700

FILE COPY
Surname:
FMMurphy
Gehan
Kiilsgaard
Wynkoop
HJohnson

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

JUN 14 1956

Mr. Otto J. Worrell
515 Maple Street
Glenwood Springs, Colorado

Re: Docket No. DMEA-4139 (Uranium)
Ring Comb Claims
San Juan County, Utah

Dear Mr. Worrell:

Reference is made to your application for Government aid in an exploration project on the above-named claims.

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

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

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

Sincerely yours,

G. O. Mittendorf

Administrator

FMMurphy/izm 6-12-56
cc to: Docket
Code 700
Mr. Murphy
Admr.'s Reading File
Operating Committee
DMEA Field Team, Reg. III (2)
Messrs. JECrawford, Rm. 3643
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA

R.C.B.

Docket Copy

700

Murphy
Ellis

Summary of Proposed Project

Object: Denial of application for exploration aid.

Docket No.: DMEA-4139

Commodity: Uranium

Applicant: Otto J. Worrell
515 Maple Street
Glenwood Springs, Colorado

Property: Owner of Ring Comb claims Nos. 3, 4, 7, 8, and 9, situated in sec. 28, T. 36 S., R. 24 E., S.L.B.M., San Juan County, Utah.

Date of Application: Received January 23, 1956

Additional Information requested: February 10, 1956

Additional Information received: April 19, 1956

Referred for Field Examination: May 4, 1956

However, the property was examined on March 29, 1956, (before the additional information was received) probably because the field examiners were in the area on other work.

Field Team Report received: May 25, 1956

Amount of Application: $44,773.75

Work Proposed:

8,485 ft. of wagon drilling and
1,350 ft. of core drilling, the work to be done in two stages.

Estimated Costs:

Stage I - 22 holes - 5 months

Drilling	$5,355.00	
Roads	6,000.00	
Surveying	1,000.00	
Assaying & logging of holes	300.00	
Bookkeeping	300.00	
Supervisor	4,000.00	
Pickup truck rental	500.00	
Tires, gas, etc.	500.00	
TOTAL		$17,955.00

Stage II - 20 holes - 5 months

Same as above except the drilling would cost $14,218.75 giving a total of $26,818.75

Total Estimated Cost of Project $44,773.75

Government Participation @ 75% $33,580.31

Field Team Report: (excerpts)

The claims are underlain by the Salt Wash member of the Jurassic Morrison formation, the potential ore-bearing unit of the area.

The upper 10 to 30 feet of the Salt Wash are exposed near the base of the deep Devil Canyon (a tributary of Montezuma Canyon) along the common end lines of Ring Comb claims Nos. 3, 4, & 9. The exposures of mineralized material range from less than an inch up to 8 inches in thickness and are up to 10 feet in width. A channel sample 2½ feet long was cut from an adit on the Ring Comb No. 3 claim. The sample assayed 0.055% U_3O_8 and 0.81% V_2O_5.

Since December 1, 1953, 7,860 tons of ore that averaged about 2.00% V_2O_5 and 0.15% U_3O_8 have been reported from the entire Montezuma-Horsehead Canyon areas. The largest ore body found to date was 150 tons of rock that required handsorting to reach 0.15% U_3O_8. The usual ore bodies are small and sub-ore grade before sorting. AEC drilling near the subject property was discouraging. Moreover, reports indicate that drilling by private companies, on adjacent land was negative.

The Field Team concludes that the application be denied because of the probably small size and low-grade uranium content of any ore body that might be found on the subject property.

Commodity Members' Comments: (excerpts)

USBM, J. E. Crawford, May 31, 1955:

Mr. Crawford agrees with the field examiners conclusions and recommends denial of the application.

USGS, N. E. Nelson, June 8, 1955:

Experience has shown that vanadium rather than uranium ore bodies are to be expected in the general claim area and such are small and scattered.

Mr. Nelson, further reviews the field examiners' findings and concurs in their recommendation to deny the application.

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

Because the area near the subject claims has been drilled by the AEC and private companies with essentially negative results, and because the area is known to contain only relatively small-low-grade uranium ore bodies, this Division concurs in the Field Team's recommendation to deny the application.

Ernest Wm. Ellis

Ernest Wm. Ellis, Chief
Rare and Miscellaneous Metals Division

6/11/56 gla

IN REPLY REFER TO:

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

June 8, 1956

Re: DMEA 4139
Otto J. Worrell
Ring Comb claims
San Juan Co., Utah
$44,273.75 - Uranium

Memorandum

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

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

Subject: Review of Field Team report.

The applicant sought assistance in exploring by drilling claims underlain by Salt Wash sandstone.

Radioactive material has been found on the claims and a short adit driven. Drilling on claims to the north and to the south has shown negative results.

Experience has shown that vanadium rather than uranium orebodies are to be expected in the general claim area and such are small and scattered.

The A.E.C. when choosing sites for 3 holes to be drilled in the area, placed no hole on the property. Results of the drilling are not encouraging.

The examiners and Field Team recommend that the application be denied.

I concur with that recommendation.

N. E. Nelson

N. E. Nelson

IN REPLY REFER TO:

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

June 8, 1956

re: [illegible] 4139
[illegible]tto J. [illegible]orrell
[illegible]ing [illegible]omb claims
[illegible]an Juan [illegible]o., [illegible]tah
[illegible]4,273.75 - [illegible]ranium

[illegible]emorandum

To: [illegible]. [illegible]illis, [illegible]ense [illegible]in[illegible]rals [illegible]xplor[illegible]ion [illegible]dmini[illegible]ration

[illegible]rom: [illegible]. [illegible]hiot, [illegible]. [illegible] Geological [illegible]urvey

[illegible]ubject: [illegible]evi[illegible]w of [illegible]ield [illegible]eam report.

The [illegible]pplicant [illegible]ought assistance in [illegible]xploring by drilling claims underlain by [illegible]alt [illegible]ash sandstone.

[illegible]utoactive [illegible]aterial has been found on the claims and a short adit driven. [illegible]rilling on claims to the north and to the south has shown [illegible]egative results.

[illegible]xperience has shown that vanadium rather than uranium orebodies are to be expected in the general claim area and such are small and scattered.

The [illegible]. [illegible]. when choosing sites for 3 holes to be drilled in this area, placed no hole on the property. [illegible]esults of the drilling are not encouraging.

The examiners and field team recommend that the application be denied.

I concur with that recommendation.

N. E. Nelson

N. [illegible]. Nelson

NENelson:btr
C 6/8/56

cc: J. [illegible]. Crawford, 3614
J. O. Hosted, 3210
Director's reading file (4212)
Branch reading file (4212)
[illegible] (3)
Chron. file
Docket file

IN REPLY REFER TO:

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

June 8, 1956

Re: [illegible] 4139
[illegible]ito J. [illegible]orrall
[illegible]ing [illegible]ob claims
San Juan Co., Utah
[illegible]44,27[illegible].75 - Uranium

Memorandum

To: [illegible]. [illegible]. Ellis, Defense Minerals Exploration Administration

From: [illegible]. [illegible]. Nelson, U. S. Geological Survey

Subject: Review of field team report.

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The examiners and field team recommend that the application be denied.

I concur with that recommendation.

N. E. Nelson

N. [illegible]. Nelson

NENelson:btr
G 6/8/56

cc: J. E. Crawford, 3614
J. O. Hosted, 3210
Director's reading file (4212)
Branch reading file (4212)
DMEA (3)
Chron. file
Docket File

IN REPLY REFER TO:

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

June 8, 1956

Re: [illegible] 4139
[illegible] J. [illegible]orrell
[illegible] claims
[illegible] Co., [illegible]
[illegible] - [illegible]

[illegible]orandum

To: [illegible] E. [illegible]illis, [illegible]fense Minerals [illegible]xploration [illegible]ministration

From: [illegible], [illegible], Geological [illegible]

Subject: [illegible]eview of [illegible]ield [illegible]eam report.

The applicant sought assistance in exploring by drilling claims underlain by [illegible]ait [illegible]ash sandstone.

Autoactive [illegible] has been found on the claims and a short adit driven. [illegible]rilling on claims to the north and to the south has shown no [illegible] results.

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The examiners and [illegible]ield [illegible]eam recommend that the application be denied.

I concur with that recommendation.

W. E. Nelson

W. [illegible] Nelson

WENelson:btr
G 6/8/56

cc: J. [illegible]. Crawford, 3614
J. O. Hosted, 3210
Director's reading file (4212)
Branch reading file (4212)
DMEA(3)
Chron. file
Docket file

5/31/56

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

May 31, 1956

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

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

Subject: Report of Examination, DMEA Docket 4139, Otto J. Worrell, (Ring Comb claims), San Juan County, Utah

I have reviewed the report of examination, DMEA Docket 4139, Otto J. Worrell, (Ring Comb claims), San Juan County, Utah, dated May 17 and received in this office May 29, 1956. I have also discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

The examining team recommend that the application for exploration assistance be denied because uranium ore bodies that may be found on the subject property are small and lenticular in shape, averaging 1 to 8 inches in thickness and 8 to 10 feet in diameter, and are low in uranium content.

We concur in the recommendation that the application be denied because the claims do not appear to be promising.

The report is being forwarded to the Chief, Division of Minerals, in accordance with the routing slip attached thereto.

John E. Crawford

John E. Crawford

RECEIVED
MAY 31 1956

May 31, 1956

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

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

Subject: Report of Examination, DMEA Docket 4139, Otto J. Werrell, (Ring Comb claims), San Juan County, Utah

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RECEIVED
MAY 31 1956

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Uranium Commodity Committee

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We concur in the recommendation that the application be denied because the claims do not appear to be promising.

The report is being forwarded to the Chief, Division of Minerals, in accordance with the routing slip attached thereto.

John E. Crawford

RECEIVED
MAY 31 1956

6-4-56

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

May 23, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Joint Report of Examination, DMEA Docket 4139 (Uranium)
Otto J. Worrell, (Ring Comb claims), San Juan County, Utah

Enclosed are the original and three copies of a joint Report of Examination on the subject property.

The field examiners found that the outcrops in Devil Canyon and on the property are thin and contain mainly vanadium minerals. The results of drilling adjacent to the subject property have been negative. They conclude that exploration on the property is not warranted and recommend that the application be denied. We concur in this recommendation.

DMEA Field Team, Region III

By J. W. Townsend
Acting Executive Officer

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
6-1-56
(date).

IN REPLY REFER TO:
DMEA
RECEIVED
MAY 3 1956

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. Box 350
Grand Junction, Colorado

RECEIVED
MAY 25 1956
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

~~May 2, 1956~~

DMEA
Date Rec'd.
MAY 21 1956
BUREAU OF MINES
Denver, Colorado

Certified Mail

Memorandum

To: Executive Officer, DMEA Field Team, Region III

Through: E. N. Harshman
J. F. Shaw

TRANSMITTED
MAY 23 1956

From: F. M. Byers, Jr.,
For J. William Hasler

Subject: DMEA docket 4139 (Uranium), Otto J. Worrell (Ring Comb claims), San Juan County, Utah.

Transmitted herewith is a joint engineering geologic report by Howard F. Albee, U. S. Geological Survey, and M. H. Salsbury, U. S. Bureau of Mines, covering the subject application.

Otto J. Worrell, 515 Maple, Glenwood Springs, Colorado, has applied for a DMEA loan of $33.205.31 to drill his five Ring Comb claims in Devil Canyon, a tributary of Montezuma Canyon. The uranium-vanadium deposits are small, lenticular bodies, averaging 1 to 8 inches in thickness and 8 to 10 feet in diameter. The grade of these bodies is low; a sample cut across 2-1/2 feet by the examining team contained only 0.055 percent U_3O_8 by chemical analysis. Production from the entire Montezuma Canyon area is about 8,000 tons, with an average grade of about 0.15 percent U_3O_8 and 2.00 percent of V_2O_5. Most of the ore in the Montezuma area has been mined for the vanadium content. The only recorded production near the applicant's property is 260 tons containing about 1.7 percent of V_2O_5. No deposit has been found near the claims larger than 150 tons.

