advise when we may expect to receive the requested information?

Sincerely yours,

SIGNED

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

FLKnouse/gla
2-4-53
cc to: Adm. Reading File
Docket
Messrs. R.D.Keiser-3647
A.F.Butler-3206 DMA
Ellis
Knouse
Field Team, Region IV (2)

12/16/52

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 15 1952

Dove Creek, Colorado
December 9, 1952

United States
Department of the Interior
Washington 25, D.C.

Mr. Ernest Wm. Ellis:

Due to bad weather and other circumstances, we would like to postpone the processing of our DMEA-2391(Uranium) application for a short time and will advise you when we wish to proceed.

Thank you very much,

J.B. Crowley

J B Crowley

FILE COPY
SURNAME:

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

DEC 5 1952

Mr. John B. Crowley
P. O. Box 294
Dove Creek, Colorado

Re: Docket No. M-2391 (Uranium)
Vulcan and John B. Crowley
Jack Pot and Johnnie May Claims
Mesa County, Colorado

Dear Mr. Crowley:

Further reference is made to our letters to you dated October 30, 1952 and September 16, 1952, in which we requested certain additional information so we could complete the processing of your application.

If you are unable to obtain the requested information, kindly advise this office accordingly.

Sincerely yours,

SIGNED
Emmert M. Ellis, Chief
Rare and Misc. Metals Division

FLKnouse/jem
12/4/52
cc to: dm. Reading File
Docket
Messrs. R.D.Reiser-3647
A.P.Butler-3206
Ellis Knouse
Field Team, Region IV (2)

FILE COPY
SURNAME:
700

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

OCT 30 1952

Mr. John B. Crowley
P. O. Box 294
Dove Creek, Colorado

Re: Docket No. [illegible]-3291 (Uranium)
Velma and John B. Crowley
Jack Jay and Jennie Jay Claims
Dolores County, Colorado

Dear Mr. Crowley:

With reference to the above mentioned project, we wrote you on September 10, 1952, requesting additional information. Since we have not received your reply, kindly advise this office when we may expect the requested information.

Please be assured that the material is needed in order to promptly continue with the processing of your application.

Sincerely yours,

/S/

Ernest M. Ellis, Chief
Acre and Misc. Claim Division

S.N.
10-30-52

Ellis/gla/jem
10/29/52
cc to: Adm. Reading File
Docket
Messrs. H.O.Meiser- R.1347
J.P.Butler- R.3206 GSA
Ellis
Field Team, Region IV (2)

FILE COPY
SURNAME:

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

Kane
Hofflund
Knouse
Ellis
Mutten Cof

Mr. John H. Crowley
P. O. Box 294
Dove Creek, Colorado

SEP 16 1952

Re: Docket No. DMA-2391 (Uranium)
Velma and John H. Crowley
Pack Rat and Johnnie May Claims
Mesa County, Colorado

Dear Mr. Crowley:

This is to inform you that before the exploration project contract for which you have made application can be properly drawn, it will be necessary for you to furnish this office with the following information: (1) When and where the unpatented mining claims referred to in your application are recorded, specifying the book and page number. (2) A copy of the sales agreement between Mr. Ward and yourself referring to these claims, and (3) Evidence that the "Johnnie May" claims are not in conflict with any other claims particularly those belonging to the Corvusite Mining and Exploration Company or the Gateway Mining and Development Company, and (4) The correct spelling of these claims as the map lists them as the "Johnnie May" claims and the application as the "Johnnie Mae".

Sincerely yours,

Signed 9-16-52

Everett M. Ellis, Chief
Rare and Misc. Metals Division

AEKane/FKnouse/jem
9-15-52
cc to: Adm. Reading File
Docket
Messrs. H. D. Keiser-1347
A.P. Butler-3206 GSA
Ellis Knouse
Kane Hofflund
Field Team, Region IV (2)

STANDARD FORM NO. 64

9/4/52 file SD

Office Memorandum • UNITED STATES GOVERNMENT

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

DATE: September 2, 1952

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

SUBJECT: Final Report, DMEA Docket 2391 (Uranium) Velma and John B. Crowley, Pack Rat & Johnnie Mae Claims, West Gateway area, Mesa County, Colorado.

I have reviewed the Field Team report identified above, and concur with the recommendations that exploration assistance be granted for the Government's share of a total cost of $34,500. The recommendations appear sound, but I believe that some provision for DMEA control of "fill in" holes should be provided as suggested by the examining team.

Arthur P. Butler, Jr.

Arthur P. Butler, Jr.

Copy to- E.Wm. Ellis (2)

September 10, 1952

I concur in the foregoing recommendation by Mr.Arthur P. Butler, Jr.

H. D. Keiser

H. D. Keiser
U. S. Bureau of Mines Uranium Commodity Committee Member

IN REPLY REFER TO:

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

Ernest Wm. Ellis, DMEA Member, Uranium Commodity Committee

September 2, 1952

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

Final Report, DMEA Docket 2391 (Uranium)
Velma and John B. Crowley, Pack Rat & Johnnie Mae Claims, West Gateway area, Mesa County, Colorado.

I have reviewed the Field Team report identified above, and concur with the recommendations that exploration assistance be granted for the Government's share of a total cost of $34,500. The recommendations appear sound, but I believe that some provision for DMEA control of "fill in" holes should be provided as suggested by the examining team.

/S/ Arthur P. Butler, Jr.

Copy to- E.Wm. Ellis (2)

September 10, 1952

I concur in the foregoing recommendation by Mr. Arthur P. Butler, Jr.

H. D. Keiser
U. S. Bureau of Mines Uranium Commodity Committee Member

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

224 New Customhouse
Denver 2, Colorado

August 18, 1952

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 2391 (Uranium)
Velma and John B. Crowley, Pack Rat and Johnnie Mae Claims, Mesa County, Colorado

Enclosed are the original and three copies of the final report on DMEA 2391.

The field examiners recommend a project estimated to cost $34,500, Government participation $31,050.

We concur in this recommendation.

W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

Enclosures

Mining Division
Region IV

August 18, 1952

Memorandum

To: Field Team, Region IV

From: Acting Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 2391 (Uranium)
Velma and John B. Crowley, Pack Rat & Johnnie Mae Claims, Mesa County, Colorado

Enclosed are eleven copies of the engineering report by Scott W. Hazen, Jr., on DMEA 2391.

The examining engineer recommends a diamond drilling project estimated to cost $34,500, Government participation $31,050.

We concur in this recommendation.

W. H. King

W. H. King

Enclosures

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 25 1952

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
July 30, 1952

Mining Division
Date Rec'd
Bureau of Mines
Denver, Colorado

Memorandum

To: Executive Officer, Field Team, Region IV

From: Chief, Colorado Branch, Mining Division, Region IV

Subject: DMEA 2391 (Uranium), Velma and John B. Crowley, Pack Rat and Johnnie Mae claims, Mesa County, Colorado

Please find enclosed the original and ten copies of the "Summary, Conclusions, and Recommendations" on the above docket, by E. N. Harshman and Scott W. Hazen, Jr., and of Hazen's engineering report.

Hazen concludes the project is favorably located for the discovery of uranium reserves and the applicant is competent to carry on a mining program if exploration is successful. He recommends 10,400 feet of diamond drilling in 77 drill hole sites with additional drill holes to a maximum of 15,000 feet as fill in between the holes that encounter mineralization in the first phase of the program, the number and location of fill-in holes to be approved by Defense Minerals Exploration Administration representatives. A conflict in ownership may eliminate a small amount of drilling.

I concur with the conclusions and recommendations.

W. M. Traver, Jr.

W. M. Traver, Jr.

enclosures

WMT/smh

cc 10
DMEA 2391
DMEA Chron.

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

200 New Customhouse
Denver 2, Colorado

August 15, 1952

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 2391, Pack Rat and Johnnie Mae Claims, Mesa County, Colorado, Velma and John B. Crowley.

Attached are 10 copies of the geological report by E. N. Harshman covering DMEA Docket 2391.

The applicant proposes to explore 9 claims on Beaver Mesa by 18000 feet of diamond drilling; the estimated average depth of the holes is 150 feet. Three miles of access road construction are also proposed.

Beaver Mesa is underlain by the Morrison formation, the Salt Wash member of which is the most productive uranium-ore horizon in the region. The Crowley property lies in a belt of closely spaced deposits that extends eastward across the central part of Beaver Mesa. One ore shoot has been found on the Crowley property, and 1100 tons of ore have been mined from it. Because of the favorable geological setting of this property, Harshman and members of the U. S. Geological Survey in the Grand Junction office agree that exploration here is justified and will probably lead to the discovery of significant bodies of uranium ore, and Harshman recommends that an exploration loan be approved.

The applicant has applied for a loan of $55,276.00, but did not furnish a detailed program of exploration. Harshman, therefore, has outlined an exploration program adequate to locate any significant ore bodies that occur on those parts of the property where excessively long adits or deep shafts will not be required for their exploitation. A maximum of 15,000 feet of holes is recommended, which, with the access road is estimated by the engineers of the U. S. Bureau of Mines to cost $34,500.00.

I concur in this recommendation.

The brochure is enclosed, herewith.

A. H. Koschmann

A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (11)

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 2391, Velma and John B. Crowley

Pack Rat and Johnnie Mae Claims

Mesa County, Colorado

Uranium

E. N. Harshman, Geologist
U. S. Geological Survey

Scott W. Hazen, Jr., Mining Engineer
Bureau of Mines

July 28, 1952

DMEA 2391

VELMA AND JOHN B. CROWLEY
PACK RAT AND JOHNNIE MAE CLAIMS
MESA COUNTY, COLORADO

Summary, Conclusions, and Recommendations

By E. N. Harshman
Geologist
U. S. Geological Survey

and

Scott W. Hazen, Jr.
Mining Engineer
Bureau of Mines

DMEA 2391

VELMA AND JOHN B. CROWLEY
PACK RAT AND JOHNNIE MAE CLAIMS
MESA COUNTY, COLORADO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By E. N. Harshman and Scott W. Hazen, Jr.

Velma and John B. Crowley submitted an exploration loan application, DMEA 2391, requesting $55,276.00 to do 18,000 feet of diamond drilling to explore for uranium on the Pack Rat and Johnnie Mae claims, in Mesa County, Colo. The examining team recommends a maximum of 15,000 feet of diamond drilling at an estimated cost of $34,500.00 (Government participation--$31,050.00).

The claims are located on Beaver Mesa where shales and sandstones of the Morrison formation crop out along the mesa rim. The known uranium-vanadium ore bodies occur in the upper portion of the Salt Wash member of the Morrison formation in lenticular sandstone beds which dip 3° to 4° northeast. One excellent body of ore has been found on the Pack Rat No. 3 claim where about 1,100 tons of above-average ore have been mined. The claims are located in the belt of closely spaced deposits that extends eastward across Beaver Mesa, and the geologic possibilities of finding additional uranium-vanadium ore appear excellent.

Ore bodies of the size being mined contain sufficient values to justify sinking shafts the 150 to 200 feet necessary to reach the ore. Crowley is considered to be a very competent operator and has developed portable shaft equipment which will reduce the costs of sinking. His past work in the uranium field indicates an aggressive program of mining any ore found by exploration.

Crowley's ex-partner Ward may still have some interest in the property, and parts of the Johnnie Mae claims may be in conflict. In that event, exploratory drilling can be completed without entering the conflict area.

The examining team recommends a program of diamond drilling 10,400 feet in 77 drill hole sites which are considered to be favorably located. Additional drill holes for the remainder of a maximum footage of 15,000 feet are proposed to fill in between any holes encountering mineralization. This is considered necessary to prove adequately the extent and grade of the ore found in order to determine if the value of the reserves is sufficient to justify sinking shafts to mine the ore. The location and number of fill-in holes should have the prior approval of Defense Minerals Exploration Administration representatives. The estimated cost of the 15,000 feet of diamond drilling recommended is $34,500.00 and the Government's share will be 90 percent, or $31,050.00.

PACK RAT AND JOHNNIE MAY CLAIMS

MESA COUNTY, COLORADO

VELMA AND JOHN B. CROWLEY

DMEA DOCKET 2391

Geologic Report

By E. N. Harshman
U. S. Geological Survey

PACK RAT AND JOHNNIE MAY CLAIMS
MESA COUNTY, COLORADO

INTRODUCTION

Velma and John B. Crowley, in DMEA Docket 2391, have requested government assistance in exploring for uranium - vanadium deposits on 9 claims owned by them, located in Sec. 36, T. 51 N., R. 20 W., on Beaver Mesa, about 4½ miles (airline) southwest of Gateway, Mesa County, Colorado, (Fig. 1). From Gateway the property is reached by following a poor dirt road up John Brown canyon and along the northeast rim of Beaver Mesa, a distance of 13 miles.

The applicants propose to explore the 9 claims by 18,000 feet of diamond drilling, holes to be located on 200 foot centers and offset holes drilled near any of the original holes that show significant mineralization. The estimated average depth of the drill holes, given in the application, is 150 feet. Three miles of access road construction are proposed. The cost of the exploration program, including supervision, is estimated to be $55,276.00.

The property was examined on April 4, 1952, in company with H. K. Stager, U. S. Geological Survey, Grand Junction, Colorado, and D. R. MacLaren, U. S. Geological Survey, Denver, Colorado.

The probability of finding additional ore on the Crowley property was discussed with geologists of the U. S. Geological Survey and the Atomic Energy Commission in Grand Junction, Colorado. They were of the opinion that from the geologic viewpoint exploration was warranted and that small

to moderate sized ore bodies should be discovered by drilling. The long range exploration drilling program of the U. S. Geological Survey includes work in the Beaver Mesa area.

GEOLOGY

The formations of the Beaver Mesa area are continental deposits of late Paleozoic and Mesozoic age dipping 2° to 4° NE., toward the axis of a broad northwesterly trending syncline. The mesa rim is capped by shales of the Brushy Basin member of the Morrison formation and the central portion of the mesa is capped by Dakota sandstone.

Most of the uranium-vanadium deposits are found in the Morrison sandstone. The Morrison formation is divided into 2 members with a combined thickness of 480 to 690 feet. The Salt Wash, or lower member, is composed of lenticular beds of gray, medium-grained sandstone, alternating with, and replacing, red and gray mudstone and shale. The sandstone beds are the most abundant. A zone of widespread sandstone beds occurs at the top of the Salt Wash member. Most of the uranium-vanadium deposits are found in this zone, locally termed the "ore rim." The Salt Wash member ranges from 220-260 feet thick. The Brushy Basin member of the Morrison formation is composed of 280 to 410 feet of light-colored, soft, bentonitic clay-shales and mudstones with occasional sandstone lenses.

The Crowley property lies in a belt of closely spaced deposits that, according to Fischer (1944), extends eastward across the central part of Beaver Mesa, the southern part of Tenderfoot Mesa, then swings southeast across Calamity Mesa, Outlaw Mesa, and the northern part of Blue Mesa. Ore deposits consist of carnotite mixed with a fine grained, micaceous,

gray vanadium mineral that coats the sand grains and partially or completely fills the interstices in the sandstone. Locally, the vanadium minerals are dark colored oxides. Plant remains are abundant in the ore bearing horizon and may be replaced by high-grade carnotite ore. Clay beds, in or underlying the mineralized sandstone, may contain some mineralization.

Ore bodies range from small lenticular masses containing several tons of ore to large tabular bodies a few hundred feet across and containing several thousand tons of ore. The long axes of the ore bodies usually are parallel to the sandstone bedding, but the ore may not follow any particular bed. Contacts between the ore and unmineralized sandstone generally are gradational but locally may be sharp. When the ore boundaries are sharp, they may cross the sandstone bedding planes at high angles and in smooth curves, the so-called "rolls" of the miners.

About 1100 dry tons of ore averaging 0.24% U_2O_3, 1.07% V_2O_5, and 3.5% moisture have been mined from one deposit on the Pack Rat Nos. 1 and 3 claims (fig. 2). The ore is in a crossbedded sandstone 60 to 80 feet below the top of the Salt Wash member of the Morrison formation. The ore body has an exposed length of about 100 feet, a width of 10 to 25 feet and a thickness of 2 to 12 feet. A number of faces in the present workings are still in ore (fig. 3). The trend of the long axis of the ore body, as measured in the face of the most southerly working, is about N. 45° E.

Some prospecting has been done in an adit located in the ore horizon about 200 feet east of the mine workings. Heavy snow made this adit inaccessible, but Mr. Adair Hill, foreman at the Crowley property, reported that only low grade and narrow mineralization had been exposed. A second prospect adit, 400 feet west of the mine, had been driven 50 feet in overburden and at the time of the examination had not reached the ore

bearing formation. A short winze, located on the Johnnie May No. 1 claim (fig. 2) was full of water, but it is reported to have not reached the ore horizon.

