224 New Customhouse
Denver 2, Colorado

July 21, 1959

Memorandum

TO: Chairman, Operating Committee, OME

From: OME Field Team, Region III

Subject: Docket OME 6013 (Uranium) Bill Ladusau, (Freddie Markle Property) San Juan County, Utah

Enclosed are the original and two copies of a Geologic Report Dated July 1959, by J. William Hasler, Geologist, Geological Survey, and member of the OME Field Team, Region III, and his memorandum dated July 17, 1959, transmitting the report pertaining to the subject docket. The Bureau of Mines did not participate in preparation of the report.

Sufficient information was at hand so that an on-site examination of the property, in conjunction with the application was considered unnecessary.

I concur in Mr. Hasler's conclusions, which are to the effect, that the possibilities of disclosing significant deposits of uranium ore by the proposed exploration work are too remote to warrant Government participation in the costs of the project. I further concur with the recommendations in the report that the application be denied.

Original signed by
J. W. TOWNSEND

By_____
J. W. Townsend
Executive Officer

Enclosure
JWT:ltm
cc: D.D. Baker, AEC (2)) w/cpy of
Hasler) rept.
OME/DFC)
DMR/DFC)
Docket OME 6013)
Chron.

IN REPLY REFER TO:

OME
DEPARTMENT OF THE INTERIOR
JUL 20 1959
REGION III
DENVER, COLORADO

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Office of Minerals Exploration
Denver Federal Center
Denver 25, Colorado

July 17, 1959

Memorandum

To: Executive Officer, OME Field Team, Region III

From: J. W. Hasler

Subject: Transmittal of a Geologic Report on OME Docket 6013, Bill Ladusau, Freddie Markle property (Uranium), San Juan County, Utah

Enclosed are nine copies of a geologic report for transmittal to the Chairman, Operating Committee, OME, concerning the Freddie Markle property, San Juan County, Utah.

The general area surrounding the Freddie Markle property was extensively known by members of the Grand Junction OME office through having made numerous prior field examinations as well as conducted several DMEA contracts in the area. Enough data was on file to complete an examination report without making an actual field examination, since such an exam would be merely a token trip.

The enclosed report serves as an examination report. No participation by the U. S. Bureau of Mines was deemed necessary since a denial of the application was eminent.

A detailed study of the application, results of drilling, and a review of the geology in the immediate area as well as on the Freddie Markle property strongly indicate that the chances of finding ore of significant size and grade at depths of 700 feet are not good. Salt Wash ore deposits in the area are scattered and poddy; consequently, it is recommended that the application be denied without prejudice.

Enclosed also are two copies of Mr. Ladusau's application. We are retaining one copy in this office.

J. W. Hasler

J. W. Hasler

Enclosures

JWHasler:arh

UNITED STATES
DEPARTMENT OF THE INTERIOR

OFFICE OF MINERALS EXPLORATION
REGION III

OME
DEPARTMENT OF THE INTERIOR
JUL 20 1959
REGIONAL
DENVER, COLORADO

OME 6013

Bill Ladusau

Freddie Markle Property

San Juan County, Utah

Uranium

Geologic Report

by

J. William Hasler
Geological Survey

July 1959

CONTENTS

	Page
Introduction and summary	1
Location, topography, and physical features	2
Ownership and extent	3
Present status, history, and production	3
Geology	4
Structure	5
Ore deposits	6
Ore reserves	7
Proposed exploration	8
Conclusions and recommendations	10

ILLUSTRATIONS

Figure	Follows page
1. Map showing location of Freddie Markle property, San Juan County, Utah. OME Docket 6013	2
2. Generalized geologic map showing ore trend from the Rattlesnake pit on the Freddie Markle property, San Juan County, Utah	10

GRE 6013

BILL LADUSEAU
FREDDIE MARKLE PROPERTY
SAN JUAN COUNTY, UTAH

INTRODUCTION AND SUMMARY

The applicant, Mr. Bill Laduseau, applied for Government assistance on May 19, 1958, to explore for uranium on the Freddie Markle property located in secs. 6 and 7, T. 29 S., R. 24 E., Salt Lake meridian, San Juan County, Utah.