Because of the probable small size and low-grade uranium content of the ore bodies on the subject property, the examining team recommends that the application of Otto J. Worrell for DMEA assistance under docket 4139, be denied. I have read the report and concur with the recommendations of the examining team.

The Atomic Energy Commission provided information on past production and drilling in the area.

Enclosed are one copy of the text and figures 1 and 3. Also enclosed are 10 copies of figure 2.

FMB/mlr
Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
6-1-56
(date)

F. M. Byers, Jr.
For J. William Hasler,
Geologist

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

JOINT REPORT OF EXAMINATION BY EXAMINING TEAM
REGION III

RECEIVED
MAY 25 1956

DMEA 4139
OTTO J. WORRELL
RING COMB CLAIMS
SAN JUAN COUNTY, UTAH

TRANSMITTED
MAY 23 1956

Uranium

Joint Engineering and Geologic Report

By

Howard F. Albee, Geologist
Geological Survey

M. H. Salsbury, Mining Eng.
Bureau of Mines

May 17, 1956

Reviewed by
DMEA OPERATING COMMITTEE
6-1-56
(date)

DMEA 4139
OTTO J. WORRELL
RING COMB CLAIMS
SAN JUAN COUNTY, UTAH

RECEIVED
MAY 25 1956

CONTENTS

Joint engineering and geologic report ..... Page

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Ownership and extent 3
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Geology 5
Ore deposits 6
Proposed exploration 7
Conclusions and recommendations 9

ILLUSTRATIONS

Figure ..... Follows page

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2. Geologic map showing the Ring Comb Group of claims, Otto J. Worrell, San Juan County, Utah - DMEA 4139 ... 5

3. Claim map showing applicant's proposed drill program, Ring Comb Group, Otto J. Worrell, San Juan County, Utah - DMEA 4139 4

DMEA 4139
OTTO J. WORRELL
RING COMB CLAIMS
SAN JUAN COUNTY, UTAH

RECEIVED
MAY 25 1956

INTRODUCTION AND SUMMARY

Otto J. Worrell, 515 Maple, Glenwood Springs, Colorado, applied on January 18, 1956 for DMEA assistance to explore for uranium in the Montezuma Canyon district, east of Blanding, San Juan County, Utah. A drilling program in two stages requiring an estimated 8,485 feet of "wagon drilling" (non-core rotary drilling) and 1350 feet of core drilling was proposed at a cost of $44,273.75. Government participation at 75 percent would be $33,205.31.

The property was examined on March 29, 1956 by Howard F. Albee of the Geological Survey in company with the applicant, Otto J. Worrell. Owing to a highway accident, a Bureau of Mines engineer was unable to participate. Because of the probable denial of the application, a later inspection by an engineer was not considered necessary. The Bureau of Mines participant in this report has made examinations in the vicinity of Montezuma Canyon, and is familiar with the physical and economic aspects of topography and mineral deposits of the area.

The claims are underlain by the Salt Wash member of the Jurassic Morrison formation, the potential ore bearing unit of the area. Salt Wash sandstone outcrops on the claims, and there are mineralized exposures of small lenses from less than 1 inch up to 8 inches thick and up to 8 to 10 feet wide. Most of the mineralization appears to be vanadium minerals associated with carbonaceous material and mudstone along bedding planes. There are no visible uranium minerals and the presence of this element is indicated only by radiometric activity measured as 3 times background. A short adit on the Ring Comb No. 3 claims was driven on one of these

lenses. A sample, cut across 2.5 feet of mineralized material in the face of the adit, contained 0.055 percent U_3O_8 by chemical analysis.

Production from the entire Montezuma-Horsehead Canyon area has been estimated as about 7860 tons which had an average content of 0.15 percent U_3O_8 and 2.00 percent V_2O_5. Most of it was mined for the vanadium content. The only recorded production anywhere near the applicant's property has been 260 tons of ore which contained 1.699 percent V_2O_5. This was mined prior to 1946. No deposit has been found near the claims which contained more than 150 tons of ore and the ore as mined would have to be sorted carefully to maintain an average grade of 0.15 percent U_3O_8.

A considerable amount of drilling has been done on the adjoining property to the north, and a smaller amount a short distance to the south, and results have all been negative.

It is concluded that exploration of the property for uranium is unwarranted because of the probable small size and marginal grade of the deposits likely to be found.

It is recommended that the application for Government assistance under DMEA 4139 be denied.

ACKNOWLEDGMENTS

The applicant furnished rather incomplete information as to claim ownership, but explained his property rights more fully to the DMEA geologist. A cost estimate was presented covering a drilling proposal. A map, which was received somewhat later than the application, was furnished.

The Atomic Energy Commission was consulted and provided information on past production and reconnaissance of the area. Results of Atomic Energy Commission drilling projects in the area were made available.

LOCATION, TOPOGRAPHY AND CLIMATE

The Ring Comb claims lie in section 28, T. 36 S., R. 24 E., S. L. P. M., in Devils Canyon, a tributary of Montezuma Canyon, San Juan County, Utah (figure 1). The claims are about 28.5 miles southerly from Monticello, Utah, and may be reached from Monticello over paved Utah highway 47 then southeasterly for about 12 miles on an unimproved singletrack road. Part of the last ½ mile is accessible only by a 4-wheel-drive vehicle. The property is accessible throughout the year except for periods of heavy rainfall or snowfall.

Water, supplies, power and labor present no unusual problems. The proposed drilling would be done by a drilling contractor who would supply labor and housing.

The nearest uranium-buying station is at Monticello, Utah.

HISTORY AND PRODUCTION

Exploration for vanadium ores has been carried on in the Montezuma Canyon area since World War I. A number of very small deposits have been mined for vanadium, but none very close to the applicant's property. The applicant's claims are part of a group of ten claims located in 1953 by Worrell and a partner. They later divided the property, Worrell retaining the 5 claims included in the proposed DMEA project.

The Atomic Energy Commission made a reconnaisance of the area in 1952 and picked three areas for drilling projects. None of them were near the applicant's property. Results of the AEC drilling were not encouraging.

There has been no production from the Ring Comb claims.

OWNERSHIP AND EXTENT

The Ring Comb Nos. 1 to 10 claims were located by Otto J. Worrell and R. B. Vogely. Date of location was not given in the application and

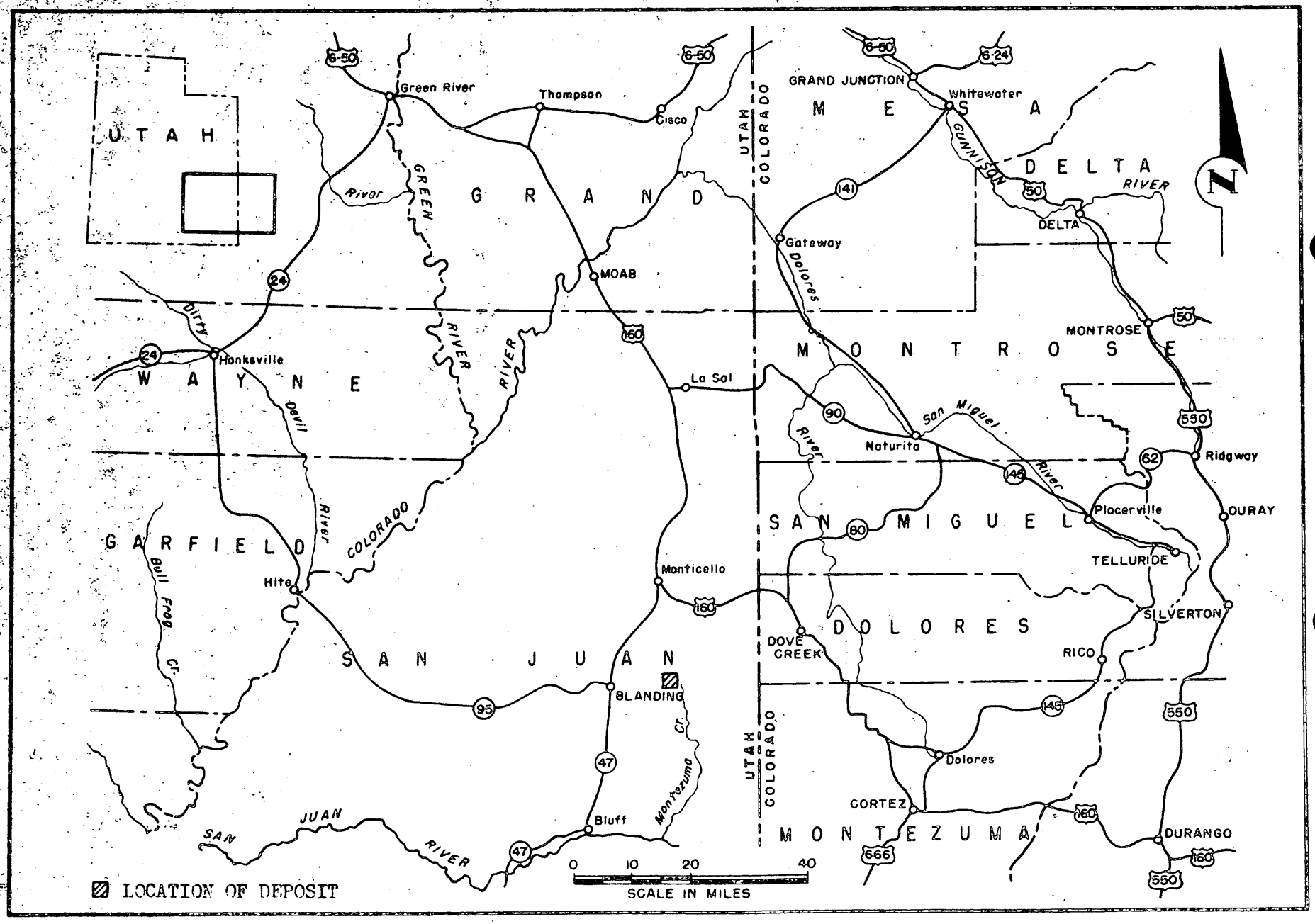


FIGURE 1 - LOCATION MAP, RING COMB CLAIMS, OTTO J. WORRELL, SAN JUAN COUNTY, UTAH. DMEA 4139

courthouse records have not been checked. Recording data on the five claims included in the proposed project are reported by the applicant as follows:

RECORDING DATA, SAN JUAN COUNTY, UTAH

Claim	Original Location Book	Original Location Page	Withdrawal of lease under circular 7 Book	Withdrawal of lease under circular 7 Page	Location Notice Circular 7 Book	Location Notice Circular 7 Page
Ring Comb-3	97	233	223	504	223	500
4	97	233	223	504	223	501
7	97	235	223	504	223	502
8	97	235	223	504	223	503
9	107	105	223	505	223	503

Proof of Labor, probably for the fiscal year ending June 30, 1955, was recorded in Book 309, page 405.

Worrell and his partner agreed to divide the block of claims. Worrell retained the ownership of the claims included in the proposed DMEA project and has a deed (quit claim?) from Vogely recorded in Book 82, page 89.

Validity of title was not checked by the DMEA engineer.

PRESENT STATUS

Exploration and Development

The only exploration done on the property to date is an adit driven in a few feet on an outcrop near the common corner of Ring Comb Nos. 3, 4 and 8 claims (figure 3). A sample taken by the DMEA geologist, across 2.5 feet of the sandstone ledge in the face of the adit returned 0.055 percent U_3O_8 and 0.81 percent V_2O_5 by chemical analyses. The applicant reports 0.03 percent U_3O_8 from a similar sample over a narrower width.

Mining and Milling Equipment and other Facilities

There is no equipment or other facilities on the property.