EXPLORATION PROGRAM

The exploration program submitted by the applicants was not in detail, and insufficient data were at hand to formulate a program of drilling. The applicants were requested to furnish a topographic map, drill hole locations, and estimate depths to the ore horizon. A topographic map was subsequently furnished, but no drill hole locations or depths were given.

The following diamond drill exploration program, formulated by the examining team, is believed to be adequate to locate any significant ore bodies located on the claims in areas where excessively long adits or deep shafts will not be required for their exploitation:

1. A line of 23 holes on 50 foot centers, estimated combined length 2900 feet, to explore the northern rim of the mesa in the area of known ore bodies. The ore horizon along this part of the mesa rim is generally covered by 5 to 75 feet of slope wash, talus, and landslide debris (fig. 2).

2. A line of 17 holes on 50 and 100 foot centers, estimated combined length 3100 feet, 100 feet south of the line of holes proposed above (fig. 2).

3. A line of 7 staggered holes on 75 and 200 foot centers, estimated combined length 1250 feet, along the east side of the Pack Rat No. 1 claim and west of the outcrop of the ore horizon, which in this area is not on the Crowley claims (fig. 2).

location

4. Five lines of holes on 100 and 200 foot centers, 24 in number, with an estimated combined length of 2240 feet, to explore an embayment

in the ore rim on the Johnnie May Nos. 1 and 3 claims (fig. 2).

5. One line of 6 holes on 200 foot centers, estimated combined length 900 feet, to explore the northern parts of the Johnnie May Nos. 2, 4, 5, and 6 claims (fig. 2).

The depths of all diamond drill holes are estimated, and the following assumptions are made: a. The topographic map furnished by the applicant is correct; b. The regional dip of the sediments is $3\frac{1}{2}^{\circ}$ NE.; and c. The base of the ore horizon in the Pack Rat mine workings lies at elevation 980 feet.

In addition to the 10,400 feet of drill holes recommended above some allowance must be made for errors in the estimated depths and for offset holes to be drilled around any of the original holes that encounter ore. A maximum of 15,000 feet of holes is therefore allowed for the complete program.

RECOMMENDATIONS

From the geological viewpoint, there is reason to believe that exploration on the Pack Rat and Johnnie May claims will lead to the discovery of significant bodies of uranium-vanadium ore. It is, therefore, recommended that DMEA Docket 2391 be approved for a loan of $34,500 (Government participation $31,050), this sum to cover the drilling of a maximum of 15,000 feet of diamond drill holes, supervision, boxing of cores, access roads, and other items outlined in the engineering report.

REFERENCE

Fischer, R. P., Simplified geologic map of the vanadium region of southwestern Colorado and southeastern Utah; U. S. Geol. Survey, Strategic Minerals Investigations preliminary map 3-226, 1944.

DMEA 2391

VELMA AND JOHN B. CROWLEY
PACK RAT AND JOHNNIE MAE CLAIMS
MESA COUNTY, COLORADO

Engineering Report

By Scott W. Hazen, Jr.
Mining Engineer
Bureau of Mines

DMEA 2391

VELMA AND JOHN B. CROWLEY
PACK RAT AND JOHNNIE MAE CLAIMS
MESA COUNTY, COLORADO

CONTENTS

Engineering Report	Page
Introduction	1
Acknowledgments	1
Location, topography, and accessibility	2
History and production	3
Ownership and extent	4
Description of the deposits	6
Mineable ore reserves	7
Present status	9
Exploration and development	9
Mining and milling equipment and other facilities	10
Project proposals	10
Costs of the project	12
Production plan	18
Conclusions	18
Recommendations	19

ILLUSTRATIONS

Figure	Follows Page
1. Location map, Pack Rat and Johnnie Mae claims, Velma and John B. Crowley, Mesa County, Colorado	2
2. Claim map outlining the drilling, Pack Rat and Johnnie Mae claims, Velma and John B. Crowley, Mesa County, Colorado	19
3. Mine map, Velma and John B. Crowley claims, Mesa County, Colorado	*

*See figure following geologic report.

DMMA 2391

VELMA AND JOHN B. CROWLEY
PACK RAT AND JOHNNIE MAE CLAIMS
MESA COUNTY, COLORADO

ENGINEERING REPORT

By

Scott W. Hazen, Jr.

INTRODUCTION

Velma and John B. Crowley have submitted an exploration loan application, DMMA 2391, requesting $55,276.00 to do 18,000 feet of diamond drilling to explore for uranium on the Pack Rat and Johnnie Mae claims in Mesa County, Colo.

A field examination was made by the U. S. Geological Survey member of the examining team on April 4, 1952, and a field examination by the Bureau of Mines member of the examining team was made May 13, 1952. The applicants failed to submit adequate maps of the property showing the mine workings and topography and they did not specifically outline their proposed diamond drilling program. At the time of the examination, the applicants were requested to furnish adequate contour maps showing the topography and mine workings and the proposed drilling. These maps were received on June 18, 1952.

ACKNOWLEDGMENTS

John B. Crowley was contacted and provided necessary data on his equipment and mining program. Mike Hill, superintendent of the Pack Rat mine, accompanied the examining team and outlined the proposed project at the site. The assistance of these two men is gratefully acknowledged.

LOCATION, TOPOGRAPHY, AND ACCESSIBILITY

The Pack Rat and Johnnie Mae mining claims are in the West Gateway or Beaver Creek Mining District and are located on Beaver Mesa in sec. 36, T. 51 N., R. 20 W., N. M. P. M., Mesa County, Colo., almost on the Utah-Colorado state line (fig. 1).

Beaver Mesa is typical of the vanadium-uranium plateau region of southwestern Colorado and southeastern Utah. The mesa lies on the northeastern flank of the La Sal Mountains. The La Sal uplift and a series of folds have tilted the sedimentary formations about 3 to 4 degrees to the east and north. Erosion has carved the relatively flat sediments into isolated plateaus and steep-walled canyons.

Elevations in the area range from 6,000 to 7,000 feet. Streams from the higher elevations flow all year and numerous springs furnish water for drilling and domestic purposes. Winter snowfall may accumulate to 3 feet but usually averages about 6 inches in depth. Mining operations can be maintained for most of the year with short interruptions during the more severe storms and during the spring thaws.

Piñon and juniper trees grow in abundance on the mesas and ponderosa pine grows at the higher elevations. Mining timber and some dimension lumber can be obtained at local sawmills.

The Beaver Mesa district is 15 miles from Gateway, Colo., and is serviced by the John Brown Canyon access road. Except during spring thaws, this road is usable all year. Gateway is 60 miles from Grand Junction, Colo., the central supply source for the region. Colorado State Highway 141 from Grand Junction to Gateway is a partially improved dirt-and-gravel-surfaced road and is scheduled for improvement under the Government access road program.

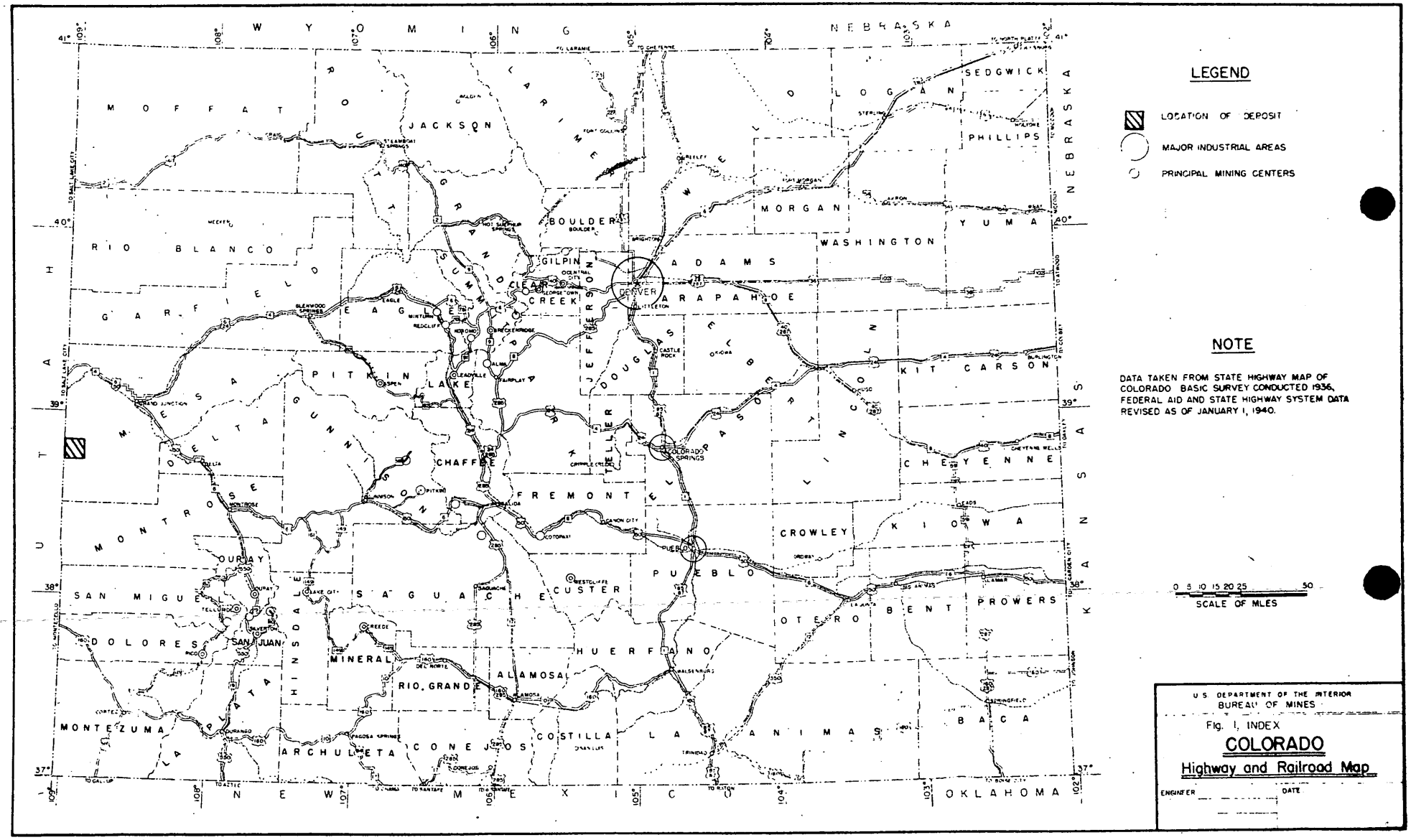


Figure 1. Pack Rat and Johnnie Mae Claims, Velma and John B. Crowley, Mesa County, Colorado, DMEA 2391

Mining companies in the district provide camp facilities for their crews. Wages are paid at two scales, one which includes board and camp facilities and one at a higher scale which requires the crew to pay their own board and for camp facilities. The average increase is $2.00 per day under the higher scale.

HISTORY AND PRODUCTION

During 1916-1917, when high-grade uranium ore was selling at premium prices, some uranium ore is reported to have been packed out on horses from the Beaver Mesa district. The first road to the area by way of Sinbad Valley was built in 1939. This opened the district to more detailed prospecting, and, when the Government access road was built by way of John Brown Canyon in 1943, production increased considerably.

Exact production figures from the various mines in the district are not released by the operating companies or the Atomic Energy Commission.

From 1941 to 1944, the Corvusite or Stone mine, which is located a few miles to the west, and the Lumsden group, which is located adjacent to the Crowley property, produced approximately 1,900 tons of ore averaging 2.0 percent V_2O_5 and 0.2 percent U_3O_8. Since the renewed activity starting in 1948, these two areas have produced in excess of 10,000 pounds of U_3O_8 and about ten times that amount of V_2O_5. Although exact figures are not available, the Corvusite or Stone mine and the various mines in the Lumsden group are estimated to have produced at least 400 tons per month during the past year. This production has probably averaged 0.4 percent U_3O_8 and 2.2 percent V_2O_5.

During the past four months that the Crowley property operated, 800 tons of ore were produced assaying 0.24 percent U_3O_8 and 1.07 percent V_2O_5. At the time of the examination, the Pack Rat mine on the Crowley property was producing approximately 200 tons per month averaging the same grade as noted above. Mr. Hill, superintendent of the mine, believed that he would increase this production during the summer months to nearly 400 tons per month as he had developed ore averaging from 6 to 8 feet in thickness in half a dozen faces. The one outstanding feature of the mine is the exceptional thickness and size of the ore body being mined, However, with the tonnage being produced, even though it is of low-grade uranium content, it will not be long before the group of claims owned by Crowley will have produced the maximum pounds of uranium upon which the Atomic Energy Commission will pay bonus rates. When this point is reached, the value of the ore will be reduced by approximately one-half.

OWNERSHIP AND EXTENT

Velma and John B. Crowley, husband and wife, doing business as joint tenants, own the nine mining claims upon which exploration is proposed. These claims were located in 1943 by Crowley and a partner named Ward. Crowley has obtained Ward's interest through a purchase contract. Terms of the purchase contract as outlined by Crowley indicate Ward has not been paid in full as the remaining amount is being paid by royalty on production.

Attn. Legal

Legal descriptions of the nine claims, held by location, are given in form MF-103 attached to the application. The claims are filed at Grand Junction, Colo. The filing book and page numbers were requested from the applicants but have not been furnished.

The nine claims listed and shown on the accompanying map, figure 2, are:

Pack Rat No. 1
Pack Rat No. 2
Pack Rat No. 3
Johnnie Mae No. 1
Johnnie Mae No. 2
Johnnie Mae No. 3
Johnnie Mae No. 4
Johnnie Mae No. 5
Johnnie Mae No. 6

The claims are not all standard size as a settlement of a conflict with the owners of the adjacent Lumsden group of claims has cut off approximately 300 feet of the northerly end of the Johnnie Mae Nos. 2, 4, 5, and 6 and part of the Johnnie Mae No. 1. The claim map submitted by Crowley is based on a survey after the settlement was made and amended locations recorded.

There appears to be another conflict between Crowley's locations of the six Johnnie Mae claims and the Gateway Mining and Development Company claims. The latter company purchased its claims from the Corvusite Mining and Exploration Company which was unable to furnish good possessory title to the LaSal No. 4, LaSal No. 5, LaSal No. 6, and LaSal No. 7 claims. It is apparent that this conflict was with Crowley on the Johnnie Mae claims. However, this was not determinable as no one will admit the conflict, and amended filings may have cleared the titles. Conflicts of this nature are quite common in the uranium mining region and are usually settled without recourse to law. In addition to the four claims listed above, the Tetzloff claim, a later location by the Gateway Mining and Development Company, may also be in conflict.

Other deed

If this conflict does exist, it will eliminate drilling south of an east-west line crossing approximately through the point of the inside angular corner on the east side line of the Johnnie Mae No. 1 claim. These claims are all staked and the area of conflict can be accurately laid out in the field. Drilling should be confined to the area which is not in conflict.

Letter Legal

DESCRIPTION OF THE DEPOSITS

Sedimentary formations which are exposed in the Beaver Mesa district dip about 3 to 4 degrees to the northeast and include the series from the Chinle of Triassic age to the Dakota of Cretaceous age. The Morrison formation of Jurassic age underlies the Dakota. Igneous intrusives of late Tertiary age are found in the La Sal Mountains a short distance to the west.

Beaver Mesa is on the northeast-dipping flank of the Sinbad Valley - Fischer Valley anticline. This is considered to be a favorable location as many of the larger producing areas in the plateau are on the flanks of major anticlines.

The Morrison formation is divided into two units--the upper Brushy Basin unit, composed of clays and shales and thin sandstone lenses, and the lower Salt Wash unit, composed of sandstone lenses from 10 to 50 feet thick which are interbedded with clays and shales. Uranium-vanadium ore from Beaver Mesa has come from the upper sandstone lenses of the Salt Wash unit.

Field evidence gathered in the past few years has shown that mineralized zones can be recognized by the alteration of sandstones to a light gray or white and by the alteration of the underlying red

shales to a light blue-green color. Uranium-vanadium ores within these mineralized zones occur as deposits in crossbedded sandstones, in sandstone-mudstone contacts, and in rolls in the sandstones. There appears to be some relationship between the deposits and fractures and joints but this is not entirely proven at this time.

The individual ore deposits vary in size from areas covering as much as 1,000 square feet to small high-grade pods containing a few tons. The uranium-vanadium ratio is considered to be 1:10 but will vary considerably within a deposit. In some few instances, the uranium content will equal the vanadium content.