Mr. Laduseau and Mr. John Hill, the applicant's geologist, contacted and discussed the proposed project with the personnel of the Grand Junction office of DMEA prior to preparing their application.

The general area of the Freddie Markle property was known extensively by members of the Grand Junction DMEA office through having made numerous prior DMEA examinations as well as conducting DMEA contracts in the area. As a result of having considerable information on hand regarding the geology and mineral deposits of the area, it was thought that enough information was available in the files to complete a report on the property without making an actual field examination since any program that may be done would, of necessity, be a diamond drilling program. Consequently, it was deemed advisable to complete the report without a field examination.

The applicant proposed a two-stage program to explore for uranium at depths of 700 feet in the underlying Salt Wash member of the Morrison formation. Preliminary drilling was completed and evaluated. Assay

results from the drilling proved disappointing, and the ore trend extending northeastward from the Rattlesnake pit appears to weaken due to faulting and favorability as well. It is concluded that the chances of finding ore deposits of significant size and grade on the Freddie Markle property at depths of 700 feet are not good, and it is recommended that the application be denied without prejudice.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The Ladusau lease is located approximately 3 miles southwest of La Sal, San Juan County, Utah, in secs. 6 and 7, T. 29 S., R. 24 E., Salt Lake Base Meridian (fig. 1).

The property can be reached from Moab, Utah, by traveling U. S. Highway 160 south to La Sal Junction, a distance of 22 miles. State Highway 46 is then followed 6.8 miles eastward to the junction of a paved road which leaves Highway 46 to the south. A mile south on this paved road a road turns west leading to the Rattlesnake mine and trailer park. The road to the Freddie Markle property leaves the Rattlesnake road 0.7 mile to the west. A dirt road to the northwest can be followed to the southern part of the property.

The surface of sections 6 and 7 is, in general, low rolling hills covered with sage and bunch grass. There are pinon and cedar trees along the low ridges.

In the extreme northwest and along the southwest boundary there are two steep canyons, but they are of minor importance compared with the general topography which has a maximum relief of some hundred feet.