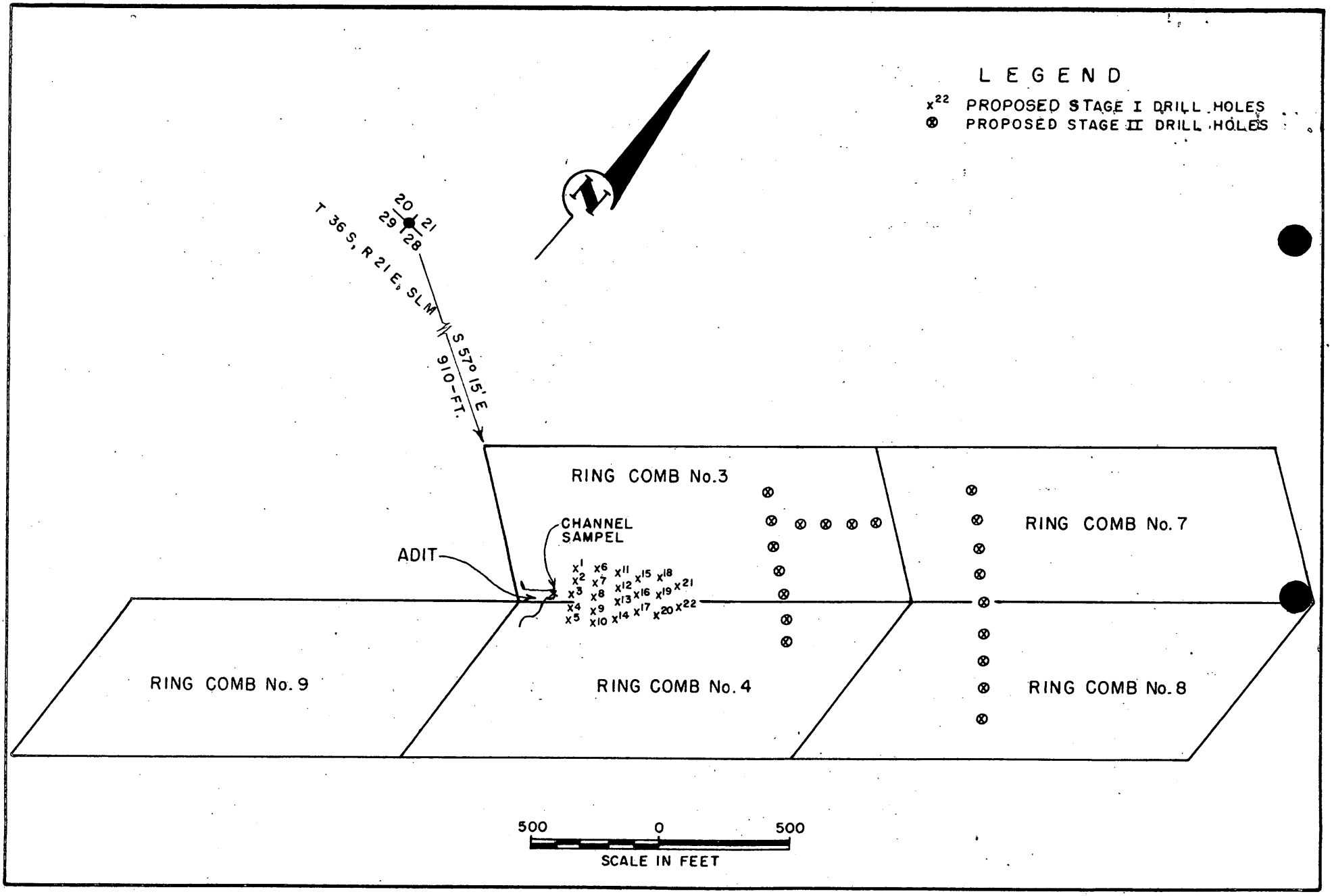


FIGURE 3 - CLAIM MAP SHOWING APPLICANT'S PROPOSED DRILL PROGRAM, RING COMB GROUP, OTTO J. WORREL, SAN JUAN COUNTY, UTAH. DMEA 4139

GEOLOGY

Devil Canyon is one of many canyons cut into the Great Sage Plain, a gently undulating plateau capped by the Dakota sandstone. Intermittent streams heading on the plateau and the Abajo mountains to the west have eroded canyons up to 1500 feet deep. Elevations range from 5500 feet in the canyons to 7200 feet on the Sage Plain near Monticello.

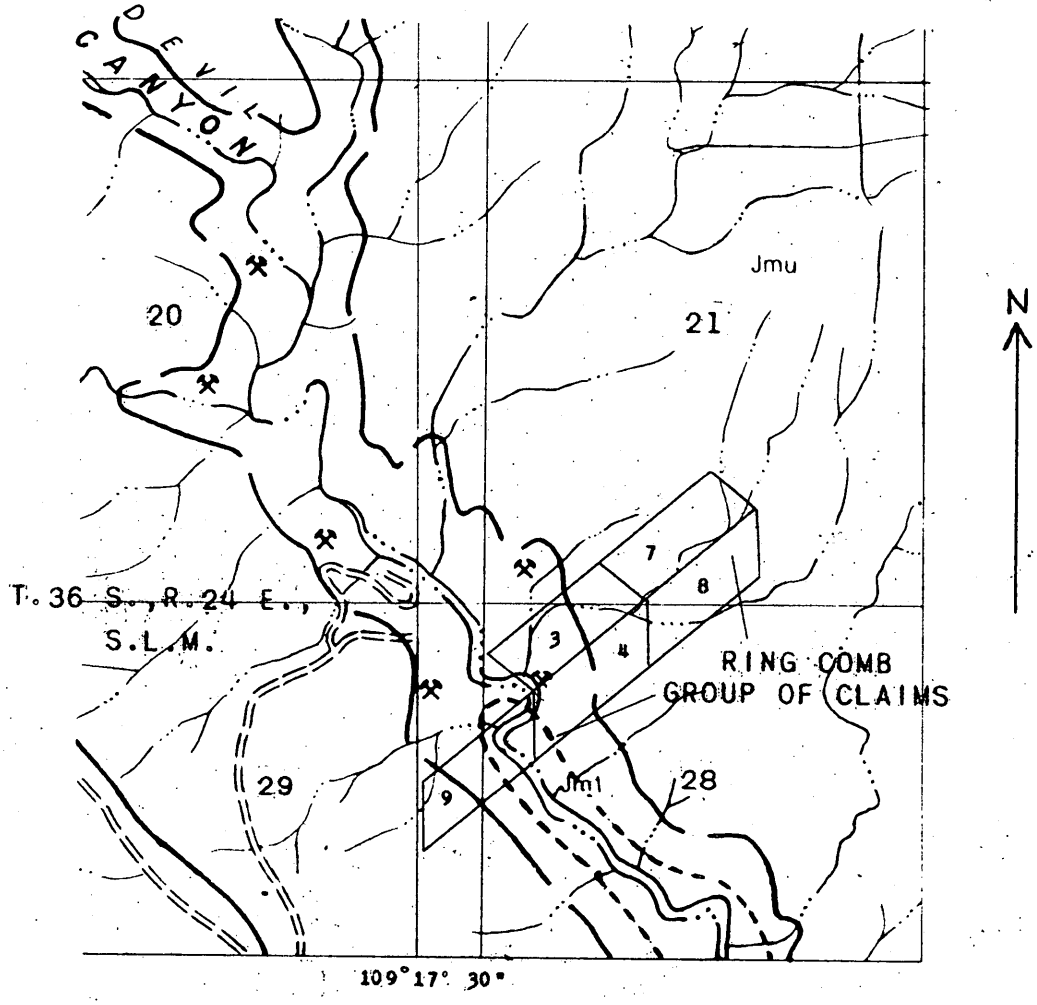
Devil canyon is a southeasterly trending stream tributary to Montezuma canyon which flows southerly into the San Juan river. Devil canyon deepens rapidly, exposing alternating cliff-forming sandstone units and talus covered slopes and benches.

Rocks exposed along the canyon walls range from the Dakota sandstone to the Morrison formation. In the area of the claims only the Morrison formation is exposed (figure 2). The formation is composed of the Salt Wash, the Westwater sandstone, and the Brushy Basin members, of which the Salt Wash is the only mineralized unit in the area.

The Brushy Basin member consists of variegated mudstone and shale beds containing lenses of calcareous and quartzitic sandstone lenses. It forms steep talus covered slopes and covers broad benches held up by the Westwater Canyon sandstone member. In the vicinity of the claims the Brushy Basin ranges from about 215 feet to 260 feet in thickness.

The Westwater Canyon sandstone member is composed of greenish-yellow to greenish-gray cliff-forming sandstone and minor amounts of greenish-gray shale. In the vicinity of the claims it is about 140 feet thick.

The Salt Wash sandstone member is composed of interbedded sandstone and mudstone lenses. The sandstone is commonly light gray to light brown, cross-stratified, and comprised of sub-rounded, fine to coarse, clear quartz grains. Clay minerals and calcite are the common cementing materials.



EXPLANATION

Jmu Jml	JURASSIC MORRISON FORMATION: Jmu, UPPER MEMBER; Jml, LOWER MEMBER
	GEOLOGIC CONTACT
⚒	MINE OR PROSPECT

Note: BASE FROM U.S. GEOLOGICAL SURVEY PHOTOGEOLOGIC QUADRANGLE MAP, VERDURE 11.

2000 0 6000 FEET

FIGURE 2. GEOLOGIC MAP SHOWING THE RING COMB GROUP OF CLAIMS, OTTO J. WORRELL, SAN JUAN COUNTY, UTAH.

RECEIVED
MAY 25 1956

The mudstone lenses are maroon, gray, and green. Exposures of mudstone lenses on the claims are poor and very few were seen. The lenses observed were associated with the mineralized material along bedding planes and were mostly grayish-green.

The strata beneath the Great Sage Plain are almost horizontal. In the western part of the plain, eastward dips of from 4° to 5° represent the influence of the Abajo uplift and the southward-striking Comb Ridge monocline; elsewhere the dips average 1° to 2° to the south and east.

ORE DEPOSITS

The mineralized outcrops are from a few feet to about 20 feet above the canyon bottom and at the top of a thick sandstone lens. The thickness of the sandstone cannot be determined as the lower part is not exposed. All of the mineralized outcrops seen on the claims are well exposed because of mining activity prior to 1944. The area was prospected and claims staked for vanadium. Short adits were driven at several points in Devil Canyon (figure 2). Recorded production prior to 1944 is 260 tons of ore that assayed 1.699 V_2O_5, (Chamberlain, Virgil R., 1946). This is production from claims a short distance north and several miles south of the applicant claims. No production has been recorded since the early activity for vanadium.

Exploration drilling has been done by the Atomic Energy Commission in areas a few miles northeasterly from the Devil Canyon area. Drilling revealed that the orebodies are small, scattered, and lenticular in shape with a long dimension of from 35 to 75 feet; a width of about 25 feet; and a thickness of from 1 to 6 feet. (Unpublished AEC Report, Exploration drilling in the Montezuma Canyon area, San Juan County, Utah). The ore was found to be rarely continuous throughout the vertical range of mineralization

in the drill holes, the ore-grade intervals being interrupted by barren to weakly mineralized ground. Drilling showed the ore in the area to be low-grade. The output of all mines must be handsorted in order to meet mill specifications. Production from the Montezuma Canyon-Horsehead Canyon areas through December 1, 1953 was about 7,860 tons that averaged about 2.00 percent V_2O_5, about 0.15 percent U_3O_8, and from 10 to 15 percent $CaCO_3$.

The exposures of mineralized material in the vicinity of the claims range from less than an inch up to 8 inches in thickness and up to 8 to 10 feet in width. The mineralized lenses appeared to be composed mainly of vanadium minerals associated with carbonaceous material and mudstone strata along bedding planes. No uranium minerals were seen and the radioactivity count was only about 3 times background. A channel sample 2½ feet long was cut from an adit on the Ring Comb claim No. 3. The sample assayed 0.055 percent U_3O_8 and 0.81 percent V_2O_5.