MINEABLE ORE RESERVES

The only mine on the nine claims is on the Pack Rat No. 3, located on figure 2 and shown in detail on figure 3 with the geologic report. This mine is exceptional for the size of the ore body being worked. Many of the ore bodies in the district are quite small, contributing less than a hundred tons of ore, but this particular ore body has produced at least 1,100 tons and ore is exposed in many faces of the workings. The ore varies in grade over widths of 6 to 8 feet with an additional 6 feet exposed at one point under the floor of the drift level. The operator is shipping almost all of the rock blasted with practically no sorting as the entire mining width has averaged 0.24 percent U_3O_8 and 1.07 percent V_2O_5.

Mineable ore reserves are difficult to predict in uranium mining, especially where considering an ore body which is an exception to the average for size. The mining in this case has progressed in all directions from the drift and there are few exploratory headings ahead of

the mining. It seems reasonable to expect or estimate a mineable reserve of 1,000 tons in the known ore body now being mined.

There are no other known exposures of ore on the claims. Most of the ore horizon east and west of the mine on the Pack Rat No. 3 claim is covered by overburden and slump. It has not been prospected. A 20-foot incline was driven near the northeast corner of the Johnnie Mae No. 1 claim but did not encounter the ore horizon. If an average of 3-1/2 degrees is used as the dip of the ore horizon and this is plotted, the base of the ore horizon (fig. 2) lies above the incline. This is doubtful as mining on the Lumsden group is below this elevation. Apparently there is a local change in strike or dip or faulting which was not evident at surface.

The Lumsden group which lies north of and adjacent to the Johnnie Mae claims has been actively mined for several years; however, production records and mining progress are not obtainable as the operating company will not release any data on its work. The claims have been drilled, according to recent reports, but data on this also are not available. It is rumored that ore was found by the drilling and this started the recent action to settle the claim conflict between Crowley and the owners of the Lumsden group.

The diamond drilling proposed is confined to areas where the ore horizon will be less than 200 feet in depth. This is considered advisable as the claims are so situated as to require mining by shaft or long adit through other ownerships. If ore is encountered in any drill hole, it will be necessary to drill several additional holes to prove the size and grade of the ore body in order to determine the economics of sinking a 150- to 200-foot shaft to reach the ore.

PRESENT STATUS

Exploration and Development

There is only the one mine on the nine claims, location shown on figure 2 and details of the underground workings on figure 3 with the geologic report. The mine was developed from a thin seam of ore found along a short outcrop of the ore horizon which had been exposed by erosion. The mine has developed an exceptionally large ore body for this district. The limits of the ore have not been reached and the operation is producing about 200 tons per month.

Most of the ore horizon on the Pack Rat No. 3 claim is obscured by overburden and slump and there has been little prospecting along the horizon because of this. The ore horizon is probably not exposed on any of the other claims except for a possibility on the Johnnie Mae No. 1.

The claims are located on very favorable ground and are adjacent to a recognized major mineralization zone which includes the Gateway Mining and Development Company claims and the Lumsden group.

If the diamond drilling encounters an ore body, the ore will have to be well outlined as to tonnage and grade in order to estimate values for comparison with mining costs required to sink 150- to 200-foot shafts for mining. The only alternative is to drive long adits from the ore horizon on other property.

Crowley has done considerable mining from shafts in the uranium region and has developed portable headframes and equipment which have reduced his costs for sinking.

The diamond drilling is being confined to maximum depths of about 200 feet because of the economics of mining involved at these depths.

Mining and Milling Equipment and Other Facilities

The operator has very little mining equipment available on the property other than a small compressor, some items of light mining equipment, and small tools at the Pack Rat underground workings located on the Pack Rat No. 3 claim. There is no milling equipment, and other facilities consist of the diamond drilling and accessory equipment listed in the application and included in the section on costs of the project later in this report.

PROJECT PROPOSALS

The applicants have proposed a program of diamond drilling on all the claims. The drilling, as proposed, was to be laid out on a grid basis and holes drilled on 200-foot spacings with the alternate rows offset or staggered in a diamond pattern. The applicants did not provide adequate maps showing the proposed drill holes. At the time of the field examination in May 1952, Crowley was requested to furnish a contour map showing 20-foot contours, mine claims, mine workings, and the proposed drilling. These maps were received June 18, 1952. The maps provided all necessary data except the location of the drill holes. Accordingly, drill hole sites have been laid out, as shown on figure 2. These begin with a series of 23 holes, approximately 2,900 feet of drilling, at 50-foot intervals along the ore rim across the southern side of the Pack Rat No. 3 claim. These holes are located to prospect this favorable area which is accessible to mining and which is now covered by overburden and slump. A second series of 17 holes, approximately 3,100 feet of drilling, is located along the access road on the edge of the bench about 100 feet south of the first series of holes.

The second series of holes is spaced at 100-foot intervals except in the vicinity of the mine workings where the interval is reduced to 50 feet. If ore is found in any of these holes, additional holes are recommended at closer intervals to fill in around the hole encountering mineralization. The two series of holes should be drilled first and the location and amount of fill-in holes should have the prior approval of the Defense Minerals Exploration Administration representatives.

Seven holes, approximately 1,250 feet of drilling, are located at about 200-foot intervals along the east side of the Pack Rat No. 1 claim. This area is thought to be less favorable, primarily because of depth and mining accessibility.

Twenty-four holes, approximately 2,240 feet of drilling, are located on the Johnnie Mae No. 1 claim. These are in five rows spaced at 200-foot intervals in a north-south direction and 100-foot intervals in an east-west direction. These explore a favorable area along the head of an eroded area and a depression. The base of the ore horizon may be exposed on this claim but this is based on the projection of the average bedding dips and is questionable because of the distance of the projection. Local changes in strike or dip and minor faulting may be present which would place the base at greater depth or north and east of the claim corner. The incline, 20 feet deep, did not find the ore horizon but it could be more than 20 feet above the horizon. Six more holes, approximately 900 feet of drilling, are located across the north end of the Johnnie Mae Nos. 2, 4, and 6 claims. These holes are spaced at 200-foot intervals.

The amount of drilling shown on the map includes 77 holes amounting to an estimated 10,400 feet. The total amount recommended by the examining team is 15,000 feet.

Since the base of the ore horizon is not definitely known, the depth of each drill hole can only be estimated within 10 to 20 feet. The actual footage for the 77 holes listed may amount to as much as 12,000 feet if the base of the ore horizon is deeper than expected. Accordingly, the fill-in holes and their footages will vary and may amount to the remainder of the 15,000 feet of drilling recommended. The location and number of fill-in holes should have prior approval of the Defense Minerals Exploration Administration representatives. Every effort must be made to obtain maximum core recovery; core should be saved and boxed until logged and checked by the Defense Minerals Exploration Administration representatives and, if desired, by representatives of the U. S. Geological Survey and the Atomic Energy Commission working in the uranium region. Disposal of the core should be decided on by the mutual agreement of the Government agencies.

If the conflict of ownership does exist, it will necessitate elimination of some holes on the Johnnie Mae No. 1 claim.

COSTS OF THE PROJECT

The applicants have purchased two new Chicago-Pneumatic diamond drills complete with pumps. They intend to purchase trucks for mounting these drills and also have a pickup truck and a water truck and tank for providing water. Adequate water is available at a spring near the west end of the Pack Rat No. 3 claim. The applicants intend to furnish this equipment on a depreciation basis.

The proposal for renting a bulldozer for access roads, access roads to drill sites, and drill site preparation is necessary but the $17,000.00 requested at $100.00 per day plus operator at $20.00 per day is out of line. The first row of holes on 50-foot centers on the Pack Rat No. 3 claim will require considerable bulldozing for road work to drill sites but the holes are roughly on the same contour and the holes can be drilled on the roadway which will eliminate individual drill site preparation. The other holes are nearly all on the bench area or in areas which will require little road work. A bulldozer can be rented for $15.00 per hour, operator included. This amounts to $120.00 per day. Twenty-five days' bulldozing, or $3,000.00, for access roads to drill sites and drill site preparation seems entirely adequate.

Supervision requested is excessive. One engineer-sampler at $600.00 per month can survey in the drill holes and do the sampling. Sampling on the drilling project is extremely important. An experienced and trained person should be employed.

The applicants indicate they will furnish camp facilities and equipment.

The project is estimated to require 4 months to complete.

Detail of Estimated Costs

1. Fixtures and Improvements

Facilities - fixtures - buildings	None

2. Operating Equipment

Purchased	None

Rented

One tractor-bulldozer for constructing roads to drill sites only and in preparation of drill sites.

Estimated rental per day $100.00, or, if including operator, at $120.00, 25 days	$3,000.00

Furnished by Operator

Two Chicago-Pneumatic diamond drills, including pumps and mounted on trucks

New drills, used trucks
Value $8,000.00 each - total $16,000.00
Depreciation allowable per month

$$\frac{\$16,000.00}{60} = \$267.00$$

Allowance for 4 months	$1,068.00

One water truck and tank for servicing drills

Value $4,000.00, used
Depreciation per month

$$\frac{\$4,000.00}{60} = \$67.00$$

Allowance for 4 months	268.00

One pickup truck for service, supplies, moving equipment and crew

Value $1,800.00, used
Depreciation allowance per month

$$\frac{\$1,800.00}{60} = \$30.00$$

Allowance for 4 months	120.00
Total depreciation allowance	1,456.00

3. Rehabilitation and Repairs

Facilities - buildings - installations - fixtures None

4. Labor

Hourly rates used are for 40-hour week with time and one-half allowable for time in excess of 40 hours per week.

Hourly rates are calculated at the higher rate prevailing in the district and, therefore, the cost of camp facilities is not to be charged as an expense to the project.

Two diamond drill operators at base rate of $2.50 per hour, or $130.00 each, for 6-day week

Cost for 18 weeks for 2 men,
2 x $130.00 x 18 = $4,680.00

Two diamond drill helpers at base rate of $2.00 per hour, or $104.00 each, for 6-day week

Cost for 18 weeks for 2 men,
2 x $104.00 x 18 = 3,744.00

One truck driver for water truck at base rate of $2.00 per hour, or $104.00, for 6-day week

Cost for 18 weeks 1,872.00

One bulldozer operator--allowed only if bulldozer is rented without operator--at base rate per hour of $2.50, or $130.00 per week, for 6-day week
(Money already encumbered under equipment rental)

Total labor cost (not including bulldozer operator) $10,296.00

5. Supervision

One engineer-sampler at $600.00 per month, for 4 months 2,400.00

6. Operating Materials and Supplies (estimated costs)

Supplies

Timber	None
Explosives	None
Track	None

Diamond drilling

Pipe - standpipe and water pipe	$ 100.00	
Gas and oil for drills for 4 months	1,250.00	
Repair parts - drills, equipment, etc.	1,000.00	
*Drill casing	750.00	
*Drill rods	750.00	
*Core barrels (including replacements)	750.00	
*Drill rod couplings, fittings, tools, parts, etc.	750.00	
Core boxes for core storage	400.00	
Gas and oil for pickup and water truck	1,250.00	
Total		$7,000.00

*Semiexpendable items with possible salvage value at end of project. Government's equity to be considered.

7. Diamond bits

Bits will probably be received on consignment and not purchased except in case of loss of bit. Records must be maintained on all bits received and used to insure credit for diamond salvage at resetting and Government's equity at close of project.

Bit cost is estimated at $0.50 per foot for the 15,000 feet — 7,500.00

8. Power — None

9. Transportation

Freight - drill rods, casing, repair parts, etc. — 500.00

10. Compensation — 450.00

11. Social Security — 198.00

12. Assaying — 1,500.00

13. Bookkeeping

$50.00 per month, 4 months — 200.00

Total — $34,500.00

This total reflects a reduction of the $5,000.00 requested for access roads, a $9,000.00 reduction in bulldozer rental, approximately $5,000.00 in labor and supervision, and about $750.00 in other items--or a total of $19,750.00.

The estimated cost averages $2.30 per foot of drilling for the 15,000 feet recommended. The applicants' estimated cost was $2.79 per foot for the requested 18,000 feet of drilling. Their cost estimate, however, included $12,000.00 bulldozing, $5,000.00 access roads, and $2,400.00 for bulldozer operator which is about $1.08 per foot for this item alone. This has been reduced to $3,000.00, or $0.20 per foot, in this report. The applicants' cost per foot less bulldozing would be $1.71 ($2.79 - $1.08) per foot compared to this report's estimate of $2.10 ($2.30 - $0.20). Diamond drill contractors in the uranium field are now bidding about $2.30 to $2.50 per foot for comparable drilling less than 250 feet deep and with a short water haul.

It seems advisable in this case to propose the use of a short form contract specifying 15,000 feet of diamond drilling as shown on figure 2 plus additional holes as directed and approved by the Defense Minerals Exploration Administration representatives. The applicants should be limited in the amount of bulldozing allowable to the minimum necessary to provide access to drill sites and drill site preparation. The applicants may be willing to provide all necessary labor and supplies and do the drilling for about $2.00 per foot, bulldozing excepted, or $2.25 per foot including bulldozing. ?

PRODUCTION PLAN

Ore produced will be trucked to the U. S. Vanadium Corporation processing plant at Uravan, Colo., about 65 miles to the south.

Crowley's group of nine claims is considered as a single producing unit by the Atomic Energy Commission for the purpose of payment of bonus for the first 10,000 pounds of uranium produced. An average grade of 0.2 percent U_3O_8 will require 2,500 tons of ore to reach the bonus limit. At the present rate of production, this limit will have been reached before completion of the drilling program.

CONCLUSIONS

The Crowley claims are located in a favorable area which is highly recommended by the Grand Junction field personnel of both the U. S. Geological Survey and Atomic Energy Commission. Crowley is considered to be a very competent operator and capable of economically mining ore from the depths which are indicated. The one mine which is being operated has developed an exceptionally large ore body for this district. Ore bodies of this size contain sufficient values to justify sinking shafts to the depth necessary to mine the ore.

The applicants have purchased nearly $20,000.00 worth of exploration equipment without aid and Crowley's past record indicates he will immediately initiate an aggressive program of mining any ore found by the exploration. It is concluded that the program proposed has an excellent possibility of discovering a sizable tonnage of uranium ore.

RECOMMENDATIONS

A program consisting of 15,000 feet of diamond drilling is recommended. The initial drilling of 77 holes is outlined on figure 2 and the remaining footage is to be drilled as fill-in holes to outline ore bodies found. The estimated cost for the 15,000 feet of drilling is $34,500.00, or $2.30 per foot. The Government's share will be 90 percent, or $31,050.00.

sah

FILE COPY
SURNAME:

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

MAR 13 1952

Rutledge
Ellis
Kaufman
Butler
Johnson

Mrs. Velma Crowley
P. O. Box 294
Cove Creek, Colorado

re: Docket No. [illegible]-2391, Uranium,
Velma and John C. Crowley
Buckskin and Double Sky claims
Mesa County, Colorado

Dear Mrs. Crowley:

Your application for assistance in exploring your property in Mesa County, Colorado, under the above captioned docket number, has been reviewed by the Lands and Mineral Division of the Defense Minerals Exploration Administration and was referred to Mr. J. R. Hart, Jr., Executive Officer, Region IV, Field Team, 224 New Customs Building, Denver 2, Colorado, for a field examination.

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

Sincerely yours,

C. O. Mittendorf (for)
Acting Administrator
Defense Minerals Exploration
Administration

J.N.
3-13-52

FARutledge/jem
3/11/52
cc to: Adm. Reading File
Docket
Messrs. A.J.Kauffman, Rm. 1347
A.P.Butler, Rm. 3206
Ellis
Rutledge
Field Team, Region IV (2)

FILE COPY
SURNAME:

700

Ruth Boyce

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

MAR 13 1952

AIR MAIL

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

Re: Docket No. [illegible]-2391, (Uranium)
Velma and John B. Crowley
Pack Rat and Johnnie Ray claims
Mesa County, Colorado

Dear Mr. East:

The captioned application is being referred to you for a field examination and your recommendations.

Development at this property since 1943 when the area was examined has apparently disclosed occurrences that warrant further investigation. Copies of memorandum by [illegible] Butler, Jr., [illegible], and [illegible] J. Kauffman, Jr., [illegible] uranium commodity members are enclosed.

If after consideration of this docket your recommendations are favorable, particular attention should be given the following items:

1. Map of area showing layout of drilling pattern.

2. Necessity of rental of cat on $100 per day basis. Question of quantity of work required per day. Why not use on an hourly basis? The total amount of rental shown would equal purchase of second-hand machine.

3. Drill rods, core barrels, and diamond bits purchased under operating costs must be salvaged on a prorated basis at end of project.