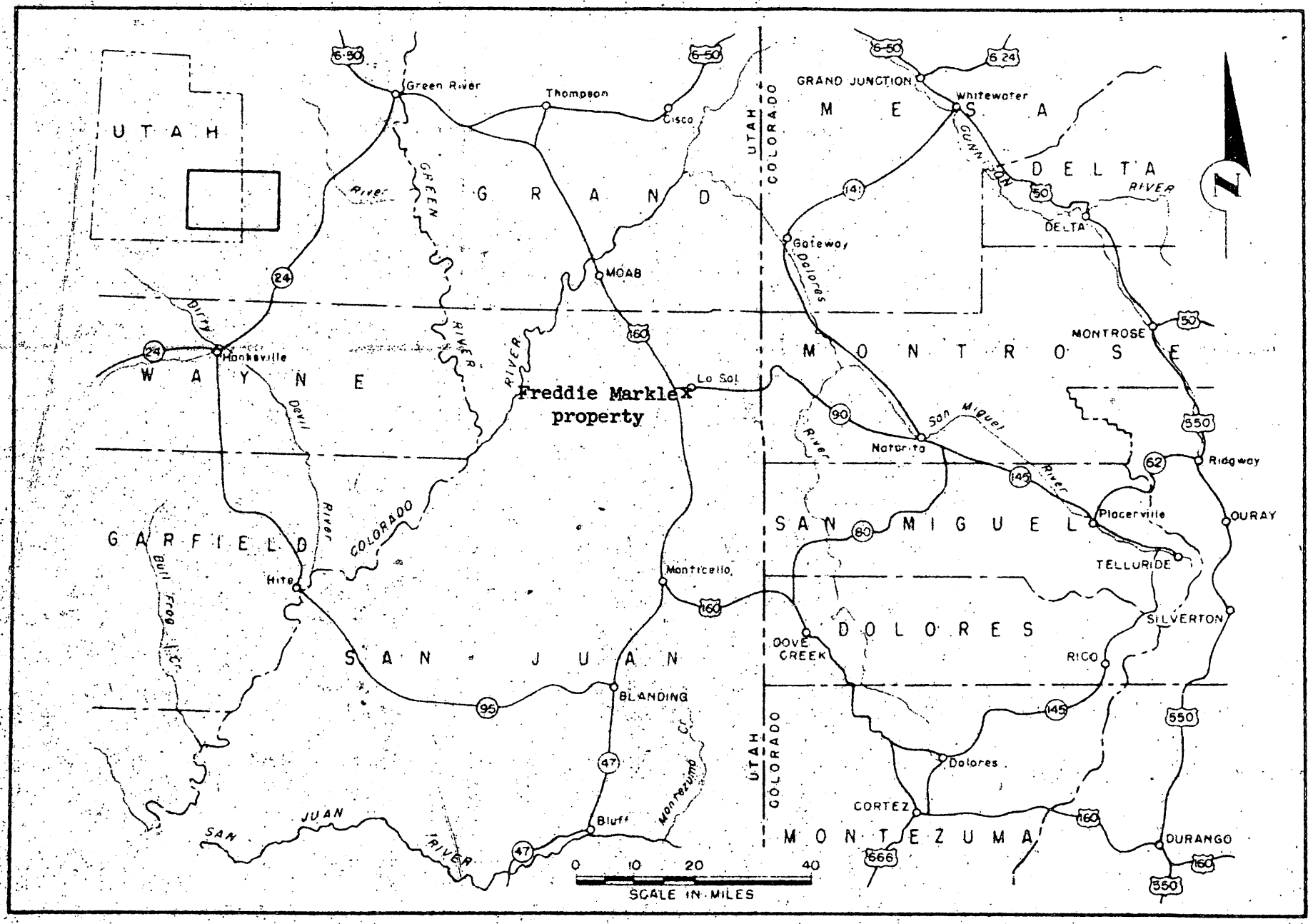


FIG. 1. MAP SHOWING LOCATION OF FREDDIE MARKLE PROPERTY, SAN JUAN COUNTY, UTAH. OME DOCKET 6013.

There are two high voltage power lines crossing the property, one from the northwest and the other from the northeast. These power lines each have a transformer on the property from which power is distributed to the various mines in the area.

There are two small earth dams in the southern part of the Lease constructed for watering cattle. Additional water would have to be brought to the property or developed from wells.

OWNERSHIP AND EXTENT

Bill Ladusau, P. O. Box 61, Enid, Oklahoma, is the sole owner of a lease to all mineral rights, excluding oil or gas, on the subject property, as evidenced by a copy of said Lease agreement by and between the Superior Uranium Corporation of Provo, Utah, owner of the mineral rights, and Bill Ladusau. Certain portions of the Ladusau lease are included in the following patented land numbers: 705679, 919767, 924191, 1088346, and 1146499.

PRESENT STATUS, HISTORY, AND PRODUCTION

No production has been made from the Freddie Markle property, and to date only nine diamond drill holes have been drilled to test the property. Results of the drilling were disappointing insofar as the examining team is concerned.

There is no mining equipment or other facilities on the property.

GEOLOGY

The Freddie Markle property, San Juan County, Utah, leased by the applicant, lies in sec. 6 and 7, T. 29 S., R. 24 E., Salt Lake Meridian, and is underlain by the Burro Canyon formation of Cretaceous age, and subsequently the Morrison formation of Jurassic age. The Freddie Markle property is located at the northwest end of the Lisbon Valley anticline, which is a northwest-trending collapsed salt anticline that has been transected longitudinally by a normal fault known locally as the Lisbon Valley fault. The fault which strikes N. 65° W. and dips about 55 degrees northeast brings the Hermosa formation of Pennsylvanian age in contact with the Morrison formation of Jurassic age. Maximum displacement on the fault is about 4,500 feet in the southern end of Lisbon Valley, but near the Freddie Markle property the throw ranges from about 1,500 feet to less than 250 feet.