Considerable drilling with negative results was done on claims adjoining the property to the north and some drilling has been done also with negative results on claims a short distance south of the property. Most of the drilling was done behind the rim from exposures of vanadium mineralization. The mineralization was apparently controlled by bedding planes containing carbonaceous material; no channels were observed.

PROPOSED EXPLORATION

The operator has proposed a drilling program in two stages requiring an estimated 8485 feet of non-core drilling (called wagon drilling by the applicant) and 1350 feet of core drilling in 40 holes at a cost of $44,273.75 in which Government participation at 75 percent would be $33,205.31 (figure 3).

Stage I consists of 22 holes immediately behind the outcrop exposed

in the shallow adit in five fences about 100 feet apart with holes in each fence about 50 feet apart.

Stage II consists of twenty holes in two fences 1000 feet and 1800 feet northeast of the outcrop with holes in the fences about 100 feet apart and with 4 holes to be drilled along an ore body if found. Stage II was to be carried out if results of Stage I justified it.

The applicant's estimate was based on average depths for the holes rather than definite information resulting from an actual survey of the property and determination of hole collar elevations. Estimate unit costs for the proposed drilling are reasonable. No charge for supervision or technical assistance was made in the estimate. The applicant submitted a bid from E. E. Hubbard of Moab, Utah with a price of $1.50 per foot for non-core drilling and $3.50 per foot for core drilling. Other beds had been sought, but had not been submitted. Worrell offered to get further bids if required.

The one bidder, E. E. Hubbard, had a contract under another DMEA project, Docket DMEA 3281, contract Idm-E710, Intermountain Mining Company. His performance was very poor and the operator finally had the project finished by another drilling contractor. Hubbard threatened suit against the Government when the operator refused payment for work not meeting specifications. It is doubtful whether he would make a satisfactory contractor.

An alternate proposal is not suggested by the DMEA examining team, and no cost estimate is made.

CONCLUSIONS AND RECOMMENDATIONS

Mining in the areas near Devil Canyon is marginal due to the sparse distribution of small, low-grade ore bodies. The mineralized outcrops in Devil Canyon and on the property are thin and contain mainly vanadium minerals. The results of drilling adjacent to the property have been nagative.

It is concluded that exploration on the property is not warranted due to the small size and marginal grade of the mineralized deposits expected. It is recommended, therefore, that the application for Government assistance be denied.

REFERENCE CITED

Chamberlain, Virgil R., Comb Ridge Fold District, San Juan Basin Area, San Juan County, Utah, Union Mines and Development Company, 1946.

5/28/56

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

May 23, 1956

224 New Customhouse
Denver 2, Colorado

RECEIVED
MAY 25 1956

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Joint Report of Examination, DMEA Docket 4139 (Uranium)
Otto J. Worrell, (Ring Comb claims), San Juan County, Utah

Enclosed are the original and three copies of a joint Report of Examination on the subject property.

The field examiners found that the outcrops in Devil Canyon and on the property are thin and contain mainly vanadium minerals. The results of drilling adjacent to the subject property have been negative. They conclude that exploration on the property is not warranted and recommend that the application be denied. We concur in this recommendation.

DMEA Field Team, Region III

J W Townsend

By J. W. Townsend
Acting Executive Officer

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
6-1-56
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. Box 350
Grand Junction, Colorado

RECEIVED MAY 25 1956

MINERAL REPORTING
DMEA
RECEIVED
MAY 3 1956
U. S. GEOLOGICAL SURVEY
DENVER, COLORADO

IN REPLY REFER TO:

May 2, 1956

DMEA
Date Rec'd.
MAY 21 1956
BUREAU OF MINES
Denver, Colorado

Certified Mail

Memorandum

To: Executive Officer, DMEA Field Team, Region III

Through: E. N. Harshman
J. F. Shaw

From: F. M. Byers, Jr.,
For J. William Hasler

TRANSMITTED
MAY 23 1956

Subject: DMEA docket 4139 (Uranium), Otto J. Worrell (Ring Comb claims), San Juan County, Utah.

Transmitted herewith is a joint engineering geologic report by Howard F. Albee, U. S. Geological Survey, and M. H. Salsbury, U. S. Bureau of Mines, covering the subject application.

Otto J. Worrell, 515 Maple, Glenwood Springs, Colorado, has applied for a DMEA loan of ~~$33,205.31~~ $44,773.75 to drill his five Ring Comb claims in Devil Canyon, a tributary of Montezuma Canyon. The uranium-vanadium deposits are small, lenticular bodies, averaging 1 to 8 inches in thickness and 8 to 10 feet in diameter. The grade of these bodies is low; a sample cut across 2-1/2 feet by the examining team contained only 0.055 percent U_3O_8 by chemical analysis. Production from the entire Montezuma Canyon area is about 8,000 tons, with an average grade of about 0.15 percent U_3O_8 and 2.00 percent of V_2O_5. Most of the ore in the Montezuma area has been mined for the vanadium content. The only recorded production near the applicant's property is 200 tons containing about 1.7 percent of V_2O_5. No deposit has been found near the claims larger than 150 tons.

Because of the probable small size and low-grade uranium content of the ore bodies on the subject property, the examining team recommends that the application of Otto J. Worrell for DMEA assistance under docket 4139, be denied. I have read the report and concur with the recommendations of the examining team.

The Atomic Energy Commission provided information on past production and drilling in the area.

Enclosed are one copy of the text and figures 1 and 3. Also enclosed are 10 copies of figure 2.

FMB/mlr
Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
6-1-56
(date)

F. M. Byers, Jr.
For J. William Hasler,
Geologist

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

JOINT REPORT OF EXAMINATION BY EXAMINING TEAM
REGION III

RECEIVED
MAY 25 1956

DMEA 4139
OTTO J. WORRELL
RING COMB CLAIMS
SAN JUAN COUNTY, UTAH

TRANSMITTED
MAY 23 1956

Uranium

Joint Engineering and Geologic Report

By

Howard F. Albee, Geologist
Geological Survey

M. H. Salsbury, Mining Eng.
Bureau of Mines

May 17, 1956

Reviewed by
DMEA OPERATING COMMITTEE
6-1-56
(date)

DMRA 4139
OTTO J. WORRELL
RING COMB CLAIMS
SAN JUAN COUNTY, UTAH

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History and Production 3
Ownership and extent 3
Present Status 4
Exploration and development 4
Mining and milling equipment and other facilities.....4
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Ore deposits 6
Proposed exploration 7
Conclusions and recommendations 9

ILLUSTRATIONS

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2. Geologic map showing the Ring Comb Group of claims, Otto J. Worrell, San Juan County, Utah - DMRA 4139 ... 5

3. Claim map showing applicant's proposed drill program, Ring Comb Group, Otto J. Worrell, San Juan County, Utah - DMRA 4139 4

DMEA 4139
OTTO J. WORRELL
RING COMB CLAIMS
SAN JUAN COUNTY, UTAH

RECEIVED
MAY 25 1956

INTRODUCTION AND SUMMARY

Otto J. Worrell, 515 Maple, Glenwood Springs, Colorado, applied on January 18, 1956 for DMEA assistance to explore for uranium in the Montezuma Canyon district, east of Blanding, San Juan County, Utah. A drilling program in two stages requiring an estimated 8,485 feet of "wagon drilling" (non-core rotary drilling) and 1350 feet of core drilling was proposed at a cost of $44,~~X~~73.75. Government participation at 75 percent would be $33,~~[illegible].31~~. $33580.31

The property was examined on March 29, 1956 by Howard F. Albee of the Geological Survey in company with the applicant, Otto J. Worrell. Owing to a highway accident, a Bureau of Mines engineer was unable to participate. Because of the probable denial of the application, a later inspection by an engineer was not considered necessary. The Bureau of Mines participant in this report has made examinations in the vicinity of Montezuma Canyon, and is familiar with the physical and economic aspects of topography and mineral deposits of the area.

The claims are underlain by the Salt Wash member of the Jurassic Morrison formation, the potential ore bearing unit of the area. Salt Wash sandstone outcrops on the claims, and there are mineralized exposures of small lenses from less than 1 inch up to 8 inches thick and up to 8 to 10 feet wide. Most of the mineralization appears to be vanadium minerals associated with carbonaceous material and mudstone along bedding planes. There are no visible uranium minerals and the presence of this element is indicated only by radiometric activity measured as 3 times background. A short adit on the Ring Comb No. 3 claims was driven on one of these

lenses. A sample, cut across 2.5 feet of mineralized material in the face of the adit, contained 0.055 percent U_3O_8 by chemical analysis.

Production from the entire Montezuma-Horsehead Canyon area has been estimated as about 7660 tons which had an average content of 0.15 percent U_3O_8 and 2.00 percent V_2O_5. Most of it was mined for the vanadium content. The only recorded production anywhere near the applicant's property has been 260 tons of ore which contained 1.699 percent V_2O_5. This was mined prior to 1946. No deposit has been found near the claims which contained more than 150 tons of ore and the ore as mined would have to be sorted carefully to maintain an average grade of 0.15 percent U_3O_8.

A considerable amount of drilling has been done on the adjoining property to the north, and a smaller amount a short distance to the south, and results have all been negative.

It is concluded that exploration of the property for uranium is unwarranted because of the probable small size and marginal grade of the deposits likely to be found.

It is recommended that the application for Government assistance under DMEA 4139 be denied.

ACKNOWLEDGMENTS

The applicant furnished rather incomplete information as to claim ownership, but explained his property rights more fully to the DMEA geologist. A cost estimate was presented covering a drilling proposal. A map, which was received somewhat later than the application, was furnished.

The Atomic Energy Commission was consulted and provided information on past production and reconnaissance of the area. Results of Atomic Energy Commission drilling projects in the area were made available.

LOCATION, TOPOGRAPHY AND CLIMATE

The Ring Comb claims lie in section 28, T. 36 S., R. 24 E., S. L. P. M., in Devils Canyon, a tributary of Montezuma Canyon, San Juan County, Utah (figure 1). The claims are about 28.5 miles southerly from Monticello, Utah, and may be reached from Monticello over paved Utah highway 47 then southeasterly for about 12 miles on an unimproved singletrack road. Part of the last ½ mile is accessible only by a 4-wheel-drive vehicle. The property is accessible throughout the year except for periods of heavy rainfall or snowfall.

Water, supplies, power and labor present no unusual problems. The proposed drilling would be done by a drilling contractor who would supply labor and housing.

The nearest uranium-buying station is at Monticello, Utah.

HISTORY AND PRODUCTION

Exploration for vanadium ores has been carried on in the Montezuma Canyon area since World War I. A number of very small deposits have been mined for vanadium, but none very close to the applicant's property. The applicant's claims are part of a group of ten claims located in 1953 by Worrell and a partner. They later divided the property, Worrell retaining the 5 claims included in the proposed DMEA project.

The Atomic Energy Commission made a reconnaissance of the area in 1952 and picked three areas for drilling projects. None of them were near the applicant's property. Results of the AEC drilling were not encouraging.

There has been no production from the Ring Comb claims.