4. Extremely high supervision cost for such a small project. Probably only a combined superintendent-engineer should be allowed.

5. Necessity of access roads with question of whether the $5,000 shown is extra or does it include rental of cat, operator, and fuel already shown.

In any case if a project is recommended it is believed the proposed costs should be revised downward.

Sincerely yours,

(signed) FRANK E. JOHNSON (JHB)

Chairman, Operating Committee
Defense Minerals Exploration
Administration

S.N. 3-13-52

Enclosures

FARutledge/jem
3/11/52
cc to: Adm. Reading File
Docket
Messrs. A.J.Kauffman, Rm. 1347
A.P.Butler, Rm. 3206 GS
Ellis
Rutledge
Field Team, Region IV

APPROVED:

H. H. Hodges (JHB)
Member, Bureau of Mines

F. F. Thayer (JHB)
Member, Geological Survey

2/28/52 gla

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

February 28, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 28 1952

Memorandum

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

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

Subject: DMEA Docket 2391, Velma and John B. Crowley, Dove Creek, Colorado

It is recommended that the field team examine this property after consulting with the Grand Junction Exploration Branch of the Atomic Energy Commission.

A. J. KAUFFMAN, JR.

Attachments: 2

3/7/52 gla

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

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

DATE: February 28, 1952

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

SUBJECT: DMEA Docket 2391 (Uranium)

Velma and John B. Crowley, Dove Creek, Colo. - Pack Rat and Johnnie May claims West Gateway District, Mesa Co., Ariz.

Information in the Washington files of the Geological Survey is inadequate for a definite appraisal of the merits of this application. The claims are in a part of the Gateway area where the geologic conditions are not particularly favorable for numerous or large ore bodies. On the other hand, in view of the facts that the applicant has produced 800 tons of ore from a claim where showings at the outcrop were insignificant when examined in 1943, that although occurrences of uranium minerals along the outcrops are distinctly spotty, between 3,000 and 4,000 tons of ore had been mined up to mid-year 1943 from adjoining claims, and that according to the applicant neighboring operators are mining on nearby claims, the application deserves field team review to resolve its merits.

I suggest that the field team consult with the staffs of the Geological Survey and Atomic Energy Commission at Grand Junction to gain the benefit of any information they may have with respect to this property.

Arthur P. Butler, Jr.

Copy to: E. W. Ellis
R. P. Fisher

Form MF-103
(Revised June 1951)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.1.

MF-103 Should Be Filed With General Technical Data Form MF-100

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

Not To Be Filled in by Applicant

Docket No. DMEA-2391
Metal or Mineral
Date Received 2-26-52
Amount $
Participation (Government %)

Name and address of applicant

[illegible] and Jerry D. Gro[illegible]
John Downey
P. O. Box 296
Dove Creek, Colorado

Date January 14, 1952

If you have already filed MF-100, give date filed January 14, type of assistance requested Exploration Loan,

DMA Docket Number (if available)

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four copies each, of the signed application form, General Technical Data Form MF-100, and answers to questions as specified, to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive office thereof, with your name and address on each sheet of the application and all accompanying papers. If you have previously filed MF-100, it is not necessary to file it again. However, you should indicate in space provided above the type of assistance previously applied for (loans, procurement contracts, etc.) and DMA Docket Number, if available. *When a question is inapplicable it should be so stated in the form.* Additional sheets should be attached in answering any questions or in supplying additional information. IF YOU CANNOT ANSWER A QUESTION, SO STATE.

1. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.

   (*b*) If you are not the owner of the property, submit a copy of the lease, purchase option, or other agreements under which you are authorized to operate the property with each copy of your application.

   (*c*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

   NOTE: (1) If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*c*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

   (2) If applicant is not the owner of the property or if there are any liens or encumbrances against the property, copy of agreements of claimants, lienors, encumbrances, and lessors subordinating their interests in the property to the interest of the Government under the Exploration Project Contract will be required for attachment to the Contract.

2. (*a*) What metals or minerals do you expect to find?

   (*b*) Furnish statement of the geologic features of your property, giving type of ore deposit and reasons for expecting to find commercial ore bodies. Illustrate with maps or sketches. If you have a geologic or engineering report, or assay maps showing width and grade, please send them with application, stating whether or not you wish to have them returned.

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D. C.
FEB 26 3 56 PM '52

- Answer to Questions - Form MF-103 -

Velma & John B. Crowley
Joint Tenancy
P. O. Box 294
Dove Creek, Colorado

(1).

a). Applicant is applying for a DMEA exploration loan to core drill a group of nine (9) uranium claims located in Mesa County, Colorado, distant 13 miles from the town of Gateway, Colorado. The attached map marked "Exhibit A" shows within the shaded lines the area involved in the exploration project. Also shown on the map are the underground workings on the Pack Rat #3 claim at the rim where uranium ore has been discovered and from which some ore has been shipped. The location of the shaft is shown on the attached map marked "Exhibit A".

The claims involved in the exploration project are noted on the attached map marked "Exhibit A" and are:

1. Pack Rat #1
2. Pack Rat #2
3. Pack Rat #3
4. Johnnie Mae #1
5. Johnnie Mae #2
6. Johnnie Mae #3
7. Johnnie Mae #4
8. Johnnie Mae #5
9. Johnnie Mae #6

All of the above claims are unpatented and are held by right of location.

b). Applicant along with Mr. Ward was the original locator of the claims. Some time ago Applicant acquired Mr. Wards one half interest for $15,000.00. The terms of the sale for a down payment of $5,000.00, already paid by Mr. Crowley, called for the balance to be paid out of royalties at the rate of 10% of the mill returns, exclusive of development allowance, haulage allowance and any bonus allowed.

c).

Legal description of the claims:

Pack Rat #1 Claim:- Beginning at Corner #1 and running 1500 feet southerly along the west line of Lumsten #1 to corner #2, which joins Johnnie Mae #3; thence 600 feet westerly along north line of Johnnie Mae #3 to corner #3; thence 1500 feet northerly to corner #4; thence 600 feet easterly to place of beginning.

Johnnie Mae #3 Claim:- Beginning at corner #1 and running 1500 feet southerly to corner #2; thence 600 feet easterly to corner #3; thence 1500 feet northerly along west line of Johnnie Mae #1 to corner #4; thence 600 feet westerly to place of beginning.

Johnnie Mae #4 Claim:- Beginning at corner #1 and running easterly along the south line of Lumsten #2 to corner #2, thence 1500 feet southerly to corner #3; thence 600 feet westerly to corner #4; thence 1500 feet northerly to place of beginning.

Johnnie Mae #5 claim:- Beginning at corner #1 joining south line of Lumsten #3 running 600 feet easterly to corner #2 which is the #2 corner of La Salle #1; thence 1500 feet southerly along west line of La Salle #1 to corner #3; thence 600 feet westerly to corner #4; thence 1500 feet northerly to place of beginning.

Johnnie Mae #6 claim:- Beginning at corner #1 and running southerly along the east line of Johnnie Mae #2 for 1500 feet to corner #2; thence 600 feet easterly to corner #3; thence 1500 feet northerly to corner #4 which joins the south line of Lumsten #2; thence 600 feet westerly along the south line of Lumsten #2 to place of beginning.

Johnnie Mae #1 claim:- Beginning at corner #1 and running southerly 1500 feet to corner #2; thence 600 feet westerly to corner #3; thence northerly 1500 feet to corner #4; thence 600 feet easterly along south line of Lumsten #1 claim to place of beginning.

Johnnie Mae #2 claim:- Beginning at corner #1 and running 1500 feet southerly to corner #2; thence 600 feet westerly to corner #3; thence 1500 feet northerly along east line of Johnnie Mae #1 to corner #4; thence 600 feet easterly to place of beginning.

Pack Rat #2 claim:- Beginning at corner #1 which is corner #4 of Pack Rat #1 and running southerly 1500 feet to corner #2; thence 600 feet westerly to corner #3; thence 1500 feet northerly to corner #4; thence 600 feet easterly to corner #1 the place of beginning.

Pack Rat #3 claim:- Beginning at corner No. 1 which is N.W. corner of Pack Rat no. 2 running 600 feet northerly to corner No. 2 then running 750 feet easterly to north side center stake then 750 feet easterly to corner No. 3 then 600 feet southerly to corner No. 4, then 750 feet westerly along north end line of Pack Rat No. 1 to south side center stake, then 750 feet westerly along north end lines of Pack Rat No. 1 and Pack Rat No. 2 to place of beginning.

(2).

(a).

The Applicant expects to discover uranium-vanadium bearing ores. The principal ore mineral will be carnotite.

(b)

Reference is made to the attached map which shows in dashed lines the outcrop of the mineralized bed along the canyon rim. The mineralized bed is the Salt Wash member of the Morrison Formation in which is found the bulk of the carnotite ores produced on the Colorado Plateau. Ore showings have been found near the rim on Applicant's Pack Rat #3 claim. Some ore has been shipped from this claim. However, mine workings are not extensive and are confined to one small area. The attached map shows the location of the underground workings.

Neighboring operators are mining at several points along the rim to the east and to the west. If a DMEA exploration loan is granted, Applicant proposes to expend the funds in a core-drilling project and endeavor to extend the ore zones back from the rim.

With the exception of the limited mine workings on the Pack Rat #3 claim the area is completely undeveloped. In the opinion of the writer, Leo J. Coady, Consulting Mining Engineer, Grand Junction, Colorado, who prepared this application, the area under consideration has excellent possibilities and if drilled, ore discoveries will add materially to the uranium potential of the Colorado Plateau.

There are no geologic or engineering reports on the property. However the property was examined by Leo J. Coady, Consulting Mining Engineer, while with the U. S. Atomic Energy Commission, Grand Junction, Colorado.

(3).
(a)

Applicant is applying for an Exploration Loan to core drill an unexplored block of ground near the head of John Brown Canyon, Mesa County, Colorado, distant 13 miles from Gateway, Colorado. The project area is shown on the attached map marked "Exhibit A" in shaded lines.

Applicant proposes to core drill this area with a series of holes spaced on coordinates 200 feet apart with the next line of holes staggered with respect to the first one. This system of locating drill holes is similar to that employed by the U. S. Geological Survey in their drilling programs on the Colorado Plateau.

Should mineralization of interest be encountered in any holes, Applicant further proposes to drill at that point a few offset holes spaced 25 feet apart.

It is estimated that the average depth of the holes to the mineralized bed will be 150 feet. A portion of the area covered by the project is on a gently rolling mesa covered with sage brush. The remainder, which is the larger part, is rather rugged terrain around the rims and is thickly covered with scrub cedar and pinion pine. The elevation is at about 7,000 feet. A dozer will be necessary for preparing passable roads for moving drills and in the preparation of drill hole sites.

Applicant is negotiating for and plans on purchasing two core drill rigs mounted on trucks. The cost of each will be $8,000.00 and will be furnished by the Operator at the "use allowance" rate of 1/60 of the cost per month. Operator owns both the water truck and pickup which will be furnished on the same basis. Applicant proposes to rent from some other party a D7 cat dozer for use in building necessary roads. The prevailing rental on a piece of equipment of this size in the area is $100 per day and does not include the operator's wages.

(b)

Time required to start work not more than 60 days from date the contract is signed.

Estimated time required to complete the project - four (4) months.

(7), (8) and (9)

PROJECT:

18,000 feet of core drilling
3 miles of access roads
Average depth of holes - 150 feet
Drilling rate - 75'/day/rig
2 - rigs, drilling rate 150 feet/day
Time required to complete project - 4 months

EQUIPMENT OWNED AND TO BE FURNISHED BY APPLICANT:

2 - New core drill rigs, mounted on trucks cost $8,000 each -	$16,000.00
1 - Water truck with tank mounted -	4,000.00
1 - Pickup truck for delivering supplies, etc.	1,800.00
Total cost -	$21,800.00

EQUIPMENT TO BE RENTED:

1 - D7 Cat dozer (cost about $16,000.00)

(7), (8) and (9) continued -

ESTIMATED OPERATING COSTS: (Based on drilling speed 150'/dy.)

	Per month	4 Months
2 - Core drill rigs, use allowance 1/60 cost/mo.	$ 267.00	$ 1068.00
1 - D7 Cat Dozer, rental @ $100/month	3000.00	12000.00
1 - Water truck & tank, use allowance 1/60/mo.	67.00	268.00
1 - Pickup truck, use allowance 1/60/mo.	30.00	120.00
Drill operating expenses, drill rods, core barrels, gas, oil and repairs for 2 drills -	1625.00	6500.00
Diamond drill bits, re-setting diamonds, bit repairs, etc. @ 40¢/ft. Then 150'/dy. X 30 dys. -	1800.00	7200.00
Water tank operating expenses (gas, oil & repairs @12¢/mi. X 1500 mi./mo. -	180.00	720.00
Pickup truck operating expenses (gas, oil and repairs @10¢/mi. and 2000 mi./mo. -	200.00	800.00
120 - Core boxes (2' X 5') @ $3.00 each -	90.00	360.00
Total -	$7259.00	$29036.00

DIRECT LABOR COSTS:

2 - Drill operators @ $20/dy. each -	$1200.00	$ 4800.00
2 - Drill helpers @ $16/dy. each -	960.00	3840.00
1 - Cat operator @ $20/dy. -	600.00	2400.00
1 - Truck Driver (water tank truck @ $15/dy.	450.00	1800.00
Total -	$3210.00	$12840.00

OVERHEAD COSTS:

1 - Superintendent @ $700/mo.	$ 700.00	$ 2800.00
1 - Engineer @ $700/mo.	700.00	2800.00
Assaying expenses @ $300/mo.	300.00	1200.00
Office accounting, payroll taxes etc.@$400/mo.	400.00	1600.00
Sub Total -	$2100.00	$ 8400.00
Cost per foot $2.79 Total -	$12569.00	$50276.00
Access roads (3 miles @ $5000) -		5000.00
Total cost of project -		$55276.00

(10).

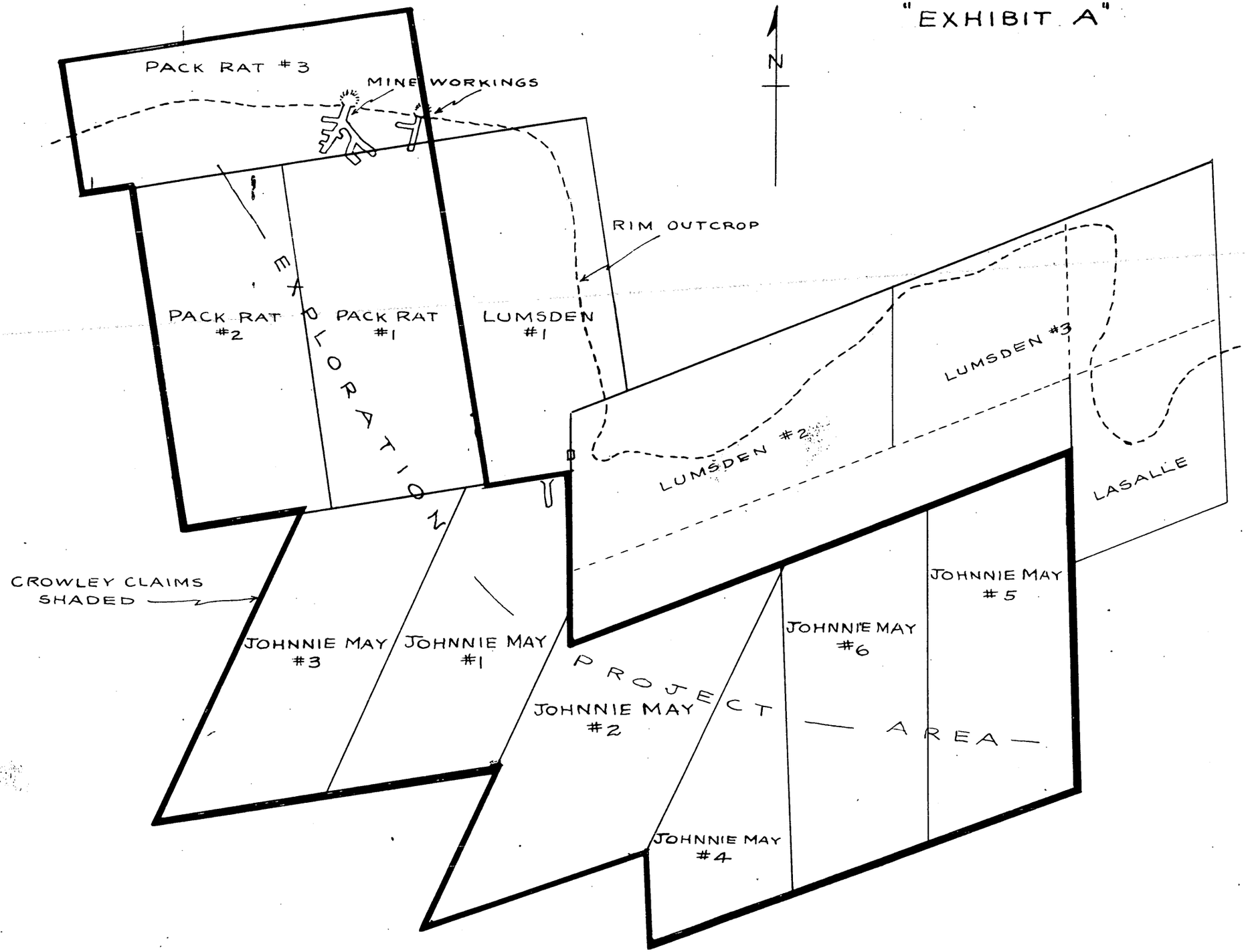
(a)
Applicant is prepared to invest $5,527.60.