The Burro Canyon formation crops out at the surface, strikes N. 35° W. and dips NE about 5°, and extends from 80 feet to 138 feet in depth on the southwest corner of the property as shown by eight recently drilled holes but averages 121 feet in thickness.

The Burro Canyon formation is composed of light brown massive and crossbedded, fine- to medium-grained sandstone and conglomeratic sandstone. The lower part of the formation consists mainly of white to light-gray very fine-grained hard quartzitic sandstone which is extremely resistant to weathering and drilling.

Immediately underlying the Burro Canyon formation is the Brushy Basin member of the Morrison formation of upper Jurassic age, and ranges from 347 feet to 454 feet in thickness, but averages about 375 feet thick. The Brushy Basin member is composed of red and green mudstone, siltstone, and red and red-brown sandstone and locally conglomeratic sandstone.

Unconformably underlying the Brushy Basin member is the Salt Wash member of the Morrison formation of Jurassic age, the principal target for uranium ore on the Freddie Markle group. The Salt Wash member is about 325 feet thick in the area, but the applicant proposes to penetrate the two uppermost sandstone units of the Salt Wash member. The upper part of the Salt Wash member consists of one to two light brown to white fine- to medium-grained sandstone lenses totaling 40 to 100 feet thick. Uranium-vanadium-bearing green mudstone and some light gray "marl" is associated with the sandstone.

Structure

The structure in the immediate area is that of a simple regional dip to the northeast of 3 to 5 degrees into a broad syncline. In detail, several high angle faults complicate the structure (fig. 2). The southernmost fault strikes westerly and strata are displaced downward to the north about 150 feet. A group of faults to the northeast strike northwesterly. Along the southwesternmost of these, strata are displaced downward to the southwest about 30 feet. The strata here dip about 3° to the southwest and west as seen in the mine workings of the Rattlesnake No. 2 mine. To the northeast of the Rattlesnake No 2 mine drill hole data indicate a

zone of minor step faults which apparently terminate along a major fault and fault zone which extends northwesterly into the Old Texas claim (DMEA Docket 4362) (fig. 2). Displacement along this fault apparently is about 200 feet. Strata of the Burro Canyon formation on the east are in juxtaposition with strata of the Brushy Basin member on the west.

ORE DEPOSITS

The upper sandstone units of the Salt Wash member of the Morrison formation contain the major uranium and vanadium deposits in the immediate area and considerable ore has been produced from the Rattlesnake pit to the southwest as well as in the Browns Hole area to the northwest. The uppermost ore-bearing lenses are from 15 to 20 feet below sandstone and sandy siltstone identified as Brushy Basin. The upper lens is most commonly about 40 feet thick and where underlain by a second sandstone lens is separated from it by about 20 feet of red and gray-green mudstone. The lower sandstone is commonly also about 40 feet thick. Where the intervening mudstone is absent, in the vicinity of the Rattlesnake pit, there is but one layer ranging from 80 to 100 feet in thickness. Ore reserves in the single thick sandstone lens are reported to be nil.

Extensive drilling in the area between the Rattlesnake pit and the Freddie Markle property as well as in the Old Texas claim group that lies between the Rattlesnake pit and the applicant's property has shown a series of northeasterly trending belts of mineralized ground. Ore bodies, mineralized ground, and barren ground lie within the belts. There is some mineralized ground outside of the belt to the northeast, but most of this

ground is barren and has little potential for ore. The drilling has proven rather disappointing in that some favorable Salt Wash has been penetrated, but for the most part little or no ore-grade material has been discovered, and indications are that the favorable ground dies out northeastward along the trend from the Rattlesnake pit to the Freddie Markle property. The ore bodies found are too small, scattered, and too low grade to mine from depths of 700 feet. The ore deposits of the Rattlesnake pit and the Rattlesnake No. 2 mine each comprise several ore bodies. It is the clustering of these ore bodies that has made them economically attractive.