OWNERSHIP AND EXTENT

The Ring Comb Nos. 1 to 10 claims were located by Otto J. Worrell and R. B. Vegely. Date of location was not given in the application and

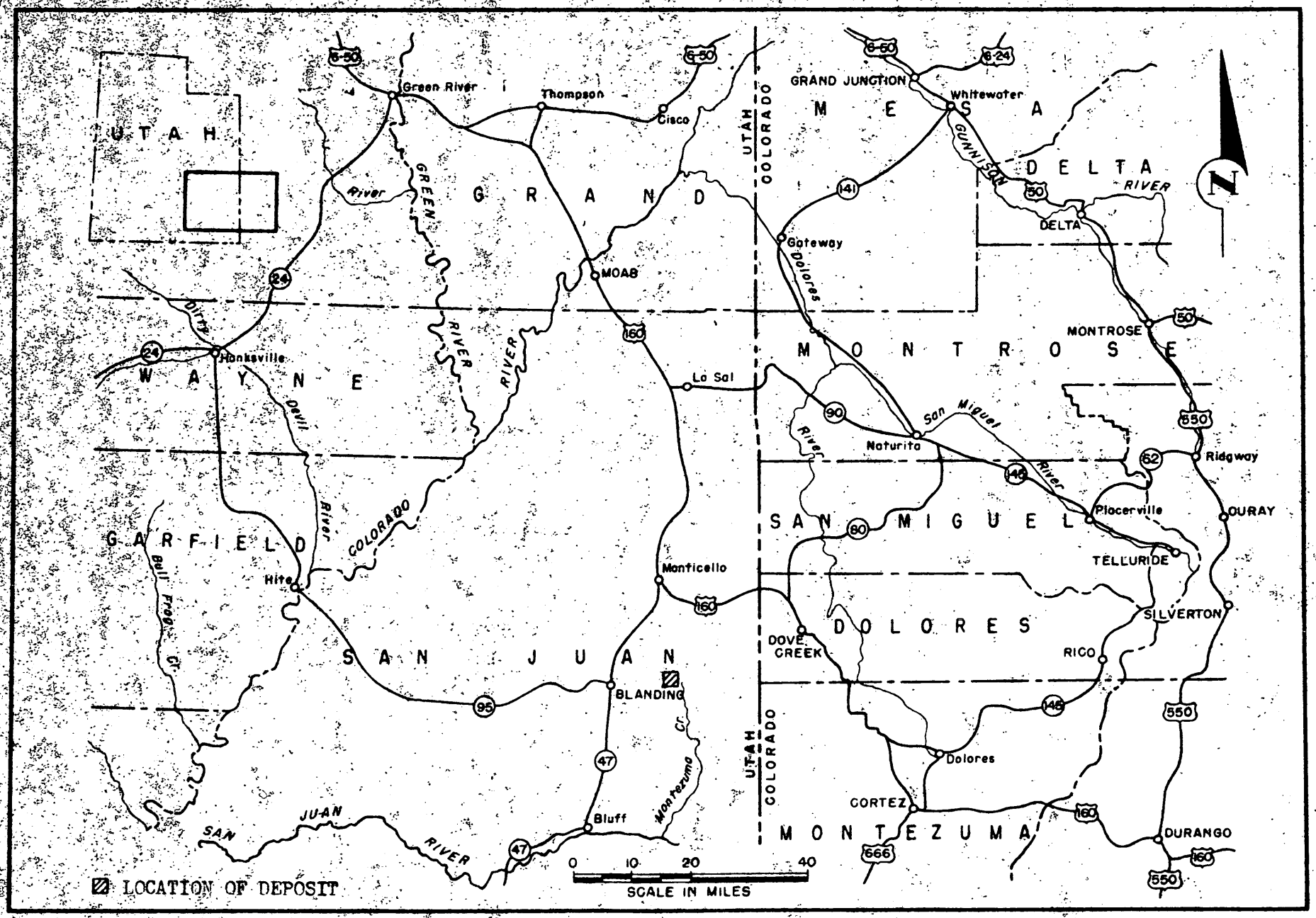


FIGURE 1 - LOCATION MAP, RING COMB CLAIMS, OTTO J. WORRELL, SAN JUAN COUNTY, UTAH. DMEA 4139

courthouse records have not been checked. Recording data on the five claims included in the proposed project are reported by the applicant as follows:

RECORDING DATA, SAN JUAN COUNTY, UTAH

Claim	Original Location Book	Original Location Page	Withdrawal of lease under circular 7 Book	Withdrawal of lease under circular 7 Page	Location Notice Circular 7 Book	Location Notice Circular 7 Page
Ring Comb-3	97	233	223	504	223	500
4	97	233	223	504	223	501
7	97	235	223	504	223	502
8	97	235	223	504	223	503
9	107	105	223	505	223	503

Proof of Labor, probably for the fiscal year ending June 30, 1955, was recorded in Book 309, page 405.

Worrell and his partner agreed to divide the block of claims. Worrell retained the ownership of the claims included in the proposed DMEA project and has a deed (quit claim?) from Vogely recorded in Book 82, page 89.

Validity of title was not checked by the DMEA engineer.

PRESENT STATUS

Exploration and Development

The only exploration done on the property to date is an adit driven in a few feet on an outcrop near the common corner of Ring Comb Nos. 3, 4 and 8 claims (figure 3). A sample taken by the DMEA geologist, across 2.5 feet of the sandstone ledge in the face of the adit returned 0.055 percent U_3O_8 and 0.81 percent V_2O_5 by chemical analyses. The applicant reports 0.03 percent U_3O_8 from a similar sample over a narrower width.

Mining and Milling Equipment and other Facilities

There is no equipment or other facilities on the property.

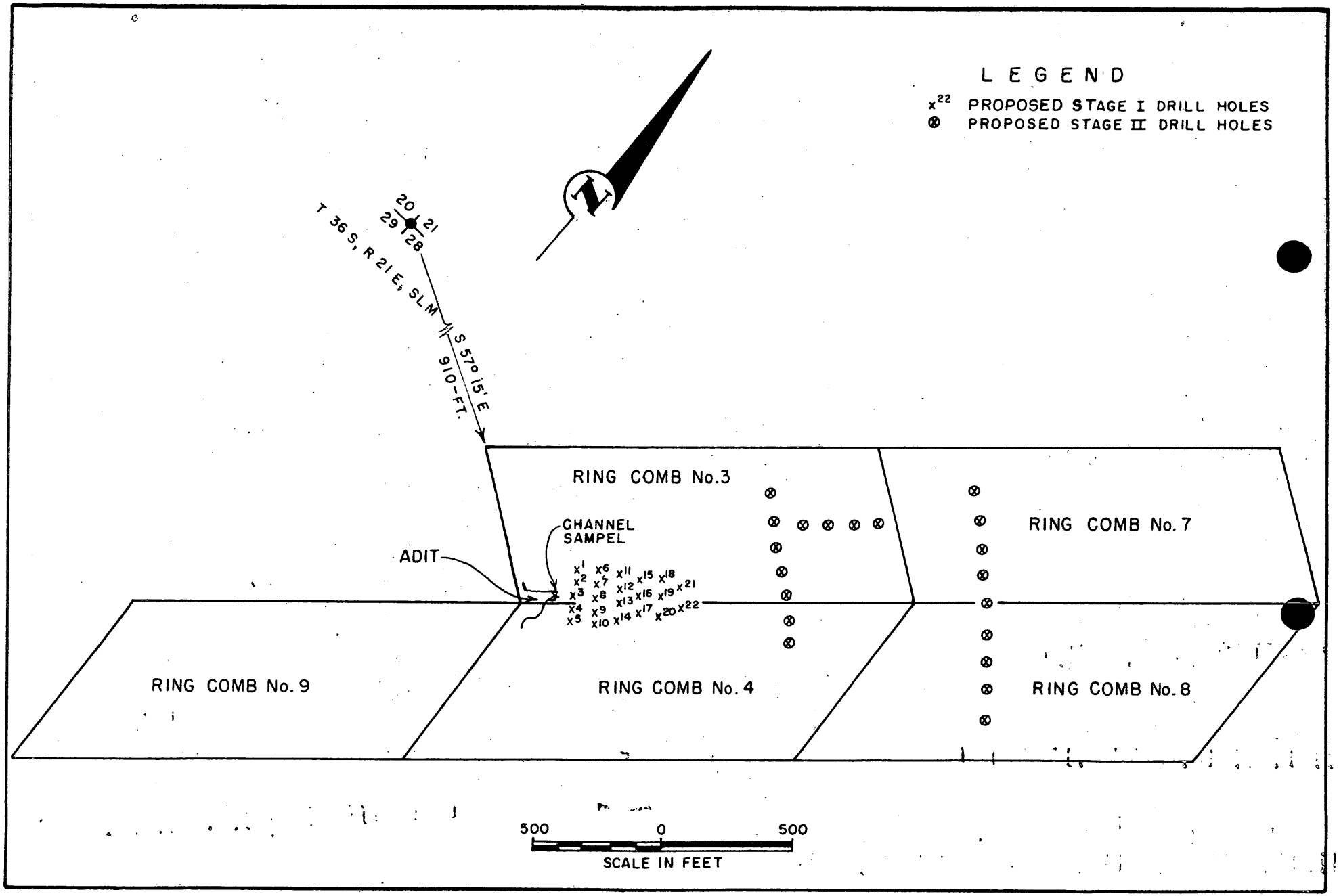


FIGURE 3 - CLAIM MAP SHOWING APPLICANT'S PROPOSED DRILL PROGRAM, RING COMB GROUP, OTTO J. WORREL, SAN JUAN COUNTY, UTAH. DMEA 4139

GEOLOGY

Devil Canyon is one of many canyons cut into the Great Sage Plain, a gently undulating plateau capped by the Dakota sandstone. Intermittent streams heading on the plateau and the Abajo mountains to the west have eroded canyons up to 1500 feet deep. Elevations range from 5500 feet in the canyons to 7200 feet on the Sage Plain near Monticello.

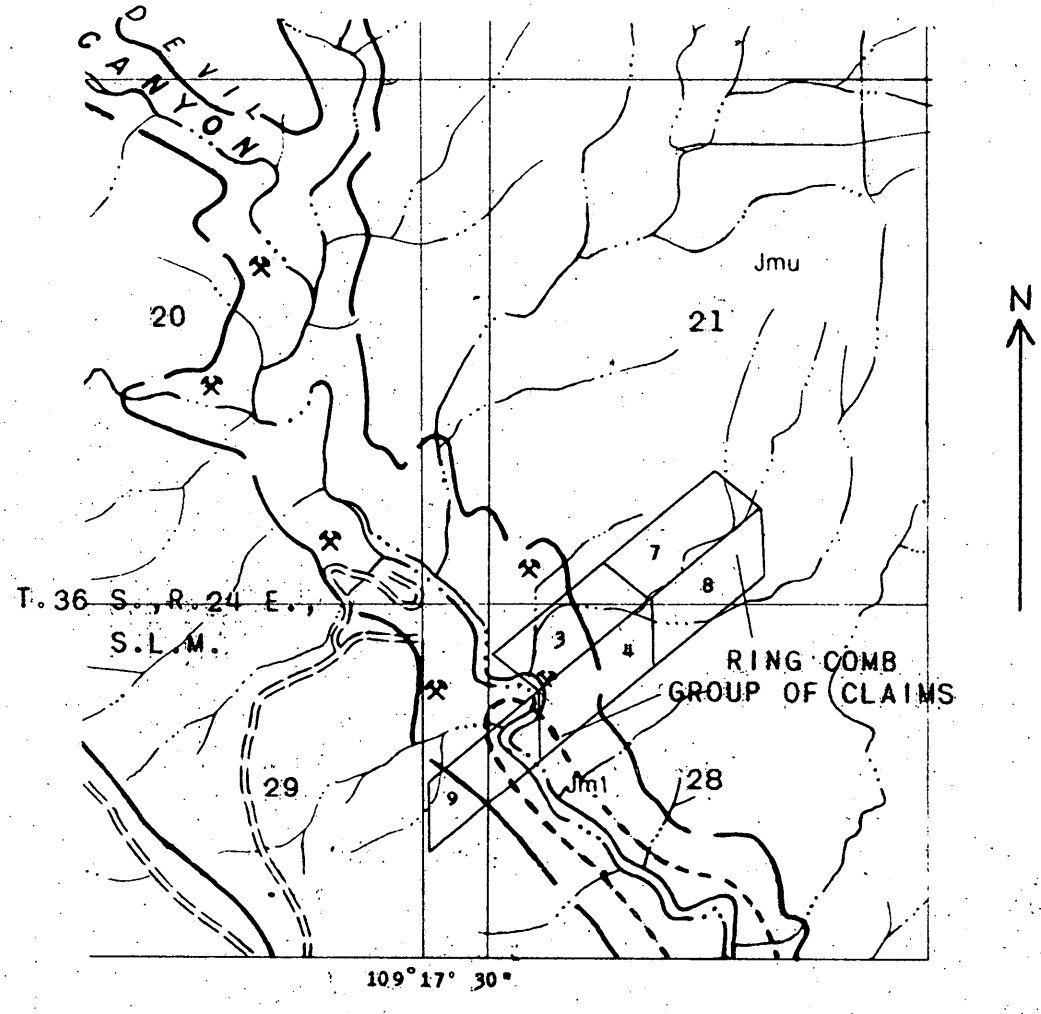
Devil canyon is a southeasterly trending stream tributary to Montezuma canyon which flows southerly into the San Juan river. Devil canyon deepens rapidly, exposing alternating cliff-forming sandstone units and talus covered slopes and benches.