(b)
This is 10% of total cost ($55,276.00) and is sufficient to pay Applicant's portion of the cost of the project.

(11).

There are no known conditions or circumstances not sufficiently brought out by the foregoing questions.

"EXHIBIT A"



EXPLORATION PROJECT MAP
OF
VELMA and J.B. CROWLEY
GATEWAY MINING DISTRICT, COLORADO.
SCALE 1" = 600'

Form MF-100
(May 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Form approved.
Budget Bureau No. 42-R1026.

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

NOT TO BE FILLED IN BY APPLICANT

Docket No. DMEA-2391

Date received 2-26-52

VELMA & JOHN B. CROWLEY
Joint Tenancy
P. O. Box 294
Dove Creek, Colorado

Name and address of applicant

Date January 14, 1952

INSTRUCTIONS

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

GENERAL TECHNICAL DATA

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

1. Materials produced:
   (*a*) What are the chief mine, mill, or smelter products?
   (*b*) What are the byproducts, if any?
2. Name(s) and type(s) of mine(s), mill(s), smelter(s), refinery(ies), pit(s), quarry (ies), drilling operation(s). Include old names of property, if any. Show extent of workings, including the following:
   (*a*) Linear feet of shafts.
   (*b*) Linear feet of drifts and crosscuts.
   (*c*) Linear feet of tunnels or adits.
   (*d*) Linear feet of other mine openings (explain briefly).
   Indicate whether mine is flooded or not. Describe any pumping problems. Give size or productive capacity.
3. For each operation listed above supply the following:
   (*a*) Distance and direction from nearest town and shipping point.
   (*b*) Mining district.
   (*c*) Township, Section, Range.
   (*d*) County, State.
4. (*a*) State whether or not property is now in operation, and if in operation, by whom operated.
   (*b*) Are you operating this property as:
   - ☐ Owner.
   - ☐ Lessee.
   - ☐ Contractor.
5. Number of years in production _____
   If not in production or operation, estimated date when production will begin _____
6. Experience of operators:
   Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who manage the project.
7. History:
   (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for suspension of operation.
   (*b*) State briefly the known history and production of adjoining and neighboring properties.
   (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

See attached sheets for answer to questions

DEFENSE MINERALS ADMINISTRATION
FEB 26 1952

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

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

If more lines are needed continue on separate sheet.

9. Capital Stock Issues:

For Corporate Applicants

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

*Indicate period covered.

10. Production:

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

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

12. Ore or Mineral Reserves:

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

(*b*) If deposit is other than placer:

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

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

TOTAL ORE OR MINERAL RESERVES

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

(*c*) If placer:

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

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

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

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

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

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

13. Access Roads:

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

14. Water Supply:

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

15. Power:

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

16. Labor:

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

17. Equipment and Facilities:

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

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

CERTIFICATION

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

VELMA & JOHN B. CROWLEY
(Name of company)

By J. B. Crowley
(Signature of authorized official)

January 14, 1952
(Date)

Owner
(Title)

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

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

- Answer to questions - Form MF-100 -

Velma and John B. Crowley
Joint Tenancy
P. O. Box 294
Dove Creek, Colorado

1.

(a) Uranium and vanadium concentrates.

(b) No by-products

2. Proposed core drilling operation. See attached map with exploration application Form MF-103 for project area. Property known as the John B. Crowley claims.

(a) One incline shaft 30' deep.
(b) None.
(c) About 150 feet of tunnels at the rim.
(d) No other workings. This is truly an exploration project.

3.

(a) Crude ore would probably be shipped to Uravan, Colorado, to the USVC processing plant there, Uravan would be south of the claims and distant 65 miles.

(b) Gateway Mining District.
(c) Township 51 N, R 20 W.
(d) Mesa County, Colorado

4.

(a) Not operating. Closed on account of severe weather conditions.

(b) Owner.

5. Has been in production about 4 months. Expect to resume mining operations this Spring.

6. The Applicant, Mr. John B. Crowley, has had many years of mining experience in the non-ferrous mines of the Southwest and in the coal mines of New Mexico, both as miner and operator. Applicant has operated uranium mines and leases on the Colorado Plateau since 1948 or since the U. S. Atomic Energy Commission activated its uranium program. Applicant is presently operating a Government lease granted by the Atomic Energy Commission on a group of claims near Egnar, Colorado. The operation has been successful and in support of applicant's operating ability you are referred to the U. S. Atomic Energy Commission at Grand Junction, Colorado.

Associated with the applicant is Mr. Mike Hill who will probably act as Superintendent on the exploration project. Likewise, Mr. Hill has a successful background of mining experience, especially in uranium mining. He has also studied metallurgy and has had considerable mill experience gained from working in various processing plants on the Colorado Plateau.

7.

(a) During the past 4 months that the property operated 800 tons of ore were produced assaying 0.23% U_3O_8; 1.03 V_2O_5 and approximately 150 feet of small development drifts and X-cuts were driven. One incline shaft has been sunk to a depth of 30 feet. It is uncompleted.

(b) The claims were located in 1943 by Mr. Ward and Mr. Crowley. In 1950 Mr. Crowley bought his partner's interest and now owns the claims. See page 1, paragraph (b) under question 1 of Answer to Questions, Form Mf-103 for details of the purchase contract.

(c) This is truly an exploration project and no private examinations have ever been made. See statement by Leo J. Coady, Consulting Mining Engineer on page 2 next to last paragraph in attached answer to questions, Form Mf-103.

8. Velma and John B. Crowley, husband and wife doing business as Joint Tenancy, are the applicants for the exploration loan.

Velma and John B. Crowley
Joint Tenancy
P. O. Box 294
Dove Creek, Colorado

There are no other parties holding any interest in the venture.

(c) Income in the form of salaries, commissions and bonuses from the property on which an exploration loan is requested were,- none.

(d) Estimated net worth of applicant outside of property on which an exploration loan has been requested is $75,000.00

(g) No life insurance is carried for the benefit of the applicant.

9. Inapplicable.

10.

(d) 1950 production amounted to approximately (800) tons of crude uranium ore.

11. No further production until Spring.

12. See Page 4 and answer to question #4 of Answer to Question - Form MF-103 attached.

(b) 1. Not applicable.

2. Inapplicable. No ore reserves estimated. An exploration loan requested to develop ore reserves.

13. From the claims to Uravan the shipping point is 65 miles. From the claims to Gateway the road is usually in poor condition but passable. From Gateway to Uravan the road is better maintained. About 3 miles of access roads are required on the property in addition to roads for moving drills and preparation of drill sites.

14. The only water required is for drilling purposes. A spring not far from the claims will furnish ample water.

15. Gasoline.

16. Experienced drill operators available. Has 3 ready to go to work.

17. The only building on the property at present is one small miner's cabin. What additional housing facilities are required will be provided by the applicant.

18. There are no known conditions or circumstances involved in a drilling project which have not been described above.

(b) The claims were located in 1943 by Mr. Ward and Mr. Crowley. In 1950 Mr. Crowley bought his partner's interest and now owns the claims. See page 1, paragraph (b) under question 1 of Answer to Questions, Form Mf-103 for details of the purchase contract.

(c) This is truly an exploration project and no private examinations have ever been made. See statement by Leo J. Coady, Consulting Mining Engineer on page 2 next to last paragraph in attached answer to questions, Form Mf-103.

8. Velma and John B. Crowley, husband and wife doing business as Joint Tenancy, are the applicants for the exploration loan.

Velma and John B. Crowley
Joint Tenancy
P. O. Box 294
Dove Creek, Colorado

There are no other parties holding any interest in the venture.

(c) Income in the form of salaries, commissions and bonuses from the property on which an exploration loan is requested were,- none.

(d) Estimated net worth of applicant outside of property on which an exploration loan has been requested is $75,000.00

(g) No life insurance is carried for the benefit of the applicant.

9. Inapplicable.

10.

(d) 1950 production amounted to approximately (800) tons of crude uranium ore.

11. No further production until Spring.

12. See Page 4 and answer to question #4 of Answer to Question - Form MF-103 attached.

(b) 1. Not applicable.

2. Inapplicable. No ore reserves estimated. An exploration loan requested to develop ore reserves.

13. From the claims to Uravan the shipping point is 65 miles. From the claims to Gateway the road is usually in poor condition but passable. From Gateway to Uravan the road is better maintained. About 3 miles of access roads are required on the property in addition to roads for moving drills and preparation of drill sites.

14. The only water required is for drilling purposes. A spring not far from the claims will furnish ample water.

15. Gasoline.

16. Experienced drill operators available. Has 3 ready to go to work.

17. The only building on the property at present is one small miner's cabin. What additional housing facilities are required will be provided by the applicant.

18. There are no known conditions or circumstances involved in a drilling project which have not been described above.

Form MF-103
(Revised June 1951)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.1.

MF-103 Should Be Filed With General Technical Data Form MF-100

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

Not To Be Filled in by Applicant

Docket No. DMEA-2391
Metal or Mineral
Date Received 2-26-52
Amount $
Participation (Government %)

Name and address of applicant

VIRA and JOHN B. CROWLEY
Joint Tenancy
P. O. Box 294
Dove Creek, Colorado

Date January 14, 1952

If you have already filed MF-100, give date filed January 14, type of assistance requested Exploration Loan,

DMA Docket Number (if available) —

aB 2/26/52

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four copies each, of the signed application form, General Technical Data Form MF-100, and answers to questions as specified, to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive office thereof, with your name and address on each sheet of the application and all accompanying papers. If you have previously filed MF-100, it is not necessary to file it again. However, you should indicate in space provided above the type of assistance previously applied for (loans, procurement contracts, etc.) and DMA Docket Number, if available. *When a question is inapplicable it should be so stated in the form.* Additional sheets should be attached in answering any questions or in supplying additional information. IF YOU CANNOT ANSWER A QUESTION, SO STATE.

1. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.

   (*b*) If you are not the owner of the property, submit a copy of the lease, purchase option, or other agreements under which you are authorized to operate the property with each copy of your application.

   (*c*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

   NOTE: (1) If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*c*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

   (2) If applicant is not the owner of the property or if there are any liens or encumbrances against the property, copy of agreements of claimants, lienors, encumbrances, and lessors subordinating their interests in the property to the interest of the Government under the Exploration Project Contract will be required for attachment to the Contract.

2. (*a*) What metals or minerals do you expect to find?

   (*b*) Furnish statement of the geologic features of your property, giving type of ore deposit and reasons for expecting to find commercial ore bodies. Illustrate with maps or sketches. If you have a geologic or engineering report, or assay maps showing width and grade, please send them with application, stating whether or not you wish to have them returned.

DEFENSE MINERALS ADMINISTRATION WASHINGTON D.C. FEB 26 52

The information requested in questions 3, 4, 5, 6, 7, 8, and 9 below should be answered specifically and in detail, as this information will be attached to and incorporated as part of the Exploration Project Contract, if such contract is entered into with you by the Government.

ANSWER EACH QUESTION ON SEPARATE SHEETS OF PAPER AND SUBMIT A COPY OF EACH ANSWER FOR EACH COPY OF YOUR APPLICATION.

3. (*a*) Describe fully the proposed work and give the total cost of the project.

   (*b*) State the time required to start the project and to complete it.

4. Submit a map or sketch of the property involved showing a plan (and cross section, if needed) of the present mine workings and the *location of the proposed exploration work* as related to geologic features, such as contacts, veins, ore-bearing beds, etc.

5. Furnish an itemized list of existing facilities, buildings, installations, and fixtures with a statement of the cost of any necessary rehabilitation or repairs to put into useful and operable condition.

6. Furnish a detailed list of additional facilities, buildings, and fixtures to be purchased, installed, or erected by you, with the estimated cost of each item.

7. Furnish a detailed list of operating equipment, separated into items to be—

   (*a*) Rented

   (*b*) Purchased

   (*c*) Furnished by you

   with the rental, purchase price, or depreciation of each item, as the case may be, to be charged as a cost of the project.

8. Furnish an itemized schedule of labor, by numbers and classes (miners, muckers, etc.) and of supervisors by numbers and positions, with the maximum wages or salaries to be paid to each.

9. Furnish a detailed list with estimated cost of each item for materials, supplies, engineering, assaying, accounting, power, water, utilities, and any other items not provided for above.

10. (*a*) How much are you prepared to invest in the proposed project?

    (*b*) Is this amount sufficient to pay your part of the cost of the project, in accordance with the regulations on Government participation (Sec. 9 of MO–5)?

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

CERTIFICATION

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

VELIA & JOHN B. CROWLEY
(Name of company)

By J B Crowley
(Signature of authorized official)

January 14, 1952
(Date)

Owner
(Title)

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

U. S. GOVERNMENT PRINTING OFFICE 16—64067-2

- Answer to Questions - Form MF-103 -

Velma & John B. Crowley
Joint Tenancy
P. O. Box 294
Dove Creek, Colorado

(1).

a). Applicant is applying for a DMEA exploration loan to core drill a group of nine (9) uranium claims located in Mesa County, Colorado, distant 13 miles from the town of Gateway, Colorado. The attached map marked "Exhibit A" shows within the shaded lines the area involved in the exploration project. Also shown on the map are the underground workings on the Pack Rat #3 claim at the rim where uranium ore has been discovered and from which some ore has been shipped. The location of the shaft is shown on the attached map marked "Exhibit A".

The claims involved in the exploration project are noted on the attached map marked "Exhibit A" and are:

1. Pack Rat #1
2. Pack Rat #2
3. Pack Rat #3
4. Johnnie Mae #1
5. Johnnie Mae #2
6. Johnnie Mae #3
7. Johnnie Mae #4
8. Johnnie Mae #5
9. Johnnie Mae #6

All of the above claims are unpatented and are held by right of location.

b). Applicant along with Mr. Ward was the original locator of the claims. Some time ago Applicant acquired Mr. Wards one half interest for $15,000.00. The terms of the sale for a down payment of $5,000.00, already paid by Mr. Crowley, called for the balance to be paid out of royalties at the rate of 10% of the mill returns, exclusive of development allowance, haulage allowance and any bonus allowed.

c).

Legal description of the claims:

Pack Rat #1 Claim:- Beginning at Corner #1 and running 1500 feet southerly along the west line of Lumsten #1 to corner #2, which joins Johnnie Mae #3; thence 600 feet westerly along north line of Johnnie Mae #3 to corner #3; thence 1500 feet northerly to corner #4; thence 600 feet easterly to place of beginning.

Johnnie Mae #3 Claim:- Beginning at corner #1 and running 1500 feet southerly to corner #2; thence 600 feet easterly to corner #3; thence 1500 feet northerly along west line of Johnnie Mae #1 to corner #4; thence 600 feet westerly to place of beginning.

Johnnie Mae #4 Claim:- Beginning at corner #1 and running easterly along the south line of Lumsten #2 to corner #2, thence 1500 feet southerly to corner #3; thence 600 feet westerly to corner #4; thence 1500 feet northerly to place of beginning.

Johnnie Mae #5 claim:- Beginning at corner #1 joining south line of Lumsten #3 running 600 feet easterly to corner #2 which is the #2 corner of La Salle #1; thence 1500 feet southerly along west line of La Salle #1 to corner #3; thence 600 feet westerly to corner #4; thence 1500 feet northerly to place of beginning.

Johnnie Mae #6 claim:- Beginning at corner #1 and running southerly along the east line of Johnnie Mae #2 for 1500 feet to corner #2; thence 600 feet easterly to corner #3; thence 1500 feet northerly to corner #4 which joins the south line of Lumsten #2; thence 600 feet westerly along the south line of Lumsten #2 to place of beginning.