Correlation of holes drilled in the intervening area suggests that the sandstone units are more lenticular. Evaluation of the ground as to favorableness for ore is difficult because of the lack of descriptive data, but some of the holes tentatively are considered only semi-favorable for ore, for red mudstone is associated with the ore-bearing sandstone. It is believed that any ore bodies which may exist in the Freddie Markle property would be too small and scattered to be mined at depths in the neighborhood of 700 feet.

ORE RESERVES

There are no known ore reserves on the Freddie Markle property, and no reserves have been developed from eight previously drilled holes in the southwest corner of the property, which may be on the projected northeast trend of ore found in the Rattlesnake pit and mine.

PROPOSED EXPLORATION

The applicant has proposed a two-phase program to explore the first and second sandstone units of the Salt Wash member of the Morrison formation for possible ore deposits at a depth of approximately 700 feet. Phase I drilling is designed to intersect the probable projected trend of mineralized material that was mined from the Rattlesnake pit, by drilling three fences of holes trending north 45° west. The first phase is estimated to require 13 holes, having an average depth of 700 feet of which 600 feet will be non-core drilling and 100 feet will require core drilling. The estimated total footage of Phase I drilling will be 9,100 feet. Estimated cost for Phase I is $52,875.00 or approximately $5.81 per foot.

The applicant has drilled eight holes and has included them in the lines of fences thus far proposed (fig. 2). The requested 13 holes will be drilled with the previous drilling results in mind, according to the applicant.

Phase II drilling is estimated to require 10 holes, depending, of course, upon the results of Phase I drilling. The total estimated cost for both phases of drilling is $95,447.50. Total footage estimated will be 16,100 feet or $5.92 per foot. Government share on a 50 percent participation basis will be $47,723.75.

Previous drilling in the eight holes completed during March and April 1958 penetrated the first and second sandstone units of the Salt Wash formation, approximately on the ore trend from the Rattlesnake pit operations. The applicant reports that the "second rim," the most favorable rim, was

found to contain all the favorable criteria for finding uranium ore deposits, including color, thickness, alteration, etc.; however, assay data from the drilling have proven most discouraging. Assays range from a high of 0.02 percent U_3O_8 to a low of 0.006 percent U_3O_8, and averaging 0.0156 percent U_3O_8.

Appraisals of properties in the area between the Rattlesnake pit and the Freddie Markle property show the Salt Wash to become less favorable for the occurrence of ore deposits, not only because of depth but due to continued faulting which may well preclude the northeastward extension of the Rattlesnake ore trend. If the assays as shown in the preliminary drilling are indicative of what is to be found on the Freddie Markle property, the chances of finding any uranium deposits of the size and grade to be profitable are not good. Present costs of mining in the Lisbon Valley area are in the neighborhood of $12.00 per ton; consequently, the applicant must discover and block out enough ore with a minimum grade of 0.20 percent U_3O_8 in order to break even, and the grade of material found to date cannot be classified as being hardly mineralized.