Rocks exposed along the canyon walls range from the Dakota sandstone to the Morrison formation. In the area of the claims only the Morrison formation is exposed (figure 2). The formation is composed of the Salt Wash, the Westwater sandstone, and the Brushy Basin members, of which the Salt Wash is the only mineralized unit in the area.

The Brushy Basin member consists of variegated mudstone and shale beds containing lenses of calcareous and quartzitic sandstone lenses. It forms steep talus covered slopes and covers broad benches held up by the Westwater Canyon sandstone member. In the vicinity of the claims the Brushy Basin ranges from about 215 feet to 260 feet in thickness.

The Westwater Canyon sandstone member is composed of greenish-yellow to greenish-gray cliff-forming sandstone and minor amounts of greenish-gray shale. In the vicinity of the claims it is about 140 feet thick.

The Salt Wash sandstone member is composed of interbedded sandstone and mudstone lenses. The sandstone is commonly light gray to light brown, cross-stratified, and comprised of sub-rounded, fine to coarse, clear quartz grains. Clay minerals and calcite are the common cementing materials.



EXPLANATION

Jmu
Jml

JURASSIC MORRISON FORMATION:
Jmu, UPPER MEMBER;
Jml, LOWER MEMBER

GEOLOGIC CONTACT

MINE OR PROSPECT

Note: BASE FROM U.S. GEOLOGICAL SURVEY PHOTOGEOLOGIC QUADRANGLE MAP, VERDURE 11.

2000 0 6000 FEET

FIGURE 2. GEOLOGIC MAP SHOWING THE RING COMB GROUP OF CLAIMS, OTTO J. WORRELL, SAN JUAN COUNTY, UTAH.

RECEIVED
MAY 25 1956

The mudstone lenses are maroon, gray, and green. Exposures of mudstone lenses on the claims are poor and very few were seen. The lenses observed were associated with the mineralized material along bedding planes and were mostly grayish-green.

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in the drill holes, the ore-grade intervals being interrupted by barren to weakly mineralized ground. Drilling showed the ore in the area to be low-grade. The output of all mines must be handsorted in order to meet mill specifications. Production from the Montezuma Canyon-Horsehead Canyon areas through December 1, 1953 was about 7,860 tons that averaged about 2.00 percent V_2O_5, about 0.13 percent U_3O_8, and from 10 to 15 percent $CaCO_3$.

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CONCLUSIONS AND RECOMMENDATIONS

Mining in the areas near Devil Canyon is marginal due to the sparse distribution of small, low-grade ore bodies. The mineralized outcrops in Devil Canyon and on the property are thin and contain mainly vanadium minerals. The results of drilling adjacent to the property have been negative.

It is concluded that exploration on the property is not warranted due to the small size and marginal grade of the mineralized deposits expected. It is recommended, therefore, that the application for Government assistance be denied.

REFERENCE CITED

Chamberlain, Virgil R., Comb Ridge Fold District, San Juan Basin Area, San Juan County, Utah, Union Mines and Development Company, 1946.

Surname copy

700

Murphy
File
Gehon
Nelson
Selfridge

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

MAY 4 1956

Mr. Otto J. Worrell
515 Maple Street
Glenwood Springs, Colorado

Re: Docket No. DMEA-4139 (Uranium)
Ring Comb Claims
San Juan County, Utah

Dear Mr. Worrell:

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

Mr. W. M. Traver
Executive Officer
DMEA Field Team, Region III
224 New Customhouse Building
Denver 2, Colorado

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

Sincerely yours,

C. O. Mittendorf

Administrator

FTMurphy/gla
5-4-56
cc to: Admr.'s Reading File
Docket
Code 700
Mr. Murphy
DMEA Field Team, Region III (2)

Surname copy

700

Murphy
Ellis
Selfridge

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

MAY 4 1956

Mr. W. M. Traver
Executive Officer
DMEA Field Team, Region III
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA-4139 (Uranium)
Otto J. Worrell
Ring Comb Claims
San Juan County, Utah

Dear Mr. Traver:

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

Copies of memoranda, dated April 24 and May 2, 1956, by J. E. Crawford, USGS, and W. P. Williams, USGS, respectively, relating to the application, are enclosed for your information.

This request for a field examination is made in accordance with your memorandum of January 31, 1956, addressed to this office. We note the Grand Junction office recommends denial of the application without a field examination.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (GCS)

Enclosures

APPROVED:

/s/ Robert W. Geehan (GCS)
Member, Bureau of Mines

N. E. Nelson (GCS)
Member, Geological Survey

FMMurphy/gla
5-4-56
cc to: Admr.'s Reading File
Operating Committee
Docket
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
Code 700
Mr. Murphy

4-19-56

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

RECEIVED
APR

RECEIVED
APR 1 0 1956

April 17, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Docket DMEA 4139 (Uranium) Otto J. Worrell, (Ring Comb claims) San Juan County, Utah

Enclosed are two sets of additional information received from the Applicant which was requested from him in a letter dated February 10, 1956 from Ernest Wm. Ellis, Chief, Rare and Miscellaneous Metals Division.

Under separate cover the Applicant submitted a bid for drilling from E. E. Hubbard. As a matter of interest, E. E. Hubbard was the driller on the project covered by DMEA Docket 3281 (Uranium) Contract Idm-E710, Intermountain Mining Company who wired the Administrator, DMEA, on May 20, 1955 and tried to discredit our handling of this particular contract. The Applicant states, however, that he is making every effort to obtain more bids for the proposed drilling.

One copy of this additional information is being forwarded to the Grand Junction office, DMEA, and one copy is being retained in our file.

DMEA Field Team, Region III

W. M. Traver

By W. M. Traver
Executive Officer

Enclosures

Lunto 4/11/54

515 Maple Street
Glenwood Springs, Colorado
March 1956

RECEIVED
APR 1 9 1956

United States Department
of the Interior
Defense Minerals Exploration Administration
Washington 25, D.C.

Gentlemen:

Re: Docket No. DMEA -4139 (Uranium)
Ring Comb Claims
San Juan County, Utah

Please find herewith the additional information you requested in order for you to process the subject application:

1. (a)
Maps --Names of Claims are on map (Ring Comb #3, Ring Comb #4, Ring Comb #7, Ring Comb #8 and Ring Comb #9)

(b) Holes plotted on Map for Core Drillor, 65' to 300' due to the sloping hillside.

(c) This is Salt Wash of the Morrison

(d) Adit mentioned is located in the S.W. corner of Claim Ring Comb #3.

(E) Assay of ore taken from Drift on Ring Comb #3 equaled .03%

2. A detailed breakdown of the estimated costs of the proposed project on separate page.

Also bids from three independent contractors on the proposed drilling program.

Yes, the subject application is to cover Government participation in the cost of these holes.
We are plotting only forty (40) holes on the maps for beginning as we feel we need the flexibility necessary to trace any ores found. We will have an Engineer to work on this as needed to do all necessary plotting.

Respectfully

Otto F. Worrell

Telephone 705

P. O. Box 487

Four Corners Laboratory, Inc.

Assayers and Chemists
CORTEZ, COLORADO

RECEIVED: 3/31/56

SUBMITTED BY: Otto Morrell
8347 N. 5th Street
Phoenix, Arizona

DATE April 2, 1956

LABORATORY SAMPLE NUMBER	Sample Marking	Uranium % as U_3O_8		Vanadium	Lime	Copper
		Chemical	Radiometric*	% as V_2O_5	% as $CaCO_3$	% as Cu
#1393	Ringcomb #3	0.03%				

*ion detected is
s equivalent to
% U_3O_8

RESPECTFULLY SUBMITTED

Cortez Sentinel Form No. 4975

FOUR CORNERS LABORATORY, INC.

BY Peter T. Schuyler

Peter T. Schuyler

DETAILED BREAKDOWN OF DRILLED COST OF PROPOSED PROJECT
(rough estimate of Engineer and Self)

Series # 1:

Drilling ---------- $ 5,955.00

Rent { air compressor ---- @ $5/00 per hr. ---------- }
{ drilling rod, blasting powder and caps ---------- } 6,000.00
{ cat work, independent hr.ly work @ $14. per hr. }

Surveying and plotting of holes ---------- 1,000.00

Keeping and logging of holes ---------- 300.00

Book-keeping ---------- 300.00

Supervisor -----$800.00 (monthly wages)
200.00 (subsistence and expenses) ---------- 4,000.00

Pick-up and truck --rental per month $100.00 ---------- 500.00

Gasoline, oil etc. for pick-up and truck ---------- 500.00
Estimated total expense Series #1 ---------- $17,955.00

RECEIVED
APR 19 1958

Series # 2:

Note as above save that the core drilling would be $14,218.75

Therefore, estimated total expense Series #2---------- $26,018.75

Estimated total cost of project---------- $44,773.75

Otto J Worcel

Extra Page:

As to the Core Driller's bids: I had three lined up. One sent word they were moving to Texas to operate. The other two got long-lasting jobs, as it was impossible for me to tell them when I could start. Their prices run $3.50 per foot for Core-drilling, and $1.75 per foot for Wagon Drilling to the Ore, with the $3.50 per foot thru the Ore. If this is not sufficient information, I will take some more drillers down to the claims and get their bids.

I would like to drill hole #3 250' to see if there is any ore below. If the ore is found to be in sufficient quantity for mining, I would like to follow the Vein in in the way it goes and not by the the Dots and numbers on the map.

Otto J Worrell

Break down of Holes in Series NO. 1.

Hole	Depth	Wagon Drill	Core-Drill
1	65'	40'	25'
2	65'	40'	25'
3	250'		250'
4	65'	40'	25'
5	65'	40'	25'
6	75'	50'	25'
7	75'	50'	25'
8	75'	50'	25'
9	75'	50'	25'
10	75'	50'	25'
11	100'	75'	25'
12	100'	75'	25'
13	100'	75'	25'
14	100'	75'	25'
15	150'	125'	25'
16	150'	125'	25'
17	150'	125'	25'
18	200'	175'	25'
19	200'	175'	25'
20	200'	175'	25'
21	2335'	1610'	725
22		@1.75	@ 3.50
		$2817.50	$2537.50

Total -------$5355.00

RECEIVED
APR 19 1956

Series # 2.

Hole	Depth	Wagon Drill	Core Drill
25	300'	275'	25'
		x 25 Holes	x 25 Holes
		6875 feet	625 feet
		@ 1.75 per ft.	@3.50 per foot
		$12,031.25 plus	$2187.50 ----- Total $14,218.75

Otto J Worrell

HM

CMEA
Date Rec'd.
APR 16 1958
BUREAU OF MINES
Denver, Colorado

4139

Mr. W. M. Fraser
Ex. Officer
CMEA Field Team Region 3
Denver Federal Center
Denver, Colo.