Johnnie Mae #1 claim:- Beginning at corner #1 and running southerly 1500 feet to corner #2; thence 600 feet westerly to corner #3; thence northerly 1500 feet to corner #4; thence 600 feet easterly along south line of Lumsten #1 claim to place of beginning.

Johnnie Mae #2 claim:- Beginning at corner #1 and running 1500 feet southerly to corner #2; thence 600 feet westerly to corner #3; thence 1500 feet northerly along east line of Johnnie Mae #1 to corner #4; thence 600 feet easterly to place of beginning.

Pack Rat #2 claim:- Beginning at corner #1 which is corner #4 of Pack Rat #1 and running southerly 1500 feet to corner #2; thence 600 feet westerly to corner #3; thence 1500 feet northerly to corner #4; thence 600 feet easterly to corner #1 the place of beginning.

Pack Rat #3 claim:- Beginning at corner No. 1 which is N.W. corner of Pack Rat no. 2 running 600 feet northerly to corner No. 2 then running 750 feet easterly to north side center stake then 750 feet easterly to corner No. 3 then 600 feet southerly to corner No. 4, then 750 feet westerly along north end line of Pack Rat No. 1 to south side center stake, then 750 feet westerly along north end lines of Pack Rat No. 1 and Pack Rat No. 2 to place of beginning.

(2).
(a).

The Applicant expects to discover uranium-vanadium bearing ores. The principal ore mineral will be carnotite.

(b)

Reference is made to the attached map which shows in dashed lines the outcrop of the mineralized bed along the canyon rim. The mineralized bed is the Salt Wash member of the Morrison Formation in which is found the bulk of the carnotite ores produced on the Colorado Plateau. Ore showings have been found near the rim on Applicant's Pack Rat #3 claim. Some ore has been shipped from this claim. However, mine workings are not extensive and are confined to one small area. The attached map shows the location of the underground workings.

Neighboring operators are mining at several points along the rim to the east and to the west. If a DMEA exploration loan is granted, Applicant proposes to expend the funds in a core-drilling project and endeavor to extend the ore zones back from the rim.

With the exception of the limited mine workings on the Pack Rat #3 claim the area is completely undeveloped. In the opinion of the writer, Leo J. Coady, Consulting Mining Engineer, Grand Junction, Colorado, who prepared this application, the area under consideration has excellent possibilities and if drilled, ore discoveries will add materially to the uranium potential of the Colorado Plateau.

There are no geologic or engineering reports on the property. However the property was examined by Leo J. Coady, Consulting Mining Engineer, while with the U. S. Atomic Energy Commission, Grand Junction, Colorado.

(3).
(a)

Applicant is applying for an Exploration Loan to core drill an unexplored block of ground near the head of John Brown Canyon, Mesa County, Colorado, distant 13 miles from Gateway, Colorado. The project area is shown on the attached map marked "Exhibit A" in shaded lines.

Applicant proposes to core drill this area with a series of holes spaced on coordinates 200 feet apart with the next line of holes staggered with respect to the first one. This system of locating drill holes is similar to that employed by the U. S. Geological Survey in their drilling programs on the Colorado Plateau.

Should mineralization of interest be encountered in any holes, Applicant further proposes to drill at that point a few offset holes spaced 25 feet apart.

It is estimated that the average depth of the holes to the mineralized bed will be 150 feet. A portion of the area covered by the project is on a gently rolling mesa covered with sage brush. The remainder, which is the larger part, is rather rugged terrain around the rims and is thickly covered with scrub cedar and pinion pine. The elevation is at about 7,000 feet. A dozer will be necessary for preparing passable roads for moving drills and in the preparation of drill hole sites.

Applicant is negotiating for and plans on purchasing two core drill rigs mounted on trucks. The cost of each will be $8,000.00 and will be furnished by the Operator at the "use allowance" rate of 1/60 of the cost per month. Operator owns both the water truck and pickup which will be furnished on the same basis. Applicant proposes to rent from some other party a D7 cat dozer for use in building necessary roads. The prevailing rental on a piece of equipment of this size in the area is $100 per day and does not include the operator's wages.

(b)

Time required to start work not more than 60 days from date the contract is signed.

Estimated time required to complete the project - four (4) months.

(7), (8) and (9)

PROJECT:

18,000 feet of core drilling
3 miles of access roads
Average depth of holes - 150 feet
Drilling rate - 75'/day/rig
2 - rigs, drilling rate 150 feet/day
Time required to complete project - 4 months

EQUIPMENT OWNED AND TO BE FURNISHED BY APPLICANT:

2 - New core drill rigs, mounted on trucks cost $8,000 each -	$16,000.00
1 - Water truck with tank mounted -	4,000.00
1 - Pickup truck for delivering supplies, etc.	1,800.00
Total cost -	$21,800.00

EQUIPMENT TO BE RENTED:

1 - D7 Cat dozer (cost about $16,000.00)

(7), (8) and (9) continued -

ESTIMATED OPERATING COSTS: (Based on drilling speed 150'/dy.)

	Per month	4 Months
2 - Core drill rigs, use allowance 1/60 cost/mo.	$ 267.00	$ 1068.00
1 - D7 Cat Dozer, rental @ $100/month	3000.00	12000.00
1 - Water truck & tank, use allowance 1/60/mo.	67.00	268.00
1 - Pickup truck, use allowance 1/60/mo.	30.00	120.00
Drill operating expenses, drill rods, core barrels, gas, oil and repairs for 2 drills -	1625.00	6500.00
Diamond drill bits, re-setting diamonds, bit repairs, etc. @ 40¢/ft. Then 150'/dy. X 30 dys. -	1800.00	7200.00
Water tank operating expenses (gas, oil & repairs @12¢/mi. X 1500 mi./mo. -	180.00	720.00
Pickup truck operating expenses (gas, oil and repairs @10¢/mi. and 2000 mi./mo. -	200.00	800.00
120 - Core boxes (2' X 5') @ $3.00 each -	90.00	360.00
Total -	$7259.00	$29036.00

DIRECT LABOR COSTS:

2 - Drill operators @ $20/dy. each -	$1200.00	$ 4800.00
2 - Drill helpers @ $16/dy. each -	960.00	3840.00
1 - Cat operator @ $20/dy. -	600.00	2400.00
1 - Truck Driver (water tank truck @ $15/dy.	450.00	1800.00
Total -	$3210.00	$12840.00

OVERHEAD COSTS:

1 - Superintendent @ $700/mo.	$ 700.00	$ 2800.00
1 - Engineer @ $700/mo.	700.00	2800.00
Assaying expenses @ $300/mo.	300.00	1200.00
Office accounting, payroll taxes etc. @ $400/mo.	400.00	1600.00
Sub Total -	$2100.00	$ 8400.00
Cost per foot $2.79 Total -	$12569.00	$50276.00
Access roads (3 miles @ $5000) -		5000.00
Total cost of project -		$55276.00

(10).

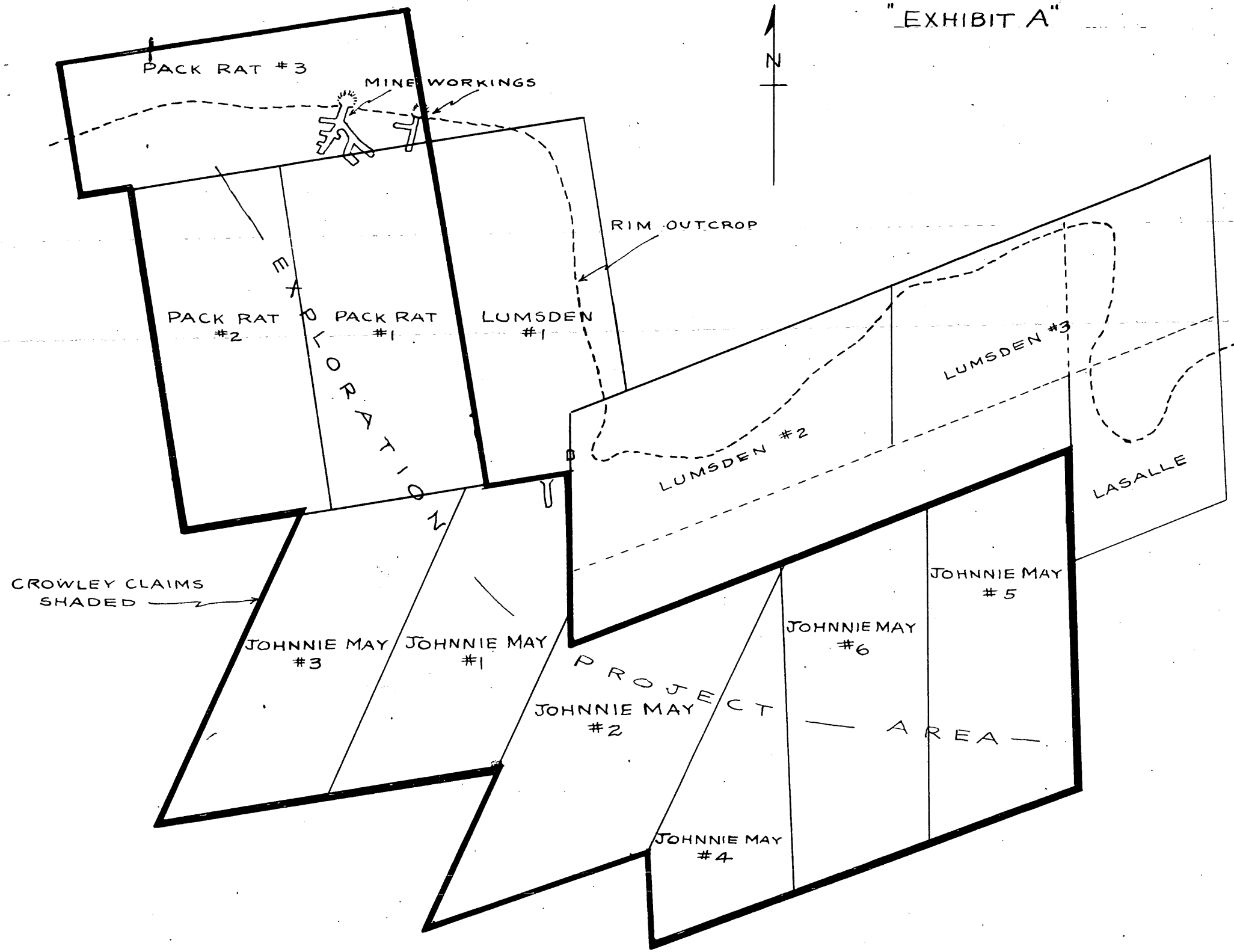
(a)
Applicant is prepared to invest $5,527.60.

(b)
This is 10% of total cost ($55,276.00) and is sufficient to pay Applicant's portion of the cost of the project.

(11).

There are no known conditions or circumstances not sufficiently brought out by the foregoing questions.

"EXHIBIT A"



EXPLORATION PROJECT MAP
OF
VELMA and J.B. CROWLEY
GATEWAY MINING DISTRICT, COLORADO.
SCALE 1" = 500'

EXPLORATION

Subject: DMEA-2391
Re: Exploration Loan
Johnnie Mae and Pack Rat Claims
February 26, 1952

Mrs. Velma Crowley
P. O. Box 294
Dove Creek, Colorado

My dear Mrs. Crowley:

This will acknowledge receipt of your application dated January 14, 1952 for a loan under the Defense Production Act of 1950.

Your application was assigned Docket Number DMEA-2391 and referred to the Rare and Miscellaneous Metals Division.

Kindly refer to DMEA-2391 in any future correspondence relating to your application.

Sincerely yours,

ROBERT E. ADAMS

Robert E. Adams
Acting Administrative Officer

7862

DMEA-2391

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

224 New Customhouse
Denver 2, Colorado

February 21, 1952

Memorandum

To: Secretary to the Operating Committee, Defense Minerals Exploration Administration - Washington, D. C.

From: Field Team, Region IV

Subject: Application for Exploration Assistance - Velma and John B. Crowley, P. O. Box 294, Dove Creek, Colorado

Enclosed for review and docketing are four (4) copies of an application for exploration assistance for uranium submitted by Velma and John B. Crowley, Dove Creek, Colorado. The property is located in Mesa County, Colorado. The estimated cost of the project is $55,276.00.

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

A. H. Koschmann
A. H. Koschmann

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D. C.
FEB 26 3 58 AM '52

Enclosures

Form MF-103
(Revised June 1951)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.1.

MF-103 Should Be Filed With General Technical Data Form MF-100

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

Not To Be Filled in by Applicant

Docket No. DMEA-2391
Metal or Mineral
Date Received 2-26-52
Amount $
Participation (Government %)

Name and address of applicant

VELMA and JOHN B. CROWLEY
P. O. Box 294
Dove Creek
Colorado

Date January 14, 1952

If you have already filed MF-100, give date filed January 14, type of assistance requested Exploration Loan,

DMA Docket Number (if available) --

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four copies each, of the signed application form, General Technical Data Form MF-100, and answers to questions as specified, to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive office thereof, with your name and address on each sheet of the application and all accompanying papers. If you have previously filed MF-100, it is not necessary to file it again. However, you should indicate in space provided above the type of assistance previously applied for (loans, procurement contracts, etc.) and DMA Docket Number, if available. *When a question is inapplicable it should be so stated in the form.* Additional sheets should be attached in answering any questions or in supplying additional information. IF YOU CANNOT ANSWER A QUESTION, SO STATE.

1. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.

   (*b*) If you are not the owner of the property, submit a copy of the lease, purchase option, or other agreements under which you are authorized to operate the property with each copy of your application.

   (*c*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

   NOTE: (1) If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*c*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

   (2) If applicant is not the owner of the property or if there are any liens or encumbrances against the property, copy of agreements of claimants, lienors, encumbrances, and lessors subordinating their interests in the property to the interest of the Government under the Exploration Project Contract will be required for attachment to the Contract.

2. (*a*) What metals or minerals do you expect to find?

   (*b*) Furnish statement of the geologic features of your property, giving type of ore deposit and reasons for expecting to find commercial ore bodies. Illustrate with maps or sketches. If you have a geologic or engineering report, or assay maps showing width and grade, please send them with application, stating whether or not you wish to have them returned.

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D.C. FEB 26 1952 DEFENSE MINERALS ADMINISTRATION WASHINGTON

The information requested in questions 3, 4, 5, 6, 7, 8, and 9 below should be answered specifically and in detail, as this information will be attached to and incorporated as part of the Exploration Project Contract, if such contract is entered into with you by the Government.

ANSWER EACH QUESTION ON SEPARATE SHEETS OF PAPER AND SUBMIT A COPY OF EACH ANSWER FOR EACH COPY OF YOUR APPLICATION.

3. (*a*) Describe fully the proposed work and give the total cost of the project.

   (*b*) State the time required to start the project and to complete it.

4. Submit a map or sketch of the property involved showing a plan (and cross section, if needed) of the present mine workings and the *location of the proposed exploration work* as related to geologic features, such as contacts, veins, ore-bearing beds, etc.

5. Furnish an itemized list of existing facilities, buildings, installations, and fixtures with a statement of the cost of any necessary rehabilitation or repairs to put into useful and operable condition.

6. Furnish a detailed list of additional facilities, buildings, and fixtures to be purchased, installed, or erected by you, with the estimated cost of each item.

7. Furnish a detailed list of operating equipment, separated into items to be—

   (*a*) Rented

   (*b*) Purchased

   (*c*) Furnished by you

   with the rental, purchase price, or depreciation of each item, as the case may be, to be charged as a cost of the project.

8. Furnish an itemized schedule of labor, by numbers and classes (miners, muckers, etc.) and of supervisors by numbers and positions, with the maximum wages or salaries to be paid to each.

9. Furnish a detailed list with estimated cost of each item for materials, supplies, engineering, assaying, accounting, power, water, utilities, and any other items not provided for above.

10. (*a*) How much are you prepared to invest in the proposed project?

    (*b*) Is this amount sufficient to pay your part of the cost of the project, in accordance with the regulations on Government participation (Sec. 9 of MO-5)?

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

CERTIFICATION

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

VELMA & JOHN B. CROWLEY
Joint Tenancy
(Name of company)

By J B Crowley
(Signature of authorized official)

January 14, 1952
(Date)

owner
(Title)

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

U. S. GOVERNMENT PRINTING OFFICE 16—64067-2

- Answer to Questions - Form MP-103 -

Velma & John B. Crowley
Joint Tenancy
P. O. Box 294
Dove Creek, Colorado

(1).

a). Applicant is applying for a DMEA exploration loan to core drill a group of nine (9) uranium claims located in Mesa County, Colorado, distant 13 miles from the town of Gateway, Colorado. The attached map marked "Exhibit A" shows within the shaded lines the area involved in the exploration project. Also shown on the map are the underground workings on the Pack Rat #3 claim at the rim where uranium ore has been discovered and from which some ore has been shipped. The location of the shaft is shown on the attached map marked "Exhibit A".