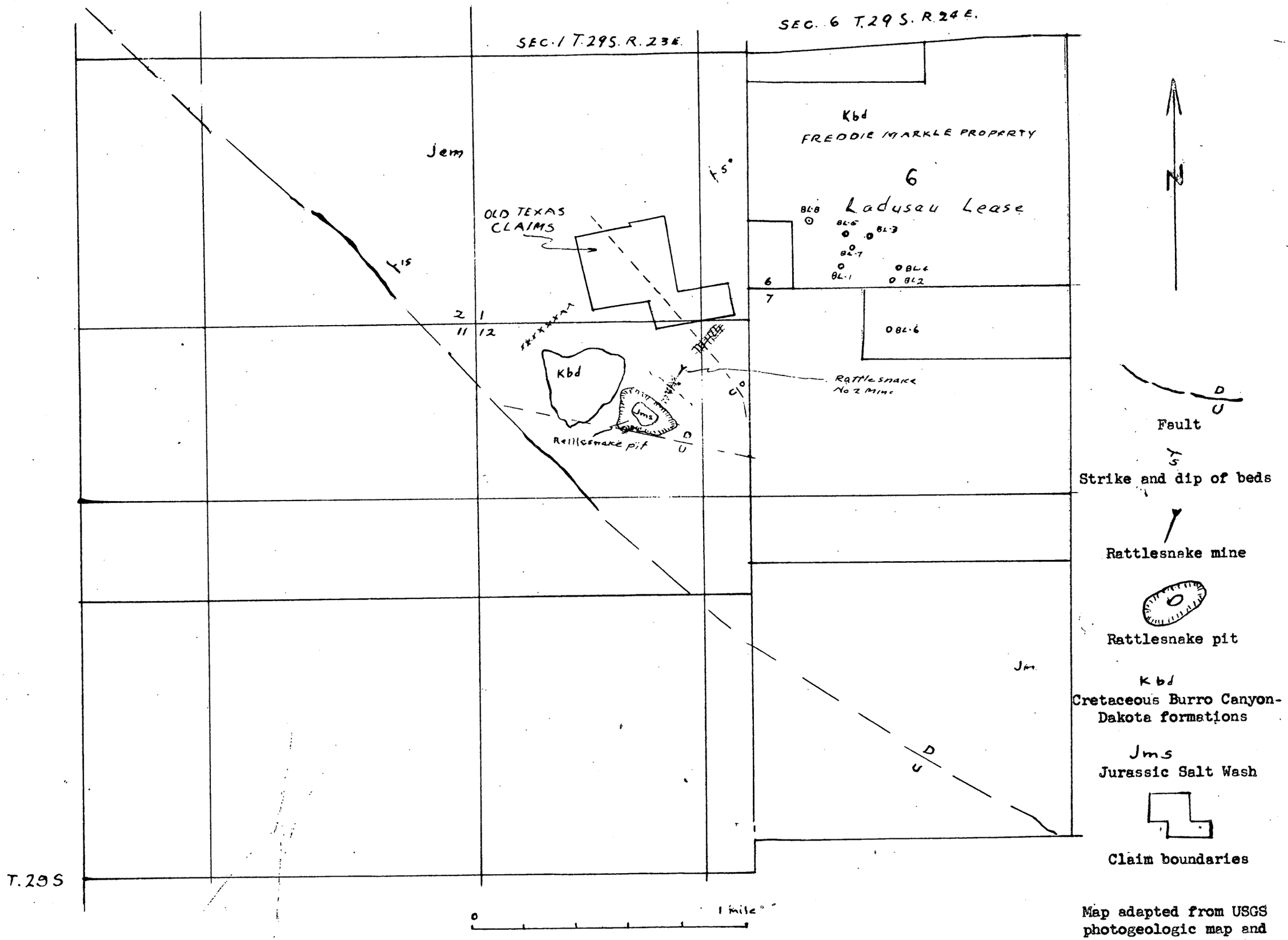
The ore deposits found in the Salt Wash in the Browns Hole area to the north are usually sporadic and spotty in nature. Exploration or development work required to find additional pods of ore usually equals the profits obtained from mining; consequently, the operations are barely self-sustaining except for small leases type operations, so that mining from depths of 600-700 feet with the present findings are not feasible, and it is concluded that the chances of finding ore deposits adequate to

mine at such depths, at a profit, are not likely. Therefore, it is recommended that the application be denied.

CONCLUSIONS AND RECOMMENDATIONS

Evaluation of preliminary drilling and available geologic data from the Freddie Markle and adjacent property show that chances of finding significant ore bodies at depths of 700 feet in the Salt Wash member of the Morrison formation on the Freddie Markle property are not good.

The northeasterly-trending ore zone from the Rattlesnake mine and pit becomes successively weaker as it approaches the Freddie Markle property. Salt Wash deposits in the area are sporadic and poddy in nature and are not likely to yield ore bodies that can be mined at that depth. Therefore, it is recommended that the application be denied without prejudice.



Map adapted from USGS photogeologic map and Old Texas map, DMEA Docket 4362.

FIGURE 2. GENERALIZED GEOLOGIC MAP SHOWING ORE TREND FROM THE RATTLESNAKE PIT ON THE FREDDIE MARKLE PROPERTY, SAN JUAN COUNTY, UTAH