Dear Sir:

After mailing papers to you regarding King Comb Claims 3-4-7-8-9, CMEA-4139, yesterday - I received the enclosed Core-drilling Bid today. Therefore am sending it to be placed with our Maps, Papers etc

Respectfully yours

Ole J. Worell
515 Maple St.
Glenwood Springs
Colo.

Moab, Utah
April 9, 1956

Mr. Otto Vorrol
Phoenix, Ariz.

RECEIVED
APR 1 0 1956

Core Drill Bid

Area-------- Neville Canyon, Utah
Hole Depth---- 50---300ft.
Minimum Footage--- 10,000 ft.

Drilling price ----1.50 per. ft.
Coring price ------03.50 per. ft.

We are insured, bonded and can operate either 12 or 24 hrs. a day on a schedule of 5 to 7 days per. week.
We have camping eqpt.

E. E. Hubbard

5-3-56

IN REPLY REFER TO:

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

May 2, 1956

Memorandum

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

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

Subject: Review of application DMEA 4139 (uranium), Otto J. Worrell, Ring Comb claims, San Juan County, Utah.

In a vague and not exceptionally well prepared application, the applicant proposes to spend a total of $44,774.00 on an exploration drilling project.

The Ring Cone claims are located in the Montezuma Canyon area that is noted for the small size and scattered distribution of ore bodies. Production history of the area leads me to believe that DMEA participation is not warranted on the property.

Although asked for additional information, which the applicant has attempted to furnish, it is still all but impossible to tell what the applicant wishes to do or exactly where he proposes to do the work. The application states, "I would like to follow the vein in in the way it goes and not by the Dots and numbers on the map."

Since there is probably little to be gained by asking the applicant for more information I recommend that the application be referred to the Field Team for field examination and report.

W. P. Williams

W. P. Williams

RECEIVED
MAY 3 - 1956

IN REPLY REFER TO:

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

May 2, 1956

Memorandum

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

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

Subject: Review of application DMEA 4139 (uranium), Otto J. Murrell, Ring Comb claims, San Juan County, Utah.

In a vague and not exceptionally well prepared application, the applicant proposes to spend a total of $64,774.00 on an exploration drilling project.

The Ring Comb claims are located in the Montezuma Canyon area that is noted for the small size and scattered distribution of ore bodies! Production history of the area leads me to believe that DMEA participation is not warranted on the property.

Although asked for additional information, which the applicant has attempted to furnish, it is still all but impossible to tell what the applicant wishes to do or exactly where he proposes to do the work. The application states, "I would like to follow the vein in the way it goes and not by the Bobs and numbers on the map."

Since there is probably little to be gained by asking the applicant for more information I recommend that the application be referred to the Field Team for field examination and report.

WPWilliams:iml
G-5/2/56
cc: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
J. E. Crawford, 3641
J. O. Hosted, 3210

W. P. Williams

RECEIVED
MAY 3 - 1956

4-25-56

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

RECEIVED
APR 24 1956

April 24, 1956

Memorandum

To: Ernest William Ellis, DMEA Docket
Uranium Commodity Committee

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

Subject: Application for Assistance, DMEA Docket 4139, Otto J. Worrell (Ring Comb claims) San Juan County, Utah

I have reviewed the attached application, DMEA Docket 4139, Otto J. Worrell, San Juan County, Utah, dated January 1956 and received in this office April 19, 1956. I have also discussed it with Joseph O. Hosted, Washington representative at the Atomic Energy Commission.

Little information is contained in the application to justify an exploration program on the subject claims. The Atomic Energy Commission considered the area unfavorable. Consequently, it is recommended that the application be denied.

John E. Crawford
John E. Crawford

Attachment

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

April 17, 1956

224 New Customhouse
Denver 2, Colorado

RECEIVED
APR [illegible]

Memorandum

To: J. W. Hasler

From: Field Team, Region III

Subject: Docket DMEA 4139 (Uranium) Otto J. Worrell, (Ring Comb claims), San Juan County, Utah

Enclosed is one set of additional information furnished by the Applicant on the subject docket. Will you please make it a part of the brochure which was forwarded you January 18, 1956.

DMEA Field Team, Region III

W. M. TRAVER,

By W. M. Traver
Executive Officer

Enclosure

HMC:ab

cc: Sec. Op. Comm. (2)
Docket 4139
Harshman
Shaw (2)
Chron.

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

April 17, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: J. W. Hasler

From: Field Team, Region III

Subject: Docket DMEA 4139 (Uranium) Otto J. Worrell, (Ring Comb claims), San Juan County, Utah

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DMEA Field Team, Region III

W. M. TRAVER,

By W. M. Traver
Executive Officer

Enclosure

HMC:ab

cc: Sec. Op. Comm. (2)
Docket 4139
Harshman
Shaw (2)
Chron.

FEB 20 1956

Glenwood Springs, Colo.
Feb. 19, 1956

RECEIVED
FEB 20 1956

U. S. Dept. of The Interior
DMEA
Washington, D. C.

Re: Docket No. DMEA 4139
(Uranium)
Ring Comb Claims
San Juan County, Utah

Gentlemen:

In regards to your Communication of Feb. 10, we will try and get the requested information to you as near March 1st, 1956 as possible.

Respectfully

Otto J. Worrell

700

FILE COPY
Surname:

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

Mr. Otto J. Werrell
515 Maple Street
Glenwood Spring 5, Colorado

FEB 1 8 [illegible]

Re: Docket No. DMEA-4139 (Uranium)
Ring Comb Claims
San Juan County, Utah

Dear Mr. Werrell:

Your application for Government aid in exploring the claims, under the captioned docket number, has been reviewed by the Rare and Miscellaneous Metals Division of the Defense Minerals Exploration Administration.

In the subject application you state the proposed exploration will consist of core-drilling at a cost of about $50,000, and that our examiners can determine where the core-drilling should be done.

The representatives of this Administration are not permitted to initiate a plan for exploration of private properties. However, if an Applicant submits an exploration program, and our representatives believe exploration of the property is warranted, then they have, in some cases, modified the original proposal, after mutual agreement with the applicant has been reached in this respect.

In accordance with the above, we require the following additional information in order to process the subject application:

1. A map or sketch of the claims showing the following:

   a. Name of each claim.

   b. Location and estimated depth of proposed drill holes.

   c. Rock formations on surface of claims, i.e., Brushy Basin and Salt Wash members of the Morrison formation, etc.

   d. Location of all exploratory openings on claims, such as the adit mentioned, etc.

   e. Location and assay value of any samples taken.

2. A detailed breakdown of the estimated costs of the proposed project. Also, include bids from three independent contractors on the proposed drilling program.

Rgt.

We note in the answer to Article 6, under (h) of your application, you state that you cannot submit the itemized list of costs because you plan to put down a few core-drill holes directly behind the outcroppings, also a few higher up and back of the outcrop. Then, if no uranium in sufficient quantity to justify mining is found, there will be no use spending more money exploring. Is the subject application to cover Government participation in the cost of these holes?

We will require four (4) copies of each exhibit relating to the suggested additional information. Will you kindly advise this office the approximate date we may expect to receive these data.

Sincerely yours,

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

FMMurphy/izm/gla 2-9-56

cc to: Docket
Code 700
Mr. Murphy
Admr.'s Reading File
DMEA Field Team Region III (2)
Messrs. JECrawford, Rm. 3641
THKillsgaard, Rm. 5224
JCHosted, Rm. 3210, GSA

2/6/56 gla

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

RECEIVED
FEB - 6 1956

January 31, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Docket DMEA 4139 (Uranium), Otto J. Worrell, Ring Comb claims, San Juan County, Utah

Enclosed are the original and three copies of a joint memorandum of review of the subject application by members of the Grand Junction office.

We are not in accord with their recommendation that this application be denied without a field examination. It is our opinion that a field examination should be made on this property to avoid possible repercussions that might occur if the application is denied without a field examination.

DMEA Field Team, Region III

W. M. Traver

W. M. Traver

E. N. Harshman

E. N. Harshman

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Colorado Plateau District
P. O. Box 360
Grand Junction, Colorado

DMEA
Date Rec'd.
JAN 30 1956

BUREAU OF MINES
Denver, Colorado

IN REPLY REFER TO:
MINERAL DEPOSITS,
DMEA
RECEIVED
JAN 30 1956
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

RECEIVED
FEB - 3 1956

January 26, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: J. William Hasler
M. H. Salsbury

Through: E. N. Harshman EMH

Subject: Application for DMEA aid (Uranium) Otto J. Worrell, Ring Comb claims, San Juan County, Utah

The Ring Comb claims, owned by Mr. Otto J. Worrell, lie in the Montezuma Canyon area east of Montezuma County, San Juan County, Utah.
canyon ?

We have consulted the Atomic Energy Commission regarding the claims and the advisability of the general area, as the Survey had done no drilling in this area. The AEC reports that ore bodies, in the area of the Ring Comb claims do not exceed 150 tons in size and a grade of 0.15 percent U_3O_8 can be maintained, if the ore is hand sorted. The area, according to the Commission, is generally unfavorable for ore deposits that may be of commercial size and grade.

It is recommended, therefore, that this application be denied without a field examination.

J. William Hasler
J. William Hasler
USGS

M. H. Salsbury
M. H. Salsbury
USBM

JWH/vlh

Enclosures

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

224 New Customhouse
Denver 2, Colorado

January 31, 1956

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Docket DMEA 4139 (Uranium), Otto J. Worrell, Ring Comb claims, San Juan County, Utah

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We are not in accord with their recommendation that this application be denied without a field examination. It is our opinion that a field examination should be made on thisproperty to avoid possible repercussions that might occur if the application is denied without a field examination.

DMEA FieldTeam, Region III

/s/ W. M. Traver
W. M. Traver

/s/ E. N. Harshman
E. N.Harshman

Enclosures

c
o
p
y

IN REPLY REFER TO:
MINERAL DEPOSITS

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Colorado Plateau District
P. O. Box 360
Grand Junction, Colorado

DMEA
Date Rec'd.
JAN 30 1956
BUREAU OF MINES
Denver, Colorado

JAN 30 1956

RECEIVED
FEB - 6 1956

January 26, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: J. William Hasler
M. H. Salsbury

Through: E. N. Harshman EMH

Subject: Application for DMEA aid (Uranium) Otto J. Worrell, Ring Comb claims, San Juan County, Utah

The Ring Comb claims, owned by Mr. Otto J. Worrell, lie in the Montezuma Canyon area east of Monticello, San Juan County, Utah.

We have consulted the Atomic Energy Commission regarding the claims and the advisability of the general area, as the Survey had done no drilling in this area. The AEC reports that ore bodies, in the area of the Ring Comb claims do not exceed 150 tons in size and a grade of 0.15 percent U_3O_8 can be maintained, if the ore is hand sorted. The area, according to the Commission, is generally unfavorable for ore deposits that may be of commercial size and grade.

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J. William Hasler
J. William Hasler
USGS

M. H. Salsbury
M. H. Salsbury
USBM

JWH/vah

Enclosures

January 25, 1956

Subject: DMEA-4139
Re: Exploration Assistance
Ring Comb Claims

Mr. Otto J. Worrell
515 Maple Street
Glenwood Springs, Colorado

My dear Mr. Worrell:

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

Your application has been assigned Docket Number DMEA-4139 and referred to the Rare & Misc. Metals Division.

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

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division

January 25, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number

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

DMEA - 4139 Otto J. Worrell

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

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

RECEIVED
JAN 23 1956

January 18, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA Aid (Uranium), Otto J. Worrell, Ring Comb claims, San Juan County, Utah

Enclosed are two copies of the subject application. The application is woefully lacking in information, but in accordance with your letter of December 9, 1955, we presume your office will request the additional information needed before a field examination is made.

One copy of the application is being forwarded to the Grand Junction office and one copy is being retained in our files.