The claims involved in the exploration project are noted on the attached map marked "Exhibit A" and are:

1. Pack Rat #1
2. Pack Rat #2
3. Pack Rat #3
4. Johnnie Mae #1
5. Johnnie Mae #2
6. Johnnie Mae #3
7. Johnnie Mae #4
8. Johnnie Mae #5
9. Johnnie Mae #6

All of the above claims are unpatented and are held by right of location.

b). Applicant along with Mr. Ward was the original locator of the claims. Some time ago Applicant acquired Mr. Wards one half interest for $15,000.00. The terms of the sale for a down payment of $5,000.00, already paid by Mr. Crowley, called for the balance to be paid out of royalties at the rate of 10% of the mill returns, exclusive of development allowance, haulage allowance and any bonus allowed.

c).

Legal description of the claims:

Pack Rat #1 Claim:- Beginning at Corner #1 and running 1500 feet southerly along the west line of Lumsten #1 to corner #2, which joins Johnnie Mae #3; thence 600 feet westerly along north line of Johnnie Mae #3 to corner #3; thence 1500 feet northerly to corner #4; thence 600 feet easterly to place of beginning.

Johnnie Mae #3 Claim:- Beginning at corner #1 and running 1500 feet southerly to corner #2; thence 600 feet easterly to corner #3; thence 1500 feet northerly along west line of Johnnie Mae #1 to corner #4; thence 600 feet westerly to place of beginning.

Johnnie Mae #4 Claim:- Beginning at corner #1 and running easterly along the south line of Lumsten #2 to corner #2, thence 1500 feet southerly to corner #3; thence 600 feet westerly to corner #4; thence 1500 feet northerly to place of beginning.

Johnnie Mae #5 claim:- Beginning at corner #1 joining south line of Lumsten #3 running 600 feet easterly to corner #2 which is the #2 corner of La Salle #1; thence 1500 feet southerly along west line of La Salle #1 to corner #3; thence 600 feet westerly to corner #4; thence 1500 feet northerly to place of beginning.

Johnnie Mae #6 claim:- Beginning at corner #1 and running southerly along the east line of Johnnie Mae #2 for 1500 feet to corner #2; thence 600 feet easterly to corner #3; thence 1500 feet northerly to corner #4 which joins the south line of Lumsten #2; thence 600 feet westerly along the south line of Lumsten #2 to place of beginning.

Johnnie Mae #1 claim:- Beginning at corner #1 and running southerly 1500 feet to corner #2; thence 600 feet westerly to corner #3; thence northerly 1500 feet to corner #4; thence 600 feet easterly along south line of Lumsten #1 claim to place of beginning.

Johnnie Mae #2 claim:- Beginning at corner #1 and running 1500 feet southerly to corner #2; thence 600 feet westerly to corner #3; thence 1500 feet northerly along east line of Johnnie Mae #1 to corner #4; thence 600 feet easterly to place of beginning.

Pack Rat #2 claim:- Beginning at corner #1 which is corner #4 of Pack Rat #1 and running southerly 1500 feet to corner #2; thence 600 feet westerly to corner #3; thence 1500 feet northerly to corner #4; thence 600 feet easterly to corner #1 the place of beginning.

Pack Rat #3 claim:- Beginning at corner No. 1 which is N.W. corner of Pack Rat no. 2 running 600 feet northerly to corner No. 2 then running 750 feet easterly to north side center stake then 750 feet easterly to corner No. 3 then 600 feet southerly to corner No. 4, then 750 feet westerly along north end line of Pack Rat No. 1 to south side center stake, then 750 feet westerly along north end lines of Pack Rat No. 1 and Pack Rat No. 2 to place of beginning.

(2).

(a).

The Applicant expects to discover uranium-vanadium bearing ores. The principal ore mineral will be carnotite.

(b)

Reference is made to the attached map which shows in dashed lines the outcrop of the mineralized bed along the canyon rim. The mineralized bed is the Salt Wash member of the Morrison Formation in which is found the bulk of the carnotite ores produced on the Colorado Plateau. Ore showings have been found near the rim on Applicant's Pack Rat #3 claim. Some ore has been shipped from this claim. However, mine workings are not extensive and are confined to one small area. The attached map shows the location of the underground workings.

Neighboring operators are mining at several points along the rim to the east and to the west. If a DMEA exploration loan is granted, Applicant proposes to expend the funds in a core-drilling project and endeavor to extend the ore zones back from the rim.

With the exception of the limited mine workings on the Pack Rat #3 claim the area is completely undeveloped. In the opinion of the writer, Leo J. Coady, Consulting Mining Engineer, Grand Junction, Colorado, who prepared this application, the area under consideration has excellent possibilities and if drilled, ore discoveries will add materially to the uranium potential of the Colorado Plateau.

There are no geologic or engineering reports on the property. However the property was examined by Leo J. Coady, Consulting Mining Engineer, while with the U. S. Atomic Energy Commission, Grand Junction, Colorado.

(3).
(a)

Applicant is applying for an Exploration Loan to core drill an unexplored block of ground near the Head of John Brown Canyon, Mesa County, Colorado, distant 13 miles from Gateway, Colorado. The project area is shown on the attached map marked "Exhibit A" in shaded lines.

Applicant proposes to core drill this area with a series of holes spaced on coordinates 200 feet apart with the next line of holes staggered with respect to the first one. This system of locating drill holes is similar to that employed by the U. S. Geological Survey in their drilling programs on the Colorado Plateau.

Should mineralization of interest be encountered in any holes, Applicant further proposes to drill at that point a few offset holes spaced 25 feet apart.

It is estimated that the average depth of the holes to the mineralized bed will be 150 feet. A portion of the area covered by the project is on a gently rolling mesa covered with sage brush. The remainder, which is the larger part, is rather rugged terrain around the rims and is thickly covered with scrub cedar and pinion pine. The elevation is at about 7,000 feet. A dozer will be necessary for preparing passable roads for moving drills and in the preparation of drill hole sites.

Applicant is negotiating for and plans on purchasing two core drill rigs mounted on trucks. The cost of each will be $8,000.00 and will be furnished by the Operator at the "use allowance" rate of 1/60 of the cost per month. Operator owns both the water truck and pickup which will be furnished on the same basis. Applicant proposes to rent from some other party a D7 cat dozer for use in building necessary roads. The prevailing rental on a piece of equipment of this size in the area is $100 per day and does not include the operator's wages.

(b)

Time required to start work not more than 60 days from date the contract is signed.

Estimated time required to complete the project - four (4) months.

(7), (8) and (9)

PROJECT:

18,000 feet of core drilling
3 miles of access roads
Average depth of holes - 150 feet
Drilling rate - 75'/day/rig
2 - rigs, drilling rate 150 feet/day
Time required to complete project - 4 months

EQUIPMENT OWNED AND TO BE FURNISHED BY APPLICANT:

2 - New core drill rigs, mounted on trucks cost $8,000 each -	$16,000.00
1 - Water truck with tank mounted -	4,000.00
1 - Pickup truck for delivering supplies, etc.	1,800.00
Total cost -	$21,800.00

EQUIPMENT TO BE RENTED:

1 - D7 Cat dozer (cost about $16,000.00)

(7), (8) and (9) continued -

ESTIMATED OPERATING COSTS: (Based on drilling speed 150'/dy.)

	Per month	4 Months
2 - Core drill rigs, use allowance 1/60 cost/mo.	$ 267.00	$ 1060.00
1 - D7 Cat Dozer, rental @ $100/month	3000.00	12000.00
1 - Water truck & tank, use allowance 1/60/mo.	67.00	260.00
1 - Pickup truck, use allowance 1/60/mo.	30.00	120.00
Drill operating expenses, drill rods, core barrels, gas, oil and repairs for 2 drills -	1625.00	6500.00
Diamond drill bits, re-setting diamonds, bit repairs, etc. @ 40¢/ft. Than 150'/dy. X 30 dys. -	1800.00	7200.00
Water tank operating expenses (gas, oil & repairs @12¢/mi. X 1500 mi./mo. -	180.00	720.00
Pickup truck operating expenses (gas, oil and repairs @10¢/mi. and 2000 mi./mo. -	200.00	800.00
120 - Core boxes (2' X 5') @ $3.00 each -	90.00	360.00
Total -	$7259.00	$29036.00

DIRECT LABOR COSTS:

2 - Drill operators @ $20/dy. each -	$1200.00	$ 4800.00
2 - Drill helpers @ $16/dy. each -	960.00	3840.00
1 - Cat operator @ $20/dy. -	600.00	2400.00
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Total -	$3210.00	$12840.00

OVERHEAD COSTS:

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1 - Engineer @ $700/mo.	700.00	2800.00
Assaying expenses @ $300/mo.	300.00	1200.00
Office accounting, payroll taxes etc. @ $400/mo.	400.00	1600.00
Sub Total -	$2100.00	$ 8400.00
Cost per foot $2.79 Total -	$12569.00	$50276.00
Access roads (3 miles @ $5000) -		5000.00
Total cost of project -		$55276.00

(10).

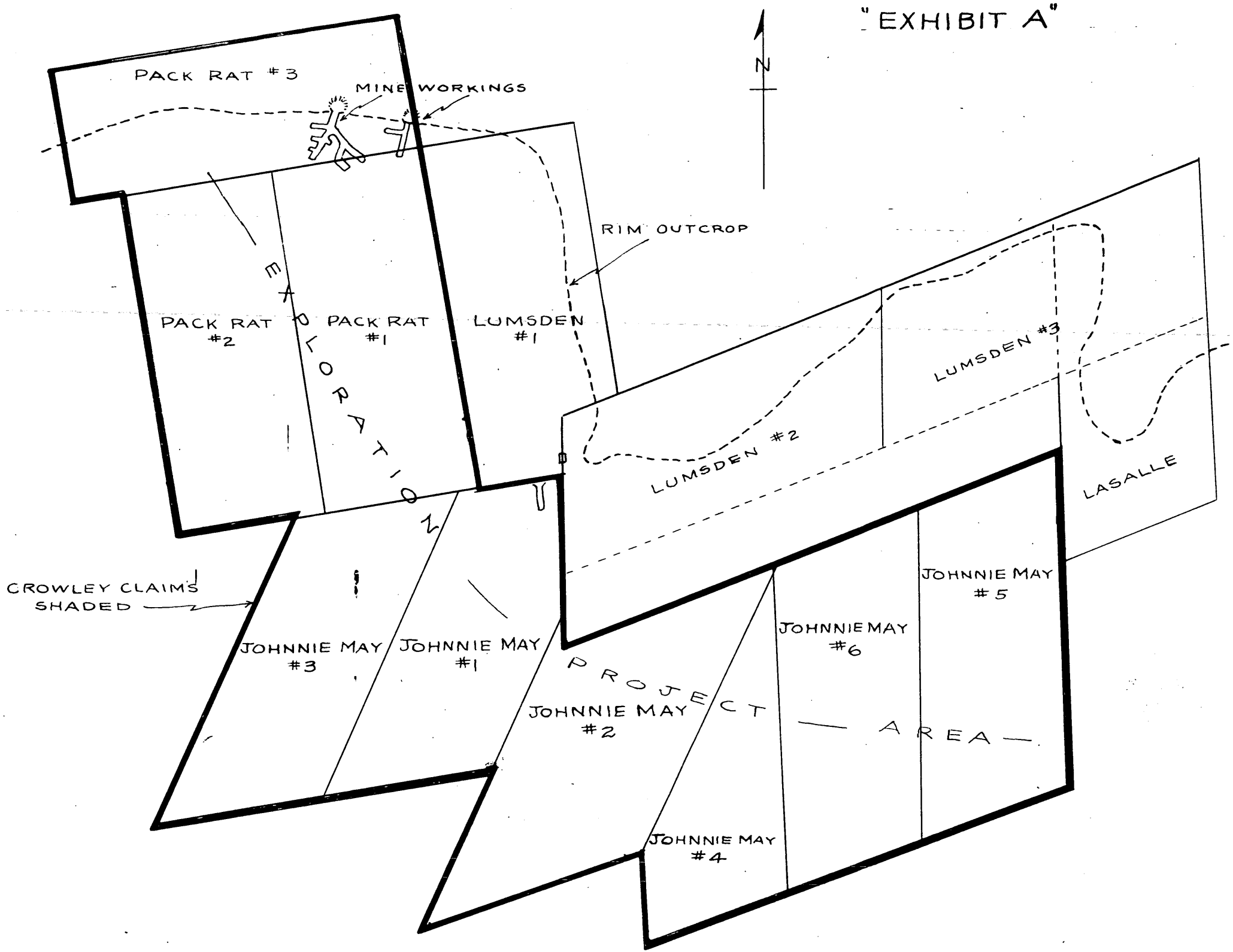
(a)
Applicant is prepared to invest $5,527.60.

(b)
This is 10% of total cost ($55,276.00) and is sufficient to pay Applicant's portion of the cost of the project.

(11).

There are no known conditions or circumstances not sufficiently brought out by the foregoing questions.

"EXHIBIT A"



EXPLORATION PROJECT MAP
OF
VELMA and J.B. CROWLEY
GATEWAY MINING DISTRICT, COLORADO.
SCALE 1" = 500'

Form MF-100
(May 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Form approved.
Budget Bureau No. 42-R1026.

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

NOT TO BE FILLED IN BY APPLICANT

Docket No. _____

Date received _____

VELMA & JOHN B. CROWLEY
Joint Tenancy
P. O. Box 294
Dove Creek, Colorado

Name and address of applicant

Date January 14, 1952

INSTRUCTIONS

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

GENERAL TECHNICAL DATA

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

1. Materials produced:
   (*a*) What are the chief mine, mill, or smelter products?
   (*b*) What are the byproducts, if any?
2. Name(s) and type(s) of mine(s), mill(s), smelter(s), refinery(ies), pit(s), quarry (ies), drilling operation(s). Include old names of property, if any. Show extent of workings, including the following:
   (*a*) Linear feet of shafts.
   (*b*) Linear feet of drifts and crosscuts.
   (*c*) Linear feet of tunnels or adits.
   (*d*) Linear feet of other mine openings (explain briefly).
   Indicate whether mine is flooded or not. Describe any pumping problems. Give size or productive capacity.
3. For each operation listed above supply the following:
   (*a*) Distance and direction from nearest town and shipping point.
   (*b*) Mining district.
   (*c*) Township, Section, Range.
   (*d*) County, State.
4. (*a*) State whether or not property is now in operation, and if in operation, by whom operated.
   (*b*) Are you operating this property as:
   ☐ Owner.
   ☐ Lessee.
   ☐ Contractor.
5. Number of years in production _____
   If not in production or operation, estimated date when production will begin _____
6. Experience of operators:
   Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who manage the project.
7. History:
   (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for suspension of operation.
   (*b*) State briefly the known history and production of adjoining and neighboring properties.
   (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

See attached sheets for answer to questions

16—63792-2

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

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

If more lines are needed continue on separate sheet.

9. Capital Stock Issues:

For Corporate Applicants

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

*Indicate period covered.

10. Production:

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

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

12. Ore or Mineral Reserves:

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

(*b*) If deposit is other than plac

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

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

TOTAL ORE OR MINERAL RESERVES

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

(*c*) If placer:

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

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

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

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

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

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

13. Access Roads:

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

14. Water Supply:

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

15. Power:

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

16. Labor:

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

17. Equipment and Facilities:

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

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

CERTIFICATION

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

VELMA & JOHN B. CROWLEY
(Name of company)

By J B Crowley
(Signature of authorized official)

January 14, 1952
(Date)

owner
(Title)

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

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

- Answer to questions - Form MF-100 -

Velma and John B. Crowley
Joint Tenancy
P. O. Box 294
Dove Creek, Colorado

1.

(a) Uranium and vanadium concentrates.

(b) No by-products

2. Proposed core drilling operation. See attached map with exploration application Form MF-103 for project area. Property known as the John B. Crowley claims.

(a) One incline shaft 30' deep.
(b) None.
(c) About 150 feet of tunnels at the rim.
(d) No other workings. This is truly an exploration project.

3.

(a) Crude ore would probably be shipped to Uravan, Colorado, to the USVC processing plant there, Uravan would be south of the claims and distant 65 miles.

(b) Gateway Mining District.
(c) Township 51 N, R 20 W.
(d) Mesa County, Colorado

4.

(a) Not operating. Closed on account of severe weather conditions.

(b) Owner.

5. Has been in production about 4 months. Expect to resume mining operations this Spring.

6. The Applicant, Mr. John B. Crowley, has had many years of mining experience in the non-ferrous mines of the Southwest and in the coal mines of New Mexico, both as miner and operator. Applicant has operated uranium mines and leases on the Colorado Plateau since 1948 or since the U. S. Atomic Energy Commission activated its uranium program. Applicant is presently operating a Government lease granted by the Atomic Energy Commission on a group of claims near Egnar, Colorado. The operation has been successful and in support of applicant's operating ability you are referred to the U. S. Atomic Energy Commission at Grand Junction, Colorado.

Associated with the applicant is Mr. Mike Hill who will probably act as Superintendent on the exploration project. Likewise, Mr. Hill has a successful background of mining experience, especially in uranium mining. He has also studied metallurgy and has had considerable mill experience gained from working in various processing plants on the Colorado Plateau.

7.

(a) During the past 4 months that the property operated 800 tons of ore were produced assaying 0.23% U308; 1.03 V205 and approximately 150 feet of small development drifts and X-cuts were driven. One incline shaft has been sunk to a depth of 30 feet. It is uncompleted.

(b) The claims were located in 1943 by Mr. Ward and Mr. Crowley. In 1950 Mr. Crowley bought his partner's interest and now owns the claims. See page 1, paragraph (b) under question 1 of Answer to Questions, Form Mf-103 for details of the purchase contract.

(c) This is truly an exploration project and no private examinations have ever been made. See statement by Leo J. Coady, Consulting Mining Engineer on page 2 next to last paragraph in attached answer to questions, Form Mf-103.

8. Velma and John B. Crowley, husband and wife doing business as Joint Tenancy, are the applicants for the exploration loan.

Velma and John B. Crowley
Joint Tenancy
P. O. Box 294
Dove Creek, Colorado

There are no other parties holding any interest in the venture.

(c) Income in the form of salaries, commissions and bonuses from the property on which an exploration loan is requested were,- none.

(d) Estimated net worth of applicant outside of property on which an exploration loan has been requested is $75,000.00

(g) No life insurance is carried for the benefit of the applicant.

9. Inapplicable.

10.

(d) 1950 production amounted to approximately (800) tons of crude uranium ore.

11. No further production until Spring.

12. See Page 4 and answer to question #4 of Answer to Question - Form MF-103 attached.

(b) 1. Not applicable.

2. Inapplicable. No ore reserves estimated. An exploration loan requested to develop ore reserves.

13. From the claims to Uravan the shipping point is 65 miles. From the claims to Gateway the road is usually in poor condition but passable. From Gateway to Uravan the road is better maintained. About 3 miles of access roads are required on the property in addition to roads for moving drills and preparation of drill sites.

14. The only water required is for drilling purposes. A spring not far from the claims will furnish ample water.

15. Gasoline.

16. Experienced drill operators available. Has 3 ready to go to work.

17. The only building on the property at present is one small miner's cabin. What additional housing facilities are required will be provided by the applicant.

18. There are no known conditions or circumstances involved in a drilling project which have not been described above.

DMEA-2391

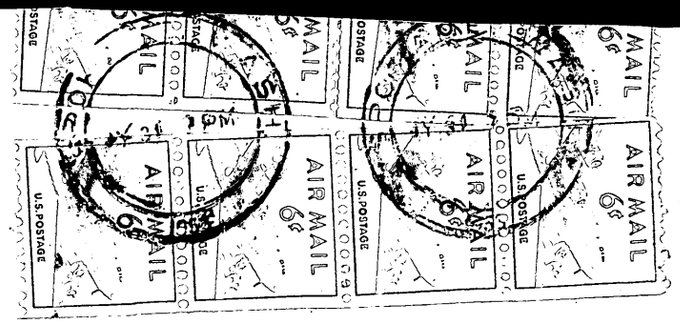
Mr. George C. Selfridge, Chairman

Operating Committee

Defense Minerals Exploration Administration

Department of the Interior

Washington 25, D. C.



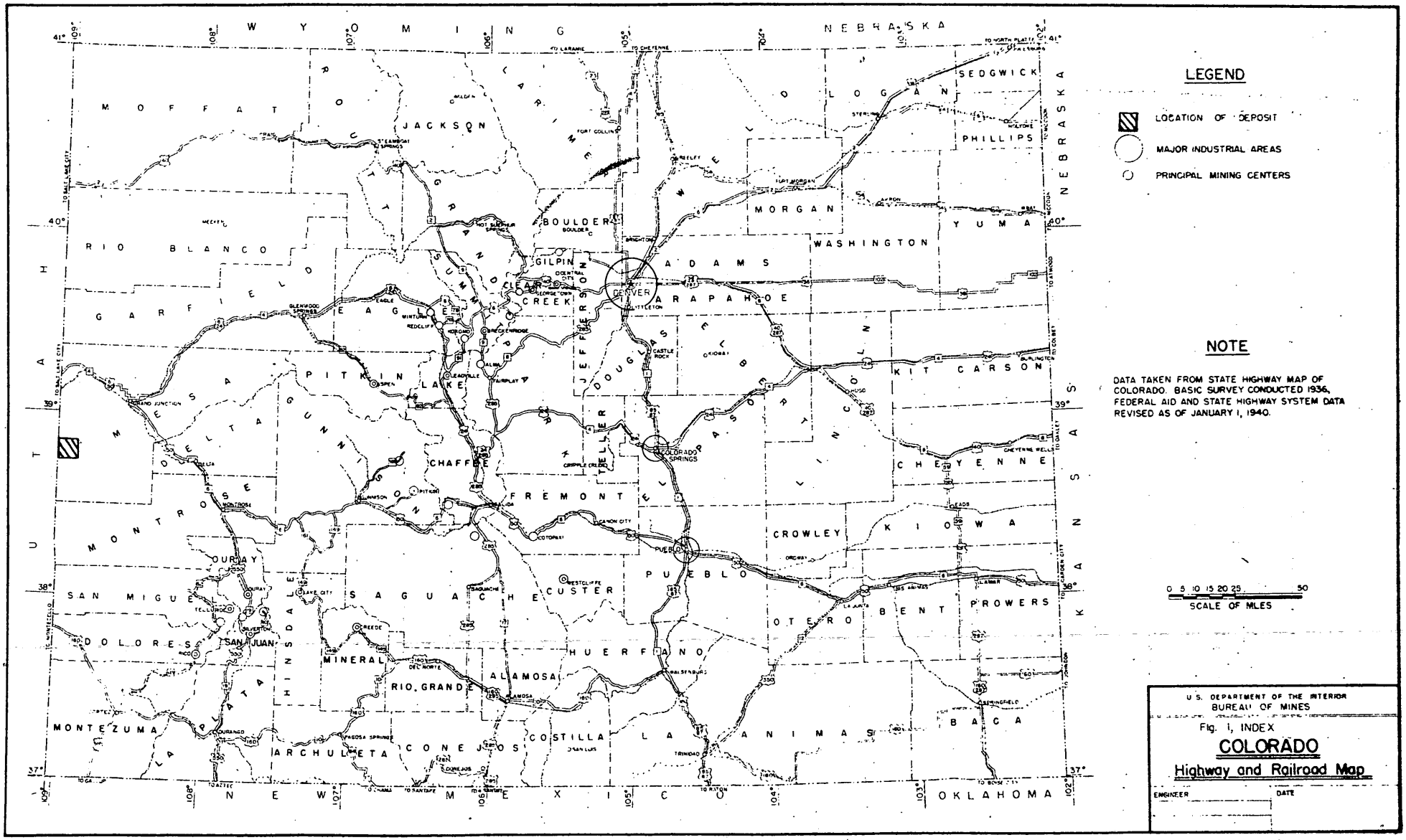


Figure 1. Pack Rat and Johnnie Mae Claims, Velma and John B. Crowley, Mesa County, Colorado, DMEA 2391

Department of Interior
U.S. GEOLOGICAL SURVEY

VELMA & JOHN B. CROWLEY CLAIMS
Mesa County, Colorado
DMEA Docket 2391

SCALE
10 0 10 20 30 FT

Brunton Survey E. N. Harshman
April, 1952

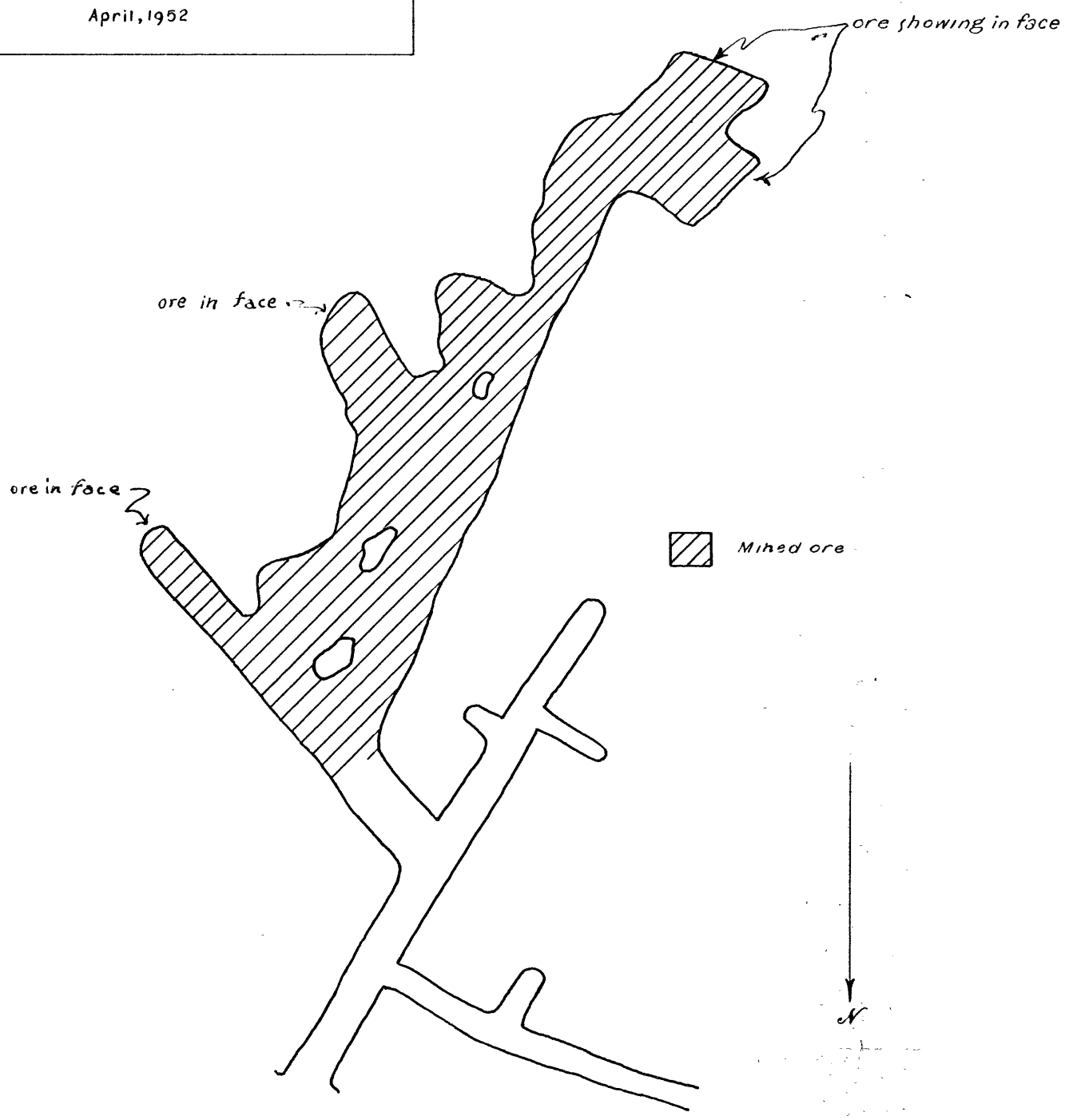
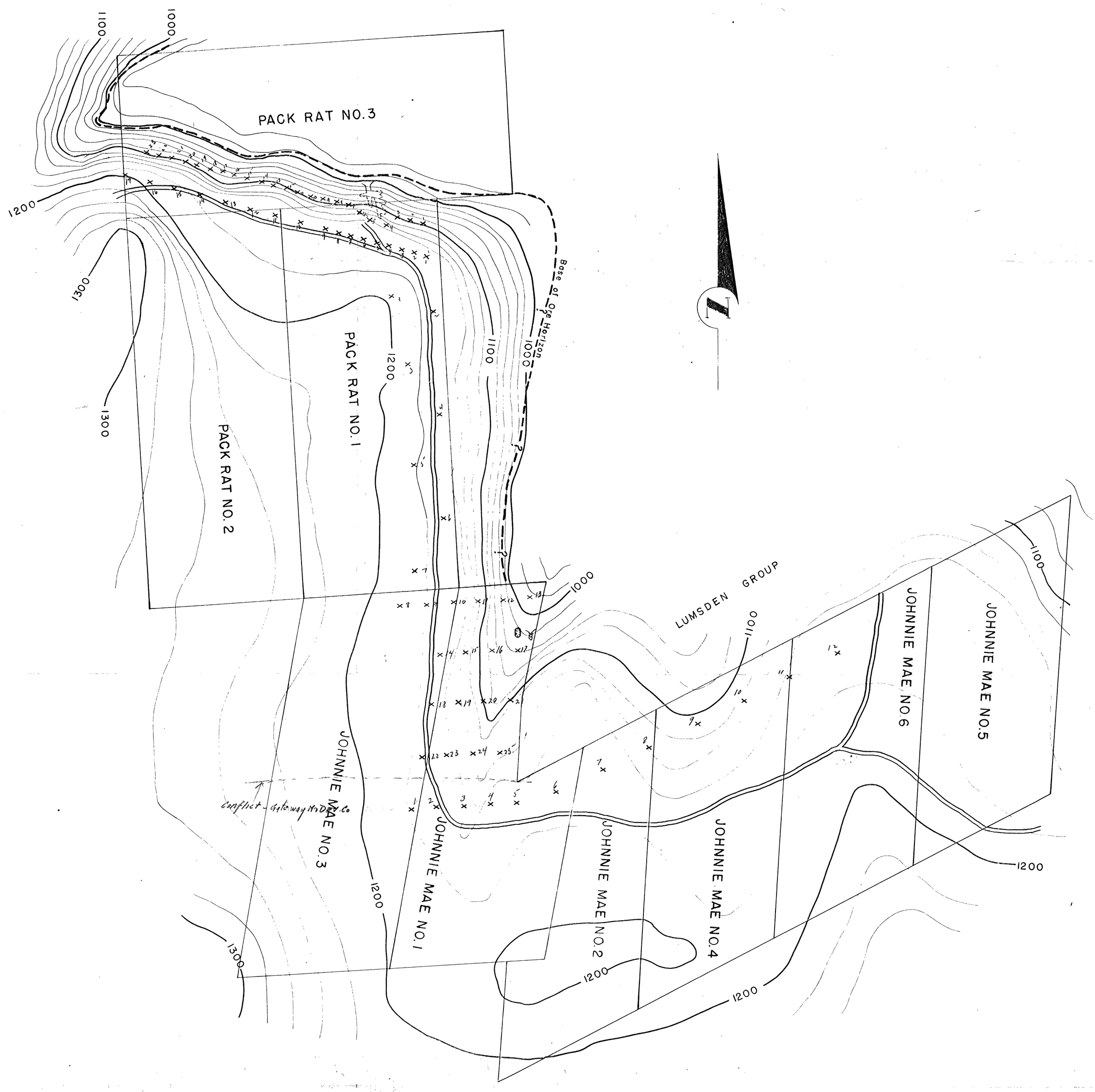


Fig 3



LEGEND

- Underground Workings
- Portal
- Roads
- D. D. Holes (Proposed)
- Incline
- Open Pit

Note: Data taken from company map

0 200 400 600
SCALE OF FEET
Contour Interval 20ft.

FIGURE 2.- PACK RAT AND JOHNNIE MAE CLAIMS, VELMA AND JOHN B. CROWLEY, MESA COUNTY, COLO. D.M.E.A. 2391

LEGEND

- Underground Workings
- Portal
- Roads
- D. D. Holes (Proposed)
- Incline
- Open Pit

0 200 400 600
SCALE OF FEET
Contour Interval 20ft.

Note: Data taken from company map

FIGURE 2.- PACK RAT AND JOHNNIE MAE CLAIMS, VELMA AND JOHN B. CROWLEY, MESA COUNTY, COLO. D.M.E.A. 2391