W. M. Traver

Enclosures

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

January 18, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: J. W. Hasler

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA Aid (Uranium), Otto J. Worrell, Ring Comb claims, San Juan County, Utah

Enclosed is the subject application and a copy of our letter to the Chairman of the Operating Committee. It is presumed that the Washington office will request additional information from the applicant before a field examination is made, but any information you have on these claims will be appreciated by the Washington office.

Will you please, therefore, discuss this application with the Bureau of Mines representative in the Grand Junction office and the Atomic Energy Commission and submit to this office eight copies of your recommendations concerning the advisability of a field examination in the event that the applicant submits more information.

W. M. TRAVER,

W. M. Traver

Enclosures

HMC:ab

cc: Chair. Op. Comm. (2)
Harshman
Shaw (2)
Subject
Chron.

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

January 18, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: J. W. Hasler

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA Aid (Uranium), Otto J. Worrell, Ring Comb claims, San Juan County, Utah

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Will you please, therefore, discuss this application with the Bureau of Mines representative in the Grand Junction office and the Atomic Energy Commission and submit to this office eight copies of your recommendations concerning the advisability of a field examination in the event that the applicant submits more information.

W. M. TRAVER,

W. M. Traver

Enclosures

HMC:ab

cc: Chair. Op. Comm. (2)
Harshman
Shaw (2)
Subject
Chron.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED
JAN 23 1956
BUREAU OF MINES
Denver, Colorado

JAN 16 1956

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

Not to be filled in by applicant

Docket No. DMEA-4139
Metal or Mineral Uranium
Date Received 1-23-56
Estimated Cost $50,000.00
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Otto J. Worrell
515 Maple Street
Glenwood Springs, Colorado

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you ? East Fanin possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract Claims lie in Sec.20, 21, 28, and 29 Twp.36S Range 24E SLBM (Rec. Loc. Notices)- Ring Comb #3 and #4--Book 97,Page 233 Ring Comb #7 and #8 -Book 97 Page 235, Ring Comb #9 --Book107,Page 105
Extra information on Extra sheet #1

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

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

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

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

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

4. *Physical description.*—(*a*) Describe in detail any mining or exploration operations which have been or now are being conducted upon the land, including existing mine workings and production facilities. State your interest, if any, in such operations. Also describe accessibility of mine workings for examination purposes. Ans. on Extra page #2.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated January, 1956

Otto J. Worrell
(Applicant)

By self

5125 Maple Street

Glenwood Springs Colo.

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

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

Extra Sheet Number 1

Otto J. Worrell
515 Maple Street
Glenwood Springs, Colorado

RECEIVED
JAN 23 1956

3. Applicant's property rights. (a) Claims lie in Sections 20, 21, 28 and 29, Twp. 36, Range 24SLBM San Juan County, Utah.

Recorded Location Notices:

Ring Comb #3 and #4 ----Book 97, Page 233
Ring Comb #7 and #8 ---Book 97, Page 235
Ring Comb #9 ---------Book 107 Page 105

Notice of Withdrawal of Lease Application or Notice of Release of Uranium Lease under Circular 7 --------

Ring Comb #3, #4, #7, #8, Book 223, Page 504
Ring Comb #9, ---------- Book 223, Page 505

Location Notice, under Circular 7, ---------

Ring Comb #3	Book	223	Page	500
Ring Comb #4	"	223	"	501
Ring Comb #7	"	223	"	502
Ring Comb #8	"	223	"	503
Ring Comb #9	"	223	"	503

Proof of Labor: Book 309 Page 405

At first we had ten of these claims, owned by Otto J. Worrell and R.B. Voegely. We have divided them and my deed for the Ring Comb Claims 3,4,7,8, and 9 is recorded in Book #82, Page #89

All the above listed recordings being in the office of the County Clerk and Recorder in the County Court House of San Juan County, Monticello, Utah.

These claims have been surveyed by the County Surveyor of San Juan County, Monticello, Utah, Frank S. Sherer, registered Surveyor #1361

Extra Sheet Number 2

Ot[illegible] Worrell
5[illegible] Maple Street
Gl[illegible]wood Springs, Colorado

4. Physical Description: - (a) There is a tunnel on Claim #3 about 8 foot back, made while exploring for Vanadium, where there is a vein(between two and three feet wide) of Uranium showing.

There is a County road to Devil's Canon to the point where we take off to the claims. To this road we have added a road in front and about thirty feet above this old mine workings.

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Your examiner can determine where the core-drilling should be.

My reason for wishing to core-drill these claims is: to determine by this exploration if the quantity of Uranium there will justify a tunnel or shaft.

(d) Access road is built to the claims. Distance to shipping: 31 miles to Monticello, Utah, where residence and supplies are available.

(e) All are a ailable.

5. Exploration Project--(a) Uranium.

(b)The claims lie in the Morrison formation. On the North side of Devil's Canon, beginning at the center of the almost dry Creek bed, and the Out-croppings and showings are a few feet up from the creek bed.

(d) Applicant has had no mining experience, but has an excellent and experienced Supervisor, Mr. Henry O. Lehr, of Clifton, Colo. (Phone Clifton 7729) who has been mining Uranium at Naturita, Colo. for the past four years, until the first part of Nov. 1955. Mr. Lehr has all the mining equipment necessary for mining save a Core-drill, which he contracts for.

(6) My supervisor has advised that about $50,000 should be available for the proposed exploration. (a) Core-drilling will be about $2 to $3 per foot.

(b) My supervisor has all the necessary equipment for mining, and has agreed that if there is sufficient Uranium ore there to justify mining, he will mine it for me on a percentage basis. He has a small and a large Air-Compressor, a Cat and loader, air hammers, drills, air-hoist, air-mucker, mine rails, cars, tracks, all less than two years old. I have a pick-up and truck for hauling gas, oil and supplies and will work right with my supervisor at all times.

(h) We cannot make the above itemized list or lists as we intend to put down a few core-drill holes directly behind the out cropoings, a few higher up and back, and if no Uranium is found in sufficient quantity to justify mining then there will be no use spending moremoney exploring. If the Ore is there we will immediately block itout and begin mining. Because of these reasons we cannot very well make an itemized cost sheet.

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

January 18, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA Aid (Uranium), Otto J. Worrell, Ring Comb claims, San Juan County, Utah

Enclosed are two copies of the subject application. The application is woefully lacking in information, but in accordance with your letter of December 9, 1955, we presume your office will request the additional information needed before a field examination is made.

One copy of the application is being forwarded to the Grand Junction office and one copy is being retained in our files.

W. M. TRAVER

W. M. Traver

Enclosures

MF-103
(Revised April 1952)

DMEA
Date Rec'd.
JAN 18 1956

Form Approved.
Budget Bureau No. 46-R1035.2.

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED
JAN 23 1956
BUREAU OF MINES
Denver, Colorado

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

Not to be filled in by applicant

Docket No. DMEA-4139
Metal or Mineral Uranium
Date Received 1-23-56
Estimated Cost $50,000.00
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Otto J. Worrell
515 Maple Street
Glenwood Springs, Colorado

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract Claims lie in Sec. 20,21, 28, and 29, Twp. 36S Range 24 SLBM (Rec. Loc. notices)- Ring Comb #3 and #4--Book 97, page 233 Ring Comb #7 and #8 -Book 97, page 235. Ring Comb # 9 Book 107, Page 105 Extra information on extra sheet #1

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

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

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

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

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

4. *Physical description.*—(*a*) Describe in detail any mining or exploration operations which have been or now are being conducted upon the land, including existing mine workings and production facilities. State your interest, if any, in such operations. Also describe accessibility of mine workings for examination purposes. Answered on extra sheet #2

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

[X] Money [X] Use of equipment owned by you [X] Other Use of equipment owned by my supervisor.

Explain in detail on acompanying paper.

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Otto J. Worrell,
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RECEIVED
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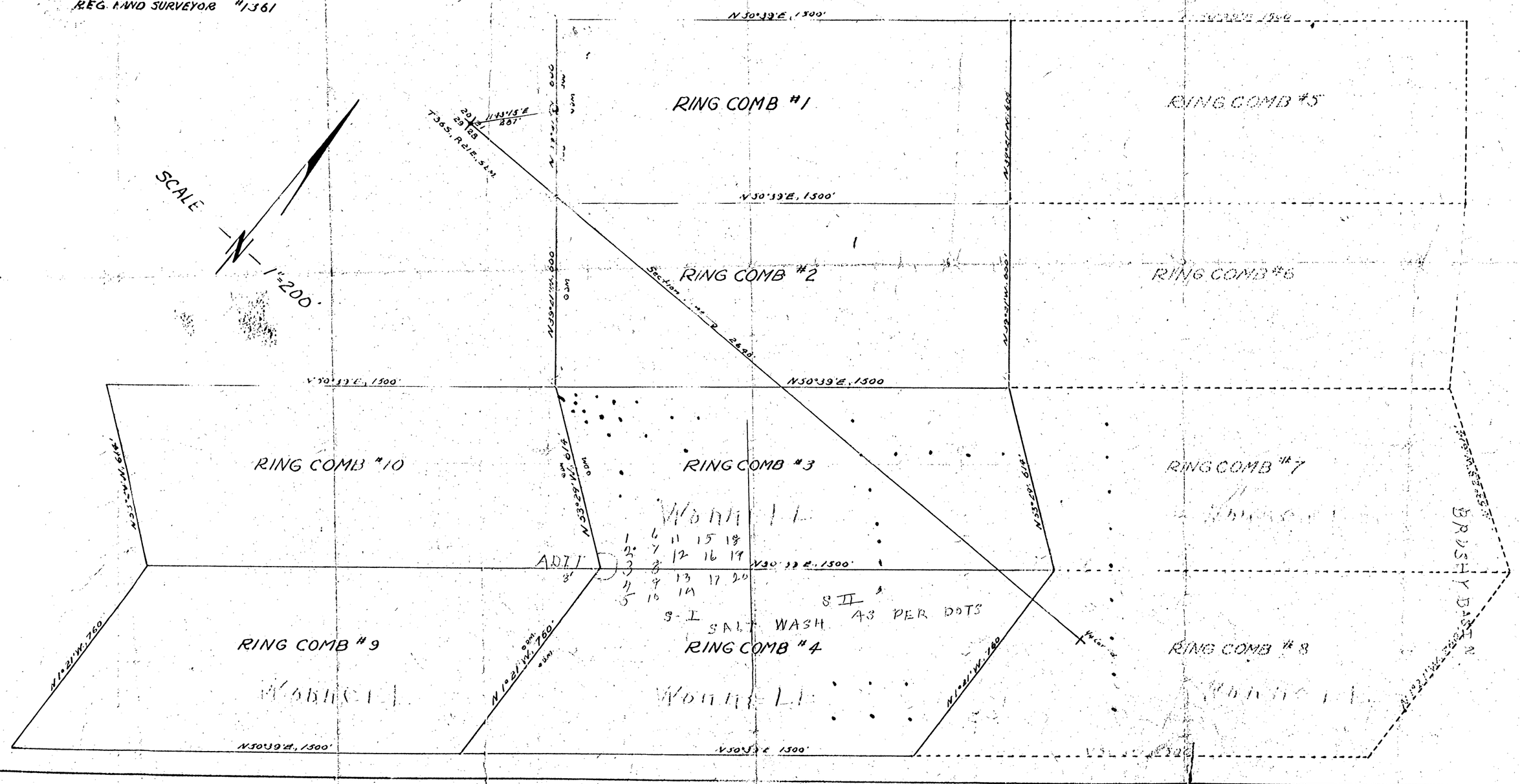
SURVEY FOR VOEGELY & WORRELL

OF GLENWOOD SPRINGS, COLO.

IN SECTIONS 20, 21, 28, & 29, T36S, R21E, S.L.B.M.

SAN JUAN SURVEYING SERVICE
MONTICELLO, UTAH
JUNE, 1954

REG. LAND SURVEYOR #1361